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SUPPLEMENTAL WORKPAPERS TO

PREPARED DIRECT TESTIMONY

OF DANE A. WATSON

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

VOLUME 13

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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SDG&E BESS Decommissioning





SDG&E Battery Energy Storage System

Decommissioning Plans and Study

January 2022

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1. Executive Summary

The purpose of this document is to provide an overall plan and cost estimate for activities that will occur during the decommissioning phase of SDG&E Battery Energy Storage System (BESS) for the following projects:

- Borrego Microgrid 1 (Parker/Saft), 2100 Borrego Valley Road, Borrego Springs, CA 92004
- Borrego Microgrid 2 (ABB/Saft), 2100 Borrego Valley Road, Borrego Springs, CA 92004
- Escondido BESS, 571 Enterprise St, Escondido, CA 92029
- Eastern BESS, 904 W. Main St, El Cajon, CA 92020
- Top Gun Energy Storage, 6875 Consolidated Way, San Diego, CA 92121

Activities related to the restoration of land, the management of materials and waste will be considered in this document including:

- Permits, Certifications & Training
- Equipment Dismantling and Removal
- Removal and Recycling of the Battery Energy Storage Modules
- · Removal of the Ancillary Electrical Systems
- Removal of Equipment Pads, Supports, Gravel and Perimeter Fence
- Site Restoration
- · Environment Impacts

This plan is based on current best management practices and procedures. It will be updated as necessary based on new information and developments at the time of decommissioning.

A typical division of responsibility (DOR) for a BESS decommissioning project is provided in Appendix 1. Overall project schedule for completing the BESS decommissioning project is provided in Appendix 2. Overall project details for each ESS decommissioning project can be found in Appendix 3. Cost estimates for each BESS decommissioning project can be found in Appendix 4.

2. Project Details and Cost Estimating

The details required to plan and estimate a BESS Decommissioning Project are provided in Figure 1. In addition to these inputs the applicable local county codes and standards as well as state and federal regulations will need to be considered.

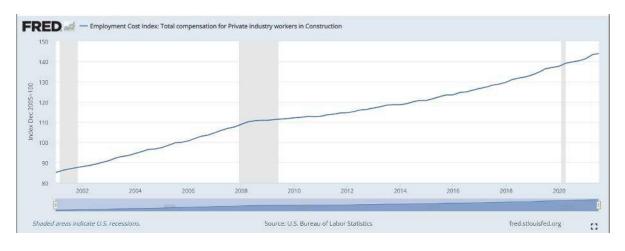
Figure 1 - Plan Detail Inputs

Input Data	
Battery	Battery Make/Model Battery Chemistry Battery module weight (lbs) Battery Module Length (in) Battery Module Width (in) Battery Module CATL Liquid Cooled? Number of battery racks per container Number of battery modules per rack
Enclosure	Number of battery enclosures (EOL) Estimated weight of battery enclosure without battery modules (lbs) Battery enclosures HVAC cooled (wall or roof mount)? Number of HVAC/Chiller Units per battery enclosure Clean agent fire suppression installed in enclosure?
Inverter/PCS	Are Inverters/PCS pad mounted? Number Inverters/PCS to be decommissioned Is isolation transformer integrated with PCS? Estimated weight of inverter/PCS (lbs) Inverter/PCS width (in) Inverter/PCS length (in) Are inverters/PCS liquid or air cooled?
Transformer	Number of isolation transfomers (pad mounted or integrated) Estimated weight of empty transformer (lbs) Are there oil filled transformers? Gallons of oil per transformer
Labor	Average Site Labor Cost (\$/hr)
Logistics	Shipping distance from site to battery recycling facility (miles)
Schedule	Estimating Year Decommisioning Year Escalation (average ECI value since 2002)

The layout of the major equipment and access to the site are also important factors in determining final costs. These estimates assume there is adequate access to all sites and no obstructions need to be removed.

Labor cost estimate is based on a fully burdened rate for a qualified union electrician hired by a General Contractor. The rate assumes some overtime will applied during the decommissioning project.

Since these projects do not require a supply of new materials, the majority of the costs is due to the labor component. Therefore, the Employment Cost Index is used for price escalation. Using the following data one can determine the ECI for construction workers to be 2.5% on average for the last 20 years. For this study, the next 20 years will be assumed to follow a similar trend.



Source: U.S. Bureau of Labor Statistics 🗹 💮 Release: Employment Cost Index 🗹

Units: Index Dec 2005=100, Not Seasonally Adjusted

Frequency: Quarterly

Includes wages, salaries, and employer costs for employee benefits.

Suggested Citation:

U.S. Bureau of Labor Statistics, Employment Cost Index: Total compensation for Private industry workers in Construction [CIU20123000000001], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/CIU20123000000001, November 15, 2021.

2.1. Battery Container

All of the systems in this study are composed of containerized batteries in various types of enclosures designs. All of the enclosure are assumed to be within standard shipping dimensions

2.2. Battery Pack

The fundamental unit of a battery pack is the battery cell, where potential electrical energy is stored as chemical energy. The battery pack cells wired in series. The battery cells utilize lithium-ion based chemistry. Each battery pack contains a battery pack controller, which collects voltage and temperature data from the battery cells and reports to the string controller. The battery pack controller is comprised of power supplies, power resisters, heat sinks and various other electronic circuits for controlling battery performance.

2.3. HVAC System

Battery container thermal management is provided by an HVAC system composed of one or more vertical wall-mounted air conditioning units. The HVAC units utilize R-410a refrigerant. Refrigerant 410A is not RCRA listed hazardous wastes but is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

2.4. Fire Suppression System

Fire suppression units are assumed to be a dry agent. The cannisters of dry agent will need to be removed and disposed of per manufacturer's instructions and applicable regulations

2.5. Power Conversion System

The PCS/Inverters vary in size and configuration for all projects in this study. The inverters may be skid mounted units installed on concrete foundations or housed in the battery containers. Some inverter types may use forced air cooing systems which utilize R449A refrigerant, or equivalent. Refrigerant R449A is not RCRA listed hazardous wastes but is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

2.6. Additional Equipment

Additional balance of plant equipment on site include oil-filled pad mount isolation transformers, control equipment enclosures, switchgear, dry-type transformers, and automatic transfer switches. At end of life, the transformers offer the potential for refurbishment and reuse, while the balance of equipment is electronic waste that will be managed appropriately.

3. Applicable Regulations, Certifications & Training

Decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with applicable federal, state, and local permits.

3.1. Environmental Quality & US DOT Regulations

California Administrative Code adopts the US EPA Universal Waste rule in its entirety. Batteries in the decommissioned system destined for recycling are considered by the US EPA Resource Conservation and Recovery Act (Code of Federal Regulations, Title 40, Part 273) as Universal Waste.

The Project Owner will obtain an EPA ID number in advance of decommissioning the system as more than 5000 kg of universal waste will be accumulated (Code of Federal Regulations, 40 CFR 273.32).

Lithium-ion batteries are classified by the US Department of Transportation (DOT) as Class 9 hazardous materials. All requirements related to the packaging, labelling and transportation contained in the Code of Federal Regulations, Title 49, Subchapter C, Parts 171-180, will be followed.

3.2. Municipal Codes

The Projects reside in multiple counties in CA. Most have adopted the International Building Code with Amendments. Per the building code, a building permit must be obtained for any construction, alteration, repair, demolition, or change to the use or occupancy of a building. Accordingly, a building permit may be required prior to decommissioning of some sites. Notification of decommissioning to the AHJ/Fire Marshal may also be required during permit processing.

County ordinances regulating Stormwater Quality Management and the Discharge of Stormwater mandates post-construction stormwater measures and practices must be evaluated and planned for. A stormwater management permit may be required at project initiation to comply with the Ordinance. This permit requires the landowner to maintain any and all storm water measures and practices identified in the construction plan that were intended to remain in place after construction activities have been completed. It is not expected significant ground-disturbing activities will occur during decommissioning: therefore, a revised permit may not be required.

Because the decommissioning is expected to occur at a later date, the permitting requirements listed above will be reviewed and updated based on current local, state, and federal regulations at the time.

3.3. Certifications & Training

The handling of lithium-ion batteries will be performed by employees who have completed hazmat training applicable to their function (Code of Federal Regulations 49 CFR 172.704).

All workers who perform electrical work, including lockout/tagout and electrical disconnection, will be NFPA 70E electrical safety certified.

All hazardous wastes will be transported using appropriate waste manifests by certified waste carriers to a US EPA certified Treatment, Storage or Destination Facility.

4. Decommissioning Activities

At the time of decommissioning the installed equipment will be removed, repurposed, disposed of and recycled where possible. The facility will be restored to a state similar to its preconstruction condition. The removal of equipment and material will be done in accordance with the applicable regulations and manufacturer recommendations.

Prior to decommissioning, the facility will be deenergized and disconnected from the grid in coordination with all applicable parties. Generally, the decommissioning of the facility proceeds in reverse order of the original installation as follows.

4.1. State of charge at decommissioning

The battery energy storage system should be discharged to a state of charge as low as reasonably achievable. Although there is currently no restriction on the state of charge for ground transportation of lithium-ion batteries, the generally accepted practice is to reduce it as low as possible to minimize the hazard during handling and transport. If the batteries will be reused, follow manufacturer's instructions regarding depth of discharge to prevent cell damage.

4.2. System shutdown and disconnection

Before the system can be dismantled or removed, it will need to be shut down and disconnected from the utility system in accordance with the manufacturer's/integrator's procedures. This will include a final inspection of the system, system shut-down, and physical disconnection of the systems electrical components.

4.2.1. General Lockout/Tagout Procedures and Sequence

A general lockout/tagout (LOTO) sequence for isolating the BESS is provided below. Original Equipment Manufacturers provide equipment-specific LOTO procedures that will be used for equipment decommissioning. These LOTO procedures provide safe work processes and procedures compliant with OSHA standards 29 CFR 1910.147 and 29 CFR 1910.333 for the control of hazardous energy and the protection of employees working on electric circuits and equipment.

BESSMainsandDCPowerLOTO

Discharge battery modules to minimum SOC prior to starting LOTO.

Open and Lockout BESS Feeder Breaker to de-energize AC Mains to BESS Feeder

Maintain Aux Feeder Breaker closed to maintain HVAC/FSS systems operational until battery modules are removed.

Turn inverter OFF and open and lockout DC or AC input breakers.

Open and lockout DC disconnect in each battery enclosure to the associated to inverter.

Open and lockout AC breaker supplying power to battery switchgear inside of each the battery enclosure LV power distribution panel.

Remove DC battery string power cables (NOTE: Only Electrically qualified Electricians can perform this operation. This is an arc flash hazard requiring HRC3 or greater PPE).

Remove battery modules and package for shipment.

AuxiliaryPowerLOTO

Open and lockout Aux Feeder Breaker and any associated Load Break Switches

Disconnect and Remove 125VDC power batteries

Disconnect and remove UPS battery in Control Room

Disconnect and remove Fire Control Panel backup batteries in each battery enclosure

Turn off and disconnect backup generator

Disconnect and remove all power and control cables and prepare equipment for removal

12/12.47KVPowerLOTO

Open and lockout Substation BESS Main Feeder breaker.

Remove Utility supplied equipment and meters and connections

Remove MV switchgear and associated power and control cables

4.3. Battery removal

Battery modules will be removed from their racks and packaged as described below. Occupational Safety and Health Administration (OSHA) standards for safe lifting of heavy loads will be strictly followed. Multiple workers will be used as needed to safely remove the battery modules.

Lithium-ion batteries will be packaged in a manner to prevent short circuits, movement within the outer package, and accidental activation of the equipment.

The batteries will be palletized and packaged in accordance with the requirements of 49 CFR 173.24 and 173.24a. The packages containing the batteries will be marked and labelled in accordance with 49 CFR 173.185, Subparts D and E. Considerations for damaged batteries are provided in Section 7.0.

Battery recycling will be completed using a hydrometallurgical process. Large battery packs first go through a manual disassembly process where technicians will carefully dismantle the pack, separating assembly pieces and circuitry from the battery cells. The separated cells are then fed by conveyor to an automated crusher. This crusher, which operates under a liquid solution to prevent fugitive emissions and to reduce the reactivity of processed batteries, produces three types

of materials: metal solids, metal-enriched liquid, and plastic fluff. The metal solids and metalenriched liquid contain materials that can all be used as raw materials in new products.

4.4. HVAC System

Refrigerant R410a is not RCRA listed hazardous wastes but is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling. The refrigerant will be removed by a certified technician who will ensure that the refrigerants are not exposed to atmosphere while decommissioning the chiller and safe disposal of refrigerants comply with EPA regulations 40 CFR part 82, Subpart F.

HVAC units will be removed from the containers per OEM procedures and sent to a metal recycler separately, or they will be sent with the container to an off-site metal recycler/reclamation facility.

4.5. Fire Suppression System

The fire suppression cannisters are generally units that may be connected via piping to centralized tanks or self contains. Typically fire suppression systems used FM200, Novec 1230, or Stat-X. For FM200 and Novec 1230 system cannisters are removed and sent back to qualified fire equipment installers for disposal/re-use.

Before disposing Stat-X canisters to landfill, they need to be processed to deactivate the materials. Per the Manufacturer the following methods shall be used to deactivate Stat-X canisters.

Note: Stat-X fixed aerosol fire suppression units are UN Class 1.4S devices (or Class 9 safety devices with US DOT special permit DOT-SP 20600) sealed in a stainless and insulated container of double wall tube construction. Orifice holes are hermetically sealed with a metalized polyester film.

Stat-X aerosol forming molded pellet compounds are blended and pressed mixtures of dry potassium nitrate, dicyandiamide, and organic resin. These chemicals are more soluble in hot water than cold water, and dissolves most rapidly in boiling water (100°C/212°F). The electric initiator also includes a silicon capsule filled with crushed and ground aerosol forming compound. This mixture is also soluble in hot water.

The following steps must be performed to safely decommission Stat-X aerosol generators:

- Prior to performing the following steps ensure that the generator flying leads are grounded together (copper leads are twisted together). GENERATORS THAT ARE LIVE MUST HAVE INITIATOR LEADS KEPT AWAY FROM ANY LIVE ELECTRICAL SOURCES. Subjecting leads to any electrical current or voltage source may cause the generator to discharge.
- 2. Safely place the generator in a securing device such as a belt or rubber grip table vice with the discharge ports pointed upward.

 Using a Phillips tipped screwdriver or other such device puncture the membrane seal in each of the discharge ports as pictured below. Be sure each port is completely opened.

- 4. Fill a wateproof container such as a 5 gallon pail (or larger drum for 8" diameter generators) with hot or boiling or continuously heated water. Remove the generator from the securing device and submerge it in the water filled container. Allow water to enter the generator through the open discharge ports.
 - Repeat steps 1, 2 and 3 with other generators always placing them in the water filled container in horizontal or orifice facing upward. However, keep in mind that all generators must be fully submerged during the decommissioning process. Beware of scolding hot water and hot container.
- 5. Leave the generator(s) submerged in hot water for no less than 24 hours allowing the water to penetrate the generator and soak the internal components. During this process the water will dissolve the generator aerosol forming pellet compound. Drain and replace with fresh hot or boiling water as practical.

Warning: Always wear water proof gloves and eyewear protection when handling units in water solutions with dissolved chemicals. Avoid chemical solution contact with eyes or skin. Wash hands following operation.

- 6. Remove the now inert unit(s) from the water filled container.
- 7. Dispose of each unit and waste water by following local waste disposal regulations.

4.6. BESS Containers

All external additions such as stairs or railings will be removed and shipped separately as necessary to meet standard ISO container shipping dimensions. All loose components will be removed and anchoring will be removed to permit container to be lifted from the site. The container will be lifted by crane onto a flatbed or standard ISO container chassis for shipment to recycler/reclamation facility.

4.7. Power Conversion System

PCS units or portions of it can potentially be returned to the manufacturer or for secondary use in other projects. Alternatively, the PCS units will be sent to an R2-certified waste electronics salvage facility, where they will be able to remove the IGBTs and other power electronics for metal recovery. The R449A refrigerant in the PCS forced air cooling system will be removed by a certified technician who will ensure that the refrigerants are not exposed to atmosphere while decommissioning the chiller and safe disposal of refrigerants comply with EPA regulations 40 CFR part 82, Subpart F.

4.8. Transformers

Oil-filled transformers of this type typically have potential resale value, which will be pursued as the preferred outlet for this material. Should resale not be possible, transformer oil will be drained and sent to a waste oil processing facility for proper management. The transformer will be sent to a metal recycler or metal smelting facility for further processing and reclamation.

4.9. Additional Equipment

Control enclosures, automatic transfer switches, dry-type transformers and switchgear all considered electronic waste at end of life. Metal structures that can be easily separated will be sent to metal recyclers for reclamation. The balance of the electronic equipment will be sent to a certified R2-certified electronic waste recycler for proper management.

4.10. Electric Conductor Removal

Electrical conductors/wiring will be removed from above ground and underground locations. Underground conduit, pull boxes, trenches, and duct banks will be plugged/filled and abandoned in place. All electrical conductors removed will be recycled. All above grade conduits will be sent to metal recycler.

4.11. Fencing removal

Fencing material will be broken down into manageable units, removed from facility sent to an approved recycler. All posts driven into the ground will be pulled and removed.

4.12. Foundation Removal

Augured foundations and concreate slabs used as equipment pads will be broken and removed to grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site. Equipment foundations poured over existing pavement will be removed to existing pavement surface. Holes in existing pavement will be filled/patched.

5. Site Restoration Process Description

Following decommissioning activities, additional grade material will be applied. The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. No reseeding of disturbed areas has been assumed.

6. Environmental Effects

Decommissioning activities have a similar risk of environmental impacts as those associated with construction phase. For example, decommissioning activities may result in the disturbance of soil, and erosion prevention measures will be put in place, so nearby watercourses or other natural features are not impacted. A Sediment and Erosion Control Plan, like that used during construction will be employed. The sediment and erosion control measures will remain in place until the site is stabilized to mitigate stormwater runoff and soil erosion. Temporary impact to roadway traffic similar to those during construction will accompany the decommissioning process. Noise levels similar to those during construction may be heard in the surrounding area while the decommissioning is taking place.

7. Damaged Batteries

Guidelines for safely handling batteries that have been subjected to abnormal conditions during installation or operation are provided below. In some cases, these abnormal conditions may require special care and specific packaging, storage and/or shipment requirements. Such abnormal conditions include:

- 1. Mechanical damage
- Electrical damage
- Thermal damage
- 4. Leaking electrolyte (resulting from either mechanical, electrical damage)

7.1. Mechanical Damage

Mechanical damage to battery modules can occur during handling and the damage may range from superficial scratches to more significant damage (e.g., dents, broken hardware, etc.). In severe cases, mechanical damage of the battery module resulting from severe shocks (e.g., dropping a battery module) can create a flaw in the cell that results in an internal cell fault much later (i.e., after the cell has undergone numerous cycles).

If mechanical damage is evident, or if the battery module is believed to have been subjected to severe shocks (i.e., dropped), take the following actions:

- Quarantine and monitor battery modules that have suffered mechanical damage.
 Mechanically damaged battery modules should be recycled rather than placed back into service.
- If the mechanical damage is severe, check for any signs of leaking electrolyte. If found, following the guidance provided in Section 7.4 below.
- Battery modules that have been mechanically damaged should be packaged and shipped per the guidance provided in Section 7.5 below.

7.2. Electrical Damage

Electrical damage may result from improper operation of the battery module, such as overdischarge, or may result from an internal or external short circuit. Over discharge may occur when the battery module has been fully discharged to the point that overall voltage is too low, or the voltage of individual batteries is much lower than its normal working voltage range. A short circuit could be caused by external means such as improper handling that permits results in the battery terminals shorting together, or from severe mechanical damage that results in an internal short between cells.

In the event of known or suspected electrical damage, take the following actions:

- If the battery module is in operation, shut off the relevant power source and electrical equipment. Shut off the connection between battery and system immediately.
- Quarantine and monitor battery modules that have suffered electrical damage. Electrically
 damaged battery modules should be recycled rather than placed back into service.
- Check for any signs of leaking electrolyte. If found, following the guidance provided in Section 7.4 below.

 Battery modules that have been electrically damaged should be packaged and shipped per the guidance provided in Section 7.5 below.

7.3. Thermal Damage

Thermal damage may occur due to a variety of conditions, including high internal temperatures that may result during operation that cannot be dissipated by the battery cooling system or high ambient temperature during storage that exceed manufacturer's recommendations.

7.3.1. High Internal Temperatures during Operation

Under normal circumstances, when the battery of the battery pack is over-temperature, the heat-removal system of the battery pack will automatically conduct the heat dissipation to make the battery pack cool down to the optimal working temperature range. When the battery pack cannot cool down to the target temperature within the specified time or the temperature of the battery pack exceeds the upper limit of safe use, notify OEM technical personnel to conduct a comprehensive inspection. If the evaluation determines that the excess temperatures may have damaged the battery module, it should be treated as a damaged battery and recycled following the guidance provided in Section 7.5 below.

7.3.2. High Ambient Temperatures during Storage

The battery manufacturer publishes specifications for proper storage of lithium-ion batteries, including ambient temperature ranges. Exceeding the ambient temperature specification can cause battery performance degradation. If it is believed that ambient storage temperatures exceeded manufacturer's specifications, notify OEM technical personnel to conduct an evaluation. If the evaluation determines that the excess temperatures may have damaged the battery module, it should be treated as a damaged battery and recycled following the guidance provided in Section 7.5 below.

7.4. Leaking Cells

The above sections provide recommendations on how to safely manage battery modules that have been subjected to mechanical, electrical, or thermal damage. Any of these scenarios could cause significant damage to the extent that permit electrolyte to leak from the battery cells. Should this occur, the following actions should be taken:

· Evacuate personnel from the area.

If indoor, provide adequate ventilation until after the cell is removed from the area.

· If the cell vented because of excessive heating, it must be allowed to cool to ambient

temperature before handling.

Put on appropriate PPE including lab coat, rubber gloves, safety glasses and respirator.

Place the battery in a container of sand or another chemically inert cushioning material like

vermiculite

Absorb and/or neutralize spilled electrolyte with an absorbent material or baking soda.

Sweep contaminated baking soda or absorbent material into a sealable plastic bag for

disposal.

Clean the area with copious amounts of water or an ammonia- based cleaner.

The resulting waste may be hazardous and subject to specific local, state, and federal

hazardous waste disposal regulations.

7.5. Packaging for Shipment

This procedure is limited to batteries that remain classified as Universal Waste despite the

damage, such as blunt force damage to battery module casing, loose parts, swollen cells, evidence

of short circuit, etc. This procedure does not apply to damaged batteries with leaking cells. Such

batteries must be shipped as a fully regulated hazardous waste.

Before handling battery modules, the following requirements must be observed:

Wear personal protective equipment including eye protection and nonconductive gloves

· Handle all damaged, defective, or recalled batteries with the same responsible care as a

new battery to avoid any further damage.

Do not drop batteries into the packaging or onto the shipping skid/pallet. Set them down

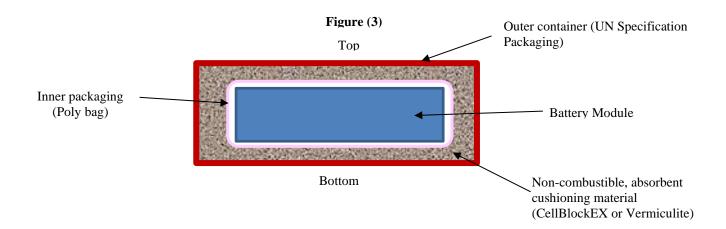
carefully. Use lifting and handling fixtures as needed.

If multiple damaged are being shipped, they may be palletized and stacked provided the

overall weight does not exceed the capacity of the pallet.

7.5.1. Preparing Battery Modules for Shipment

- Damaged, defective, or recalled batteries must be placed in UN specification packaging, which is specially designed and tested packaging that has been demonstrated to withstand the forces typically expected to be encountered during shipment.
- Any battery module or cell that is damaged must be packaged individually. Multiple batteries
 in the same packaging are prohibited unless such packaging is accompanied by a Special
 Permit issued by the US DOT Pipeline & Hazardous Material Safety Administration (PHMSA).
- Battery module dimensions vary significantly by OEM and model. UN specification
 packaging must be procured that is suitable for the size and weight of the battery module to
 be shipped.
- The UN specification Packaging must be constructed of metal, plastic, or wood.
 Corrugated/fiberboard packaging is specifically prohibited.
- Terminals must be electrically insulated using electrical tape or other appropriate means.
- The battery module must be placed inside a non-metallic inner packaging that completely encloses the cell or battery. An anti-static plastic bag is suitable for this purpose.
- The battery module enclosed in the inner packaging must be placed inside the outer UN specification packaging and surrounded by cushioning material that is non-combustible, non-conductive, and absorbent (CellBlockEx or Vermiculite are suitable for this purpose). Refer to Figure 3 for a depiction of a properly prepared damaged battery.
- The battery modules should be set on the skid/pallet in the same orientation they were installed in the battery racks.



7.5.2. Package Labeling & Marking

- Each container must have the correct labeling to meet DOT regulations prior to shipment.
 This is considered a Universal Waste shipment and must be marked as such.
- Affix DOT Class 9 and UN3480 on at least 2 sides.
- Affix a Universal Waste label or clearly write the words "UNIVERSAL WASTE BATTERY" on the package
- Label the package with the Consignor and Consignee Name and Address.
- Write "DAMAGED/DEFECTIVE LITHIUM-ION BATTERY" with black marker on at least one side.
- Do not overlap any markings or labels.
- Do not bend markings or labels around corners of packaging
- Do not put labels on the bottom of the package
- For shipments involving multiple damaged batteries, apply multiple layers of 75-gauge, clear stretch wrap around all four sides of the battery modules.
- Ensure all hazard markings, labels and UN Specification markings are clearly visible after shrink wrapping. If they are not visible, duplicate hazard markings and labels on the outside of the shrink wrap

7.5.3. Record Retention

A large quantity handler of universal waste must keep a record of each shipment of universal waste sent from the handler to other facilities. The record may take the form of a log, invoice, manifest, bill of lading, movement document or other shipping document. The record for each shipment of universal waste sent must include the following information:

- (1) The name and address of the universal waste handler, destination facility, or foreign destination to whom the universal waste was sent.
 - (2) The quantity of each type of universal waste sent (e.g., batteries, pesticides, thermostats).

(3) The date the shipment of universal waste left the facility. A large quantity handler of universal waste must retain the records for at least three years from the date a shipment of universal waste left the facility.

A large quantity handler of universal waste must retain the records or at least three years from the date a shipment of universal waste left the facility.

APPENDIX 1 TYPICAL DIVISION OF RESPONSIBILITY

	Activity	SDGE	Equipment Logistics and Recycling	Site Labor and Decommissionin g Contractor
1.0	Project and Site Management			
1	Overall Project Management		Х	
2	Site Coordination/Site Management			X
3	Coordination Customer Internal Approvals	Х		
	Coordination with Independent System Operators/Utility Company	Х		
5	Coordination with Geo-Tech Engineering if backfill/grading is required			Х
6	Comply with existing Project Labor Agreements			
	Payment of Fees including permits and Disposal of Equipment/Materials to Landfill	X (EPA)		X(Demolition, Landfill)
8	Provide existing site drawings, equipment manuals, equipment quantities, and	х		
0	bill of materials Provide material safety data sheets for all equipment/materials to be removed from site	Х		
		^		
	Provide and maintain insurance for all site related activities per Owner requirements		Х	Х
2.0	Pre-Mobilization Planning			
	Obtain EPA Permit	Х		
	Obtain Demolition Permit			Х
	Obtain Environmental Permits (e.g. AQMD Approvals)	X		
4	Coordination and Notification of AHJs/Local Fire Authorities	Х		
5	Develop and Submit Overall Site Safety Plans (JHA Procedure, Fall Protection, Hot			x
,	Work, Hearing Protection, Heat Illness Protection, etc)			^
6	Develop and Submit Emergency Response/Evacuation Plan			Х
7	Develop and Submit Site Access/Security Plan			Х
8	Develop Environmental Plans per Customer Specifications (Dust Mitigation, Storm Water Pollution Plan, Spill Prevention Plan, Audible Noise Plan, Wildlife Protection Plans,			x
	For its in a N			
	Provide traffic and track-out control plan			X
	Develop and Submit Laydown Area and Parking Plan			Х
	Provide equipment removal and dismantling procedures		Х	
3.0	Site Preparations and Mobilization			
1	Provide Temporary Office Space (if required)			Х
2	Provide Temporary Site Lighting (if required)			X
	Provide and Connect Temporary Power Source			X
4	Provide Temporary Fencing (if required)			X
5	Provide Site Signage, Access Control, and Security			Х
6	Provide Waste Management Equipment (Dumpsters, Oil Drums, Storage Bins)			Х
	Provide Portable Restrooms and Potable Water			Х
8	Provide First Aid/Emergency Response Equipment (Eyewash Station,Fire Extinguishers, Spill			х
9	Perform Site Surveys to Locate Underground Utilities (Electrical/Gas/Water/Sewage) Prior to			х
10	Relocation of Existing Equipment/OverheadsTo Facilitate Access	Х		
11	Ensure all battery modules have been discharged to minimum SOC	х		
	Perform hazardous material samples and inspections (asbestos, lead, PCBs, mercury)		х	
	Perform hazardous material abatements if required	х		
4.0	System De-energization and LOTO			
	Develop AC Power De-energization/LOTO Plan with Utility Company at POC	х		
	Develop Med (12K-34K) Voltage AC Power De-energization/LOTO Plan		х	х
	Develop Site Low (120/240/480V) Voltage AC Power De-energization/LOTO Plan		X	x
	Develop Site DC Power De-energization/LOTO Plan		X	X
	Develop Turnover Plan	х	^	^
	Perfom MV De-Energization/LOTO Plan	^		х
	Perform LV De-Energization/LOTO Plan			X
	Perform DC De-Energization/LOTO Plan			Х
9	Complete System/Equipment Turnover to Dismantling Team	Х	l	

APPENDIX 1 (Cont.)

Sequestrian		Activity	SDGE	Equipment Logistics and Recycling	Site Labor and Decommissionin g Contractor
2 Disconnect Low Voltage AC Power Cables at Terminals 3 Disconnect De Power Cables Including Battery String Cables at Terminals 4 Sample and analyze bolation Transformer GII 5 Remove Boattery Transformer (SI) 6 Prepare and Remove Pad Mounted Inverter (SI) 7 Depressure and College Battery Endosure HVAC Refrigerant, If required 8 Remove Battery Endosure Fire Suppression Agent/Canisters, If required 9 Remove Battery Endosure Fire Suppression Agent/Canisters, If required 9 Remove Battery Endosure Fire Suppression Agent/Canisters, If required 9 Remove Battery Endosure Fire Suppression Agent/Canisters, If required 9 Remove AC/DC Cables between Battery Enclosure and Transformer/Auxiliary Equipment 10 to thigh side of BESS main breaker 11 Remove ESS control/SCADA 12 Remove Battery Endosure and Transformer/Auxiliary Equipment 13 Remove MV Switchgean 14 Remove MV Switchgean 15 Remove Battery Endosure and Aux Distribution Panels/Equipment 16 Remove above ground cable trays 16 Remove steel platforms and support structures 17 Remove URIS and recycle Guipment Interess, RTAC, switches, transformers) 18 Remove District Support Structures 19 Remove District Support Structures 10 Remove Pullity supplied equipment (meters, RTAC, switches, transformers) 10 Remove Proper Labeling and Loading 10 Package all equipment/materials for shipment per DOT standards 2 Ensure Proper Labeling of Equipment/Materials 2 Remove Endosure/Racks/NAC 2 Ensure Proper Labeling of Equipment/Materials 3 Provide crane and/or forklift for equipment loading 2 Coordinate pickup of all equipment/materials to be disposed to landfill or recycled by local scran metal Company 2 Recycle damaged Battery Modules with unbreached cells (Universal Waste) 3 Recycle damaged Battery Modules with unbreached cells (Universal Waste) 3 Recycle damaged Battery Modules with unbreached cells (Universal Waste) 4 Recycle damaged Battery Modules with unbreached cells (Universal Waste) 5 Reported/Scrap Battery Endosure/Racks/NAC 6 Revode/Scrap Battery Endosure/Racks/NAC 7 Response Bu					
3 Disconnect DC Power Cables Including Battery String Cables at Terminals 4 Sample and analyze Isolation Transformer GII 5 Remove Isolation Transformer (S) 5 Propage and Remove Pad Mounted Invertor (s) 7 Depressurize and Remove Pad Mounted Invertor (s) 8 Remove Battery Enclosure Fire Suppression Agent/Canisters, if required 9 Remove Dattery modules from Tracks 10 Remove battery Enclosure Fire Suppression Agent/Canisters, if required 11 Remove Ac/DC Cables between Battery Enclosure and Transformer/Auxillary Equipment 12 Remove Ac/DC Cables between Battery Enclosure and Transformer/Auxillary Equipment 13 Remove Battery Enclosure Battery Enclosure and Transformer/Auxillary Equipment 14 Remove Battery Enclosure Battery Enclosure and Transformer/Auxillary Equipment 15 Remove Battery Enclosure Battery Enclosure and Transformer/Auxillary Equipment 16 Remove Battery Enclosure and Enclosure Auxiliary Equipment 17 Remove Battery Enclosure and Enclosure Auxiliary Equipment 18 Remove Battery Enclosure and Enclosure Auxiliary Equipment 19 Remove Battery Enclosure and Enclosure Auxiliary Equipment 19 Remove Battery Enclosure and Enclosure Auxiliary Enclosure 19 Remove Battery Enclosure Enclosure Enclosure 19 Remove Battery Enclosure Enclosure 19 Package all equipment Enclosure Enclosure 19 Package all equipment Materials on Subside Fence line to Utility POC 20 Equipment Packaging and Loading 21 Package all equipment/materials for shipment per DOT standards 22 Equipment Enclosure Enclosure Enclosure 23 Provide Carna enal/or Forkith for equipment Loading 24 Equipment Packaging and Loading 25 Provide Carna enal/or Forkith for equipment Loading 26 Equipment Packaging and Loading 27 Equipment Enclosure Enclosure Enclosure 28 Recycle/Scrap Dattery Enclosure/Bover Electronics Inside Enclosure 29 Recycle damaged Battery Modules with unbreached cells (Universal Waste) 30 Removed Battery Enclosure/Bover Electronics Inside	1	Provide all Tools/PPE for Safe Dismantling/Removal of Equipment			Х
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S. Remove Isolation Transformer (s) G. Prepares and Remove Pad Mounted Inverter (s) T. Depressurize and Remove Pad Mounted Inverter (s) T. Depressurize and Collect Battery Enclosure HVAC Refrigerant, if required X. X. S. Remove AC/DC Cables between Battery Enclosure and Transformer/Auxiliary Equipment Up to high side of BESS main breaker 11 Remove AC/DC Cables between Battery Enclosure and Transformer/Auxiliary Equipment Up to high side of BESS main breaker 11 Remove BESS controls/SCADA X. X. X. Remove AC/DC Cables between Battery Enclosure and Transformer/Auxiliary Equipment X. X	3	Disconnect DC Power Cables Including Battery String Cables at Terminals			Х
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		Submit completed final turnover document package to Owner			X

APPENDIX 2 Decommissioning Project Schedule-Borrego Microgrid 1

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Decommissioning Plan and Sequence	Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
	Develop De-energization plans with Customer, including PPE requirements							
	Develop equipment lifting and handling plan							
	Prepare materials needed at site (tools, pallets, packaging , labels)							
	Develop and approve site environmental and safety plans							
	Develop and approve security and site access plans (equipment access, gates, doors,							
Pre-Mobilization Planning	staging area, parking)							
r ie-iniopilization Flamiling	Develop loading/pickup plans for batteries, scrap metal							
	Complete draft of BOL for hazardous materials							
	Obtain Utility agreement on de-energization plan and schedule							
	Complete site restoration and drainage plans							
	Obtain permits as needed							
	Physical obstacle to perform work have been removed.							
	Setup site security and temporary facilities							
	Discuss site specific hazards and safety protocols							
	Perform job hazard assessments with Customer and perform work setup							
Mobilization	Confirm laydown/temporary storage areas with Customer							
	Confirm emergency response procedures and contacts for fire or injury							
	Deliver metal scrap bins and packaging materials				1			
	Deliver forklift and handling equipment to site	1			1			
	De-energize/LOTO AC side (mains) and DC power (Battery to Inverter) of Energy Storage							
	System							
	De-energize/LOTO auxiliary power to battery switchgear	1						
	Set up limited approach boundry	1						
BESS AC Mains and DC Power LOTO	Inspect and outfit in PPE. Minimum HRC3/PPE CAT 3 required during battery string power	 						
	cable disconnects							
	Using insulated tools, remove battery module string power cables. (Note: After all string							
	cables are removed PPE Cat 0 can be used.)	1					-	
Rattery Module Removal and Chinmant	Disconnect battery string power and communication cables Remove Pattery Modules and palleting for chiemont	1						
Battery Module Removal and Shipment		1						
	Ship battery modules to recycler	1						
Auxiliary Power LOTO	Disconnect and lockout Aux power supply from Medium Voltage Switchgear							
Auxiliary rower LOTO	Disconnect UPS and 125 VDC power							
	Disconnect Fire Control Panel backup batteries	İ						
	Disconnect back up generator	1			1			
	Disconnect and LOTO 12.47 KV power at Utility POC							
Utility Disconnect and LOTO	Remove all utility company supplied meters,RTACs, CTs, SCADA equipment and ship to	<u> </u>						
	utility company							
	Drain and collect battery container AC refrigerant	<u> </u>						
	Drain and collect inverter AC refrigerant	1						
	Remove and process Stat-X canisters for disposal	1						
	Remove control house AC refrigerant	1						
Equipment Disassembly - Prep for	Drain and collect transformer oil	1						
Shipment	Remove and package UPS/125 VDC lead acid batteries for shipment/recycling	1						
	Remove exterior hoods, steps, hold down bolts from battery enclosures	1						
	Disconnect and remove all power and control cables between equipment	1						
		1						
	Mobilize crane	1				1		
	Load layorter and transformers onto trucks for shipment to recycler	1						
	Load Inverter and transformers onto truck for shipment	-	 	-	-	-		
	Load MV suitebroor	1				-		
Loading and Shipment	Load MV switchgear	1				-		
	De-mobilize crane	1						-
	Ship scrap metal (cables, metal structures, panels) to recycler	1	-	-				-
	Shipped drained oil to processing facility	 	-					-
	Shipped lead acid batteries to recycler	<u> </u>						
	Backfill and recompact	ļ						
	I Damana and diagram of fancing	1	l					
	Remove and dispose of fencing							
	Final Patch and Grade per plan							
	Final Patch and Grade per plan Ensure all tools and equipment are removed.							
De-mobilization	Final Patch and Grade per plan							

APPENDIX 2, continued Decommissioning Project Schedule-Borrego Microgrid 2

Decommissioning Plan and Sequence	Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
	Develop De-energization plans with Customer, including PPE requirements							
	Develop equipment lifting and handling plan							
	Prepare materials needed at site (tools, pallets, packaging , labels)							
	Develop and approve site environmental and safety plans							
	Develop and approve security and site access plans (equipment access, gates, doors,							
Bur Adala Wasakina Blancaina	staging area, parking)							
Pre-Mobilization Planning	Develop loading/pickup plans for batteries, scrap metal							
	Complete draft of BOL for hazardous materials							
	Obtain Utility agreement on de-energization plan and schedule							
	Complete site restoration and drainage plans							
	Obtain permits as needed							
	Physical obstacle to perform work have been removed.							
	Setup site security and temporary facilities							
	Discuss site specific hazards and safety protocols							
	Perform job hazard assessments with Customer and perform work setup							
Mobilization	Confirm laydown/temporary storage areas with Customer							
	Confirm emergency response procedures and contacts for fire or injury							
	Deliver metal scrap bins and packaging materials							
	Deliver forklift and handling equipment to site			1				
	De-energize/LOTO AC side (mains) and DC power (Battery to Inverter) of Energy Storage							
	System							
	De-energize/LOTO auxiliary power to battery switchgear							
	Set up limited approach boundry							
BESS AC Mains and DC Power LOTO	Inspect and outfit in PPE. Minimum HRC3/PPE CAT 3 required during battery string power							
	cable disconnects							
	Using insulated tools, remove battery module string power cables. (Note: After all string							
	cables are removed PPE Cat 0 can be used.)							
	Disconnect battery string power and communication cables							
Battery Module Removal and Shipment	Remove Battery Modules and palletize for shipment							
,,	Ship battery modules to recycler							
Auxiliary Power LOTO	Disconnect and lockout Aux power supply from Medium Voltage Switchgear							
	Disconnect UPS and 125 VDC power							
	Disconnect Fire Control Panel backup batteries							
	Disconnect back up generator							
	Disconnect and LOTO 12.47 KV power at Utility POC							
Utility Disconnect and LOTO	Remove all utility company supplied meters,RTACs, CTs, SCADA equipment and ship to utility company							
	Drain and collect battery container AC refrigerant							
	Drain and collect inverter AC refrigerant							
	Remove and process Stat-X canisters for disposal							
	Remove control house AC refrigerant							
Equipment Disassembly - Prep for	Drain and collect transformer oil							
Shipment	Remove and package UPS/125 VDC lead acid batteries for shipment/recycling							
	Remove exterior hoods, steps, hold down bolts from battery enclosures							
	Disconnect and remove all power and control cables between equipment							
	Mobilize crane							
	Load battery containers onto trucks for shipment to recycler							
	Load Inverter and transformers onto truck for shipment							
	Load control enclosure							
	Load MV switchgear							
Loading and Shipment	De-mobilize crane							
	Ship scrap metal (cables, metal structures, panels) to recycler							
	Shipped drained oil to processing facility							
	Shipped dramed on to processing racinty Shipped lead acid batteries to recycler							
	Backfill and recompact							
	Remove and dispose of fencing							
	Final Patch and Grade per plan							
 	Ensure all tools and equipment are removed.							
De-mobilization	Ensure all tools and equipment are removed. Final site cleanup							
De-modilization	Submit final reports and documentation							

APPENDIX 2, continued Decommissioning Project Schedule-Top Gun Energy Storage

Decommissioning Plan and Sequence	Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
seconnissioning rian and sequence	Develop De-energization plans with Customer, including PPE requirements	WEEK 1	Week Z	Week 3	Week 4	Week 5	Week 0	Week /	WEEK 0	-VEER 3	.7ccx 10	.veek 11	-VCCK 12	.7eek 13		.766K 13
	Develop equipment lifting and handling plan															
	Prepare materials needed at site (tools, pallets, packaging , labels)															
	Develop and approve site environmental and safety plans															
	Develop and approve security and site access plans (equipment access, gates, doors,															
	staging area, parking)															
Pre-Mobilization Planning	Develop loading/pickup plans for batteries, scrap metal															
	Complete draft of BOL for hazardous materials															
	Obtain Utility agreement on de-energization plan and schedule	-														
	Complete site restoration and drainage plans	-														
	Obtain permits as needed															
	Physical obstacle to perform work have been removed.															
	Setup site security and temporary facilities															
	Discuss site specific hazards and safety protocols															
**-b:P*!	Perform job hazard assessments with Customer and perform work setup															
Mobilization	Confirm laydown/temporary storage areas with Customer															
	Confirm emergency response procedures and contacts for fire or injury															
	Deliver metal scrap bins and packaging materials	1	1			-	 						-			
	Deliver forklift and handling equipment to site	1	1			-	 						-			
	De-energize/LOTO AC side (mains) and DC power (Battery to Inverter) of Energy Storage						l									
	System	1	<u> </u>				 									
	De-energize/LOTO auxiliary power to battery switchgear	1	1													
BESS AC Mains and DC Power LOTO	Set up limited approach boundry															
	Inspect and outfit in PPE. Minimum HRC3/PPE CAT 3 required during battery string power						l									
	cable disconnects															
	Using insulated tools, remove battery module string power cables. (Note: After all string															
	cables are removed PPE Cat 0 can be used.)															
	Disconnect battery string power and communication cables															
Battery Module Removal and Shipment	Remove Battery Modules and palletize for shipment															
	Ship battery modules to recycler															
Auxiliary Power LOTO	Disconnect and lockout Aux power supply from Medium Voltage Switchgear															
-	Disconnect UPS and 125 VDC power															
	Disconnect Fire Control Panel backup batteries															
	Disconnect back up generator															
	Disconnect and LOTO 12.47 KV power at Utility POC															
Utility Disconnect and LOTO	Remove all utility company supplied meters,RTACs, CTs, SCADA equipment and ship to															
	utility company															
	Drain and collect battery container AC refrigerant															
	Drain and collect inverter AC refrigerant															
	Remove and process fire suppression agent for disposal															
	Remove control house AC refrigerant															
Equipment Disassembly - Prep for	Drain and collect transformer oil															
Shipment	Remove and package UPS/125 VDC lead acid batteries for shipment/recycling															
	Remove exterior hoods, steps, hold down bolts from battery enclosures															
	Disconnect and remove all power and control cables between equipment															
	Mobilize crane	1					1									
	Load battery containers onto trucks for shipment to recycler	1	t				 									
	Load Inverter and/or transformers onto truck for shipment	1	1													
	Load control enclosure	1	1													
	Load MV switchgear	1	1													
Loading and Shipment	De-mobilize crane	1	1		-		 	-								
		1	1		-		 	-								
	Ship scrap metal (cables, metal structures, panels) to recycler	+	-		-		-	-								
	Shipped drained oil to processing facility	1	1				-									
	Shipped lead acid batteries to recycler	1			-	<u> </u>	-	-	<u> </u>							
Ch. B. d. d.	Backfill and recompact	1	1													
Site Restoration	Remove and dispose of fencing	-					 									
	Final Patch and Grade per plan	1	1													
	Ensure all tools and equipment are removed.															
De-mobilization	Final site cleanup															
	Submit final reports and documentation		1				l									

APPENDIX 2, continued Decommissioning Project Schedule- Eastern BESS

- .									
Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
Develop De-energization plans with Customer, including PPE requirements									
Develop equipment lifting and handling plan									
Prepare materials needed at site (tools, pallets, packaging , labels) Develop and approve site environmental and safety plans									
Develop and approve site environmental and safety plans Develop and approve security and site access plans (equipment access, gates, doors,									
staging area, parking)									
Develop loading/pickup plans for batteries, scrap metal									
Complete draft of BOL for hazardous materials									
Obtain Utility agreement on de-energization plan and schedule									
Complete site restoration and drainage plans									
Obtain permits as needed									
Physical obstacle to perform work have been removed.									
Setup site security and temporary facilities									
Discuss site specific hazards and safety protocols									
Perform job hazard assessments with Customer and perform work setup									
Confirm laydown/temporary storage areas with Customer									
Confirm emergency response procedures and contacts for fire or injury									
Deliver metal scrap bins and packaging materials									
Deliver forklift and handling equipment to site									
De-energize/LOTO AC side (mains) and DC power (Battery to Inverter) of Energy Storage									
System									
De-energize/LOTO auxiliary power to battery switchgear									
Set up limited approach boundry									
Inspect and outfit in PPE. Minimum HRC3/PPE CAT 3 required during battery string power									
cable disconnects									
Using insulated tools, remove battery module string power cables. (Note: After all string									
cables are removed PPE Cat 0 can be used.)									
Disconnect battery string power and communication cables									
Remove Battery Modules and palletize for shipment									
Ship battery modules to recycler									
Disconnect and lockout Aux power supply from Medium Voltage Switchgear									
Disconnect UPS and 125 VDC power									
Disconnect Fire Control Panel backup batteries									
Disconnect back up generator									
Disconnect and LOTO 12.47 KV power at Utility POC									
Remove all utility company supplied meters,RTACs, CTs, SCADA equipment and ship to									
utility company									
Drain and collect battery container AC refrigerant									
Drain and collect inverter AC refrigerant									
Remove and process fire suppression agent for disposal									
Remove control house AC refrigerant									
Drain and collect transformer oil									
Remove and package UPS/125 VDC lead acid batteries for shipment/recycling									
Remove exterior hoods, steps, hold down bolts from battery enclosures									
Disconnect and remove all power and control cables between equipment									
Mobilize crane									
Load battery containers onto trucks for shipment to recycler									
Load Inverter and/or transformers onto truck for shipment									
Load control enclosure									
Load MV switchgear	-								
De-mobilize crane	-							_	
Ship scrap metal (cables, metal structures, panels) to recycler	-								
Shipped drained oil to processing facility Shipped lead acid batteries to recycler	1								
Backfill and recompact	-								
Remove and dispose of fencing	1								
, ·	-								
Final Patch and Grade per plan Ensure all tools and equipment are removed.	1								
Final site cleanup	1								
Submit final reports and documentation									
Submit man reports and documentation	1		l						

APPENDIX 2, continued Decommissioning Project Schedule-Escondido BESS

Decommissioning Plan and Sequence	Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Wool C	Wool: 10	Wool: 11	Week 12 V	Vook 12	Wool: 11	Woo! 15
Decommissioning Plan and Sequence		week 1	week 2	week 3	week 4	week 5	week 6	week /	week 8	week 9	week 10	vveek 11	vveek 12 V	veek 13	vveek 14	vveek 15
	Develop De-energization plans with Customer, including PPE requirements Develop equipment lifting and handling plan															
	Prepare materials needed at site (tools, pallets, packaging , labels)															
	Develop and approve site environmental and safety plans															
	Develop and approve site environmental and safety plans Develop and approve security and site access plans (equipment access, gates, doors,	1	ŧ												+	
	staging area, parking)														, !	
Pre-Mobilization Planning	Develop loading/pickup plans for batteries, scrap metal														\rightarrow	
	Complete draft of BOL for hazardous materials															
	Obtain Utility agreement on de-energization plan and schedule	1	ľ													
	Complete site restoration and drainage plans															
	Obtain permits as needed						l I									
	Physical obstacle to perform work have been removed.															
	Setup site security and temporary facilities															
	Discuss site specific hazards and safety protocols															
	Perform job hazard assessments with Customer and perform work setup															
Mobilization	Confirm laydown/temporary storage areas with Customer															
	Confirm emergency response procedures and contacts for fire or injury															
	Deliver metal scrap bins and packaging materials															
	Deliver forklift and handling equipment to site															
	De-energize/LOTO AC side (mains) and DC power (Battery to Inverter) of Energy Storage															
	System														, !	
	De-energize/LOTO auxiliary power to battery switchgear															
	Set up limited approach boundry															
BESS AC Mains and DC Power LOTO	Inspect and outfit in PPE. Minimum HRC3/PPE CAT 3 required during battery string power															
	cable disconnects														, !	
	Using insulated tools, remove battery module string power cables. (Note: After all string															
	cables are removed PPE Cat 0 can be used.)														, !	
	Disconnect battery string power and communication cables															
Battery Module Removal and Shipmen	Remove Battery Modules and palletize for shipment															
	Ship battery modules to recycler															
Auxiliary Power LOTO	Disconnect and lockout Aux power supply from Medium Voltage Switchgear															ı
, , , , , , , , , , , , , , , , , , , ,	Disconnect UPS and 125 VDC power															
	Disconnect Fire Control Panel backup batteries															
	Disconnect back up generator															
	Disconnect and LOTO 12.47 KV power at Utility POC															
Utility Disconnect and LOTO	Remove all utility company supplied meters,RTACs, CTs, SCADA equipment and ship to															
	utility company															
	Drain and collect battery container AC refrigerant															
	Drain and collect inverter AC refrigerant															
	Remove and process fire suppression agent for disposal															
Equipment Disassembly - Prep for	Remove control house AC refrigerant															
Shipment	Drain and collect transformer oil															
Simplifient	Remove and package UPS/125 VDC lead acid batteries for shipment/recycling															
	Remove exterior hoods, steps, hold down bolts from battery enclosures															
	Disconnect and remove all power and control cables between equipment															
	Mobilize crane															
	Load battery containers onto trucks for shipment to recycler															
	Load Inverter and/or transformers onto truck for shipment															
	Load control enclosure															
Loading and Shipment	Load MV switchgear															
Louding and simplificate	De-mobilize crane															
	Ship scrap metal (cables, metal structures, panels) to recycler															
	Shipped drained oil to processing facility															
	Shipped lead acid batteries to recycler									-						
	Backfill and recompact															
	Remove and dispose of fencing		ļ													
	Final Patch and Grade per plan															
	Ensure all tools and equipment are removed.									-						
De-mobilization	Final site cleanup															
!	Submit final reports and documentation	1	l													

APPENDIX 3 Project Details-Borrego Microgrid 1 500 KW, 1500 KWH

	Battery Make/Model	SAFT 24F
	Battery Chemistry	NMC
	Battery module weight (lbs)	42
Battery	Battery Module Length (in)	18
,	Battery Module Width (in)	12
	Battery Module CATL Liquid Cooled?	NO
	Number of battery racks per container	10
	Number of battery modules per rack	15
	Number of battery enclosures (EOL)	3
	Estimated weight of battery enclosure without battery modules (lbs)	32000
Enclosure	Battery enclosures HVAC cooled (wall or roof mount)?	YES
	Number of HVAC/Chiller Units per battery enclosure	1
	Clean agent fire suppression installed in enclosure?	YES
	Are Inverters/PCS pad mounted?	NO
Inverter/PCS	Is isolation transformer integrated with PCS?	NO
	Are inverters/PCS liquid or air cooled?	AIR
	Number of isolation transformers (pad mounted or integrated)	4
Transformer	Estimated weight of empty transformer (lbs)	8000
Transformer	Are there oil filled transformers?	YES
	Gallons of oil per transformer	166
Labor	Average Site Labor Cost (\$/hr)	\$110
Logistics	Shipping distance from site to battery recycling facility (miles)	2600
	Estimating Year	2021
Schedule	Decommissioning Year	2025
	Escalation (average ECI value since 2002)	1.025

APPENDIX 3, continued Project Details-Borrego Microgrid 2 1000 KW, 3144 KWH

Input Data		
	Battery Make/Model	SAFT 24E
	Battery Chemistry	NMC
	Battery module weight (lbs)	42
Patton	Battery Module Length (in)	18
Battery	Battery Module Width (in)	12
	Battery Module CATL Liquid Cooled?	NO
	Number of battery racks per container	10
	Number of battery modules per rack	15
	Number of battery enclosures (EOL)	4
	Estimated weight of battery enclosure without battery modules (lbs)	32000
Enclosure	Battery enclosures HVAC cooled (wall or roof mount)?	YES
	Number of HVAC/Chiller Units per battery enclosure	1
	Clean agent fire suppression installed in enclosure?	YES
	Are Inverters/PCS pad mounted?	NO
Inverter/PCS	Is isolation transformer integrated with PCS?	NO
	Are inverters/PCS liquid or air cooled?	AIR
	Number of isolation transformers (pad mounted or integrated)	2
Transformer	Estimated weight of empty transformer (lbs)	8000
Transformer	Are there oil filled transformers?	YES
	Gallons of oil per transformer	166
Labor	Average Site Labor Cost (\$/hr)	\$110
Logistics	Shipping distance from site to battery recycling facility (miles)	2600
	Estimating Year	2021
Schedule	Decommissioning Year	2025
	Labor Escalation (average ECI value since 2002)	1.025

APPENDIX 3, continued Project Details-Top Gun Energy Storage 30 MW , 120 MWH

Input Data		
input Data		
Battery	Battery Make/Model	Samsung E3
	Battery Chemistry	NMC
	Battery module weight (lbs)	125
	Battery Module Length (in)	25
	Battery Module Width (in)	15
	Battery Module CATL Liquid Cooled?	NO
	Number of battery racks per container	24
	Number of battery modules per rack	25
	Number of battery enclosures (EOL)	36
	Estimated weight of battery enclosure without battery modules (lbs)	50000
Enclosure	Battery enclosures HVAC cooled (wall or roof mount)?	YES
	Number of HVAC/Chiller Units per battery enclosure	2
	Clean agent fire suppression installed in enclosure?	YES
	Are Inverters/PCS pad mounted?	YES
	Number Inverters/PCS to be decommissioned	36
	Is isolation transformer integrated with PCS?	NO
Inverter/PCS	Estimated weight of inverter/PCS (lbs)	15500
	Inverter/PCS width (in)	244
	Inverter/PCS length (in)	84
	Are inverters/PCS liquid or air cooled?	LIQUID
	Number of isolation transformers (pad mounted or integrated)	36
Transformer	Estimated weight of empty transformer (lbs)	12000
	Are there oil filled transformers?	YES
	Gallons of oil per transformer	600
Labor	Average Site Labor Cost (\$/hr)	\$110
Logistics	Shipping distance from site to battery recycling facility (miles)	2600
Schedule	Estimating Year	2021
	Decommissioning Year	2041
	Escalation (average ECI value since 2002)	1.025

APPENDIX 3, continued Project Details-Eastern BESS 7.5 MW, 30 MWH

Input Data		
iliput Data		
Battery	Battery Make/Model	Samsung (APS)
	Battery Chemistry	NMC
	Battery module weight (lbs)	110
	Battery Module Length (in)	21
	Battery Module Width (in)	18
	Battery Module CATL Liquid Cooled?	NO
	Number of battery racks per container	50
	Number of battery modules per rack	16
	Number of battery enclosures (EOL)	6
Enclosure	Estimated weight of battery enclosure without battery modules (lbs)	175000
	Battery enclosures HVAC cooled (wall or roof mount)?	YES
	Number of HVAC/Chiller Units per battery enclosure	2
	Clean agent fire suppression installed in enclosure?	YES
	Are Inverters/PCS pad mounted?	NO
	Number Inverters/PCS to be decommissioned	0
	Is isolation transformer integrated with PCS?	NO
Inverter/PCS	Estimated weight of inverter/PCS (lbs)	0
	Inverter/PCS width (in)	0
	Inverter/PCS length (in)	0
	Are inverters/PCS liquid or air cooled?	AIR
	Number of isolation transformers (pad mounted or integrated)	3
Transformer	Estimated weight of empty transformer (lbs)	12000
Transformer	Are there oil filled transformers?	YES
	Gallons of oil per transformer	460
Labor	Average Site Labor Cost (\$/hr)	\$110
Logistics	Shipping distance from site to battery recycling facility (miles)	2600
	Estimating Year	2021
Schedule	Decommissioning Year	2027
	Escalation (average ECI value since 2002)	1.025

APPENDIX 3, continued Project Details-Escondido BESS 30MW, 120MWH

Input Data		
inpat Data		
Battery	Battery Make/Model	Samsung (APS)
	Battery Chemistry	NMC
	Battery module weight (lbs)	110
	Battery Module Length (in)	21
	Battery Module Width (in)	18
	Battery Module CATL Liquid Cooled?	NO
	Number of battery racks per container	50
	Number of battery modules per rack	16
	Number of battery enclosures (EOL)	24
	Estimated weight of battery enclosure without battery modules (lbs)	175000
Enclosure	Battery enclosures HVAC cooled (wall or roof mount)?	YES
	Number of HVAC/Chiller Units per battery enclosure	2
	Clean agent fire suppression installed in enclosure?	YES
	Are Inverters/PCS pad mounted?	NO
	Number Inverters/PCS to be decommissioned	0
	Is isolation transformer integrated with PCS?	NO
Inverter/PCS	Estimated weight of inverter/PCS (lbs)	0
	Inverter/PCS width (in)	0
	Inverter/PCS length (in)	0
	Are inverters/PCS liquid or air cooled?	AIR
	Number of isolation transformers (pad mounted or integrated)	12
Transformer	Estimated weight of empty transformer (lbs)	12000
Transformer	Are there oil filled transformers?	YES
	Gallons of oil per transformer	460
Labor	Average Site Labor Cost (\$/hr)	\$110
Logistics	Shipping distance from site to battery recycling facility (miles)	2600
	Estimating Year	2021
Schedule	Decommissioning Year	2027
	Escalation (average ECI value since 2002)	1.025

APPENDIX4 Decommissioning Project Cost Estimates

Pricing Assumptions

In addition to Appendix 3 the following are the cost estimate assumptions used to determine overall project decommissioning costs:

- Battery recycling: Renewance works with all the recyclers in North America and has established recycling rates with them. Renewance selects the recycler based on the lowest cost option for the customer depending on the battery model, chemistry, recycling rates, location and other factors. The rates listed are assuming that the company who is doing the decommissioning adds on a 30% margin to the recyclers recycling rates
 - o Battery Recycling (LFP) \$0.72/lb
 - o Battery Recycling (NMC<50000 lbs) \$0.125/lb
 - Battery Recycling (NMC>50000 lbs) \$0.00/lb
- Battery Removal Labor = 15 man-minutes/module
 - The batteries have to be removed from the container and packaged before shipping to the recycler. The estimate is based on Renewance's experience decommissioning battery containers with similar battery types (weight & dimensions)
- Scrap Metal/E-Metal Recycle Credit (enclosures, PCS, panels) \$0.03/lb
 - o Renewance's estimate based on BESS decom projects in California
- Transformers: Transformers typically have a long life and there is a strong secondary market for used transformers. The assumptions are based on Renewance's experience in selling used transformers in 2020 & 2021
 - o Isolation Transformers Recycle Credit = \$0.04/lb
 - Isolation Transformer Oil Recycling = \$0.21/gallon
- Transportation: Batteries are considered Hazardous material and have to be shipped accordingly. Below assumptions are based on transportation rates obtained from Renewance's preferred freight forwarders who have transported batteries in the past
 - Hazmat Transportation = \$5.50 per mile
 - Standard Transportation = \$0.05/lb
 - Oversize Shipment (custom enclosures) = \$0.10/lb
- Equipment Rental is based on typical rental rates from equipment rental companies in California
 - Crane Rental = \$6500/day
 - o Forklift Rental = \$700/day
- Demolition and Site Restoration = 25-35% of total site labor+disposal+recycle
 - Site restoration for BESS decom projects varies drastically depending on how the site is supposed to look post decom. Usually the contract between the BESS owner & the landlord specifies the condition that the site should be left post decommissioning. Site restoration could be as simple as basic clean up to something complicated like completely restoring the site to original condition which could involve things like concrete or road removal, underground cable removal & extensive landscaping. After discussions with the SDGE team and reviewing the sites, this study assumes minimal site restoration which essentially is basic clean up, patching and repairing any cracks/holes left at the site after equipment removal
- Contingencies = 15% on Labor, Rentals, and Logistics. No contingency on battery recycling cost
- T&L (assumes local labor used) = \$0

Decommissioning Project Cost Estimate -Borrego Microgrid 1 Details

	Item	Units	Labor Cost	Material/Rental/Logistics Cost	Disposal Cost	Recycling Cost/Credits
	Number of Battery Modules (EOL)	450			•	
	Total Battery Module Weight (lbs)	18,900				
	Battery Module Recycling Cost					\$2,363
	Battery Module Disassembly Prior Recycling Cost					\$0
	Battery Modules per 40 x 48 Pallet	21				
Battery	Number of Pallets	22				
	Number of Truck Loads	1				
	Hazardous Material Shipping Cost (\$/mi)	\$5.50				
	Battery Logistic Cost			\$14,300		
	Battery Module Removal and Packaging Cost (Labor and Materials)		\$12,375	\$550		
	Refrigerant Recovery and Preparation				\$900	
	Fire Suppression System Decommissioning/Agent Recovery				\$1,350	
Enclosure	Battery Enclosure Prep for Shipment Labor Cost		\$2,640		+ -/	
	Battery enclosure logistic costs		7-/5:5	\$4,800		
	Battery enclosure recycle credit			7 ,7555		(\$2,880)
					40	(+=/===)
	Inverter/PCS Coolant Disposal Pad mounted Inverter/PCS Prep for Ship Labor Cost		\$0		\$0	
Inverter/PCS			\$0	40		
	Pad mounted Inverter/PCS logistics cost Pad mounted Inverter/PCS recycle credit			\$0		\$0
	Pad mounted inverter/PCS recycle credit					\$U
	Pad mounted transformer prep for ship labor cost		\$2,200			
	Pad mounted transformer logistics cost			\$1,600		
Transformer	Pad mounted transformer recycle credit					(\$1,280)
	Transformer Oil recycling cost (\$/gallon)	\$0.21				\$139
	Oil collection/transport cost per transformer	\$500			\$2,000	
	Crane Rental Days	2				
	Crane Rental Cost /Day	\$6,500				
Crane/Forklift	Crane Rental Cost			\$13,000		
Crane, Forking	Forklift Rental Days	4.5				
	Forklift Rental Cost /Day	\$700				
	Forklift Rental Cost			\$3,150		
	Total Project Duration	28.5				
	Total Onsite Duration	6.5				
	Mobilization/LOTO	2	\$7,040			
Schedule/Other	Loading and Handling	3				
	Demobilization	1	\$3,520			
	Site Mangement		\$8,125			
	Project/Logisitcs Management		\$7,125			
	.,,					
	Total Cost Estimate (2021 dollars)		\$43,025	\$37,400	\$4,250	(\$1,658)
Estimates			\$43,025 \$47,492	\$37,400 \$41,283	\$4,250 \$4,691	(\$1,658) (\$1,658)

\$83,017 \$91,807

NOTES:

All cost estimates in USD

No change in recycling cost estimate with time. Increased recycling volume will offset inflation costs.

Demolition and Site Cleanu \$11,404.24

Decommissioning Project Cost Estimate -Borrego Microgrid 1 Summary

Estimating Year	2021	2025
Project / Site Management, Preparation & Mobilization	\$ 14,165	\$ 15,636
Site Services (Electrical work, Labor for battery removal, Equipment Rental)	\$ 49,399	\$ 54,528
Battery Recycling	\$ 2,363	\$ 2,608
Transportation & Logistics	\$ 15,490	\$ 17,098
Site Restoration (Foundation Removal, Patch, Grade, Cleanup)	\$ 11,404	\$ 12,588
Contingency	\$ 13,569	\$ 14,977
Total	\$ 106,390	\$ 117,435

Decommissioning Project Cost Estimate -Borrego Microgrid 2 Details

	Item	Units	Labor Cost	Material/Rental/Logistics Cost	Disposal Cost	Recycling Cost/Credits
	Number of Battery Modules (EOL)	600				
Battery	Total Battery Module Weight (lbs)	25,200				
	Battery Module Recycling Cost					\$3,150
	Battery Module Disassembly Prior Recycling Cost					\$0
	Battery Modules per 40 x 48 Pallet	21				
	Number of Pallets	29				
	Number of Truck Loads	1.2				
	Hazardous Material Shipping Cost (\$/mi)	\$5.50				
	Battery Logistic Cost			\$17,160		
	Battery Module Removal and Packaging Cost (Labor and Materials)		\$16,500	\$725		
	Refrigerant Recovery and Preparation				\$1,200	
	Fire Suppression System Decommissioning/Agent Recovery				\$1,800	
Enclosure	Battery Enclosure Prep for Shipment Labor Cost		\$3,520		. ,	
	Battery enclosure logistic costs		. ,	\$6,400		
	Battery enclosure recycle credit					(\$3,840)
	Inverter/PCS Coolant Disposal				\$0	
	Pad mounted Inverter/PCS Prep for Ship Labor Cost		\$0		Ψ.	
Inverter/PCS	Pad mounted Inverter/PCS logistics cost		γo	\$0		
	Pad mounted Inverter/PCS recycle credit			70		\$0
						ΨÜ
	Pad mounted transformer prep for ship labor cost		\$1,100			
	Pad mounted transformer logistics cost			\$800		
Transformer	Pad mounted transformer recycle credit					(\$640)
	Transformer Oil recycling cost (\$/gallon)	\$0.21				\$70
	Oil collection/transport cost per transformer	\$500			\$1,000	
	Crane Rental Days	2.4				
	Crane Rental Cost /Day	\$6,500				
Crane/Forklift	Crane Rental Cost			\$15,600		
Crane/ Forkint	Forklift Rental Days	5.4				
	Forklift Rental Cost /Day	\$700				
	Forklift Rental Cost			\$3,780		
	Total Project Duration	29.4				
	Total Onsite Duration	7.4				
	Mobilization/LOTO	2	\$7,040			
Schedule/Other	Loading and Handling	3				
	Demobilization	1	\$3,520			
	Site Mangement		\$9,250			
	Project/Logisitcs Management		\$7,350			
	Total Cost Estimate (2021 dollars)		\$48,280	\$44,465	\$4,000	(\$1,260)
Estimates	Total Cost Estimate in Decommissiong Year		\$53,292	\$49,081	\$4,415	(\$1,260)
	Labor Escalation 1.025 (average ECI value since 2002)	1.025				

\$95,485 \$105,528

NOTES:

All cost estimates in USD

No change in recycling cost estimate with time. Increased recycling volume will offset inflation costs.

Demolition and Site Cleanup (2021) \$12,754.93

Decommissioning Project Cost Estimate -Borrego Microgrid 2 Summary

Year	2021	2025
Project / Site Management, Preparation & Mobilization	\$ 14,390	\$ 15,884
Site Services (Electrical work, Labor for battery removal, Equipment Rental)	\$ 57,340	\$ 63,292
Battery Recycling	\$ 3,150	\$ 3,477
Transportation & Logistics	\$ 19,805	\$ 21,861
Site Restoration (Foundation Removal, Patch, Grade, Cleanup)	\$ 12,755	\$ 14,079
Contingency	\$ 15,643	\$ 17,267
Total	\$ 123,083	\$ 135,861

Decommissioning Project Cost Estimate – Top Gun Energy Storage Details

	Item	Units	Labor Cost	Material/Rental/Logistics Cost	Disposal Cost	Recycling Cost/Credits
	Number of Battery Modules (EOL)	21,600				
Rattony	Total Battery Module Weight (lbs)	2,700,000				
	Battery Module Recycling Cost					\$0
	Battery Module Disassembly Prior Recycling Cost					\$0
	Battery Modules per 40 x 48 Pallet	12				
	Number of Pallets	1800				
	Number of Truck Loads	72				
	Hazardous Material Shipping Cost (\$/mi)	\$5.50				
	Battery Logistic Cost			\$1,029,600		
	Battery Module Removal and Packaging Cost (Labor and Materials)		\$594,000	\$45,000		
	Refrigerant Recovery and Preparation				\$21,600	
	Fire Suppression System Decommissioning/Agent Recovery				\$16,200	
	Battery Enclosure Prep for Shipment Labor Cost		\$31,680		\$10 <u>,</u> 200	
	Battery enclosure logistic costs		ψ51,000	\$90,000		
	Battery enclosure recycle credit			\$30,000		(\$54,000)
	·				440.500	
	Inverter/PCS Coolant Disposal		¢40.000		\$10,620	
Inverter/PCS	Pad mounted Inverter/PCS Prep for Ship Labor Cost Pad mounted Inverter/PCS logistics cost		\$19,800	\$27,900		
	Pad mounted Inverter/PCS recycle credit			\$27,900		(\$16,740)
	Pad mounted inverter/PCS recycle credit					(\$16,740)
	Pad mounted transformer prep for ship labor cost		\$19,800			
	Pad mounted transformer logistics cost			\$21,600		
Transformer	Pad mounted transformer recycle credit					(\$17,280)
	Transformer Oil recycling cost (\$/gallon)	\$0.21				\$4,536
	Oil collection/transport cost per transformer	\$500			\$18,000	
	Crane Rental Days	13				
	Crane Rental Cost /Day	\$6,500				
6 /F LUG	Crane Rental Cost			\$84,500		
Crane/Forklift	Forklift Rental Days	32				
	Forklift Rental Cost /Day	\$700				
	Forklift Rental Cost			\$22,400		
	Total Project Duration	56				
	Total Onsite Duration	34				
	Mobilization/LOTO	2	\$7,040			
	Loading and Handling	37	. ,			
	Demobilization	1	\$3,520			
	Site Mangement		\$42,500			
	Project/Logisitcs Management		\$14,000			
	Total Cost Estimate (2021 dollars)		\$732,340	\$1,321,000	\$66,420	(\$83,484)
	Total Cost Estimate (2021 dollars) Total Cost Estimate in Decommissiong Year		\$1,200,024	\$2,164,612	\$108,837	(\$83,484)
Latinates		1 025	31,200,024	\$2,104,012	\$100,037	(२०३,५०५)
Estimates	Labor Escalation 1.025 (average ECI value since 2002)	1.025	\$1,200,024	\$2,164,612	\$108,837	(\$8.

\$2,036,276 \$3,389,990

NOTES:

All cost estimates in USD

No change in recycling cost estimate with time. Increased recycling volume will offset inflation costs.

Demolition and Site Cleanu

\$178,819.00

Decommissioning Project Cost Estimate – Top Gun Energy Storage Summary

Estimating Year	2021	2041
Project / Site Management, Preparation & Mobilization	\$ 21,040	\$ 34,476
Site Services (Electrical work, Labor for battery removal, Equipment Rental)	\$ 858,736	\$ 1,407,139
Battery Recycling	\$ -	\$ -
Transportation & Logistics	\$ 1,093,320	\$ 1,791,532
Site Restoration (Foundation Removal, Patch, Grade, Cleanup)	\$ 178,819	\$ 293,016
Contingency	\$ 322,787	\$ 528,924
Total	\$ 2,474,702	\$ 4,055,088

Decommissioning Project Cost Estimate – Eastern BESS Details

	Item	Units	Labor Cost	Material/Rental/Logistics Cost	Disposal Cost	Recycling Cost/Credits
	Number of Battery Modules (EOL)	4,800			-	
Rattery	Total Battery Module Weight (lbs)	528,000				
	Battery Module Recycling Cost					\$0
	Battery Module Disassembly Prior Recycling Cost					\$0
	Battery Modules per 40 x 48 Pallet	12				
	Number of Pallets	400				
	Number of Truck Loads	16				
	Hazardous Material Shipping Cost (\$/mi)	\$5.50				
	Battery Logistic Cost			\$228,800		
	Battery Module Removal and Packaging Cost (Labor and Materials)		\$132,000	\$10,000		
	Refrigerant Recovery and Preparation (added labor to remove HVAC)		\$10,560		\$3,600	
	Fire Suppression System Decommissioning/Agent Recovery				\$2,700	
Enclosure	Battery Enclosure Prep for Shipment Labor Cost (oversized)		\$7,920			
	Battery enclosure logistic costs (heavy/oversize load)			\$105,000		
	Battery enclosure recycle credit					(\$31,500)
	Inverter/PCS Coolant Disposal				\$0	
	Pad mounted Inverter/PCS Prep for Ship Labor Cost		\$0			
Inverter/PCS	Pad mounted Inverter/PCS logistics cost			\$0		
	Pad mounted Inverter/PCS recycle credit					\$0
	Pad mounted transformer prep for ship labor cost		\$1,650			
	Pad mounted transformer logistics cost		7-,000	\$1,800		
Transformer	Pad mounted transformer recycle credit			, , , , , ,		(\$1,440)
	Transformer Oil recycling cost (\$/gallon)	\$0.21				\$290
	Oil collection/transport cost per transformer	\$500			\$1,500	·
	Crane Rental Days	3				
	Crane Rental Cost /Day	\$6,500				
	Crane Rental Cost (2x to include load and unload)	1 - /		\$39,000		
Crane/Forklift	Forklift Rental Days	7		, ,		
	Forklift Rental Cost /Day	\$700				
	Forklift Rental Cost			\$4,900		
	Total Project Duration	31				
	Total Onsite Duration	9				
	Mobilization/LOTO	2	\$7,040			
Schedule/Other	Loading and Handling	9				
	Demobilization	1	\$3,520			
	Site Mangement		\$11,250			
	Project/Logisitcs Management		\$31,000			
	Total Cost Estimate (2021 dollars)		\$204,940	\$389,500	\$7,800	(\$32,650)
Estimates	Total Cost Estimate in Decommissiong Year		\$237,668	\$451,701	\$9,046	(\$32,650)
	Labor Escalation 1.025 (average ECI value since 2002)	1.025				

\$569,590 \$665,764

NOTES:

All cost estimates in USD

No change in recycling cost estimate with time. Increased recycling volume will offset inflation costs.

Demolition and Site Cleanu \$63,031.43

Decommissioning Project Cost Estimate – Eastern BESS Summary

Estimating Year	2021	2027
Project / Site Management, Preparation & Mobilization	\$ 38,040	\$ 44,115
Site Services (Electrical work, Labor for battery removal, Equipment Rental)	\$ 208,330	\$ 241,599
Battery Recycling	\$ -	\$ -
Transportation & Logistics	\$ 310,860	\$ 360,502
Site Restoration (Foundation Removal, Patch, Grade, Cleanup)	\$ 63,031	\$ 73,097
Contingency	\$ 93,039	\$ 107,897
Total	\$ 713,300	\$ 827,210

Decommissioning Project Cost Estimate – Escondido BESS Details

	Item	Units	Labor Cost	Material/Rental/Logistics Cost	Disposal Cost	Recycling Cost/Credits
	Number of Battery Modules (EOL)	19,200				
	Total Battery Module Weight (lbs)	2,112,000				
	Battery Module Recycling Cost					\$0
	Battery Module Disassembly Prior Recycling Cost					\$0
	Battery Modules per 40 x 48 Pallet	12				
Battery	Number of Pallets	1600				
	Number of Truck Loads	64				
	Hazardous Material Shipping Cost (\$/mi)	\$5.50				
	Battery Logistic Cost			\$915,200		
	Battery Module Removal and Packaging Cost (Labor and Materials)		\$528,000	\$40,000		
	Refrigerant Recovery and Preparation (added labor to remove HVAC)		\$42,240		\$14,400	
	Fire Suppression System Decommissioning/Agent Recovery		342,240		\$10,800	
Enclosure	Battery Enclosure Prep for Shipment Labor Cost (oversized)		\$31,680		\$10,000	
Eliciosure	Battery enclosure logistic costs (heavy/oversize load)		\$51,060	\$420,000		
	Battery enclosure recycle credit			\$420,000		(\$126,000)
	Battery enclosure recycle credit					(\$126,000)
	Inverter/PCS Coolant Disposal				\$0	
Inverter/PCS	Pad mounted Inverter/PCS Prep for Ship Labor Cost		\$0			
inverter/1 cs	Pad mounted Inverter/PCS logistics cost			\$0		
	Pad mounted Inverter/PCS recycle credit					\$0
	Pad mounted transformer prep for ship labor cost		\$6,600			
	Pad mounted transformer logistics cost			\$7,200		
Transformer	Pad mounted transformer recycle credit					(\$5,760)
	Transformer Oil recycling cost (\$/gallon)	\$0.21				\$1,159
	Oil collection/transport cost per transformer	\$500			\$6,000	
	Crane Rental Days	9				
	Crane Rental Cost /Day	\$6,500				
	Crane Rental Cost (2x to include load and unload)	\$0,500		\$117,000		
Crane/Forklift	Forklift Rental Days	22		\$117,000		
	Forklift Rental Cost /Day	\$700				
	Forklift Rental Cost	7700		\$15,400		
				¥25).00		
	Total Project Duration	46				
	Total Onsite Duration	24	4			
	Mobilization/LOTO	2	\$7,040			
Schedule/Other	Loading and Handling	31				
	Demobilization	1	\$3,520			
	Site Mangement		\$30,000			
	Project/Logisitcs Management		\$46,000			
	Total Cost Estimate (2021 dollars)		\$695,080	\$1,514,800	\$31,200	(\$130,601)
Estimates	Total Cost Estimate in Decommissiong Year		\$806,080	\$1,756,704	\$36,182	(\$130,601)
	Labor Escalation 1.025 (average ECI value since 2002)	1.025				

\$2,110,479 \$2,468,365

NOTES:

All cost estimates in USD

No change in recycling cost estimate with time. Increased recycling volume will offset inflation costs.

Demolition and Site Cleanu

\$208,487.72

Decommissioning Project Cost Estimate – Escondido BESS Summary

Estimating Year	2021	2027
Project / Site Management, Preparation & Mobilization	\$ 53,040	\$ 61,510
Site Services (Electrical work, Labor for battery removal, Equipment Rental)	\$ 764,559	\$ 886,654
Battery Recycling	\$ -	\$ -
Transportation & Logistics	\$ 1,243,440	\$ 1,442,009
Site Restoration (Foundation Removal, Patch, Grade, Cleanup)	\$ 208,488	\$ 241,782
Contingency	\$ 340,429	\$ 394,793
Total	\$ 2,609,956	\$ 3,026,749

SL-016628.A_SDGE Decom(Palomar)

Decommissioning Study

Prepared for San Diego Gas & Electric Company Palomar Energy Center

Prepared by Sargent & Lundy

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ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIX B. CONCEPTUAL COST ESTIMATE — FERC ACCOUNTS

APPENDIX C. EXPLANATION OF VARIANACE FROM THE PREVIOUS COST STUDY

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
СТ	combustion turbine
FERC	Federal Energy Regulatory Commission
G&A	general and administrative
GE	General Electric
GSU	generator step-up transformer
HRSG	heat recovery steam generator
Owner	San Diego Gas & Electric Company
Palomar	Palomar Energy Center
PCB	polychlorinated biphenyl
S&L	Sargent & Lundy, L.L.C.
SCR	selective catalytic reduction
SDG&E	San Diego Gas & Electric Company
ST	steam turbine

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual cost estimate for the dismantlement of Palomar Energy Center (Palomar) and estimate the average service life of the facility's peer group. Palomar is a 2x1 natural gasfired, combined-cycle project (588 MW) in Escondido, California. The work scope included updating the 2016 conceptual demolition cost estimate and report as well as conducting a benchmarking analysis for the facility.

METHODOLOGY

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in developing plant demolition costs and the existing S&L database for numerous other projects; (2) use of the unit cost factor methodology; and (3) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by SDG&E. These drawings and documents were used to estimate the building foundation sizes, building volumes, and quantities of steel, piping, valves, and other equipment. A site walkdown was performed to conduct a review of the site for dismantlement and determine any specific site-unique requirements. This site walkdown was performed in 2016; however, recent discussions with the Owner and facility management confirmed that no significant modifications have occurred since that time. This information was used with unit cost factors developed by S&L based on industry data and S&L experience. Unit cost factors for concrete removal, steel removal, cutting costs, etc. were developed from labor and material cost information. S&L estimated the quantities of recoverable metals that could be recovered and sold for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

The benchmarking analysis considers publicly available data to determine the average service life of similar facilities.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning Palomar is shown in Table ES-1. The cost estimate broken into FERC accounts is shown in Table ES-2. All costs are in 2021 U.S. dollars, and the total is the same in both tables: \$12,014,670. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

Table ES-1 — Palomar Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Cost	\$7,754,704	-
Labor	-	\$5,180,119
Subcontracts	ı	\$372,500
Equipment	-	\$1,440,078
Material	-	\$762,007
General Condition (Decommissioning Contractor Indirect) Costs	\$3,195,069	-
Scrap Value	(\$1,880,519)	-
Subtotal Demolition Contractor Costs	\$9,069,254	1
Project Indirect Costs	\$1,133,000	1
Engineering	-	\$231,000
SDG&E Internal Costs	-	\$902,000
Contingency Cost	\$1,812,416	-
Total Project Cost	\$12,014,670	-

Table ES-2 — Palomar Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
311	Other Production – Structures & Improvements	\$1,926,247
312	Boiler Plant Equipment	\$3,334,916
314	Turbo Generator Units	\$3,052,089
315	Accessory Electrical Equipment	\$484,650
316	Miscellaneous Power Plant Equipment	\$165,083
341	Other Production – Structures and Improvements	\$636,144
342	Other Production – Fuel Holders, Producers, and Accessories	\$346,465
344	Other Production – Generators	\$1,732,669
345	Other Production – Accessory Electric Equipment	\$336,407
-	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$12,014,670

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform a conceptual cost estimate for the dismantlement of the Palomar Energy Center (Palomar) in

Escondido, California and estimate the average service life of the facility's peer group. The work scope

included updating the 2016 conceptual demolition cost estimate report and performing a benchmarking

analysis.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers over the

years, the Sargent & Lundy Consulting Group has become one of the premier power project consultants in

the power industry. This commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineer services—including

decommissioning cost estimation and average service life evaluation—for both global and domestic electric

power assets.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimony services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations experience

to support consulting services such as those performed for Palomar.

1.3. FACILITY DESCRIPTION

Palomar, located in northern San Diego County, Escondido, California, consists of two GE Frame 7FA (PG7241FA) combustion turbine (CT) generators and a single steam turbine (ST) generator. Each CT exhausts into a separate heat recovery steam generator (HRSG), each of which has a selective catalytic reduction (SCR) system for NO_X reduction and an oxidation catalyst to reduce volatile organic compounds (VOCs) and carbon monoxide (CO). Each HRSG is also provided with natural gas-fired duct burners that provide additional steam production to increase the net plant generating output during peak load periods. The steam produced by the two HRSGs is supplied to a single ST generator. The turbine exhaust steam is condensed in a steam surface condenser by transferring the heat to the circulating cooling water. The heat in the circulating water is then rejected to the atmosphere in an evaporative cooling tower.

The nameplate rating (i.e., the full-load continuous rating of a generator under specified conditions as designated by the manufacturer) of Palomar is 588 MW following an uprate. Palomar is configured so that it may operate using either of the CTs alone or one CT with the ST. The CTs were up-rated to 176 MW nominal each, and the steam turbine was up-rated to 236 MW nominal. This gives Palomar operational flexibility to respond to a varying load demand while optimizing efficiency. With two CTs feeding two HRSGs feeding one steam turbine, this configuration is referred to as a 2x1 combined-cycle plant and is typical of modern high-efficiency plant installations of this capacity in use by utilities and merchant generators throughout the United States and abroad.

The CTs are capable of producing more power, and are more efficient, with colder inlet temperatures. As such, Palomar is equipped with a chiller system that can reduce the turbine inlet temperature to approximately 50°F. This reduction in temperature allows the plant to increase output on hot summer days when the system electrical demand is the highest.

2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of stochastic and

deterministic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of foundations, linear feet of piping, equipment, etc.). Stochastic methods were also used if

quantitative information (e.g., fire lines and hydrants, miscellaneous electrical equipment, etc.) was

unavailable.

The cost estimate was developed based on drawings, documents, and data provided by the Owner. These

drawings and documents were used to estimate the building foundation sizes, building volumes, steel

quantities, and the quantity of piping, valves, and other equipment.

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in

developing plant demolition cost and the existing S&L database for numerous other projects; (2) use of the

unit cost factor methodology; and (3) quotes for previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

include both summaries and details for each type of work performed, indirect costs, and contingencies. The

cost estimate database report lists costs by buildings, plant systems, and several other categories.

An inventory of plant piping, valves, equipment, HVAC ducts, concrete, galleries, cable tray, and other

equipment was developed based on a review of drawings and a site walkdown to conduct a review for

dismantlement and determine any specific site-unique requirements. This information was used with unit

cost factors developed by S&L based on industry data and S&L experience. Unit cost factors for concrete

removal, steel removal, cutting costs, and other tasks were developed from labor and material cost

information. S&L also estimated the quantities of recoverable metals that could be recovered and sold for

scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale

or other salvage value besides the value of scrap metal at the end of its life.

S&L worked from site general arrangement drawings and company documentation for the facilities,

including information about any existing metal cleaning storage ponds, asbestos inventories, biphenyl

(PCB) inventories, or sludge ponds. S&L relied on SDG&E to identify the location of environmental issues

that need to be considered in the estimates, since S&L's scope of work excludes doing a detailed survey

and testing program to identify such problems.

2.2. COST ESTIMATE SUMMARY

The summary of the cost estimate for decommissioning Palomar is shown in Table 2-1. The commercial and technical basis for the estimate is described in Section 0. The detailed estimate is included in Appendix A. The summary breakdown into FERC accounts is shown in Table 2-2, and the detailed allocation of FERC accounts is shown in Appendix B. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

The 2021 cost estimate format was changed to be consistent with S&L's current standards. The variance between the 2021 and 2016 cost estimate is shown in Appendix C.

Table 2-1 — Palomar Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Cost	\$7,754,704	-
Labor	-	\$5,180,119
Subcontracts	-	\$372,500
Equipment	-	\$1,440,078
Material	-	\$762,007
General Condition (Decommissioning Contractor Indirect) Costs	\$3,195,069	-
Scrap Value	(\$1,880,519)	-
Subtotal Demolition Contractor Costs	\$9,069,254	-
Project Indirect Costs	\$1,133,000	-
Engineering	_	\$231,000
SDG&E Internal Costs	-	\$902,000
Contingency Cost	\$1,812,416	-
Total Project Cost	\$12,014,670	-

Table 2-2 — Palomar Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
311	Other Production – Structures & Improvements	\$1,926,247
312	Boiler Plant Equipment	\$3,334,916
314	Turbo Generator Units	\$3,052,089
315	Accessory Electrical Equipment	\$484,650
316	Miscellaneous Power Plant Equipment	\$165,083
341	Other Production – Structures and Improvements	\$636,144

FERC No.	Description	Total Cost
342	Other Production – Fuel Holders, Producers, and Accessories	\$346,465
344	Other Production – Generators	\$1,732,669
345	Other Production – Accessory Electric Equipment	\$336,407
_	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$12,014,670

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for San Diego, California as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for arrival time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from supplied engineering information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included for the decommissioning contractor indirect costs in the cost estimate for the following:

- Labor supervision (additional compensation for labor foreman/supervisors)
- Construction management
- Field office expenses
- Safety
- Temporary facilities
- Mobilization/demobilization
- Legal expenses/claims
- Small tools and consumables
- General liability insurance
- Construction equipment mobilization/demobilization
- Freight on material
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

 Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions, as such the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is estimated at \$30/ton, resulting in the values shown in Table 3-1:

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
#2 Copper	6,145
#2 Insulated Copper Wire	2,440

Note: 1 ton = 2000 lbs.

6. Project Schedule

Palomar has an 18-month construction schedule.

7. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, the engineering required to place the plant in a safe shutdown, and any unique engineering required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the facility.

Table 3-2 — SDG&E Internal Costs in Support of Decommissioning

Activity	Estimated Cost
Labor to prepare the site for demolition, including drain oils, drain reagents, deenergization of the power buses, etc.	\$602,000
Site security	\$80,000
Subcontracts to remove chemicals, oils, and reagents from the site	\$100,000
SDG&E project management, permitting, and procurement	\$120,000
Total	\$902,000

¹ www.americanrecycler.com

8. Escalation Rates

Escalation rates were excluded from the estimates.

9. Sales and Use Taxes

Sales and use taxes were excluded from the estimates.

10. Contingency

- A 15% contingency is applied for labor, material, equipment, subcontracting, and indirect costs. General conditions (indirect demolition contractor costs) are allocated across labor, material, and equipment.
- There is no contingency on scrap value.

11. Contract Basis for Estimate

The contracting strategy is a multiple lump sum for the estimate.

12. Assumptions

- The facility will be in safe-shutdown mode and ready for a decommissioning contractor to start work.
- All chemicals and lubricating oils will be removed from the facilities to be demolished by the utility before demolition.
- No extraordinary environmental costs for demolition will be needed.
- There will be no PCBs on site at the time of demolition.
- Switchyards within the plant boundaries are not part of the scope, nor are access roads to these facilities.
- All items above grade and to a depth of one foot will be demolished. Any other items buried more than one foot deep will remain in place.
- Underground piping will be abandoned in place.
- Underground piping larger than four feet in diameter will be filled with sand or slurry and capped at the ends to prevent collapse (none noted at this site). Non-metal pipe will be collapsed.
- All demolished materials are considered debris, except for organic combustibles and nonembedded metals which have scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- Handling onsite and offsite disposal of hazardous materials will be performed in compliance with methods approved by SDG&E's Environmental Services Department.
- All borrow (fill) material is assumed to be from offsite sources.
- Catalyst is assumed to be removed and returned to the original equipment manufacturer before demolition.

4. REFERENCES

- 1. Sargent & Lundy Cost Data Base
- 2. RSMeans Cost Data, 2021.
- 3. Engineering Drawings, Equipment Lists, O&M Records and other information provided by the San Diego Gas & Electric.
- 4. 2020 Form EIA-860 Data Schedule 3, "Generator Data" (Retired & Canceled Units Only)
- 5. Scrap Metals MarketWatch, West Coast (Zone 1), www.americanrecycler.com

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DISMANTLE PALOMAR ENERGY CENTER

SAN DIEGO GAS & ELECTRIC PALOMAR ENERGY CENTER DECOMMISSIONG STUDY

Estimator GA

Labor rate table 21CASAN

 Project No.
 A14520.001

 Estimate Date
 11/30/21

Reviewed By BA
Approved By BA
Estimate No. 30611C

SAN DIEGO GAS & ELECTRIC PALOMAR ENERGY CENTER DECOMMISSIONG STUDY

Estimate No.: 30611C Project No.: A14520.001 Estimate Date: 11/30/21 Prep./Rev/App.: GA/BA/BA



Group	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00	WHOLE PLANT DEMOLITION				57,055	4,734,896	1,314,594	6,049,490
18.00.00	SCRAP VALUE		(1,880,519)		0			(1,880,519)
21.00.00	CIVIL WORK	372,500		334,807	4,169	310,245	102,647	1,120,198
22.00.00	CONCRETE			427,200	1,780	134,977	22,837	585,015
	TOTAL DIRECT	372,500	(1,880,519)	762,007	63,004	5,180,119	1,440,078	5,874,185

Estimate No.: 30611C Project No.: A14520.001 Estimate Date: 11/30/21 Prep./Rev/App.: GA/BA/BA



Estimate Totals

Description	Amount	Totals	Hours
Labor	5,180,119		63,004 hrs
Material	762,007		
Subcontract	372,500		
Construction Equipment	1,440,078		hrs
Scrap Value	(1,880,519)		
	5,874,185	5,874,185	
General Conditions			
Additional Labor Costs			
90-1 Labor Supervision	310,807		
90-2 Show-up Time	103,602		
90-3 Cost Due To OT 5-10's			
90-4 Cost Due To OT 6-10's			
90-5 Per Diem			
Site Overheads			
91-1 Construction Management	559,453		
91-2 Field Office Expenses	123,080		
91-3 Material&Qualitv Control 91-4 Site Services			
91-5 Safety	110,520		
91-6 Temporary Facilities	84,086		
91-7 Temporary Utilities	04,000		
91-8 Mobilization/Demob.	88,617		
91-9 Legal Expenses/Claims	13,091		
Other Construction Indirects			
92-1 Small Tools & Consumables	55,945		
92-2 Scaffolding			
92-3 General Liability Insur.	55,945		
92-4 Constr. Equip. Mob/Demob	144,008		
92-5 Freight on Material	38,100		
92-6 Freight on Scrap			
92-7 Sales Tax 92-8 Contractors G&A	000 004		
92-9 Contractors G&A 92-9 Contractors Profit	620,864 886,951		
92-9 Contractors i Tont	3,195,069	9,069,254	
	0,100,000	3,003,204	
Project Indirect Costs			
93-1 Engineering Services	231,000		
93-2 CM Support			
93-3 Start-Up/Commissioning			
93-4 Start-Up/Spare Parts			
93-5 Excess Liability Insur.			
93-6 Sales Tax On Indirects			
93-7 SDG&E Internal Costs	902,000		
93-8 EPC Fee	1,133,000	10,202,254	
Contingency 94-1 Contingency on Const Eq	274,335		
94-3 Contingency on Material	140,419		
94-4 Contingency on Labor	1,171,837		
94-5 Contingency on Subcontr.	55,875		
94-6 Contingency on Scrap	00,010		
94-7 Contingency on Indirect	169,950		
= Contingency on maneet	1,812,416	12,014,670	
	1,012,410	12,014,070	
Escalation			
96-1 Escalation on Const Equip			
96-3 Escalation on Material			
96-4 Escalation on Labor			
96-5 Escalation on Subcontract			
96-6 Escalation on Scrap			
96-7 Escalation on Indirects			
		12,014,670	
98 Interest During Constr			
55 Interest During Coribii		12,014,670	
		12,014,010	



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00		WHOLE PLANT DEMOLITION									
	10.21.00	CIVIL WORK									
		PAVED SURFACES, 6 IN THICK	STEAM PLANT	3,744.00 SY	=	-		449	39,919	20,748	60,666
		PAVED SURFACES, 6 IN THICK CIVIL WORK	OTHER PRODUCTION	3,744.00 SY	-	-		449 ₋ 899	39,919 79,837	20,748 41,496	60,666 121,333
		CIVIL WORK						033	19,031	41,430	121,333
	10.22.00	CONCRETE									
		COMBUSTION TURBINE AREA MAT @ NORTH END	U-1, 2004-005-SF-005	33.00 CY	-	-		37	3,313	816	4,129
		COMBUSTION TURBINE AREA MAT @ NORTH END	U-2, 2004-005-SF-005	30.00 CY	-	-		34	3,012	742	3,754
		PEECC & ACCESSORY MODULE FDN	U-1, 2004-005-SF-006	389.00 CY 63.00 CY	=	-		438 71	39,054	9,623 1,559	48,677 7,883
		COMBUSTION TURBINE AREA MAT AT EAST END COMBUSTION TURBINE AREA MAT AT EAST END	U-1, 2004-005-SF-007A U-2, 2004-005-SF-007B	121.00 CY	-	-		136	6,325	2,993	7,003 15,141
		STEAM TURBINE GEN FDN BASE MAT	U-3, 2004-005-SF-009	1,322.00 CY	-	-		1,487	12,148 132,722	32,705	165,427
		COOLING TOWER FDN	U-3, 2004-005-SF-021A	1,544.00 CY	-	_		1,737	155,010	38,197	193,207
		HRSG / STACK FDN	U-1, 2004-005-SF-025	948.00 CY	_	_		1,067	95,174	23,452	118,627
		HRSG / STACK FDN	U-2, 2004-005-SF-025	948.00 CY	_	-		1,067	95,174	23,452	118,627
		HRSG EAST AREA MAT	U-1, 2004-005-SF-028	197.00 CY	=	=		222	19,778	4,874	24,651
		HRSG EAST AREA MAT	U-2, 2004-005-SF-028	160.00 CY	=	=		180	16,063	3,958	20,021
		CTG STEP-UP TRANSFORMER AND AUX TRNSFORMER	U-1, 2004-005-SF-029A	250.00 CY	=	=		281	25,099	6,185	31,283
		FDNS CTG STEP-UP TRANSFORMER AND AUX TRNSFORMER	U-2, 2004-005-SF-029B	241.00 CY	-	-		271	24,195	5,962	30,157
		FDNS									
		STG ROTOR REMOVAL PLATFORM FDN STG STEP-UP TRANSFORMER AND AUX TRNSFORMER	U-3, 2004-005-SF-030	35.00 CY	-	-		39	3,514	866	4,380 22,524
		FDNS	U-3, 2004-005-SF-031	180.00 CY	-	-		203	18,071	4,453	22,524
		5 KV SWITCHGEAR MODULE FDN	U-3, 2004-005-SF-033	116.00 CY	_	_		131	11,646	2,870	14,516
		EXCITATION XFMR & ISOLATION XFMR	U-2, 2004-005-SF-034	49.00 CY	_	_		55	4,919	1,212	6,132
		AQUEOUS AMMONIA STORAGE TANK AND UNLOADING AREA FDNS	U-2, 2004-005-SF-037	196.00 CY	-	-		221	19,677	4,849	24,526
		FUEL GAS COMPRESSOR FDN	U-0, 2004-005-SF-040	161.00 CY	_	-		181	16,164	3,983	20,147
		FINGER RACK AREA MAT	U-1, 2004-005-SF-047A	248.00 CY	_	-		279	24,898	6,135	31,033
		FINGER RACK AREA MAT	U-2, 2004-005-SF-047B	236.00 CY	_	-		266	23,693	5,838	29,532
		WEST AREA MAT @ TUR-CTG1-01	U-1, 2004-005-SF-053	142.00 CY	=	=		160	14,256	3,513	17,769
		WEST AREA MAT @ TUR-CTG2-01	U-2, 2004-005-SF-054	143.00 CY	-	-		161	14,356	3,538	17,894
		COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS	U-2, 2004-005-SF-060A & B	239.00 CY	-	=		269	23,994	5,913	29,907
		STG WEST AREA MAT	U-3, 2004-005-SF-061	49.00 CY	=	-		55	4,919	1,212	6,132
		TRAVELLING TOWER CONSTRUCTION CRANE FDN	U-0 2004-005-SF-078	117.00 CY	=	-		132	11,746	2,894	14,641
		STATIONARY TOWER CONSTRUCTION CRANE FDN	U-0 2004-005-SF-079	162.00 CY	=	-		182	16,264	4,008	20,272
		STG NORTH ARE MAT	U-0 2004-005-SF-080A	341.00 CY	-	-		384	34,235	8,436	42,671
		RO PERMEATE STORAGE TANK FDN	U-0 2004-005-SF-082	25.00 CY	-	-		28	2,510	618	3,128
		RAW WATER STORAGE TANK FDN	U-0 2004-005-SF-089	57.00 CY	-	-		64	5,723	1,410	7,133
		DEMIN WATER STORAGE TANK FDN	U-0 2004-005-SF-090	52.00 CY	-	-		59	5,221	1,286	6,507
		THERMAL ENERGY STORAGE (TES) TANK FDN	U-0 2004-005-SF-090	364.00 CY	-	-		410	36,544	9,005	45,549
		MISC FDNS	U-0 2004-005-SF, 50% Steam Plant	278.00 CY	-	-		313	27,910	6,877	34,787
		MISC FDNS	U-0 2004-005-SF, 50% Steam Plant	278.00 CY	-	-		313	27,910	6,877	34,787
		ADMINISTRATION/WAREHOUSE/SHOP WT BLDG	U-0, 130'X34'X2'+100'X11'X2' - 50% Steam Plant	205.00 CY	-	-		231	20,581	5,071	25,652
		ADMINISTRATION/WAREHOUSE/SHOP WT BLDG	U-0, 130'X34'X2'+100'X11'X2' - 50% Steam Plant	205.00 CY	-	-		231	20,581	5,071	25,652
		CHILLER PREFAB FLDG	U-3, S200	467.00 CY				525	46,884	11,553	58,437
		TOOL STORAGE BLDG (#127)	50% Steam Plant	67.00 CY	-	-		75	6,726	1,658	8,384
		TOOL STORAGE BLDG (#127)	50% Other Plant	67.00 CY	-	-		75	6,726	1,658	8,384
		WATER LAB	U-0, 40'X35'X2'	104.00 CY	-	-		117	10,441	2,573	13,014
		FAB SHOP	U-0, 20'X40'X2'	59.00 CY	_	-		66	5,923	1,460	7,383
		SWITCHGEAR BUILDING	U-0, 5'X35'X2'	13.00 CY	=	=		15	1,305	322	1,627
		NEW CT2 LCI W/PDC BUILDING	U-2, 12'X20'X2'	17.00 CY	-	-		19	1,707	421	2,127
		DIESEL GENERATOR FDN	U-0, 12'X26'X1.5'	18.00 CY	=	=		20	1,807	445	2,252
		GANTRY CRANE FDN		95.00 CY	-	-		107	9,538	2,350	11,888
		THERMAL ENERGY STORAGE (TES) TANK (#119)	U-0 3600000 GALLON, 120' DAI X 48' HIGH - CONCRETE	1,052.00 CY	-	-		1,184	105,616	26,025	131,641
		TURBINE PEDESTAL	U-1, 2004-005-SF-001	742.00 CY	-	-		1,336	119,189	29,370	148,559
		TURBINE PEDESTAL	U-2, 2004-005-SF-001	742.00 CY	-	-		1,336	119,189	29,370	148,559
		STEAM TURBINE GEN COLUMNS	U-3, 2004-005-SF-009	707.00 CY	=	=		1,273	113,567	27,984	141,551
		STEAM TURBINE ELEVATED SLAB	U-3, 2004-005-SF-011	778.00 CY	=	=		1,400	124,972	30,795	155,767
		CONCRETE						18,938	1,689,989	416,437	2,106,427



) Phase	e Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cos
10.24.00	ARCHITECTURAL									
	ADMINISTRATION BUILDING	U-2, 70X90'X25' HIGH - 50% Steam Plant	78,750.00 CF	-	-		236	19,663	6,551	26
	ADMINISTRATION BUILDING	U-2, 70X90'X25' HIGH - 50% Other Plant	78,750.00 CF	-	-		236	19,663	6,551	26
	CHILLER BUILDING	U-0, 140'X45X'25' STEEL BLDG	157,500.00 CF	-	-		473	39,326	13,102	52
	PROCESS BUILDING	U-0, 40'X90'25' STEEL BLDG	90,000.00 CF	-	=		270	22,472	7,487	29
	TOOL STORAGE BUILDING TOOL STORAGE BUILDING	U-0, 40'X90'25' STEEL BLDG - 50% Steam Plant U-0, 40'X90'25' STEEL BLDG - 50%	45,000.00 CF 45,000.00 CF	-	-		135 135	11,236 11,236	3,744 3,744	1.
		Other Plant								
	ELECTRICAL EQUIPMENT / CONTROL BUILDING	U-0, 30'X90'X25' - 50% Steam Plant	33,750.00 CF	-	-		101	8,427	2,808	1
	ELECTRICAL EQUIPMENT / CONTROL BUILDING WATER LAB BUILDING	U-0, 30'X90'X25' - 50% Other Plant U-0, 40'X35'X25'	33,750.00 CF	-	-		101 105	8,427 8,739	2,808 2,912	1
	FABRICATION SHOP BUILDING	U-0, 20'X40'X18'	35,000.00 CF 14,400.00 CF	-	-		43	3,596	1,198	1
	SWITCHGEAR BUILDING	U-0, 5'X35'X18'	3,150.00 CF	_	_		9	787	262	
	CT2 LCI W/PDC BUILDING	U-2, 12'X20'X9'	2,200.00 CF	_	_		7	549	183	
	ELEVATOR	-, ·-··-·	1.00 EA	_	_		200	15,988	4,554	2
	ARCHITECTURAL						2,052	170,109	55,903	220
10.26.00										
	MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE		1.00 LT	₽	=		500	39,970	11,385	5
	MISCELLANEOUS STRUCTURAL ITEM						500	39,970	11,385	5
10.31.00										
	COMBUSTION TURBINE	U-1, GE PG7241FA C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS, INLET AIR FILTERS SILENCING & EVAP COOLERS, 180'X75'X31'	854.00 TN	-	-		2,989	238,941	68,060	30
	COMBUSTION TURBINE	INLET CHILLER COILS U-2, GE PG7241FA C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS, INLET AIR FILTERS SILENCING & EVAP COOLERS, 180'X75'X31'	854.00 TN	-	-		2,989	238,941	68,060	3
	HEAT RECOVERY STEAM GENERATOR	INLET CHILLER COILS U-1, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR INC 110' STACK	2,156.00 TN	-	-		7,546	603,227	171,822	7
	HEAT RECOVERY STEAM GENERATOR	U-2, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR INC 110' STACK	2,156.00 TN	-	-		7,546	603,227	171,822	7
	STEAM TURBINE GENERATOR	235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES	465.00 TN	-	-		1,628	130,102	37,058	16
	CT INLET CHILLER	U-1	220.00 TN	-	=		446	35,613	10,144	4
	CT INLET CHILLER	U-2	220.00 TN	-	-		446	35,613	10,144	4
	AIR COMPRESSOR, CENTRIFUGAL	U-0, 2 @ 1335 SCFM STATION	9.00 TN	-	-		18	1,457	415	
	NATURAL GAS COMPRESSOR	U-0, 3 @ 2300 HP EA INCL VOLUME TANKS AND AFTERCOOLERS	300.00 TN	-	-		608	48,564	13,833	'
	DEMIN WATER STORAGE TANK (#032)	U-0, 200000 GALLON, 38' DIA X 25' HIGH	28.00 TN	-	-		76	6,043	1,721	
	RAW/FIRE WATER STORAGE TANK (#034)	U-0 730000 GALLON, 58' DIA X 40' HIGH - 50% Steam Plant	40.00 TN	=	=		108	8,634	2,459	•
	RAW/FIRE WATER STORAGE TANK (#034)	U-0 730000 GALLON, 58' DIA X 40'	40.00 TN	-	-		108	8,634	2,459	1
	RO PERMEATE STORAGE TANK (#674)	HIGH - 50% Other Plant U-0, 60000 GALLON, 25' DIA X 18'	11.00 TN	-	-		30	2,374	676	
	AQUEOUS AMMONIA STORAGE TANK (#164) WATER TREATMENT DEMINERALIZATION & CHEMICAL TREATMENT EQUIPMENT	HIGH U-0, 20000 GALLON,	6.00 TN 30.00 TN	-	-		16 61	1,295 4,856	369 1,383	
	GANTRY CRANE		225.00 TN				608	48,564	13,833	6
	BRIDGE CRANE	SDG&E/Depreciation/	Exh244099 SD0	- G&E-36-WP-S/ P\$* 5f 322	Witness: D. A.	Watson	621	49,643	14,140	6



Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.31.00	MECHANICAL EQUIPMENT									
	CONDENSATE PUMPS	U-0, 3 @ 1400 GPM & 625 TDH, 300 HP	4.00 TN	=	=		11	863	246	1,
	CIRC WTR PUMPS	U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP	20.00 TN	-	-		54	4,317	1,230	5,5
	CONDENSATE PUMPS	U-0, 3 @ 1400 GPM & 625 TDH, 300	4.50 TN	-	-		12	971	277	1,2
	CT LUBE OIL SYSTEM INCL FIN FAN COOLER	HP U-1	3.00 TN				12	959	273	1,2
	CT LUBE OIL SYSTEM INCL FIN FAN COOLER	U-2	3.00 TN				12	959		-, 1,
	BOILER FEED PUMPS	U-1, 2 @ 1350 GPM FOR HRSGS, 2150 HP	3.00 TN	-	-		12	959		1,
	BOILER FEED PUMPS	U-2, 2 @ 1350 GPM FOR HRSGS, 2150 HP	5.00 TN	-	-		20	1,599	455	2,
	CLOSED COOLING WATER PUMPS	U-3, 2 @ 7000 GPM @ 213 TDH, 550 HP	4.00 TN	=	=		16	1,279	364	1,
	1.6 MW DIESEL GENERATOR	ПЕ	19.00 TN				76	6,075	1,731	7
	CCW HEAT EXCHANGER	U-3, 2 EA SS PLATE & FRAMED DESIGN, 7000 GPM	1.00 TN	-	-		5	400		7,
	FUEL GAS PREHEAT	U-3, 2 SHELL & TUBE HT EX	1.00 TN				5	400	114	
	BACKUP CIRC WTR MAKEUP PUMP	U-3, 1 , 40 HP	0.20 TN	-	-		1	80		
	FIRE PUMPS	U-0, 2 @ 1500 GPM @ 125 PSI, 300	1.50 TN	-	-		8	600		
		HP					_			
	AUX ILIARY COOLING WATER	U-3, 1 @ 2400GPM	1.00 TN	-	-		5	400		
	COOLING TOWER MAKEUP	U-3, 1 @ 4550 GPM & 65' TDH	1.00 TN	-	-		5	400		
	DEMIN WTR PUMPS	U-3, 2 @ 290 GPM & 90' TDH, 20 HP	0.20 TN	-	-		1	80		
	EVAP COOLERS BLEND WATER PUMPS PUMPS, FUEL OIL UNLOADING, FORWARDING, DIRTY	U-3, 2 @ 125 GPM & 148 TDH NOT INCLUDED	1.00 TN TN	-	-		5	400	114	
	CLEAN OIL TRANSFER	11.0.2 @ 270 CDM 8 400 TDU 45 UD	0.20 TN				4	00	22	
	RAW WATER RO SUPPLY PUMPS HRSG BLOWDOWN SUMP PUMPS	U-0, 3 @ 270 GPM & 180' TDH, 15 HP U-1, 1 @ 500 GPM & 50' TDH	0.20 TN 0.20 TN	-	-		1	80 80		
		VERTICAL, 20 HP					·			
	HRSG BLOWDOWN SUMP PUMPS	U-2, 1 @ 500 GPM & 50' TDH VERTICAL, 20 HP	0.20 TN	=	=		1	80		
	WASTEWATER SUMP PUMPS	U-1, 1 @ 600 GPM & 46' TDH VERTICAL, 20HP	0.20 TN	-	=		1	80		
	WASTEWATER SUMP PUMPS	U-2, 1 @ 600 GPM & 46' TDH VERTICAL, 20HP	0.20 TN	-	-		1	80	23	
	SERVICE WATER PUMPS	U-0, 1 @ 300 GPM & 145' TDH, 25 HP	0.20 TN	-	-		1	80	23	
	VACUUM PUMPS	U-0, 2 @ 75 HP	0.60 TN	-	-		3	240	68	
	CONDENSER	U-3, SURFACE CONDENSER 2 PASS	366.00 TN	-	-		741	59,248		7
	COOLING TOWER	U-3, 7-CELL INLINE WET WOOD COUNTERFLOW, MARLEY	897,600.00 CF	-	-		1,795	143,508	40,877	184
	MECHANICAL EQUIPMENT						28,646	2,289,943	652,264	2,942
10.35.00	PIPING									
	PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT - 67% Steam Plant	222.00 TN	-	-		450	35,937		46
	PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT - 33% Other Plant	109.00 TN	-	-		221	17,645		22
	PIPING, VALVES AND HANGERS	U2, 14,300 LF/UNIT - 67% Steam Plant	236.00 TN	-	-		478	38,203		4
	PIPING, VALVES AND HANGERS	U2, 14,300 LF/UNIT - 33% Other Plant	116.00 TN	-	-		235	18,778		2
	FIRE LINES & HYDRANTS	U-0, ABANDON UNDERGND LINES REMOVE HYDRANTS, 50% Steam	1.00 LT	-	-		40	3,198	911	•
	FIRE LINES & HYDRANTS	Plant U-0, ABANDON UNDERGND LINES	1.00 LT	-	-		40	3,198	911	
	PIPING	REMOVE HYDRANTS, 50% Other Plant					1,463	116,958	33,314	150
10.41.00	ELECTRICAL EQUIPMENT									
10.41.00	TRANSFORMERS	U-1, U-2, 67% Steam Plant	261.00 TN				697	49,354	15,880	6
	TRANSFORMERS	U-1, U-2, 33% Other Plant	129.00 TN	-	-		345	24,394		3
	MISC ELECT EQUIPMENT	U-1, U-2, 33% Other Plant	60.00 TN	-	-		160	11,346		1
		U-1, U-2, 67% Steam Plant	122.00 TN	_	-		326	23,070		3
	MISC ELECT EQUIPMENT									
	MISC ELECT EQUIPMENT OUTDOOR LIGHT POLE / FIXTURE	U-0		-	-					
	OUTDOOR LIGHT POLE / FIXTURE	U-0	1.00 LT	=	- -		150	10,616	3,416	14
				- - -	- - -				3,416 1,139	14 4 4



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
		CONDUIT	Steam Plant 67% U-1	30,150.00 LF	-	-		302	24,102	6,865	30,967
		CONDUIT	Other Plant 33% U-1	14,850.00 LF	-	=		149	11,871	3,381	15,252
		CONDUIT	Steam Plant 67% U-2	30,150.00 LF	=	=		302	24,102	6,865	30,967
		CONDUIT	Other Plant 33% U-2	14,850.00 LF	-	-		149	11,871		15,252
		CABLE TRAY	Steam Plant 67% U-1	1,675.00 LF	-	-		67	5,356		6,882
		CABLE TRAY	Other Plant 33% U-1	825.00 LF	-	-		33	2,638		3,389
		CABLE TRAY	Steam Plant 67% U-2	1,675.00 LF	-	=		67	5,356		6,882
		CABLE TRAY	Other Plant 33% U-2	825.00 LF	-	-		33 .	2,638		3,389
		RACEWAY, CABLE TRAY, & CONDUIT						1,100	87,934	25,047	112,981
	10.43.00	CABLE									
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	Steam Plant 67% U-1	19,430.00 LF	=	-		194	15,532	4,424	19,957
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 33% U-1	9,570.00 LF	-	-		96	7,650	2,179	9,829
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	Steam Plant 67% U-2	19,430.00 LF	-	=		194	15,532	4,424	19,957
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 33% U-2	9,570.00 LF	-	=		96	7,650	2,179	9,829
		COPPER WIRE / CABLE - LOW VOLTAGE	Steam Plant 67% U-1	67,000.00 LF	-	-		335	26,780	7,628	34,408
		COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-1	33,000.00 LF	=	=		165	13,190	3,757	16,947
		COPPER WIRE / CABLE - LOW VOLTAGE	Steam Plant 67% U-2	67,000.00 LF	-	=		335	26,780	7,628	34,408
		COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-2	33,000.00 LF	-	-		165	13,190	3,757	16,947
		CABLE						1,580	126,305	35,977	162,282
	10.44.00	CONTROL & INSTRUMENTATION									
		CONTROL & INSTRUMENTATION		1.00 LT	-	-		100	7,994		10,271
		CONTROL & INSTRUMENTATION						100	7,994	2,277	10,271
		WHOLE PLANT DEMOLITION						57,055	4,734,896	1,314,594	6,049,490
18.00.00		SCRAP VALUE									
10.00.00											
	18.10.00	MIXED STEEL									
		CARBON STEEL		-4,435.00 TN	-	(776,125)	-				(776,125)
		CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63	-79.00 TN	-	(13,825)	-				(13,825)
		CARBON STEEL	LBS/LF CONDUIT, 1.5" DIA. AVG SIZE, 2.63	-39.00 TN	-	(6,825)	-				(6,825)
		OADDOM OTES	LBS/LF			// =00)					// =00
		CARBON STEEL	CABLE TRAY, 6 LBS/LF	-10.06 TN	-	(1,760)	-				(1,760)
		CARBON STEEL	CABLE TRAY, 6 LBS/LF	-4.96 TN	-	(868)	-				(868)
		CARBON STEEL		-1,325.00 TN	-	(231,875)	-				(231,875)
		CARBON STEEL	COOLING TOWER	-255.00 TN	-	(44,625)	-				(44,625)
		CARBON STEEL CARBON STEEL	COOLING TOWER	-350.00 TN -230.00 TN	-	(61,250) (40,250)	-				(61,250) (40,250)
		CARBON STEEL		-782.00 TN	-	(136,850)	-				(136,850)
		CARBON STEEL		-1,939.00 TN	-	(339,325)	_				(339,325)
		CARBON STEEL	BUILDINGS	-154.00 TN	-	(26,950)	_				(26,950)
		CARBON STEEL	BUILDINGS	-1.87 TN	_	(327)	_				(327)
		CARBON STEEL	BUILDINGS	-60.16 TN	_	(10,528)	_				(10,528)
		CARBON STEEL	MISC ELECT EQUIPMENT	-122.00 TN	_	(21,350)	_				(21,350)
		CARBON STEEL	MISC ELECT EQUIPMENT	-60.00 TN	_	(10,500)	_				(10,500)
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-261.00 TN	_	(91,350)	_	0			(91,350)
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-129.00 TN	-	(45,150)	-	0			(45,150)
		MIXED STEEL				(1,859,734)		0		=	(1,859,734)
	40.05.55	CORRER									
	18.30.00	COPPER	210 242								
		#2 SOLID COPPER / TUBING	BUS BAR	-0.67 TN	-	(4,117)	-				(4,117)
		#2 SOLID COPPER / TUBING	BUS BAR	-0.33 TN	-	(2,028)	-				(2,028)
		#2 INSULATED COPPER WIRE		-4.00 TN	-	(9,760)	-				(9,760)
		#2 INSULATED COPPER WIRE		-2.00 TN	-	(4,880)	-			-	(4,880)
		COPPER				(20,785)					(20,785)
		SCRAP VALUE				(1,880,519)		0			(1,880,519)
21.00.00		CIVIL WORK									
	21.18.00	HAULING									
	25.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED.	713.00 CY	14,260	-					14,260
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE	/Evanskii an ortoo	> 0 ⊏ 3 € \ \	Mitnoss: D A	Mataos				12,480
		TIMOLING TO ILLUTOLL LAGILITY	CONCREDIC & EPIS LEPT CONCRED TO	LXUALON PAIO	oal-30-VVピッツ	withess: D. A.	vvaison				12,400



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	21.18.00	HAULING			0031						
	21.10.00	HAULING TO RECYCLE FACILITY	DEBRIS IS RECYCLED. NO DISPOSAL FEE	624.00 CY	12,480	-					12,480
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	4,611.00 CY	92,220	-					92,220
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	4,625.00 CY	92,500	-					92,500
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	309.00 CY	6,180	=					6,180
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	113.00 CY	2,260	-					2,260
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,319.00 CY	26,380	-					26,380
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	685.00 CY	13,700	-					13,700
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	2,120.00 CY	42,400	-					42,400
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	557.00 CY	11,140	-					11,140
		HAULING TO RECYCLE FACILITY	CONCRETE PAVED SURFACES DEBRIS IS RECYCLED. NO DISPOSAL FEE	624.00 CY	12,480	-					12,480
		HAULING	DIOI GONET EE		326,000					-	326,000
	21.21.00	MASS FILL									
		MASS FILL, COMMON EARTH 6 INCHES THICK MASS FILL	COVER DISTURBED AREAS OF SITE	12,907.00 CY	-	-	296,861 296,861	452 452	41,163 41,163		381,382 381,382
	21.47.00	LANDSCAPING									
		FINE GRADING, SEEDING & FERTILIZER LANDSCAPING		77,440.00 SY	-	-	37,946 37,946	3,717 3,717	269,082 269,082		366,316 366,316
	21.52.00	WASTE DISPOSAL									
		DISPOSAL AND TRANSPORTATION FEE WASTE DISPOSAL	RUBBISH & TENANT DEBRIS	1,550.00 CY	46,500 46,500	=				-	46,500 46,500
		CIVIL WORK			372,500		334,807	4,169	310,245	102,647	1,120,198
22.00.00		CONCRETE									
22.00.00	22.13.00	CONCRETE									
		FLOWABLE FILL, 1500 PSI	BURIED CIRCULATING WATER PIPES, 84" DIA X 2500LF	3,560.00 CY	=	-	427,200	1,780	134,977	22,837	585,015
		CONCRETE	·				427,200	1,780	134,977	22,837	585,015
		CONCRETE					427,200	1,780	134,977	22,837	585,015

APPENDIX B. CONCEPTUAL COST ESTIMATE — FERC ACCOUNTS

Estimator GA

Labor rate table 21CASAN

Project No. A14520.001
Estimate Date 11/30/21
Reviewed By BA
Approved By BA
Estimate No. 30611C

Estimate No.: 30611C
Project No.: A14520.001
Estimate Date: 11/30/21
Prep/Rev/App: GA/BA/BA



Area	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
311	STRUCTURES AND IMPROVEMENTS	92,941	(26,950)	521,949	6,933	1,044,589	293,718	1,926,247
312	BOILER PLANT EQUIPMENT	117,026	(776,125)		20,604	3,244,452	749,563	3,334,910
314	TURBO GENERATOR UNITS	117,382	(293,125)	665,986	13,189	2,114,178	447,667	3,052,089
315	ACCESSORY ELECTRIC EQUIPMENT	7,842	(142,490)		3,333	497,309	121,988	484,650
316	MISCELLANEOUS POWER PLANT EQUIPMENT	2,868	(44,625)		1,079	167,391	39,449	165,08
341	OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS	49,313	(50,778)		3,067	506,211	131,398	636,14
342	OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES	17,385	(136,850)		2,389	379,225	86,704	346,46
344	OTHER PRODUCTION - GENERATORS	53,805	(339,325)		10,344	1,642,844	375,345	1,732,66
345	OTHER PRODUCTION - ACCESSORY ELECTRIC	14,137	(70,251)		2,066	317,493	75,029	336,40

Estimate No.: 30611C Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC PALOMAR ENERGY CENTER DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Estimate Totals

Description	Amount	Totals	Hours
Labor	9,913,692		63,004
Material Subcontract	1,187,936 472.699		
Subcontract Construction Equipment	2.320.861		
Scrap Value	(1,880,519)		
	12,014,669	12,014,669	
General Conditions			
Additional Labor Costs			
Site Overheads			
Other Construction Indirects			
		12,014,669	
Project Indirect Costs			
		12,014,669	
Contingency			
		12,014,669	
Escalation			
		12,014,669	
Total		12,014,669	
General Conditions, Indirect Costs and Conting	ency are allocated in	the line items above.	

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	0	Di	D	N. c	0	Subcontract	0	Material 10	Man II	Labor 2	Family 4	T-4-LC
Area	Group	Phase	Description	Notes	Quantity	Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
311	10.00.00		STRUCTURES AND IMPROVEMENTS WHOLE PLANT DEMOLITION									
		10.21.00	CIVIL WORK									
			PAVED SURFACES, 6 IN THICK	STEAM PLANT	3,744.00 SY	-	-		449	76,396	33,438	109,833
			CIVIL WORK						449	76,396	33,438	109,833
		10.22.00	CONCRETE									
			MISC FDNS ADMINISTRATION/WAREHOUSE/SHOP WT BLDG	U-0 2004-005-SF, 50% Steam Plant U-0, 130'X34'X2'+100'X11'X2' - 50% Steam	278.00 CY 205.00 CY				313 231	53,414 39,388	11,084 8,173	64,497 47,561
			A SECOND TO THE PROPERTY OF THE PERSON OF TH	Plant	250.00 01				201		0,170	17,001
			TOOL STORAGE BLDG (#127)	50% Steam Plant	67.00 CY	-	-		75	12,873	2,671	15,544
			WATER LAB FAB SHOP	U-0, 40'X35'X2' U-0, 20'X40'X2'	104.00 CY 59.00 CY				117 66	19,982 11,336	4,146 2,352	24,129 13,688
			CONCRETE	,					802	136,993	28,427	165,420
		10.24.00	ARCHITECTURAL									
			ADMINISTRATION BUILDING	U-2, 70X90'X25' HIGH - 50% Steam Plant	78,750.00 CF	-	-		236	37,631	10,558	48,189
			CHILLER BUILDING	U-0, 140'X45X'25' STEEL BLDG	157,500.00 CF	-	-		473	75,262	21,116	96,378
			PROCESS BUILDING TOOL STORAGE BUILDING	U-0, 40'X90'25' STEEL BLDG U-0, 40'X90'25' STEEL BLDG - 50% Steam	90,000.00 CF 45,000.00 CF	-			270 135	43,007 21,503	12,066 6,033	55,073 27,537
			TOOL STONAGE BUILDING	Plant	40,000.00 01				100	21,303	0,000	21,551
			ELECTRICAL EQUIPMENT / CONTROL BUILDING	U-0, 30'X90'X25' - 50% Steam Plant	33,750.00 CF	-	-		101	16,128	4,525	20,653
			WATER LAB BUILDING	U-0, 40'X35'X25'	35,000.00 CF	-	-		105	16,725	4,692	21,417
			FABRICATION SHOP BUILDING ARCHITECTURAL	U-0, 20'X40'X18'	14,400.00 CF	-	-		43 1,363	6,881 217,138	1,931 60,922	8,812 278,059
		10.41.00	ELECTRICAL EQUIPMENT									
		10.41.00	OUTDOOR LIGHT POLE / FIXTURE	U-0	1.00 LT				150	20,316	5,504	25,820
			ELECTRICAL EQUIPMENT						150	20,316	5,504	25,820
			WHOLE PLANT DEMOLITION						2,765	450,842	128,291	579,133
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL									
			CARBON STEEL MIXED STEEL	BUILDINGS	-154.00 TN	-	(26,950) (26,950)				-	(26,950) (26,950)
			SCRAP VALUE				(26,950)					(26,950)
	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	713.00 CY	18,096	-					18,096
				DISPOSAL FEE								
			HAULING TO RECYCLE FACILITY	CONCRETE PAVED SURFACES DEBRIS IS RECYCLED. NO DISPOSAL FEE	624.00 CY	15,837	-					15,837
			HAULING	NESTSEES. NO SIGN SQUEY EE		33,933					-	33,933
		21.21.00	MASS FILL									
			MASS FILL, COMMON EARTH 6 INCHES THICK	COVER DISTURBED AREAS OF SITE	12,907.00 CY	-	-	462,794	452	78,778	69,878	611,449
			MASS FILL					462,794	452	78,778	69,878	611,449
		21.47.00	LANDSCAPING									
			FINE GRADING, SEEDING & FERTILIZER		77,440.00 SY	-	-	59,156	3,717	514,969	95,550	669,674
			LANDSCAPING					59,156	3,717	514,969	95,550	669,674
		21.52.00	WASTE DISPOSAL									
			DISPOSAL AND TRANSPORTATION FEE	RUBBISH & TENANT DEBRIS	1,550.00 CY	59,008	-				-	59,008
			WASTE DISPOSAL CIVIL WORK			59,008 92,941		E24 040	4.460	593,746	165,427	59,008 1,374,064
			311 STRUCTURES AND IMPROVEMENTS			92,941	(26,950)	521,949 521,949	4,169 6,933	1,044,589	293,718	1,926,247
			THE THEORY IN THE TOTAL IN THE			02,041	(20,000)	021,040	0,000	1,044,000	200,110	1,020,247
312			BOILER PLANT EQUIPMENT									
	10.00.00		WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE	11.4 2004 005 05 025	049.00.00/				4.007	100 115	27 700	240.044
			HRSG / STACK FDN HRSG / STACK FDN	U-1, 2004-005-SF-025 U-2, 2004-005-SF-025	948.00 CY 948.00 CY	-	-		1,067 1,067	182,145 182,145		219,941 219,941
			HRSG EAST AREA MAT	U-1, 2004-005-SF-028	197.00 CY	-			222	37,851	7,854	45,705
			HRSG EAST AREA MAT	U-2, 2004-005-SF-028	160.00 CY	-	-		180	30,742	6,379	37,121
			AQUEOUS AMMONIA STORAGE TANK AND UNLOADING AREA FDNS	U-2, 2004-005-SF-037	196.00 CY	-	-		221	37,659	7,814	45,473
			STG WEST AREA MAT	U-3, 2004-005-SF-061	49.00 CY				55	9,415		11,368
			TRAVELLING TOWER CONSTRUCTION CRANE FDN	∪-০ 2 %Ð᠖&⊡ #Depreciation/Ex			ness: D. A. V	Vatson	132	22,480	4,665	27,145
					Page 79 of	322						
					-							

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a Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost Man Hours	Labor Cost	Equip Amount	Total Co
	10.22.00	CONCRETE STATIONARY TOWER CONSTRUCTION CRANE FDN	U-0 2004-005-SF-079	162.00 CY			182	31,126	6,459	
		STG NORTH ARE MAT	U-0 2004-005-SF-079 U-0 2004-005-SF-080A	341.00 CY	-	-	384			
		RO PERMEATE STORAGE TANK FDN			-	-		65,518		
		DEMIN WATER STORAGE TANK FDN	U-0 2004-005-SF-082	25.00 CY	-	-	28	4,803		
			U-0 2004-005-SF-090	52.00 CY	-	-	59	9,991		
		THERMAL ENERGY STORAGE (TES) TANK FDN	U-0 2004-005-SF-090	364.00 CY	-	-	410	69,937		
		THERMAL ENERGY STORAGE (TES) TANK (#119)	U-0 3600000 GALLON, 120' DAI X 48' HIGH - CONCRETE	1,052.00 CY	-	-	1,184	202,127	41,943	
		CONCRETE					5,187	885,937	183,838	1,0
	10.31.00	MECHANICAL EQUIPMENT								
		HEAT RECOVERY STEAM GENERATOR	U-1, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR INC 110'	2,156.00 TN	-	-	7,546	1,154,454	276,913	1
			STACK							
		HEAT RECOVERY STEAM GENERATOR	U-2, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR INC 110' STACK	2,156.00 TN	-	-	7,546	1,154,454	276,913	1
		DEMIN WATER STORAGE TANK (#032)	U-0, 200000 GALLON, 38' DIA X 25' HIGH	28.00 TN			76	11,566	2,774	
		RAW/FIRE WATER STORAGE TANK (#032)	U-0 730000 GALLON, 58' DIA X 40' HIGH -	40.00 TN			108	16,523		
			50% Steam Plant							
		RO PERMEATE STORAGE TANK (#674)	U-0, 60000 GALLON, 25' DIA X 18' HIGH	11.00 TN	-	-	30	4,544	1,090	
		AQUEOUS AMMONIA STORAGE TANK (#164)	U-0, 20000 GALLON,	6.00 TN	-	-	16	2,478		
		WATER TREATMENT DEMINERALIZATION & CHEMICAL TREATMENT EQUIPMENT		30.00 TN	-	-	61	9,294	2,229	
		BOILER FEED PUMPS	U-1, 2 @ 1350 GPM FOR HRSGS, 2150 HP	3.00 TN			12	1,836	440	
		BOILER FEED PUMPS	U-2, 2 @ 1350 GPM FOR HRSGS, 2150 HP	5.00 TN			20	3,060		
		DEMIN WTR PUMPS	U-3, 2 @ 290 GPM & 90' TDH, 20 HP	0.20 TN			1	153		
		RAW WATER RO SUPPLY PUMPS	U-0, 3 @ 270 GPM & 180' TDH, 15 HP	0.20 TN			1	153		
		MECHANICAL EQUIPMENT	0 0, 0 @ 2.0 Of M 0 100 1511, 1011	0.20 111			15,416	2,358,515		2
		WHOLE PLANT DEMOLITION					20,604	3,244,452		3
18.00.00	18.10.00	SCRAP VALUE MIXED STEEL								
		CARBON STEEL		-4,435.00 TN		(776,125)	-			
		MIXED STEEL		.,	-	(776,125)			=	(
		SCRAP VALUE				(776,125)				(
21.00.00	04.40.00	CIVIL WORK								
	21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	4,611.00 CY	117,026	-				
			DISPOSAL FEE						-	
		CIVIL WORK			117,026					
					117 026					
		312 BOILER PLANT EQUIPMENT			117,026 117,026	(776,125)	20,604	3,244,452	749,563	3,3
14						(776,125)	20,604	3,244,452	749,563	3,3
10.00.00	10 22 00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION				(776,125)	20,604	3,244,452	749,563	3,3
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE	II-3 2004-005-SF-009	1 322 00 CY		(776,125)				3,3
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT	U-3, 2004-005-SF-009	1,322.00 CY		(776,125)	1,487	254,003	52,707	3,3
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FON BASE MAT COOLING TOWER FON	U-3, 2004-005-SF-021A	1,544.00 CY		(776,125)	1,487 1,737	254,003 296,657	52,707 61,559	3,
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND				(776,125) - - -	1,487	254,003	52,707 61,559 1,395	3,
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B	1,544.00 CY 35.00 CY 239.00 CY		(776,125) - - -	1,487 1,737 39 269	254,003 296,657 6,725 45,920	52,707 61,559 1,395 9,529	3,3
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY		(776,125)	1,487 1,737 39 269 1,273	254,003 296,657 6,725 45,920 217,344	52,707 61,559 1,395 9,529 45,100	3,0
	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B	1,544.00 CY 35.00 CY 239.00 CY		(776,125)	1,487 1,737 39 269	254,003 296,657 6,725 45,920	52,707 61,559 1,395 9,529 45,100 49,630	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY		(776,125)	1,487 1,737 39 269 1,273 1,400	254,003 296,657 6,725 45,920 217,344 239,170	52,707 61,559 1,395 9,529 45,100 49,630	
10.00.00	10.22.00	312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY		(776,125)	1,487 1,737 39 269 1,273 1,400	254,003 296,657 6,725 45,920 217,344 239,170	52,707 61,559 1,395 9,529 45,100 49,630 219,920	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-069 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820	52,707 61,559 1,395 9,529 45,100 49,630 219,920	3,3
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER FEN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989	52,707 61,559 1,395 9,529 45,100 49,630 219,920	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FON BASE MAT COOLING TOWER FON STO ROTOR REMOVAL PLATFORM FON COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FONS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CIRC WITR PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 20.00 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060 & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 2.0.00 TN 4.50 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER FEN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CIRC WITR PUMPS CONDENSATE PUMPS CONDENSATE PUMPS COSED COOLING WATER PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-060A & B U-3, 2004-005-SF-060A & B U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 7000 GPM & 101 TDH, 550 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 4.50 TN 4.50 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54 12	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859 2,448	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446 587	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060 & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 2.0.00 TN 4.50 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446 587	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER FEN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CIRC WITR PUMPS CONDENSATE PUMPS CONDENSATE PUMPS COSED COOLING WATER PUMPS	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 55000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 7000 GPM @ 213 TDH, 550 HP U-3, 2 @ 7000 GPM @ 213 TDH, 550 HP U-3, 2 EA SS PLATE & FRAMED DESIGN,	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 4.50 TN 4.50 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54 12	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859 2,448	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,962 446 587 183	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FON BASE MAT COOLING TOWER FON STG ROTOR REMOVAL PLATFORM FON COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FONS STEAM TURBINE GEN COLUMNS STEAM TURBINE GEN COLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CIRC WITR PUMPS CONDENSATE PUMPS COLOSEO COOLING WATER PUMPS CCOW HEAT EXCHANGER BACKUP CIRC WTR MAKEUP PUMP	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100 TDH, 1750 HP U-3, 2 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 7000 GPM @ 213 TDH, 550 HP U-3, 2 EA SS PLATE & FRAMED DESIGN, 7000 GPM	1,544,00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 4.00 TN 4.50 TN 4.50 TN 1.00 TN		(776,125)	1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54 12	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859 2,448 765	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446 587 183	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CICNEDSATE PUMPS CONDENSATE PUMPS CLOSED COOLING WATER PUMPS CCW HEAT EXCHANGER	U-3, 2004-005-SF-021A U-3, 2004-005-SF-030 U-2, 2004-005-SF-060A & B U-3, 2004-005-SF-069 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 7000 GPM & 100' TDH, 1750 HP U-3, 2 @ 7000 GPM @ 213 TDH, 550 HP U-3, 2 E AS SPLATE & FRAMED DESIGN, 7000 GPM U-3, 1, 40 HP U-3, 1 @ 2400GPM	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 4.00 TN 4.50 TN 1.00 TN 1.00 TN	117,026		1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54 12 16 5	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859 2,448 765	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446 587 183	
		312 BOILER PLANT EQUIPMENT TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE STEAM TURBINE GEN FDN BASE MAT COOLING TOWER FDN STG ROTOR REMOVAL PLATFORM FDN COOLING TOWER CHEMICAL FEED BLDG AND UNLOADING CONTAINMENT FDNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE GEN COLLUMNS STEAM TURBINE ELEVATED SLAB CONCRETE MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR CONDENSATE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS CLOSED COOLING WATER PUMPS CCW HEAT EXCHANGER BACKUP CIRC WTR MAKEUP PUMP AUX ILJARY COOLING WATER	U-3, 2004-005-SF-021A U-3, 2004-005-SF-060A & B U-3, 2004-005-SF-060A & B U-3, 2004-005-SF-009 U-3, 2004-005-SF-011 235 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 65000 GPM & 100' TDH, 1750 HP U-0, 3 @ 1400 GPM & 625 TDH, 300 HP U-3, 2 @ 7000 GPM & 10' TDH, 500 HP U-3, 2 EA SS PLATE & FRAMED DESIGN, 7000 GPM U-3, 1, 40 HP	1,544.00 CY 35.00 CY 239.00 CY 707.00 CY 778.00 CY 465.00 TN 4.00 TN 4.00 TN 4.50 TN 1.00 TN 1.00 TN	117,026		1,487 1,737 39 269 1,273 1,400 6,206 1,628 11 54 12 16 5	254,003 296,657 6,725 45,920 217,344 239,170 1,059,820 248,989 1,652 8,261 1,859 2,448 765	52,707 61,559 1,395 9,529 45,100 49,630 219,920 59,724 396 1,982 446 587 183	

Estimate No.: 30611C Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/Appr: GA/BA/BA



	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		10.31.00	MECHANICAL EQUIPMENT CONDENSER COOLING TOWER	U-3, SURFACE CONDENSER 2 PASS U-3, 7-CELL INLINE WET WOOD	366.00 TN 897,600.00 CF	-	-		741 1,795	113,388 274,646		140,585 340,523
			MECHANICAL EQUIPMENT	COUNTERFLOW, MARLEY					4,276	654,150	156,907	811,057
		10.35.00	PIPING PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT - 67% Steam Plant	222.00 TN				450	68,776	16,497	85,273
			PIPING, VALVES AND HANGERS PIPING	U2, 14,300 LF/UNIT - 67% Steam Plant	236.00 TN	-	-		478 927	73,113 141,890	17,537	90,651 175,924
			WHOLE PLANT DEMOLITION						11,409	1,855,859		2,266,721
18	8.00.00	10 10 00	SCRAP VALUE									
		18.10.00	MIXED STEEL CARBON STEEL		-1,325.00 TN	-	(231,875)	-				(231,875)
			CARBON STEEL	COOLING TOWER	-350.00 TN	-	(61,250)				-	(61,250)
			MIXED STEEL SCRAP VALUE				(293,125) (293,125)					(293,125) (293,125)
			OORAL VALUE				(250,120)					(250,125)
2*	21.00.00		CIVIL WORK									
		21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	4,625.00 CY	117,382	-					117,382
			HAULING	5161 667 21 22		117,382	•				-	117,382
			CIVIL WORK			117,382						117,382
2:	22.00.00		CONCRETE									
		22.13.00	CONCRETE FLOWABLE FILL, 1500 PSI	BURIED CIRCULATING WATER PIPES, 84" DIA X 2500LF	3,560.00 CY			665,986	1,780	258,319	36,805	961,111
			CONCRETE	DIA A 2000EF				665,986	1,780	258,319	36,805	961,111
			CONCRETE					665,986	1,780	258,319		961,111
			314 TURBO GENERATOR UNITS			117,382	(293,125)	665,986	13,189	2,114,178	447,667	3,052,089
315 10	0.00.00		ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE STG STEP-UP TRANSFORMER AND AUX TRNSFORMER FDNS	U-3, 2004-005-SF-031	180.00 CY				203	34,584	7,177	41,761
			5 KV SWITCHGEAR MODULE FDN	U-3, 2004-005-SF-033	116.00 CY	-	-		131	22,288	4,625	26,913
			SWITCHGEAR BUILDING CONCRETE	U-0, 5'X35'X2'	13.00 CY	-	-		15 348	2,498 59,370		3,016 71,690
		10.24.00	ARCHITECTURAL	11.0 51/251/401	2.150.00 CE				9	1 505	422	4.000
			SWITCHGEAR BUILDING CT2 LCI W/PDC BUILDING	U-0, 5'X35'X18' U-2, 12'X20'X9'	3,150.00 CF 2,200.00 CF	-	-		7	1,505 1,051		1,928 1,346
			ARCHITECTURAL						16	2,557	717	3,274
		10.41.00	ELECTRICAL EQUIPMENT									
			TRANSFORMERS MISC ELECT EQUIPMENT	U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant	261.00 TN 122.00 TN	-	-		697 326	94,454 44,151		120,046 56,114
			ELECTRICAL EQUIPMENT	U-0, CONTROL RM, 50% Steam Plant	1.00 LT	-	-		50	6,772	1,835	8,607
			ELECTRICAL EQUIPMENT						1,073	145,377	39,389	184,767
		10.42.00	RACEWAY, CABLE TRAY, & CONDUIT	Ota Pi 070/ 11.4	00.450.00 .15				200	40.400	44.004	57.400
			CONDUIT CONDUIT	Steam Plant 67% U-1 Steam Plant 67% U-2	30,150.00 LF 30,150.00 LF	-	-		302 302	46,126 46,126		57,190 57,190
			CABLE TRAY	Steam Plant 67% U-1	1,675.00 LF	-	-		67	10,250	2,459	12,709
			CABLE TRAY RACEWAY, CABLE TRAY, & CONDUIT	Steam Plant 67% U-2	1,675.00 LF	-	-		67 737	10,250 112,753		12,709 139,798
		10.43.00	CABLE									
			COPPER WIRE / CABLE - MEDIUM VOLTAGE COPPER WIRE / CABLE - MEDIUM VOLTAGE	Steam Plant 67% U-1 Steam Plant 67% U-2	19,430.00 LF 19,430.00 LF	-	-		194 194	29,726 29,726		36,856 36,856
			COPPER WIRE / CABLE - MEDIUM VOLTAGE COPPER WIRE / CABLE - LOW VOLTAGE	Steam Plant 67% U-2 Steam Plant 67% U-1	67,000.00 LF	-	-		335	29,726 51,251	12,293	63,545
			COPPER WIRE / CABLE - LOW VOLTAGE CABLE	Steam Plant 67% U-2	67,000.00 LF		-		335 1,059	51,251 161,954		63,545 200,801
		10.44.00	CONTROL & INSTRUMENTATION	0D00E/Dammai (' /5	+ N - 0D005	20 14/2 0/14/3	D A W					
			CONTROL & INSTRUMENTATION	SDG&E/Depreciation/Ex	th No: SDଔ&ಟ- Page ଅଞ୍ଚିତିf	30-VVP-S/VVIti 322	ness: D. A. V	vatson	100	15,299	3,670	18,969



18.000 SCAPAYALE SCAPAYA	Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
18.08.08													18,969
## 14-96.00 MINES STEEL CONCESTED CONCESTED FOR THE CONCEST TO PART OF THE CONCESTED C				WHOLE PLANT DEMOLITION						3,333	497,309	121,988	619,298
COMMINISTRING COMMINISTRING NORTH NORT		18.00.00		SCRAP VALUE									
Commonweight Comm			18.10.00										
PACKES P							-		-				(13,825) (1,760)
STEEL FOOPPRINTEN LAKES TRANSFORMERS - 1900 FON				CARBON STEEL	BUILDINGS	-1.87 TN	-	(327)	-				(327)
MACE STEEL 18.00 COPPER FEBRUARY CONTINUE CON					MISC ELECT EQUIPMENT		-		-				(21,350)
18.360 COPPER RIS BAR 4.08 Th (0.17) (1.07)						-261.00 IN	-		-			-	(91,350) (128,613)
# SCUIR COMPRETINIENS BUS PAR								(120,010)		· ·			(120,010)
# RASULATIO COMPRETANCE - COMP			18.30.00										
Company Comp					BUS BAR				-				(4,117) (9,760)
CREAT VALUE						1.00 111						-	(13,877)
21.8.0.0 HAULING HAU				SCRAP VALUE				(142,490)		0			(142,490)
21.8.0.0 HAULING HAU		04.00.00		ON WORK									
MAUNIS OTROPOCALE PACILITY		21.00.00	21 18 00										
HAULING			21.10.00		CONCRETE DEBRIS IS RECYCLED. NO	309.00 CY	7,842	-					7,842
ONL WORK SACCESSORY ELECTRIC EQUIPMENT 7,842 (142,490) 3,333 497,399 121,988 484					DISPOSAL FEE							-	
316 MISCELLANEOUS POWER PLANT EQUIMENT 10.00.00 10.00.													7,842 7,842
MISCELLANEOUS POWER PLANT								(142,490)		3.333	497.309	121.988	484,650
10.0.00 10.0							-,	(112,100)		2,222	,	,	,
10.20.00 10.22.00 CONCRETE DIESEL GENERATOR FON CONCRETE 10.24.00 ARCHITECTURAL 10.24.00 ARCHITECTURAL 10.31.00 MECHANICA EQUIPMENT ARC COMPRESSOR, CENTRIFUGAL 10.31.00 ARCHITECTURAL 10.31.00 MECHANICAL EQUIPMENT ARC COMPRESSOR, CENTRIFUGAL 10.31.00 ARCHITECTURAL 10.31.00 MECHANICAL EQUIPMENT ARC COMPRESSOR, CENTRIFUGAL 10.31.00 MECHANICAL EQUIPMENT MEC	316			MISCELLANEOUS POWER PLANT									
10.22.00 CONCRETE				EQUIPMENT									
DIESEL CENERATOR FON CONCRETE 100 0		10.00.00		WHOLE PLANT DEMOLITION									
ONTITY CRAME FON			10.22.00										
CONCRETE ARCHITECTURAL ELEVATOR ELEVATOR ARCHITECTURAL 10.3.0.0 MECHANICAL EQUIPMENT ARCHITECTURAL U.O. 2 © 3335 SCFM STATION 1.0.0 ARCHITECTURAL 10.3.1.00 MECHANICAL EQUIPMENT ARC COMPRESSOR, CENTRIPUGAL GAMITY CORNAE PIRE PLANE U.O. 2 © 1335 SCFM STATION 9.00 TN 18 2.758 10.3.1.0 10.3.1.0 MECHANICAL EQUIPMENT ARC COMPRESSOR, CENTRIPUGAL U.O. 2 © 1335 SCFM STATION 9.00 TN 18 2.758 10.3.1					U-0, 12'X26'X1.5'		-	-					4,176 22,041
ELEVATOR ARCHITECTURAL 1.00 EA													26,217
ELEVATOR ARCHITECTURAL 1.00 EA													
ACHITECTURAL 10.31.00 MECHANICAL EQUIPMENT AIR COMPRESSOR, CENTRIFUGAL GANITY CRANE 10.31.00 ARC COMPRESSOR, CENTRIFUGAL GANITY CRANE 10.31.00 ARC COMPRESSOR, CENTRIFUGAL GANITY CRANE 10.50 WITH 1.50 WI			10.24.00			1.00 FA	_	_		200	30 508	7 330	37,937
AR COMPRESSOR, CENTRIFUGAL GANTEY CRANE GANTER GANTEY CRANE GANTEY CRANE GANTEY CRANE GANTEY CRANE GANTEY CRA						1.00 EA							37,937
AR COMPRESSOR, CENTRIFUGAL GANTEY CRANE GANTEY CRANE GANTEY CRANE GANTEY CRANE GANTEY CRANE GANTEY CRANE 19.00 TN 608 92,248 22,293 1 16.0W DISSEL GENERATOR 19.00 TN 76 11,627 2,789 FIRE PLUMS HAS BLOWDOWN SUMP PUMPS U-1, 1@ 500 GPM & 50° TDH VERTICAL, 20 0.20 TN 1, 16.50 GPM & 50° TDH VERTICAL, 20 0.20 TN 1, 15.3 37 HP HRSG BLOWDOWN SUMP PUMPS U-2, 1@ 500 GPM & 145° TDH, 25 HP 0, 20 TN 1, 15.3 37 HP SERVICE WATER PUMPS U-0, 1@ 300 GPM & 145° TDH, 25 HP 0, 20 TN 1, 10, 300 GPM & 145° TDH, 25 HP 10.35.00 FIRE LINES & HYDRANTS U-0, ABANDON UNDERGND LINES REMOVE 10.35.00 HYDRANTS, 50% Steam Plant HYDRANTS, 50% Steam Plant 18.00.00 18.10.00 SCRAP VALUE 18.10.00 CARGON STEEL C													
GANTRY CRANE			10.31.00		U.O. O. O. 4005 COEM OTATION	0.00 TN				40	0.700	200	0.457
16 MW DIESEL GENERATOR 10 00 TN - 76 11,627 2,788 11,627 2,788 11,627 2,788 11,627 2,788 11,627 2,788 11,627 11,62 1					U-0, 2 @ 1335 SCFM STATION		-	-					3,457 115,234
HRSG BLOWDOWN SUMP PUMPS HRSG BLOWDOWN SUMP PUMPS HRSG BLOWDOWN SUMP PUMPS HRSG BLOWDOWN SUMP PUMPS U-2, 1@ 500 GPM & 50' TDH VERTICAL, 20 10, 20 SOR GPM & 50' TDH VERTICAL, 20 10, 1@ 300 GPM & 50' TDH VERTICAL, 20 10, 1@ 300 GPM & 145' TDH, 25 HP 10, 10, 10 300 GPM & 145' TDH, 25 HP 10, 35,00 PIPING FIRE LINES & HYDRANTS U-0, ABANDON UNDERGND LINES REMOVE HYDRANTS, 50% Steam Plant 10, 35,00 PIPING WHOLE PLANT DEMOLITION 10, 40 10, 4				1.6 MW DIESEL GENERATOR		19.00 TN	-	-			11,627	2,789	14,416
HRSG BLOWDOWN SUMP PUMPS U-2, 1@ 500 GPM & 50' TDH VERTICAL, 20 0.20 TN - 1 153 37 MECHANICAL EQUIPMENT U-0, 1@ 300 GPM & 145' TDH, 25 HP 0.20 TN - 1 168, 962 26,136 13 10.35.00 PIPING FIRE LINES & HYDRANTS U-0, ABANDON UNDERGND LINES REMOVE 1.00 LT - 40 6,120 1,468 PIPING WHOLE PLANT DEMOLITION 1,079 167,391 39,449 20 18.00.00 SCRAP VALUE AMIXED STEEL CARRON STE							-	-					1,423
Fire Lines & HP U-0, 1 @ 300 GPM & 145" TDH, 25 HP 0.20 TN 1 153 37 108,962 26,136 13 13 153 37 108,962 26,136 13 13 13 13 13 13 13				HRSG BLOWDOWN SUMP PUMPS		0.20 IN	-	-		1	153	3/	190
SERVICE WATER PUMPS U-0, 1@ 300 GPM & 145 'TDH, 25 HP 0.20 TN - 1 1 153 37				HRSG BLOWDOWN SUMP PUMPS		0.20 TN	-	-		1	153	37	190
10.35.00 PIPING FIRE LINES & HYDRANTS				SERVICE WATER PLIMPS		0.20 TN				1	153	37	190
FIRE LINES & HYDRANTS					,					712			135,099
FIRE LINES & HYDRANTS													
HYDRANTS, 50% Steam Plant PIPING 40 6,120 1,468			10.35.00		LLO ABANDON LINDERGND LINES REMOVE	1.00 LT				40	6 120	1 468	7,587
WHOLE PLANT DEMOLITION				THE EINES WITHOUT		1.00 21							
18.00.00 SCRA VALUE 18.10.00 MIXED STEEL CARBON STEEL MIXED STEEL SCRAP VALUE 21.00.00 CIVIL WORK 21.18.00 HAULING													7,587
18.10.0 MIXED STEEL CARBON STEEL MIXED STEEL BISTREL SCRAP VALUE 21.00.00 CIVIL WORK 21.18.00 HAULING 21.18.00 HAULING				WHOLE PLANT DEMOLITION						1,079	167,391	39,449	206,840
CARBON STEEL -255.00 TN - (44.625) - (44.625) (44		18.00.00		SCRAP VALUE									
MIXED STEEL (44,625) (44 SCRAP VALUE (44,625) (44 21.00.00 CIVIL WORK 21.18.00 HAULING			18.10.00										
21.00.00 CIVIL WORK 21.18.00 HAULING (44,625)						-255.00 TN	-		-			-	(44,625)
21.00.00 CIVIL WORK 21.18.00 HAULING													(44,625) (44,625)
21.18.00 HAULING								(,020)					(,020)
		21.00.00											
			21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	113.00 CY	2,868						2,868
HAULING TO RECYCLE FACILITY CONCRETE DEBYS IS RECYCLED, NO. 113:00 CY 2,868 - DISPOSAL FEE				INCLING TO RECTCLE FACILITY		113.00 CY	2,008	-					2,008
HAULING 2,868													2,868
CIVIL WORK 2,868 SDC8 F/Depreciation/Exh No: SDC8 F 36 W/D S/Witness: D. A. Watson				CIVIL WORK									2,868



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			316 MISCELLANEOUS POWER PLANT			2,868	(44,625)		1,079	167,391	39,449	165,083
			EQUIPMENT									
341			OTHER PRODUCTION - STRUCTURES &									
	10.00.00		IMPROVEMENTS WHOLE PLANT DEMOLITION									
		10.21.00	CIVIL WORK									
			PAVED SURFACES, 6 IN THICK CIVIL WORK	OTHER PRODUCTION	3,744.00 SY	-	-		449 449	76,396 76,396		109,833 109,833
											52,125	,
		10.22.00	CONCRETE FINGER RACK AREA MAT	U-1, 2004-005-SF-047A	248.00 CY		_		279	47,650	9,888	57,537
			FINGER RACK AREA MAT	U-2, 2004-005-SF-047B	236.00 CY		-		266	45,344		54,753
			WEST AREA MAT @ TUR-CTG1-01	U-1, 2004-005-SF-053	142.00 CY	-	-		160	27,283		32,945
			WEST AREA MAT @ TUR-CTG2-01	U-2, 2004-005-SF-054	143.00 CY	-	-		161	27,475		33,177
			MISC FDNS	U-0 2004-005-SF, 50% Steam Plant	278.00 CY	-	-		313	53,414		64,497
			ADMINISTRATION/WAREHOUSE/SHOP WT BLDG	U-0, 130'X34'X2'+100'X11'X2' - 50% Steam Plant	205.00 CY	-	-		231	39,388		47,561
			TOOL STORAGE BLDG (#127)	50% Other Plant	67.00 CY	-	-		75	12,873		15,544 306,015
			CONCRETE						1,484	253,427	52,588	306,015
		10.24.00	ARCHITECTURAL									
			ADMINISTRATION BUILDING TOOL STORAGE BUILDING	U-2, 70X90'X25' HIGH - 50% Other Plant U-0, 40'X90'25' STEEL BLDG - 50% Other Plant	78,750.00 CF 45,000.00 CF	-	-		236 135	37,631 21,503		48,189 27,537
			ELECTRICAL EQUIPMENT / CONTROL BUILDING	U-0, 30'X90'X25' - 50% Other Plant	33,750.00 CF				101	16,128		20,653
			ARCHITECTURAL	0 0, 00700720 0070 0010. Filan	55,755.55				473	75,262		96,378
		10.31.00	MECHANICAL EQUIPMENT									
		10.51.00	BRIDGE CRANE		230.00 TN	-			621	95,006	22,789	117,795
			MECHANICAL EQUIPMENT						621	95,006	22,789	117,795
		10.35.00	PIPING									
			FIRE LINES & HYDRANTS	U-0, ABANDON UNDERGND LINES REMOVE	1.00 TN	-	-		40	6,120	1,468	7,587
			PIPING	HYDRANTS, 50% Other Plant					40	6,120	1,468	7,587
			WHOLE PLANT DEMOLITION						3,067	506,211	131,398	637,609
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL CARBON STEEL		-230.00 TN	_	(40,250)	_				(40,250)
			CARBON STEEL	BUILDINGS	-60.16 TN	-	(10,528)					(10,528)
			MIXED STEEL				(50,778)				•	(50,778)
			SCRAP VALUE				(50,778)					(50,778)
	21.00.00		CIVIL WORK									
		21.18.00	HAULING									
			HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,319.00 CY	33,476	-					33,476
			HAULING TO RECYCLE FACILITY	CONCRETE PAVED SURFACES DEBRIS IS RECYCLED. NO DISPOSAL FEE	624.00 CY	15,837	-					15,837
			HAULING	RECTULED. NO DISPOSAL FEE		49,313						49,313
			CIVIL WORK			49,313						49,313
			341 OTHER PRODUCTION - STRUCTURES			49,313	(50,778)		3,067	506,211	131,398	636,144
			& IMPROVEMENTS									
342			OTHER PRODUCTION - FUEL HOLDERS,									
			PRODUCERS AND ACCESSORIES									
	10.00.00		WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE FUEL GAS COMPRESSOR FDN	U-0. 2004-005-SF-040	161.00 CY				404	20.004	6,419	27.250
			RAW WATER STORAGE TANK FDN	U-0, 2004-005-SF-040 U-0 2004-005-SF-089	161.00 CY 57.00 CY	-	-		181 64	30,934 10,952		37,353 13,224
			CHILLER PREFAB FLDG	U-3, S200	467.00 CY		-		525	89,727		108,346
			CONCRETE						771	131,613		158,924
		10.31.00	MECHANICAL EQUIPMENT									
			CT INLET CHILLER	U-1	220.00 TN	-	-		446	68,157	16,348	84,505
			CT INLET CHILLER	U-2	220.00 TN	-	-		446	68,157		84,505
			NATURAL GAS COMPRESSOR	U-0, 3 @ 2300 HP EA INCL VOLUME TANKS	300.00 TN	-	-		608	92,941	22,293	115,234
				AND AFTERCOOLERS SDG&E/Depreciation/Ex	th No: SDG&E-3	6-WP-S/Witr	ness: D. A. W	/atson				

SDG&E/Depreciation/Exh No: SDG&E-36-WP-S/Witness: D. A. Watson



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		10.31.00	MECHANICAL EQUIPMENT RAW/FIRE WATER STORAGE TANK (#034)	U-0 730000 GALLON, 58' DIA X 40' HIGH - 50% Other Plant	40.00 TN	-	-		108	16,523	3,963	20,486
			FUEL GAS PREHEAT	U-3, 2 SHELL & TUBE HT EX	1.00 TN	-	-		5	765		948
			EVAP COOLERS BLEND WATER PUMPS	U-3, 2 @ 125 GPM & 148 TDH	1.00 TN	-	-		5	765	183	948
			PUMPS, FUEL OIL UNLOADING, FORWARDING, DIRTY CLEAN OIL TRANSFER	NOT INCLUDED	TN	-	-					
			WASTEWATER SUMP PUMPS	U-1, 1 @ 600 GPM & 46' TDH VERTICAL, 20HP	0.20 TN	-	-		1	153	37	190
			WASTEWATER SUMP PUMPS	U-2, 1 @ 600 GPM & 46' TDH VERTICAL, 20HP	0.20 TN				1	153		190
			MECHANICAL EQUIPMENT						1,619	247,612		307,006
			WHOLE PLANT DEMOLITION						2,389	379,225	86,704	465,930
	18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
		10.10.00	CARBON STEEL		-782.00 TN		(136,850)	-				(136,850)
			MIXED STEEL				(136,850)	•				(136,850)
			SCRAP VALUE				(136,850)					(136,850)
	21.00.00		CIVIL WORK									
		21.18.00	HAULING	CONCRETE DEBRIS IS RECYCLED. NO	685.00 CY	17,385						47.005
			HAULING TO RECYCLE FACILITY	DISPOSAL FEE	685.00 CY	17,385	-					17,385
			HAULING			17,385					•	17,385
			CIVIL WORK			17,385						17,385
			342 OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES			17,385	(136,850)		2,389	379,225	86,704	346,465
344	10.00.00		OTHER PRODUCTION - GENERATORS WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE									
			COMBUSTION TURBINE AREA MAT @ NORTH END COMBUSTION TURBINE AREA MAT @ NORTH END	U-1, 2004-005-SF-005 U-2, 2004-005-SF-005	33.00 CY 30.00 CY	-	-		37 34	6,340 5,764		7,656 6,960
			PEECC & ACCESSORY MODULE FDN	U-1, 2004-005-SF-006	389.00 CY		-		438	74,741		90,250
			COMBUSTION TURBINE AREA MAT AT EAST END	U-1, 2004-005-SF-007A	63.00 CY	-	-		71	12,105	2,512	14,616
			COMBUSTION TURBINE AREA MAT AT EAST END	U-2, 2004-005-SF-007B	121.00 CY	-	-		136	23,248	4,824	28,073
			TURBINE PEDESTAL TURBINE PEDESTAL	U-1, 2004-005-SF-001 U-2, 2004-005-SF-001	742.00 CY 742.00 CY		-		1,336 1,336	228,103 228,103		275,436 275,436
			CONCRETE	5 L, 250 1 500 51 501	7.12.00				3,387	578,405		698,428
		10.26.00	MISCELLANEOUS STRUCTURAL ITEM									
			MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE		1.00 LT	-	-		500	76,494	18,348	94,843
			MISCELLANEOUS STRUCTURAL ITEM						500	76,494	18,348	94,843
		10.31.00	MECHANICAL EQUIPMENT									
			COMBUSTION TURBINE	U-1, GE PG7241FA C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS, INLET AIR FILTERS SILENCING & EVAP COOLERS,	854.00 TN	-			2,989	457,284	109,686	566,970
			COMBUSTION TURBINE	180'X75'X31' INLET CHILLER COILS U-2, GE PG7241FA C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS, INLET AIR FILTERS SILENCING & EVAP COOLERS,	854.00 TN	-	-		2,989	457,284	109,686	566,970
			CT LUBE OIL SYSTEM INCL FIN FAN COOLER	180'X75'X31' INLET CHILLER COILS U-1	3.00 TN	_	_		12	1,836	440	2,276
			CT LUBE OIL SYSTEM INCL FIN FAN COOLER MECHANICAL EQUIPMENT	U-2	3.00 TN	-	-		12 6,002	1,836 918,239	440	2,276 1,138,492
		10.35.00	PIPING									
		10.00.00	PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT - 33% Other Plant	109.00 TN				221	33,768	8,100	41,868
			PIPING, VALVES AND HANGERS	U2, 14,300 LF/UNIT - 33% Other Plant	116.00 TN	-	-		235	35,937	8,620	44,557
			WHOLE PLANT DEMOLITION						456	69,706		86,425
			WHOLE PLANT DEMOLITION						10,344	1,642,844	375,345	2,018,189

18.00.00

SCRAP VALUE 18.10.00 MIXED STEEL

SDG&E/Depreciation/Exh No: SDG&E-36-WP-S/Witness: D. A. Watson Page 8準 of 322



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Co
	18.10.00	MIXED STEEL CARBON STEEL		-1,939.00 TN		(339,325)					(33
		MIXED STEEL		-1,535.00 114		(339,325)				-	(339
		SCRAP VALUE				(339,325)					(339
21.00.00	24 40 00	CIVIL WORK									
	21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	2,120.00 CY	53,805						
			DISPOSAL FEE	2,120.00						_	
		HAULING			53,805						
		CIVIL WORK			53,805	(222 225)		40.044	4.040.044	275 245	4 70
		344 OTHER PRODUCTION - GENERATORS			53,805	(339,325)		10,344	1,642,844	375,345	1,73
5		OTHER PRODUCTION - ACCESSORY									
		ELECTRIC EQUIPMENT									
10.00.00		WHOLE PLANT DEMOLITION									
	10.22.00	CONCRETE									
		CTG STEP-UP TRANSFORMER AND AUX TRNSFORMER	U-1, 2004-005-SF-029A	250.00 CY	-	-		281	48,034	9,967	
		FDNS CTG STEP-UP TRANSFORMER AND AUX TRNSFORMER	U-2, 2004-005-SF-029B	241.00 CY				271	46,305	9,609	
		FDNS									
		EXCITATION XFMR & ISOLATION XFMR	U-2, 2004-005-SF-034	49.00 CY 17.00 CY	-	-		55 19	9,415		
		NEW CT2 LCI W/PDC BUILDING CONCRETE	U-2, 12'X20'X2'	17.00 CY	-	-		627	3,266 107,020		
									,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,	
	10.41.00	ELECTRICAL EQUIPMENT									
		TRANSFORMERS MISC ELECT EQUIPMENT	U-1, U-2, 33% Other Plant U-1, U-2, 33% Other Plant	129.00 TN 60.00 TN	-			345 160	46,684 21,714		
		ELECTRICAL EQUIPMENT	U-0, CONTROL RM, 50% Other Plant	1.00 LT				50	6,772		
		ELECTRICAL EQUIPMENT						555	75,170		
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
		CONDUIT	Other Plant 33% U-1	14,850.00 LF	-	-		149	22,719	5,449	
		CONDUIT	Other Plant 33% U-2	14,850.00 LF	-	-		149	22,719	5,449	
		CABLE TRAY	Other Plant 33% U-1	825.00 LF	-	-		33	5,049	1,211	
		CABLE TRAY RACEWAY, CABLE TRAY, & CONDUIT	Other Plant 33% U-2	825.00 LF	-	-		33 363	5,049 55,535		
	10.43.00	CABLE COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 33% U-1	9,570.00 LF				96	14.641	3,512	
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 33% U-2	9,570.00 LF		-		96	14,641		
		COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-1	33,000.00 LF	-	-		165	25,243		
		COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-2	33,000.00 LF	-	-		165	25,243		
		WHOLE PLANT DEMOLITION						2,066	79,768 317,493		
		WHOLE PLANT DEMOLITION						2,000	317,493	75,025	
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63 LBS/LF	-39.00 TN		(6,825)	_				
		CARBON STEEL	CABLE TRAY, 6 LBS/LF	-4.96 TN		(868)					
		CARBON STEEL	MISC ELECT EQUIPMENT	-60.00 TN	-	(10,500)	-				
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-129.00 TN		(45,150)	-	0		_	
		MIXED STEEL				(63,343)		0			
	18.30.00	COPPER									
		#2 SOLID COPPER / TUBING	BUS BAR	-0.33 TN	-	(2,028)	-				
		#2 INSULATED COPPER WIRE		-2.00 TN		(4,880)	-			-	
		COPPER SCRAP VALUE				(6,908) (70,251)		0			
						(10,201)		v			
21.00.00	21.18.00	CIVIL WORK HAULING									
	21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	557.00 CY	14,137	-					
		HAULING	DISPOSAL FEE		14,137					-	
		CIVIL WORK			14,137						
									317,493		3

APPENDIX C. EXPLANATION OF VARIANACE FROM THE PREVIOUS COST STUDY

Cost Category	2021 Cost	Estimate	2016 Cost Estimate	De	Ita % of to	Discussion
Labor						
Labor - Direct		\$5,180,119				
Labor Supervision	\$310,807	\$5,100,115				The 2016 estimate included all demolition contractor costs in labor. The 2021 cost estimate broke out demolition contractor costs
Show-up time	\$103,602					(subcontracts, construction equipment, general conditions - labor).
Construction Management	\$559,453					Constitution equipment, general conditions 1886.
Field Office Expenses	\$123,080					
Safety	\$110,520					Average labor hourly labor cost increased by 18.2%.
Temporary Facilities	\$84,086					
Mob/Demob	\$88,617					
Small tools & consumables	\$55,945					
General Liability Insurance	\$55,945					
Constr Equip Mob/Demob	\$144,008					
Legal Expenses/Claims	\$13,091					
General Conditions (Indirect) - Labor		\$1,649,154				
Subcontract		\$372,500				
Construction Equipment		\$1,440,078				
Labor Subtotal		\$8,641,851	\$7,30	3,897 18.	2% 11.19	6
Material						
Material w/o freight	\$762,007					The 2021 each astimate for material is 1.5% less than 2015
General Conditions -Freight on Material	\$38,100					The 2021 cost estimate for material is 1.5% less than 2016.
Material Subtotal		\$800,107	\$98!	,693 -18	8% -1.5%	
Scrap						The 2021 cost estimate for scrap is 3.1% less than 2016. The main reasons are: (a) cost for scrap mixed steel increased by 114%. Cost for mixed steel in 2021 based on a 12-month average is \$175 per ton as
Mixed Steel	-\$1,859,734		-\$847,989			compared to 2016 based on a 3-month average of \$87 per ton
						(b) cost for copper decreased by -98.6%. Cost for copper in 2021 was broken out into #2 copper (solid) and #2 (insulated wire) as
Copper	-\$20,785		-\$1,508,560			compared to 2016 which was based on #1 copper (solid bright)
Subtotal Scrap Value		-\$1,880,519	-\$1,94			
Subtotal - Direct & Indirect Demolition		\$7,561,439	\$6,35	3,013 19	0% 10.19	6
Contractor G&A and Profit						
Contractor G&A	\$620,864		\$365,445	69.	9%	Contractor G&A is 69.9 percent higher. 2021 estimate is 7% of labor, equipment, and materials. 2016 estimate was 5% of labor and materials.
Contractor Profit	\$886,951		\$663,567	33.	7%	Contractor Profit is 33.7 percent higher. 2021 estimate is 10% of labor, equipment, and materials. 2016 estimate was 8% of labor and
						materials.
Subcontractor Contractor G&A and Profit		\$1,507,815	\$1,029	,012 46	5% 4.0%	Increase in Contractor G&A and profit based on S&L database of actual demolition cost since 2016
Indirect						
Engineering	\$231,000		\$220,000 `			
Construction Management	\$0		\$147,641			Higher cost due to SDGE internal costs in support of demolition as compared to 2016 where no SDGE internal costs were included
Other SDGE Internal Costs	\$902,000		\$0			
Subtotal Indirect Costs		\$1,133,000	\$36	,641 20	3% 6.4%	5
Contingency		\$1,812,416	\$2,32	5,564 -22	.1% -4.39	Contingency is less (-22.1%). Contingency in 2021 is 15% and not applied to scrap. Contingency in 2016 was 20% and applied to scrap.
Total		\$12,014,670	\$10,070	,230 19	2%	
SCRAP	\$/ton	tons	\$/ton ton	s		
Carbon Steel	\$175	9,747	\$87 9,74	.7		Carbon steel scrap quantity is essentially the same
Steel/Copper mix (large transformers)	\$350	390				Carbon/copper is for transformer.
# 1 Copper			\$3,460 430	5		Copper in 2016 was based on solid bright (#1 grade) copper
#2 Copper	\$6,145	1	•			Copper broken out into solid bar and insulated copper wire
#2 Insulated Copper Wire	\$2,440	6				Lower copper quantity in 2021 due to copper included in steel/copper mix for larger transformers
	ı					The labor hours for the 2021 and estimate and 2.5% less than the 2016 and estimate. The major are an initial to 2021 and the control of the c
Labor hours	63,004	hours	65,280 hours	-3.	5%	The labor hours for the 2021 cost estimate are -3.5% less than the 2016 cost estimate. The main reason is that the 2021 cost estimate
						includes subcontracts (w/o labor hours), based on updared S&L standards, and no planting or seeding.

SL-016628.B_SDGE Decom(Miramar

Decommissioning Study

Prepared for San Diego Gas & Electric Company
Miramar Energy Facility

Prepared by Sargent & Lundy

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Sargent & Lundy is one of the oldest and most experienced full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, and fossil fuels. Sargent & Lundy delivers comprehensive project services—from consulting, design, and implementation to construction management, commissioning, and operations/maintenance—with an emphasis on quality and safety. The firm serves public and private sector clients in the power and energy, gas distribution, industrial, and government sectors.

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ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DISMANTLE MIRAMAR ENERGY FACILITY

APPENDIX B. CONCEPTUAL ESTIMATE OF COST — FERC ACCOUNT

APPENDIX C. EXPLANATION OF VARIANCE FROM THE PREVIOUS COST STUDY

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
СТ	Combustion Turbine
FERC	Federal Energy Regulatory Commission
G&A	General & Administrative
GSU	Generator Step-up Transformer
Owner	San Diego Gas & Electric Company
PCB	Polychlorinated biphenyl
S&L	Sargent & Lundy, L.L.C.
SCR	Selective Catalytic Reduction
SDG&E	San Diego Gas & Electric Company

EXECUTIVE SUMMARY

Sargent & Lundy was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual cost estimate for dismantlement and an estimate of the average service life of the facility's peer group for the Miramar Energy Facility (Miramar) in San Diego, California. The facility consists of two natural gas-fired combustion turbines in peaking service with a combined output rating of 92 MW. The work scope included updating the 2016 conceptual demolition cost estimate and the benchmarking analysis for the facility.

METHODOLOGY

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in developing plant demolition costs and the existing S&L database for numerous other projects; (2) use of the unit cost factor methodology; and (3) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by SDG&E. These drawings and documents were used to estimate the building foundation sizes, building volumes, steel quantities, and the quantity of piping, valves, and other equipment. A site walkdown was performed to conduct a review of the site for dismantlement and determine any specific site-unique requirements. This site walkdown was performed in 2016; however, recent discussions with the Owner and facility management confirmed that no significant modifications have occurred since that time. This information was used with unit cost factors developed by S&L based on industry data and our experience. Unit cost factors for concrete removal, steel removal, cutting costs etc. were developed from labor and material cost information. S&L estimated the quantities of recoverable metals that could be recovered and sold for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

The benchmarking analysis considers publicly available data to determine the average service life of similar facilities.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning Miramar is shown in Table ES-1. The cost estimate broken into FERC accounts is shown in Table ES-2. All costs are in 2021 US dollars, and the total is the same in both tables, \$1,773,720. The decommissioning costs are expected to increase by the end of service life of the asset due to escalation and other factors.

Table ES-1 — Miramar Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$933,065	-
Labor	_	\$658,508
Subcontracts	_	\$48,240
Equipment	_	\$192,047
Material	-	\$34,270
General Conditions (Decommissioning Contractor Indirect) Costs	\$394,285	-
Scrap Value	(\$185,132)	-
Subtotal Demolition Contractor Costs	\$1,142,218	-
-Project Indirect Costs	\$376,000	-
Engineering	_	\$66,000
SDG&E Internal Costs	_	\$310,000
Contingency Costs	\$255,502	-
Total Demolition Costs	\$1,773,720	-

Table ES-2 — Miramar Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
341	Other Production – Structures & Improvements	\$327,239
342	Other Production – Fuel Holders, Producers and Accessories	\$213,446
344	Other Production – Generators	\$799,785
345	Other Production – Accessory Electric Equipment	\$433,251
	General Conditions	Included Above
	Engineering	Included Above
	Contingency	Included Above
	Total Project Cost	\$1,773,720

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform an independent conceptual cost estimate for the dismantlement of the Miramar Energy Facility

(Miramar) and estimate the average service life of the facility's peer group. The work scope included

updating the 2016 conceptual demolition cost estimate, report, and benchmarking analysis.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers over the

years, the Sargent & Lundy Consulting Group has become one of the premier power project consultants in

the power industry. This commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineer services—including

decommissioning cost estimation and average service life evaluation—for both global and domestic electric

power assets.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimony services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations experience

to support consulting services such as those performed for Miramar.

1.3. FACILITY DESCRIPTION

The Miramar Energy Facility in central San Diego consists of two simple-cycle GE LM6000 combustion

turbines (CTs) firing only natural gas. The Miramar facility is used for peaking duty and is capable of

generating 92 MW. The facility uses the latest generation of peaking turbines with water injection and

selective catalytic reduction for nitrogen oxide (NOX) reduction. The Miramar CTs can be started remotely

from the Palomar control room and are operated and maintained by personnel based out of the Palomar Energy Center. The first unit at Miramar went into service in 2005. The second turbine is a virtual replica of

the first, with a capacity of approximately 46 MW of peaking energy and capacity for SDG&E's service

territory. The second unit went into commercial operation in 2009.

2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of deterministic and

stochastic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of foundations, linear feet of piping, equipment, etc.). Stochastic methods were also used if

quantitative information (e.g., fire lines and hydrants, miscellaneous electrical equipment, etc.) was

unavailable.

The cost estimate was developed based on drawings, documents, and data provided by the Owner. These

drawings and documents were used to estimate the building foundation sizes, building volumes, steel

quantities, and the quantity of piping, valves, and other equipment.

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in

developing plant demolition cost and the existing S&L database for numerous other projects; (2) use of the

unit cost factor methodology; and (3) quotes from previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

developed include both summaries and details for each type of work performed, indirect costs, and

contingencies. The cost estimate database report lists costs by buildings, plant systems, and several other

categories.

An inventory of plant piping, valves, equipment, HVAC ducts, concrete, galleries, cable tray, and other

equipment was developed based on review of drawings and a site walkdown to conduct a review of the site

for dismantlement and determine any specific site-unique requirements. This information was used with

unit cost factors developed by S&L based on industry data and experience. Unit cost factors for concrete

removal, steel removal, cutting costs, and other tasks were developed from labor and material cost

information. S&L also estimated the quantities of recoverable metals that could be recovered and sold for

scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale

or other salvage value besides the value of scrap metal.

S&L worked from site general arrangement drawings and company documentation for the facilities,

including information about any existing metal cleaning storage ponds, asbestos inventories,

polychlorinated biphenyl (PCB) inventories, or sludge ponds. S&L relied on SDG&E to identify the location

of environmental issues that need to be considered in the estimates, since S&L's scope of work excludes

a detailed survey and testing program to identify such problems.

2.2. COST ESTIMATE SUMMARY

The summary of the cost estimate for decommissioning Miramar is shown in Table 2-1. The commercial and technical basis for the estimate is described in Section 4, and the detailed estimate is included in Appendix A. The summary breakdown into FERC accounts is shown in

Table 2-2, and the detailed allocation of FERC accounts is shown in Appendix B. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

The 2021 cost estimate format was changed to be consistent with S&L's current standards. The variance between the 2021 and 2016 cost estimate is shown in Appendix C.

Table 2-1 — Miramar Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$933,065	-
Labor	_	\$658,508
Subcontracts	_	\$48,240
Equipment	_	\$192,047
Material	_	\$34,270
General Conditions (Decommissioning Contractor Indirect) Costs	\$394,285	-
Scrap Value	(\$185,132)	-
Subtotal Demolition Contractor Costs	\$1,142,218	-
-Project Indirect Costs	\$376,000	-
Engineering	_	\$66,000
SDG&E Internal Costs	_	\$310,000
Contingency Costs	\$255,502	-
Total Demolition Costs	\$1,773,720	-

Table 2-2 — Miramar Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
341	Other Production – Structures & Improvements	\$327,239
342	Other Production – Fuel Holders, Producers and Accessories	\$213,446
344	Other Production – Generators	\$799,785
345	Other Production – Accessory Electric Equipment	\$433,251
	General Conditions	Included Above
	Engineering	Included Above
	Contingency	Included Above
	Total Project Cost	\$1,773,720

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

1. Construction Labor Wages

Craft labor rates (craft hourly rate) for the cost estimate are based on the prevailing wages for San Diego, California as published in "R.S. Means Labor Rates for the Construction Industry", (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for arrival time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from supplied engineering information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included for the decommissioning contractor indirect costs in the cost estimate as direct costs as noted for the following:

- Labor supervision (additional compensation for labor foreman/supervisors)
- Construction management
- Field office expenses
- Safety
- Temporary facilities
- Mobilization/demobilization
- Legal expenses/claims
- Small tools and consumables
- General liability insurance
- Construction equipment mobilization/demobilization
- Freight on material
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

 Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and are part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions; as such, the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is estimated at \$30/ton, resulting in the values shown in Table 3-1.

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
#2 Copper	6,145
#2 Insulated Copper Wire	2,440

Note: 1 ton = 2000 lbs.

6. Project Schedule

Miramar has a 12-month construction schedule.

7. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, the engineering required to place the plant in a safe shutdown, and any unique engineering required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the facility.

Table 3-2 – SDG&E Internal Costs in Support of Decommissioning

Activity	Estimated Cost
Labor to prepare the site for demolition, including drain oils, drain reagents, de- energization of the power buses, etc.	\$120,000
Site security	\$60,000
Subcontracts to remove chemicals, oils, and reagents from the site	\$50,000
SDG&E project management, permitting, and procurement	\$80,000
Total	\$310,000

¹ www.americanrecycler.com

8. Escalation Rates

Not included.

9. Sales and Use Taxes

Sales and use taxes not included.

10. Contingency

- A 15% contingency is applied for labor, material, equipment, subcontracting, and indirect costs. General conditions (indirect demolition contractor costs) are allocated across labor, material, and equipment.
- There is no contingency on scrap value

11. Contract Basis for Estimate

The contracting strategy is a multiple lump sum for the estimate.

12. Assumptions

- The facility will be in safe-shutdown mode and ready for a decommissioning contractor to start work.
- All chemicals and lubricating oils will be removed from the facilities to be demolished by the utility before demolition.
- No extraordinary environmental costs for demolition will be needed.
- There will be no PCBs on site at the time of demolition.
- Switchyards within the plant boundaries are not part of the scope, nor are access roads to these facilities.
- All items above grade and to a depth of one foot including foundations will be demolished.
 Any other items buried more than one foot deep will remain in place.
- Underground piping will be abandoned in place.
- Underground piping larger than four feet in diameter will be filled with sand or slurry and capped at the ends to prevent collapse (none noted at this site). Non-metal pipe will be collapsed.
- All demolished materials are considered debris, except for organic combustibles and nonembedded metals which have scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- Handling on-site and off-site disposal of hazardous materials will be performed in compliance with methods approved by SDG&E's Environmental Services Department.
- All borrow (fill) material is assumed to be from offsite sources.

• Catalyst is assumed to be removed and returned to the original equipment manufacturer

4. REFERENCES

- 1. Sargent & Lundy Cost Data Base
- 2. RSMeans Cost Data, 2021.
- 3. Engineering Drawings, Equipment Lists, and other information provided by San Diego Gas & Electric.
- 4. 2020 Form EIA-860 Data Schedule 3, 'Generator Data' (Retired & Canceled Units Only)
- 5. Metal Scrap Values in the United States West Coast (Zone 1) (www.americanrecycler.com).

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DISMANTLE MIRAMAR ENERGY FACILITY

SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY

Estimator GΑ

Labor rate table 21CASAN

Project No. A14520.001 **Estimate Date** 11/30/21

Reviewed By BA **Approved By** BA Estimate No. 30598C SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY

Estimate No.: 30598C Project No.: A14520.001 Estimate Date: 11/30/21 Prep./Rev/App.: GA/BA/BA



Group	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00	WHOLE PLANT DEMOLITION				7,862	653,764	187,043	840,806
18.00.00	SCRAP VALUE		(185,132)		0	(7)	(1)	(185,140)
21.00.00	CIVIL WORK	48,240		34,270	52	4,752	5,005	92,267
	TOTAL DIRECT	48.240	(185,132)	34.270	7.914	658.508	192.047	747.933

Estimate No.: 30598C Project No.: A14520.001 Estimate Date: 11/30/21 Prep./Rev/App.: GA/BA/BA



Estimate Totals

Description	Amount	Totals	Hours
Labor	658,508		7,914
Material	34,270		
Subcontract	48,240		
Construction Equipment	192,047		
Scrap Value	(185,132)		
	747,933	747,933	
General Conditions			
Additional Labor Costs			
90-1 Labor Supervision	39,510		
90-2 Show-up Time	13,170		
90-3 Cost Due To OT 5-10's			
90-4 Cost Due To OT 6-10's			
90-5 Per Diem			
Site Overheads	74.440		
91-1 Construction Management 91-2 Field Office Expenses	71,119		
91-3 Material&Quality Control	15,646		
91-4 Site Services			
91-5 Safety	14.050		
91-6 Temporary Facilities	10,689		
91-7 Temporary Utilities	,		
91-8 Mobilization/Demob.	11,265		
91-9 Legal Expenses/Claims	1,664		
Other Construction Indirects			
92-1 Small Tools & Consumables	7,112		
92-2 Scaffolding			
92-3 General Liability Insur.	7,112		
92-4 Constr. Equip. Mob/Demob	19,205		
92-5 Freight on Material	1,714		
92-6 Freight on Scrap 92-7 Sales Tax			
92-8 Contractors G&A	74,953		
92-9 Contractors Profit	107,076		
	394,285	1,142,218	
Project Indirect Costs			
93-1 Engineering Services	66,000		
93-2 CM Support			
93-3 Start-Up/Commissioning			
93-4 Start-Up/Spare Parts			
93-5 Excess Liability Insur.			
93-6 Sales Tax On Indirects 93-7 SDG&E Internal Costs	310,000		
93-8 EPC Fee	310,000		
300 27 07 00	376,000	1,518,218	
Contingency			
94-1 Contingency on Const Eq	36,585		
94-3 Contingency on Material	6,315		
94-4 Contingency on Labor	148,966		
94-5 Contingency on Subcontr.	7,236		
94-6 Contingency on Scrap			
94-7 Contingency on Indirect	56,400		
	255,502	1,773,720	
Escalation			
96-1 Escalation on Const Equip			
96-3 Escalation on Material			
96-4 Escalation on Labor			
96-5 Escalation on Subcontract			
96-6 Escalation on Scrap			
96-7 Escalation on Indirects		1,773,720	
98 Interest During Constr		•	
50 Intelest During Collsti		1,773,720	
		1,773,720	



p I	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cos
00		WHOLE PLANT DEMOLITION									
10.	0.21.00	CIVIL WORK									
		PAVED SURFACES, 6 IN THICK		3,010.00 SY	-	-		361 _	32,093	16,680	48
		CIVIL WORK						361	32,093	16,680	48
10.	0.22.00	CONCRETE									
		BUILDING/EQUIPMENT FOUNDATION/PAD	AUX SKID, U-1	58.00 CY	-	-		65	5,823	1,435	7
		BUILDING/EQUIPMENT FOUNDATION/PAD	AUX SKID, U-2	58.00 CY	-	-		65	5,823	1,435	7
		BUILDING/EQUIPMENT FOUNDATION/PAD	WATER WASH PAD, U-1	6.00 CY	-	=		7	602	148	
		BUILDING/EQUIPMENT FOUNDATION/PAD	WATER WASH PAD, U-2	6.00 CY	=	=		7	602	148	
		BUILDING/EQUIPMENT FOUNDATION/PAD	15KV SWITCHGEAR, U-1	12.00 CY	-	-		14	1,205	297	
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	15KV SWITCHGEAR, U-2 ENGINE REMOVAL, U-1	12.00 CY 2.00 CY	-	-		14 2	1,205 201	297 49	
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	ENGINE REMOVAL, U-1 ENGINE REMOVAL, U-2	2.00 CY 2.00 CY	-	-		2	201	49	
		BUILDING/EQUIPMENT FOUNDATION/PAD	FUEL GAS FILTER SEPARATOR, U-1	4.00 CY	_			5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	FUEL GAS FILTER SEPARATOR, U-2	4.00 CY	_	_		5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT A, U-1	4.00 CY	_	_		5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT A, U-2	4.00 CY	_	_		5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT B, U-1	3.00 CY	-	-		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT B, U-2	3.00 CY	-	-		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT C, U-1	3.00 CY	-	-		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT C, U-2	3.00 CY	-	-		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT D, U-1	10.00 CY	-	=		11	1,004	247	
		BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT D, U-2	10.00 CY	-	-		11	1,004	247	
		BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMER 480V SWITCHGEAR, U-1	29.00 CY	-	-		33	2,911	717	
		BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMER 480V	29.00 CY	-	-		33	2,911	717	
			SWITCHGEAR, U-2								
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	AUX ELECTRIC ENCLOSURE, U-1 AUX ELECTRIC ENCLOSURE. U-2	8.00 CY 8.00 CY	-	-		9	803 803	198 198	
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	STACK, U-1	36.00 CY	-	-		41	3,614	198	
		BUILDING/EQUIPMENT FOUNDATION/PAD	STACK, U-2	36.00 CY	-	-		41	3,614	891	
		BUILDING/EQUIPMENT FOUNDATION/PAD	CEMS, U-1	3.00 CY	_	_		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	CEMS, U-2	3.00 CY	-	-		3	301	74	
		BUILDING/EQUIPMENT FOUNDATION/PAD	AMMONIA EVAPORATION SKID, U-1	8.00 CY	-	-		9	803	198	
		BUILDING/EQUIPMENT FOUNDATION/PAD	AMMONIA EVAPORATION SKID, U-2	8.00 CY	-	-		9	803	198	
		BUILDING/EQUIPMENT FOUNDATION/PAD	EMERGENCY EYEWASH, U-1	1.00 CY	-	-		1	100	25	
		BUILDING/EQUIPMENT FOUNDATION/PAD	EMERGENCY EYEWASH, U-2	1.00 CY	-	-		1	100	25	
		BUILDING/EQUIPMENT FOUNDATION/PAD	BOP MCC, U-1	4.00 CY	-	-		5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	BOP MCC, U-2	4.00 CY	-	-		5	402	99	
		BUILDING/EQUIPMENT FOUNDATION/PAD	TEMPERING AIR DUCT, U-1	13.00 CY	-	-		15	1,305	322	
		BUILDING/EQUIPMENT FOUNDATION/PAD	TEMPERING AIR DUCT, U-2	13.00 CY	-	-		15	1,305	322	
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	FIN FAN COOLER, U-1 FIN FAN COOLER, U-2	16.00 CY 16.00 CY	-	-		18 18	1,606 1.606	396 396	
		BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	WATER TREATMENT. U-1	60.00 CY	-	-		18	6.024	1.484	
		BUILDING/EQUIPMENT FOUNDATION/PAD	WATER TREATMENT, U-2	60.00 CY	-	-		68	6,024	1,484	
		BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER PUMP, U-1	29.00 CY	_	_		33	2.911	717	
		BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER PUMP, U-2	29.00 CY	_	_		33	2,911	717	
		BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER TANK, U-1	60.00 CY	-	-		68	6,024	1,484	
		BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER TANK, U-2	60.00 CY	-	-		68	6,024	1,484	
		BUILDING/EQUIPMENT FOUNDATION/PAD	SERVICE BUILDING AND CONTROL	33.00 CY	-	=		37	3,313	816	
		BUILDING/EQUIPMENT FOUNDATION/PAD	ROOM AIR COMPRESSOR	13.00 CY				15	1,305	322	
		BUILDING/EQUIPMENT FOUNDATION/PAD	BLACK START DIESEL	156.00 CY	-	-		176	15,662	3,859	
		BOILDING/EQUI MENT FOUNDATION/FAD	GENERERATOR ENGINE	130.00 01	_	_		170	13,002	3,039	
		BUILDING/EQUIPMENT FOUNDATION/PAD	GAS COMPRESSOR	226.00 CY	-	-		254	22,689	5,591	:
		BUILDING/EQUIPMENT FOUNDATION/PAD	GAS COMPRESSOR COOLER	50.00 CY	-	-		56	5,020	1,237	
		BUILDING/EQUIPMENT FOUNDATION/PAD	WAREHOUSE	110.00 CY	-	-		124	11,043	2,721	
		TURBINE PEDESTAL	U-1 U-2	217.00 CY	-	-		391 391	34,857	8,589 8,589	:
		TURBINE PEDESTAL CONCRETE	0-2	217.00 CY	-	-		2,273	34,857 202,838	49,982	25
10.	0.24.00	ARCHITECTURAL BUILDING	SERVICE BUILDING AND CONTROL	21,000.00 CF	-	_		63	5,243	1,747	
		- · · · ·	ROOM, 50' X 30' X 14'	,				30	5,240	.,,	
		BUILDING	AIR COMPRESSOR BUILING, 245 SF	4,655.00 CF				14	1,162	387	



Phas	e Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.24.00										
	BUILDING BUILDING	X 9' HIGH GAS COMPRSSOR BUILING, 1485.33 SF X 9' HIGH	4,655.00 CF 28,222.00 CF	-	- -		14 85	1,162 7,047	387 2,348	1, 9,
	BUILDING ARCHITECTURAL	WAREHOUSE, 22' X 90' X 18' HIGH	35,640.00 CF	=	=		107 _ 269	8,899 22,352	2,965 7,447	11, 29,
10.26.00	MISCELLANEOUS STRUCTURAL ITEM									
	MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE		1.00 LT	-	-		300	23,982	6,831	30
	MISCELLANEOUS STRUCTURAL ITEM						300	23,982	6,831	30
10.31.00	MECHANICAL EQUIPMENT COMBUSTION TURBINE	LM6000 PC-SPRINT W/GENERATOR	266.00 TN	-	=		931	74,424	21,199	95
	COMBUSTION TURBINE	AND ACCESSORIES, U-1 LM6000 PC-SPRINT W/GENERATOR	266.00 TN	-	-		931	74,424	21,199	98
	TANKS AND SILOS	AND ACCESSORIES, U-2 200,000 GAL, DEMINERALIZED	28.00 TN	-	=		76	6,043	1,721	7
	TANKS AND SILOS	WATER TANK, U-1 200,000 GAL, DEMINERALIZED WATER TANK, U-2	28.00 TN	-	-		76	6,043	1,721	7
	TANKS AND SILOS	6,000 GAL, AQUEOUS AMMONIA TANK	3.00 TN	-	-		8	648	184	
	MISCELLANEOUS EQUIPMENT	BLACK START DIESEL GENERATOR ENGINE, 625KV, NATURAL GAS	5.00 TN	-	-		14	1,079	307	
	MISCELLANEOUS EQUIPMENT	SCR CASING, U-1	21.00 TN	-	-		57	4,533	1,291	
	MISCELLANEOUS EQUIPMENT	SCR CAVITY DUCTWORK, U-1	33.00 TN	-	=		89	7,123	2,029	
	MISCELLANEOUS EQUIPMENT	SCR CASING, U-2	21.00 TN	-	-		57	4,533	1,291	
	MISCELLANEOUS EQUIPMENT	SCR CAVITY DUCTWORK, U-2	33.00 TN	-	-		89	7,123	2,029	
	MISCELLANEOUS EQUIPMENT	CT AIR INTAKE SYSTEM, DUCTS & SILENCER, U-1	20.00 TN	=	=		54	4,317	1,230	
	MISCELLANEOUS EQUIPMENT	CT AIR INTAKE SYSTEM, DUCTS & SILENCER, U-2	20.00 TN	-	-		54	4,317	1,230	
	MISCELLANEOUS EQUIPMENT MISCELLANEOUS EQUIPMENT	CT LUBE OIL SYSTEM, INCL FIN FAN COOLER, U-1 CT LUBE OIL SYSTEM, INCL FIN FAN	3.00 TN 3.00 TN	-	-		8	648 648	184 184	
	MISCELLANEOUS EQUIPMENT MISCELLANEOUS EQUIPMENT	COOLER, U-2 CT LUBE GAS FUEL, COALESCING	1.00 TN	-	- -		3	216	61	
	MISCELLANEOUS EQUIPMENT	FILTER SKID, GAS COMPRESSOR DEMINERALIZED WATER TRANSFER	0.30 TN	-	-		1	65	18	
	MISCELLANEOUS EQUIPMENT	PUMPS, U-1 DEMINERALIZED WATER TRANSFER	0.30 TN	-	-		1	65	18	
	STEEL EXHAUST STACK	PUMPS, U-2 45 FT X 10 FT DIA, U-1	11.00 TN	-	=		22	1,781	507	:
	STEEL EXHAUST STACK	45 FT X 10 FT DIA, U-2	11.00 TN	-	=		22	1,781	507	:
	MECHANICAL EQUIPMENT						2,499	199,808	56,913	256
10.35.00	PIPING PIPING, VALVES AND HANGERS	UNIT 1	24.00 TN				49	3,885	1,107	
	PIPING, VALVES AND HANGERS	UNIT 2	24.00 TN				49	3,885	1,107	
	FIRE LINES AND HYDRANTS	ONT 2	1.00 LT	-	_		80	6,395	1,822	
	PIPING		1.00 E1				177	14,165	4,035	18
10.41.00		OTATION ANNUATI:	40							
	TRANSFORMERS	STATION AUXILARY TRANSFORMER, U-1	12.00 TN	-	-		32	2,563	730	;
	TRANSFORMERS	STATION AUXILARY TRANSFORMER, U-2	12.00 TN	-	-		32 150	2,563	730	15
	OUTDOOR LIGHT POLE / FIXTURE	CONTROL DOOM FOURNISHE	1.00 LT	-	-			11,991	3,416	
	MISCELLANEOUS ELECTRICAL EQUIPMENT MISCELLANEOUS ELECTRICAL EQUIPMENT	CONTROL ROOM EQUIPMENT GENERATOR BUS, TRANSFORMERS, MISC., U-1	1.00 LT 63.00 TN	-	-		100 224	7,994 17,944	2,277 5,111	1 2
	MISCELLANEOUS ELECTRICAL EQUIPMENT	GENERATOR BUS, TRANSFORMERS, MISC., U-2	63.00 TN	=	=		224	17,944	5,111	23
	ELECTRICAL EQUIPMENT	,,-					763	60,999	17,375	78



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
	10.42.00	CONDUIT	U-1	12,000.00 LF	_	_		120	9,593	2,732	12,325
		CONDUIT	U-2	12,000.00 LF	-	-		120	9,593	2,732	12,325
		CABLE TRAY	U-1	2,500.00 LF	-	-		100	7,994	2,277	10,271
		CABLE TRAY	U-2	2,500.00 LF	-	-		100	7,994	2,277	10,271
		RACEWAY, CABLE TRAY, & CONDUIT						440	35,174	10,019	45,192
	10.43.00	CABLE COPPER WIRE / CABLE - MEDIUM VOLTAGE	U-1	4,500.00 LF				90	7,195	2,049	9,244
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	U-2	4,500.00 LF 4,500.00 LF	=	-		90	7,195	2,049	9,244
		COPPER WIRE / CABLE - LOW VOLTAGE	U-1	25,000.00 LF	-	-		250	19,985	5,693	25,678
		COPPER WIRE / CABLE - LOW VOLTAGE	U-2	25,000.00 LF	-	-		250	19,985	5,693	25,678
		CABLE						680	54,359	15,484	69,843
	10.44.00	CONTROL & INSTRUMENTATION									
		CONTROL & INSTRUMENTATION		1.00 LT	-	-		100 _	7,994	2,277	10,271
		CONTROL & INSTRUMENTATION						100	7,994	2,277	10,271
		WHOLE PLANT DEMOLITION						7,862	653,764	187,043	840,806
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL		-104.60 TN	-	(18,305)	-	0	(1)	0	(18,306)
		CARBON STEEL		-717.00 TN	-	(125,475)	-	0	(6)	(1)	(125,482)
		CARBON STEEL CARBON STEEL	BUILDINGS CONDUIT, 1.5" DIA. AVG SIZE, 2.63	-31.00 TN	=	(5,425)	=	0	0	0	(5,425) (5,425)
		CARBON STEEL	LBS/LF	-31.00 TN	=	(5,425)	-	U			(5,425)
		CARBON STEEL	CABLE TRAY, 6 LBS/LF	-15.00 TN	=	(2,625)	_	0			(2,625)
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-12.00 TN	-	(4,200)	-	0			(4,200)
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA	TRANSFORMERS, GENERATORS, U2	-12.00 TN		(4,200)	-	0 _			(4,200)
		MIXED STEEL				(165,655)		0	(7)	(1)	(165,664)
	18.30.00	COPPER #2 SOLID COPPER / TUBING	BUS BAR	-0.39 TN		(2,397)					(2,397)
		#2 INSULATED COPPER WIRE	U-1	-3.50 TN	-	(8,540)	-	0			(8,540)
		#2 INSULATED COPPER WIRE	U-2	-3.50 TN	-	(8,540)	-	0			(8,540)
		COPPER			_	(19,477)		0		_	(19,477)
		SCRAP VALUE				(185,132)		0	(7)	(1)	(185,140)
21.00.00		CIVIL WORK									
21.00.00	21.18.00	HAULING									
	21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	158.00 CY	3,160	=					3,160
		HAULING TO RECYCLE FACILITY	CONCRETE PAVED SURFACES DEBRIS IS RECYCLED. NO	502.00 CY	10,040	-					10,040
		HAULING TO RECYCLE FACILITY	DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	590.00 CY	11,800	_					11,800
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	906.00 CY	18,120	=					18,120
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	106.00 CY	2,120	_					2,120
		HAULING	NO DISPOSAL FEE	100.00						-	45,240
					45,240						45,240
	21.21.00	MASS FILL									
		MASS FILL, COMMON EARTH 6 INCHES THICK MASS FILL	8940 SY	1,490.00 CY	Ē	= ,	34,270 34,270	52 52	4,752 4,752	5,005 5,005	44,027 44,027
	21.52.00	WASTE DISPOSAL									
		DISPOSAL AND TRANSPORTATION FEE	RUBBISH & TENANT DEBRIS	100.00 CY	3,000	-					3,000
		WASTE DISPOSAL			3,000					_	3,000
					-,						-,

Estimate No.: 30598C
Project No.: A14520.001
Estimate Date: 11/30/21
Prep/Rev/Appr: GA/BA/BA

SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		CIVIL WORK			48,240		34,270	52	4,752	5,005	92,267

APPENDIX B. CONCEPTUAL ESTIMATE OF COST — FERC ACCOUNT

SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS

Estimator GA

Labor rate table 21CASAN

Project No. A14520.001
Estimate Date 11/30/21
Reviewed By BA
Approved By BA
Estimate No. 30598C

Estimate No.: 30598C Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/App: GA/BA/BA



Area	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
341	OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS	23,907	(5,425)	62,131	940	181,285	65,340	327,239
342	OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND	17,414	(18,305)		914	176,311	38,025	213,446
	ACCESSORIES							
344	OTHER PRODUCTION - GENERATORS	26,741	(125,475)		3,959	731,492	167,027	799,785
345	OTHER PRODUCTION - ACCESSORY ELECTRIC	3,129	(35,927)		2,102	376,505	89,544	433,251
	EQUIPMENT							

Estimate No.: 30598C Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Estimate Totals

Description	Amount	Totals	Hours
Labor Material Subcontract Construction Equipment Process Equipment	1,465,593 62,131 71,191 359,937 (185,132)		7,914
	1,773,720	1,773,720	
General Conditions Additional Labor Costs Site Overheads Other Construction Indirects			
		1,773,720	
Project Indirect Costs			
		1,773,720	
Contingency			
		1,773,720	
Escalation			
		1,773,720	
Total		1,773,720	

Estimate No.: 30598C Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/Appr: GA/BA/BA

SAN DIEGO GAS & ELECTRIC MIRAMAR ENERGY FACILITY DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



						Subcontract						
Area	Group	Phase	Description	Notes	Quantity	Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
341			OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS									
	10.00.00		WHOLE PLANT DEMOLITION									
		10.21.00	CIVIL WORK									
			PAVED SURFACES, 6 IN THICK CIVIL WORK		3,010.00 SY	-	-		361 361	71,426 71,426	31,262 31,262	102,688 102,688
										,		,,,,,
		10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	EMERGENCY EYEWASH, U-1	1.00 CY	_	-		1	223	46	270
			BUILDING/EQUIPMENT FOUNDATION/PAD	EMERGENCY EYEWASH, U-2	1.00 CY	-	-		1	223	46	270
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	SERVICE BUILDING AND CONTROL ROOM AIR COMPRESSOR	33.00 CY 13.00 CY				37 15	7,374 2,905	1,530 603	8,904 3,508
			BUILDING/EQUIPMENT FOUNDATION/PAD	WAREHOUSE	110.00 CY	-	-		124	24,579	5,100	29,679
			CONCRETE						178	35,304	7,326	42,630
		10.24.00	ARCHITECTURAL									
			BUILDING	SERVICE BUILDING AND CONTROL ROOM, 50' X 30' X 14'	21,000.00 CF	-	-		63	11,670	3,274	14,944
			BUILDING	AIR COMPRESSOR BUILING, 245 SF X 9'	4,655.00 CF	-			14	2,587	726	3,313
			BUILDING	HIGH GAS COMPRSSOR BUILING, 1485.33 SF X 9'	28,222.00 CF	-	-		85	15,683	4,400	20,084
			BUILDING	HIGH WAREHOUSE, 22' X 90' X 18' HIGH	35,640.00 CF	-	-		107	19,806	5,557	25,363
			ARCHITECTURAL						269	49,746	13,957	63,703
		10.35.00	PIPING									
			FIRE LINES AND HYDRANTS PIPING		1.00 LT	-	-		80 80	14,233 14,233	3,414	17,647 17,647
			WHOLE PLANT DEMOLITION						888	170,709	55,959	226,669
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL									
			CARBON STEEL MIXED STEEL	BUILDINGS	-31.00 TN	-	(5,425) (5,425)		0	<u>(1)</u>		(5,426) (5,426)
			SCRAP VALUE				(5,425)		0	(1)		(5,426)
	21.00.00		CIVIL WORK									
	21.00.00	21.18.00	HAULING									
			HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	158.00 CY	4,663	-					4,663
			HAULING TO RECYCLE FACILITY	CONCRETE PAVED SURFACES DEBRIS IS	502.00 CY	14,817	-					14,817
			HAULING	RECYCLED. NO DISPOSAL FEE		19,480					-	19,480
		21.21.00	MASS FILL									
		21.21.00	MASS FILL, COMMON EARTH 6 INCHES THICK	8940 SY	1,490.00 CY	-	-	62,131		10,576	9,381	82,088
			MASS FILL					62,131	52	10,576	9,381	82,088
		21.52.00	WASTE DISPOSAL									
			DISPOSAL AND TRANSPORTATION FEE WASTE DISPOSAL	RUBBISH & TENANT DEBRIS	100.00 CY	4,427 4,427	-				-	4,427 4,427
			CIVIL WORK			23,907		62,131	52	10,576	9,381	105,996
			341 OTHER PRODUCTION - STRUCTURES			23,907	(5,425)	62,131	940	181,285	65,340	327,239
			& IMPROVEMENTS									
342			OTHER PRODUCTION - FUEL HOLDERS,									
			PRODUCERS AND ACCESSORIES									
	10.00.00	40.00.00	WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	AMMONIA EVAPORATION SKID, U-1	8.00 CY	_	_		9	1,788	371	2,158
			BUILDING/EQUIPMENT FOUNDATION/PAD	AMMONIA EVAPORATION SKID, U-2	8.00 CY	-	-		9	1,788	371	2,158
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	WATER TREATMENT, U-1 WATER TREATMENT, U-2	60.00 CY 60.00 CY	-	-		68 68	13,407 13,407	2,782 2,782	16,188 16,188
			BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER PUMP, U-1	29.00 CY	-	-		33	6,480	1,345	7,824
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER PUMP, U-2 DEMINERALIZED WATER TANK, U-1	29.00 CY 60.00 CY	-	-		33 68	6,480 13,407	1,345 2,782	7,824 16,188
			BUILDING/EQUIPMENT FOUNDATION/PAD	DEMINERALIZED WATER TANK, U-1 DEMINERALIZED WATER TANK, U-2	60.00 CY	-	-		68	13,407	2,782	16,188
			BUILDING/EQUIPMENT FOUNDATION/PAD	GAS COMPRESSOR	226.00 CY	-	-		254	50,498	10,479	60,977
			BUILDING/EQUIPMENT FOUNDATION/PAD	GAS CSIDG & E7 Depreciation/Ex			ness: D. A. V	Vatson	56	11,172	2,318	13,490
					Page 1⁄2″1⁴of	322						



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			CONCRETE						664	131,831	27,356	159,186
		10.31.00	MECHANICAL EQUIPMENT									
			TANKS AND SILOS	200,000 GAL, DEMINERALIZED WATER TANK, U-1	28.00 TN		-		76	13,451	3,226	16,677
			TANKS AND SILOS	200,000 GAL, DEMINERALIZED WATER TANK, U-2	28.00 TN		-		76	13,450	3,226	16,677
			MISCELLANEOUS EQUIPMENT	DEMINERALIZED WATER TRANSFER PUMPS, U-1	0.30 TN	-	-		1	144	35	179
			MISCELLANEOUS EQUIPMENT	DEMINERALIZED WATER TRANSFER PUMPS, U-2	0.30 TN		-		1	144	35	179
			MECHANICAL EQUIPMENT	7 3111 3, 3 2					153	27,189	6,522	33,711
		10.35.00	PIPING									
			PIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS	UNIT 1 UNIT 2	24.00 TN 24.00 TN	-			49 49	8,647 8,647		10,721 10,721
			PIPING WHOLE PLANT DEMOLITION						97 914	17,293 176,313		21,442 214,339
									514	170,313	30,020	214,339
	18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
			CARBON STEEL		-104.60 TN	-	(18,305)		0	(2)	0	(18,307)
			MIXED STEEL SCRAP VALUE				(18,305)		0	(2)		(18,307)
			SCRAP VALUE				(18,305)		U	(2)	Ü	(18,307)
:	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	590.00 CY	17,414						17,414
			HAULING	DISPOSAL FEE		17,414					-	17,414
			CIVIL WORK			17,414						17,414
			342 OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES			17,414	(18,305)		914	176,311	38,025	213,446
344			OTHER PRODUCTION - GENERATORS									
	10.00.00	10.22.00	WHOLE PLANT DEMOLITION CONCRETE									
			BUILDING/EQUIPMENT FOUNDATION/PAD	AUX SKID, U-1	58.00 CY	-	-		65	12,960		15,649
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	AUX SKID, U-2 WATER WASH PAD, U-1	58.00 CY 6.00 CY	-	-		65 7	12,960 1,341		15,649 1,619
			BUILDING/EQUIPMENT FOUNDATION/PAD	WATER WASH PAD, U-2	6.00 CY	-	-		7	1,341	278	1,619
			BUILDING/EQUIPMENT FOUNDATION/PAD	ENGINE REMOVAL, U-1	2.00 CY 2.00 CY	-	-		2 2	447 447	93 93	540 540
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	ENGINE REMOVAL, U-2 FUEL GAS FILTER SEPARATOR, U-1	4.00 CY	-	-		5	894		1,079
			BUILDING/EQUIPMENT FOUNDATION/PAD	FUEL GAS FILTER SEPARATOR, U-2	4.00 CY	-	-		5	894		1,079
			BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT A, U-1	4.00 CY	-	-		5	894		1,079
			BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT A, U-2	4.00 CY	-	-		5	894 670		1,079 809
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT B, U-1 OUTLET DUCT B, U-2	3.00 CY 3.00 CY				3	670		809
			BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT C, U-1	3.00 CY	-	-		3	670		809
			BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT C, U-2	3.00 CY	-	-		3	670		809
			BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT D, U-1	10.00 CY	-	-		11	2,234		2,698
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	OUTLET DUCT D, U-2 STACK, U-1	10.00 CY 36.00 CY	-	-		11 41	2,234 8,044		2,698 9,713
			BUILDING/EQUIPMENT FOUNDATION/PAD	STACK, U-2	36.00 CY				41	8,044		9,713
			BUILDING/EQUIPMENT FOUNDATION/PAD	CEMS, U-1	3.00 CY	-	-		3	670	139	809
			BUILDING/EQUIPMENT FOUNDATION/PAD	CEMS, U-2	3.00 CY	-	-		3	670		809
			BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	TEMPERING AIR DUCT, U-1 TEMPERING AIR DUCT, U-2	13.00 CY 13.00 CY	-	-		15 15	2,905 2,905		3,508 3,507
			BUILDING/EQUIPMENT FOUNDATION/PAD	FIN FAN COOLER, U-1	16.00 CY				18	3,575		4,317
			BUILDING/EQUIPMENT FOUNDATION/PAD	FIN FAN COOLER, U-2	16.00 CY	-	-		18	3,575		4,317
			BUILDING/EQUIPMENT FOUNDATION/PAD	BLACK START DIESEL GENERERATOR ENGINE	156.00 CY	-	-		176	34,857	7,233	42,090
			TURBINE PEDESTAL	U-1	217.00 CY		-		391	77,579		93,677
			TURBINE PEDESTAL CONCRETE	U-2	217.00 CY		-		391 1,312	77,579 260,623		93,677 314,704
		10.26.00	MISCELLANEOUS STRUCTURAL ITEM									
		10.26.00	MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE	SDG&E/Depreciation/E	Vh No: SDC 25	26 MD S/M:	2000: D A V	Vatson	300	53,375	12,803	66,178



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			MISCELLANEOUS STRUCTURAL ITEM						300	53,375	12,803	66,178
		10.31.00	MECHANICAL EQUIPMENT									
		10.01.00	COMBUSTION TURBINE	LM6000 PC-SPRINT W/GENERATOR AND ACCESSORIES, U-1	266.00 TN	-	-		931	165,640	39,731	205,372
			COMBUSTION TURBINE	LM6000 PC-SPRINT W/GENERATOR AND ACCESSORIES, U-2	266.00 TN	-	-		931	165,640	39,731	205,372
			TANKS AND SILOS	6,000 GAL, AQUEOUS AMMONIA TANK	3.00 TN	-	-		8	1,441	346	1,787
			MISCELLANEOUS EQUIPMENT	BLACK START DIESEL GENERATOR ENGINE, 625KV, NATURAL GAS	5.00 TN	-	-		14	2,402		2,978
			MISCELLANEOUS EQUIPMENT	SCR CASING, U-1	21.00 TN	-	-		57	10,088		12,508
			MISCELLANEOUS EQUIPMENT	SCR CAVITY DUCTWORK, U-1	33.00 TN	-	-		89 57	15,852		19,655 12,508
			MISCELLANEOUS EQUIPMENT MISCELLANEOUS EQUIPMENT	SCR CASING, U-2 SCR CAVITY DUCTWORK, U-2	21.00 TN 33.00 TN	-	-		89	10,088 15,852		19,655
			MISCELLANEOUS EQUIPMENT	CT AIR INTAKE SYSTEM, DUCTS & SII FNCFR U-1	20.00 TN	-	-		54	9,608		11,912
			MISCELLANEOUS EQUIPMENT	CT AIR INTAKE SYSTEM, DUCTS & SILENCER, U-2	20.00 TN	-	-		54	9,607	2,305	11,912
			MISCELLANEOUS EQUIPMENT	CT LUBE OIL SYSTEM, INCL FIN FAN COOLER, U-1	3.00 TN	-	-		8	1,441	346	1,787
			MISCELLANEOUS EQUIPMENT	CT LUBE OIL SYSTEM, INCL FIN FAN COOLER, U-2	3.00 TN	-			8	1,441	346	1,787
			MISCELLANEOUS EQUIPMENT	CT LUBE GAS FUEL, COALESCING FILTER SKID, GAS COMPRESSOR	1.00 TN	-	-		3	480	115	596
			STEEL EXHAUST STACK	45 FT X 10 FT DIA, U-1	11.00 TN	-	-		22	3,963	951	4,914
			STEEL EXHAUST STACK	45 FT X 10 FT DIA, U-2	11.00 TN	-	-		22	3,963		4,914
			MECHANICAL EQUIPMENT						2,347	417,508		517,653
			WHOLE PLANT DEMOLITION						3,959	731,505	167,029	898,535
	18.00.00	40.40.00	SCRAP VALUE									
		18.10.00	MIXED STEEL CARBON STEEL		-717.00 TN		(105 175)		0	(14)	(2)	(125 404)
			MIXED STEEL		-717.00 TN	-	(125,475) (125,475)	-	0	(14)		(125,491) (125,491)
			SCRAP VALUE				(125,475)		0	(14)		(125,491)
	21.00.00		CIVIL WORK									
	21.00.00	21.18.00	HAULING									
		21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	906.00 CY	26,741	-					26,741
			HAULING	DIOI GONETEE		26,741						26,741
			CIVIL WORK	_		26,741	(40= 4==)			=04.400	407.007	26,741
			344 OTHER PRODUCTION - GENERATOR	S		26,741	(125,475)		3,959	731,492	167,027	799,785
345			OTHER PRODUCTION - ACCESSORY ELECTRIC EQUIPMENT									
	10.00.00	40.00.00	WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	15KV SWITCHGEAR, U-1	12.00 CY				14	2,681	556	3,238
			BUILDING/EQUIPMENT FOUNDATION/PAD	15KV SWITCHGEAR, U-1	12.00 CY	-	-		14	2,681	556	3,238
			BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMER 480V SWITCHGEAR, U-1	29.00 CY	-	-		33	6,480		7,824
			BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMER 480V SWITCHGEAR, U-2	29.00 CY	-	-		33	6,480	1,345	7,824
			BUILDING/EQUIPMENT FOUNDATION/PAD	AUX ELECTRIC ENCLOSURE, U-1	8.00 CY		-		9	1,788	371	2,158
			BUILDING/EQUIPMENT FOUNDATION/PAD	AUX ELECTRIC ENCLOSURE, U-2	8.00 CY	-	-		9	1,788		2,158
			BUILDING/EQUIPMENT FOUNDATION/PAD	BOP MCC, U-1	4.00 CY	-	-		5	894		1,079
			BUILDING/EQUIPMENT FOUNDATION/PAD CONCRETE	BOP MCC, U-2	4.00 CY		-		5 119	894 23,685		1,079 28,600
		10.41.00	ELECTRICAL EQUIPMENT									
			TRANSFORMERS	STATION AUXILARY TRANSFORMER, U-1	12.00 TN	-	-		32	5,705	,	7,073
			TRANSFORMERS	STATION AUXILARY TRANSFORMER, U-2	12.00 TN	-	-		32	5,705	,	7,073
			OUTDOOR LIGHT POLE / FIXTURE	CONTROL DOOM FOUNDATEUT	1.00 LT	-	-		150	26,688	.,	33,089
			MISCELLANEOUS ELECTRICAL EQUIPMENT MISCELLANEOUS ELECTRICAL EQUIPMENT	CONTROL ROOM EQUIPMENT GENERATOR BUS, TRANSFORMERS, MISC.,	1.00 LT 63.00 TN	-	-		100 224	17,792 39,937		22,059 49,516
			MISCELLANEOUS ELECTRICAL EQUIPMENT	U-1 GENERATOR BUS, TRANSFORMERS, MISC.,	63.00 TN				224	39,937	9,579	49,516
				U-2	55.55 114		_					
			ELECTRICAL EQUIPMENT						763	135,762	32,565	168,327

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Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
		CONDUIT	U-1	12,000.00 LF	-			120	21,350	5,121	26,47
		CONDUIT	U-2	12,000.00 LF	-			120	21,350	5,121	26,47
		CABLE TRAY	U-1	2,500.00 LF	-			100	17,792	4,268	22,05
		CABLE TRAY	U-2	2,500.00 LF	-			100	17,792	4,268	22,05
		RACEWAY, CABLE TRAY, & CONDUIT						440	78,283	18,777	97,06
	10.43.00	CABLE									
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	U-1	4,500.00 LF	-			90	16,013	3,841	19,85
		COPPER WIRE / CABLE - MEDIUM VOLTAGE	U-2	4,500.00 LF	-			90	16,013	3,841	19,85
		COPPER WIRE / CABLE - LOW VOLTAGE	U-1	25,000.00 LF	-			250	44,479	10,669	55,14
		COPPER WIRE / CABLE - LOW VOLTAGE	U-2	25,000.00 LF	-			250	44,479	10,669	55,14
		CABLE						680	120,983	29,020	150,00
	10.44.00	CONTROL & INSTRUMENTATION									
		CONTROL & INSTRUMENTATION		1.00 LT	-			100	17,792	4,268	22,05
		CONTROL & INSTRUMENTATION						100	17,792	4,268	22,05
		WHOLE PLANT DEMOLITION						2,102	376,505	89,544	466,04
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63 LBS/LF	-31.00 TN	-	(5,425)		0			(5,425
		CARBON STEEL	CABLE TRAY, 6 LBS/LF	-15.00 TN	-	(2,625)		0			(2,625
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA	TRANSFORMERS, GENERATORS, U1	-12.00 TN	-	(4,200)		0			(4,200
			TRANSFORMERS, GENERATORS, U2	-12.00 TN		(4,200)		0		_	(4,200
		MIXED STEEL				(16,450)		0			(16,450
	18.30.00	COPPER									
		#2 SOLID COPPER / TUBING	BUS BAR	-0.39 TN	-	(2,397)	-				(2,397
		#2 INSULATED COPPER WIRE	U-1	-3.50 TN	-	(8,540)		0			(8,540
		#2 INSULATED COPPER WIRE	U-2	-3.50 TN		(8,540)		0		=	(8,540
		COPPER				(19,477)		0			(19,477
		SCRAP VALUE				(35,927)		0			(35,927
21.00.00		CIVIL WORK									
	21.18.00	HAULING									
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	106.00 CY	3,129						3,12
		HAULING			3,129						3,12
		CIVIL WORK			3,129						3,12
		345 OTHER PRODUCTION - ACCESSORY			3,129	(35,927)		2,102	376,505	89,544	433,25
		ELECTRIC EQUIPMENT									

APPENDIX C. EXPLANATION OF VARIANCE FROM THE PREVIOUS COST STUDY

Cost Category	2021 Cost Est	imate	2016 Cost Es	stimate	Delta	% of total cost	Discussion
Labor							
Labor - Direct		\$658,508					
Labor Supervision	\$39,510						The 2016 estimate included all demolition contractor costs in labor. The 2021 cost estimate broke out demolition contractor costs
Show-up time	\$13,170						(subcontracts, construction equipment, general conditions - labor).
Construction Management	\$71,119						
Field Office Expenses	\$15,646						
Safety	\$14,050						Average labor hourly labor cost increased by 15.2%.
Temporary Facilities	\$10,689						
Mob/Demob	\$11,265						
Small tools & consumables	\$7,112						
General Liability Insurance	\$7,112						
Constr Equip Mob/Demob	\$19,205						
Legal Expenses/Claims	\$1,664						
General Conditions (Indirect) - Labor		\$210,542					
Subcontract		\$48,240					
Construction Equipment		\$192,047					
Labor Subtotal		\$1,109,337		\$963,225	15.2%	8.2%	
Material							
Material w/o freight	\$34,270						The 2021 cost estimate for material is 66.4% less than 2016.
General Conditions -Freight on Material	\$1,714	4					1
Material Subtotal		\$35,984		\$107,046	-66.4%	-4.0%	The 2021 cost estimate for scrap is 28.3% less than 2016. The main reasons are:
Scrap							<u>'</u>
	4						(a) cost for scrap mixed steel increased by 114%. Cost for mixed steel in 2021 based on a 12-month average is \$175 per ton as
Mixed Steel	-\$165,655		-\$84,493				compared to 2016 based on a 3-month average of \$87 per ton
Copper	-\$19,477		-\$173,692				(b) cost for copper decreased by -98.6%. Cost for copper in 2021 was broken out into #2 copper (solid) and #2 (insulated wire) as compared to 2016 which was based on #1 copper (solid bright)
Subtotal Scrap Value		-\$185,132		-\$258,185	-28.3%	4.1%	
Subtotal - Direct & Indirect Demolition		\$960,189		\$812,086	18.2%	8.3%	
Contractor G&A and Profit							
Contractor G&A	\$74,953		\$48,161		55.6%		Contractor G&A is 55.6% higher. 2021 estimate is 7% of labor, equipment, and materials. 2016 estimate was 5% of labor and
	4: ,,===		+,				materials.
Contractor Profit	\$107,076		\$85,622		25.1%		Contractor Profit is 25.1% higher. 2021 estimate is 10% of labor, equipment, and materials. 2016 estimate was 8% of labor and
Contractor Front	\$107,070		703,022		23.170		materials.
Subcontractor Contractor G&A and Profit		\$182,029		\$133,783	36.1%	2.7%	Increase in Contractor G&A and profit based on S&L database of actual demolition cost since 2016
Indirect							
Engineering	\$66,000		\$60,000 `				
Construction Management	\$0		\$18,917				Higher cost due to SDGE internal costs in support of demolition as compared to 2016 where no SDGE internal costs were included
Other SDGE Internal Costs	\$310,000		\$0				
Subtotal Indirect Costs	, ,	\$376,000		\$78,917	376%	16.7%	
Contingency		\$255,502		\$308,231	-17.1%	-3.0%	Contingency is less (-17.1%). Contingency in 2021 is 15% and not applied to scrap. Contingency in 2016 was 20% and applied to scrap.
Total		\$1,773,720		\$1,333,017	33.1%		
			\$/ton		00.12,0		
SCRAP Carbon Steel	\$/ton \$175	tons 899	\$/ton \$87	tons 971			Carbon steel seran quantity is essentially the same
			\$6 <i>1</i>	9/1			Carbon steel scrap quantity is essentially the same
Steel/Copper mix (large transformers)	\$350	24	¢2.460				Carbon/copper is for transformer.
# 1 Copper #2 Copper	\$6,145	0.39	\$3,460	50			Copper in 2016 was based on solid bright (#1 grade) copper
	\$6,145 \$2.440	0.39 7					Copper broken out into solid bar and insulated copper wire
#2 Insulated Copper Wire	\$2,440	/					Lower copper quantity in 2021 due to copper included in steel/copper mix for larger transformers
Labor hours	7,914 hc	ours	8,515 h	nours	-7.1%	_	The labor hours for the 2021 cost estimate are 7.1% less than the 2016 cost estimate. The main reason is that the 2021 cost estimate includes subcontracts (w/o labor hours), based on updated S&L standards

SL-016628.C_SDGE Decom(Cuyamaca)

Decommissioning Study

Prepared for San Diego Gas & Electric Company Cuyamaca Peak Energy Plant

Prepared by Sargent & Lundy

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VERSION LOG

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Final	April 4, 2022	Executive Summary, Section 2

ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
СТ	combustion turbine
Cuyamaca	Cuyamaca Peak Energy Plant
FERC	Federal Energy Regulatory Commission
G&A	general and administrative
Owner	San Diego Gas & Electric Company
PCB	polychlorinated biphenyl
PWPS	Pratt & Whitney Power Systems
S&L	Sargent & Lundy, L.L.C.
SCR	selective catalytic reduction
SDG&E	San Diego Gas & Electric Company

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual cost estimate for the dismantlement of the Cuyamaca Peak Energy Plant (Cuyamaca) and estimate the average service life of the facility's peer group. The work scope included updating the 2016 conceptual demolition cost estimate and a benchmarking analysis for the facility.

METHODOLOGY

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in developing plant demolition costs and the existing S&L database for numerous other projects; (2) use of the unit cost factor methodology; and (3) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by SDG&E. These drawings and documents were used to estimate the building foundation sizes, building volumes, and quantities of steel, piping, valves, and other equipment. A site walkdown was performed to conduct a review of the site for dismantlement and determine any specific site-unique requirements. This site walkdown was performed in 2016; however, recent discussions with the Owner and facility management confirmed that no significant modifications have occurred since that time. This information was used with unit cost factors developed by S&L based on industry data and experience. Unit cost factors for concrete removal, steel removal, cutting costs, etc. were developed from labor and material cost information. S&L estimated the quantities of metals that could be recovered and sold for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

The benchmarking analysis considers publicly available data to determine the average service life of similar facilities.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning Cuyamaca is shown in Table ES-1. The cost estimate broken into FERC accounts is shown in Table ES-2. All costs are in 2021 U.S. dollars, and the total is the same in both tables: \$1,128,058. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

Table ES-1 — Cuyamaca Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$541,510	-
Labor	_	\$336,471
Subcontracts	_	\$15,000
Equipment	_	\$98,799
Material	-	\$91,240
General Condition (Decommissioning Contractor Indirect) Costs	\$218,492	-
Scrap Value	(\$110,494)	-
Subtotal Demolition Contractor Costs	\$649,508	-
Project Indirect Costs	\$317,000	-
Engineering	-	\$47,000
SDG&E Internal Costs	-	\$270,000
Contingency Costs	\$161,550	-
Total Demolition Costs	\$1,128,058	-

Table ES-2 — Cuyamaca Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
341	Other Production – Structures and Improvements	\$459,273
342	Other Production – Fuel Holders, Producers, and Accessories	\$69,713
344	Other Production – Generators	\$333,484
345	Other Production – Accessory Electric Equipment	\$265,588
_	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$1,128,058

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform an independent conceptual cost estimate for the dismantlement of the Cuyamaca Peak Energy

Plant (Cuyamaca) and estimate the average service life of the facility's peer group. The work scope included

updating the 2016 conceptual demolition cost estimate report and a benchmarking analysis.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers over the

years, the Sargent & Lundy Consulting Group has become one of the premier power project consultants in

the power industry. This commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineer services, including

decommissioning cost estimation and average service life evaluation, for both global and domestic electric

power assets.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimony services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations experience

to support consulting services such as those performed for Cuyamaca.

1.3. FACILITY DESCRIPTION

Cuyamaca consists of two simple-cycle combustion turbine (CT) generators located in the El Cajon area of

San Diego, California. The units began service in May 2002. In January 2012, the ownership of the plant

was transferred from Calpeak Power to SDG&E.

The CTs are Pratt & Whitney Power Systems (PWPS) Model FT8® SWIFTPAC® aeroderivative turbines.

Each CT is rated for 25 MW and is equipped with dry low-NOx (DLN) burners.

The Cuyamaca plant includes one 71 MVA electric generator mounted on a common shaft with the two

CTs, and a selective catalytic reduction (SCR) unit in an exhaust duct common to both CTs to further reduce

NOx emissions to the permitted level. Additionally, the CTs are equipped with a fogging system that cools

the inlet air and boosts the power output of the CTs.

2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of deterministic and

stochastic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of foundations, linear feet of piping, equipment, etc.). Stochastic methods were also used if

quantities information (e.g., fire lines and hydrants, miscellaneous electrical equipment, etc.) was

unavailable.

The cost estimate was developed based on drawings, documents, and data provided by the Owner. These

drawings and documents were used to estimate the building foundation sizes, building volumes, steel

quantities, and the quantity of piping, valves, and other equipment.

The S&L methodology for developing the cost estimate consist of three elements: (1) S&L experience in

developing plant demolition cost and the existing S&L database for numerous other projects; (2) use of the

unit cost factor methodology; and (3) quotes from previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

include both summaries and details for each type of work performed, indirect costs, and contingencies. The

cost estimate database report lists costs by buildings, plant systems, and several other categories.

An inventory of plant piping, valves, equipment, HVAC ducts, concrete, galleries, cable tray, and other

equipment was developed based on a review of drawings and a site walkdown to conduct a review of the

site for dismantlement and determine any specific site-unique requirements. This information was used with

unit cost factors developed by S&L based on industry data and S&L experience. Unit cost factors for

concrete removal, steel removal, cutting costs, and other tasks were developed from labor and material

cost information. S&L also estimated the quantities of recoverable metals that could be recovered and sold

for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no

resale or other salvage value besides the value of scrap metal at the end of its life.

S&L worked from site general arrangement drawings and company documentation for the facilities,

including information about any existing metal cleaning storage ponds, asbestos inventories,

polychlorinated biphenyl (PCB) inventories, or sludge ponds. S&L relied on SDG&E to identify the location

of environmental issues that need to be considered in the estimates, since S&L's scope of work excludes

a detailed survey and testing program to identify such problems.

2.2. COST ESTIMATE SUMMARY

The summary of the cost estimate for decommissioning Cuyamaca is shown in Table 2-1. The commercial and technical basis for the estimate is described in Section 3, and the detailed estimate is included in Appendix A. The summary breakdown into FERC accounts is shown in

Table 2-2, and the detailed allocation of FERC accounts is shown in Appendix B. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

The 2021 cost estimate format was changed to be consistent with S&L's current standards. The variance between the 2021 and 2016 cost estimate is shown in Appendix C.

Table 2-1 — Cuyamaca Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$541,510	-
Labor	_	\$336,471
Subcontracts	_	\$15,000
Equipment	_	\$98,799
Material	-	\$91,240
General Condition (Decommissioning Contractor Indirect) Costs	\$218,492	-
Scrap Value	(\$110,494)	-
Subtotal Demolition Contractor Costs	\$649,508	-
Project Indirect Costs	\$317,000	-
Engineering	-	\$47,000
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Contingency Costs	\$161,550	-
Total Demolition Costs	\$1,128,058	-

Table 2-2 — Cuyamaca Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
341	Other Production – Structures and Improvements	\$459,273
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344	Other Production – Generators	\$333,484
345	Other Production – Accessory Electric Equipment	\$265,588
_	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$1,128,060

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for San Diego, California as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for arrival time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from supplied engineering information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included for the decommissioning contractor indirect costs in the cost estimate as direct costs, as noted for the following:

- Labor supervision (additional compensation for labor foreman/supervisors)
- Construction management
- Field office expenses
- Safety
- Temporary facilities
- Mobilization/demobilization
- Legal expenses/claims
- Small tools and consumables
- General liability insurance
- Construction equipment mobilization/demobilization
- Freight on material
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

 Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and are part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions; as such, the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is estimated at \$30/ton, resulting in the values shown in Table 3-1:

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
#2 Copper	6,145
#2 Insulated Copper Wire	2,440

Note: 1 ton = 2000 lbs.

6. Project Schedule

Cuyamaca has a 12-month construction schedule.

7. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, the
 engineering required to place the plant in a safe shutdown, and any unique engineering
 required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the facility.

Table 3-2 – SDG&E Internal Costs in Support of Decommissioning

Activity	Estimated Cost
Labor to prepare the site for demolition, including drain oils, drain reagents, de- energization of the power buses, etc.	\$90,000
Site security	\$60,000
Subcontracts to remove chemicals, oils, and reagents from the site	\$40,000
SDG&E project management, permitting, and procurement	\$80,000
Total	\$270,000

8. Escalation Rates

Escalation rates were excluded from the estimates.

¹ www.americanrecycler.com

9. Sales and Use Taxes

Sales and use taxes were excluded from the estimates.

10. Contingency

- A 15% contingency is applied for labor, material, equipment, subcontracting, and indirect costs. General conditions (indirect demolition contractor costs) are allocated across labor, material, and equipment.
- There is no contingency on scrap value

11. Contract Basis for Estimate

The contracting strategy is a multiple lump sum for the estimate.

12. Assumptions

- The facility will be in safe-shutdown mode and ready for a decommissioning contractor to start work.
- All chemicals and lubricating oils will be removed from the facilities to be demolished by the utility before demolition.
- No extraordinary environmental costs for demolition will be needed.
- There will be no PCBs on site at the time of demolition.
- Switchyards within the plant boundaries are not part of the scope, nor are access roads to these facilities.
- All items above grade and to a depth of one foot, including foundations, will be demolished.
 Any other items buried more than one foot deep will remain in place.
- Underground piping will be abandoned in place.
- Underground piping larger than four feet in diameter will be filled with sand or slurry and capped at the ends to prevent collapse (none noted at this site). Non-metal pipe will be collapsed.
- All demolished materials are considered debris, except for organic combustibles and nonembedded metals, which have scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- Handling onsite and offsite disposal of hazardous materials will be performed in compliance with methods approved by SDG&E's Environmental Services Department.
- All borrow (fill) material is assumed to be from offsite sources.
- Catalyst is assumed to be removed and returned to the original equipment manufacturer before demolition.

4. REFERENCES

- 1. Sargent & Lundy Cost Database.
- 2. R.S. Means Cost Data, 2021.
- 3. Engineering drawings, equipment lists, and other information provided by the San Diego Gas & Electric.
- 4. 2020 Form EIA-860 Data Schedule 3, "Generator Data" (Retired & Canceled Units Only).
- 5. Scrap Metals MarketWatch, West Coast (Zone 1), www.americanrecycler.com.

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DISMANTLE CUYAMACA PEAK ENERGY PLANT

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY

Estimator GA

Labor rate table 21CASAN

 Project No.
 A14520.001

 Estimate Date
 11/30/21

Reviewed By BA
Approved By BA
Estimate No. 33965B

Estimate No.: 33965B Project No.: A14520.001 Estimate Date: 11/30/21 Prep./Rev/App.: GA/BA/BA

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY



Group	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00	WHOLE PLANT DEMOLITION				3,604	296,981	86,240	383,221
18.00.00	SCRAP VALUE		(110,494)		3,604	290,901	00,240	(110,494)
21.00.00	CIVIL WORK	15,000		91,240	472	39,490	12,559	158,289
	TOTAL DIRECT	15.000	(110,494)	91,240	4.076	336.471	98,799	431.016

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY



Estimate Totals

Description	Amount	Totals	Hours
_abor	336,471		4,076
Material	91,240		
Subcontract	15,000		
Construction Equipment	98,799		
Scrap Value	(110,494)		
	431,016	431,016	
General Conditions			
Additional Labor Costs			
90-1 Labor Supervision	20,188		
90-2 Show-up Time	6,729		
90-3 Cost Due To OT 5-10's			
90-4 Cost Due To OT 6-10's			
90-5 Per Diem			
Site Overheads			
91-1 Construction Management	36,339		
91-2 Field Office Expenses	7,995		
91-3 Material&Quality Control			
91-4 Site Services 91-5 Safety	7,179		
91-6 Temporary Facilities	5,462		
91-7 Temporary Utilities	5,402		
91-8 Mobilization/Demob.	5,756		
91-9 Legal Expenses/Claims	850		
Other Construction Indirects	000		
92-1 Small Tools & Consumables	3,634		
92-1 Small Tools & Consumables	3,034		
92-3 General Liability Insur.	3,634		
92-4 Constr. Equip. Mob/Demob	9,880		
92-5 Freight on Material	4,562		
92-6 Freight on National 92-6 Freight on Scrap	4,002		
92-7 Sales Tax			
92-8 Contractors G&A	43,764		
92-9 Contractors Profit	62,520		
	218,492	649,508	
Project Indirect Costs			
93-1 Engineering Services	47,000		
93-2 CM Support			
93-3 Start-Up/Commissioning			
93-4 Start-Up/Spare Parts			
93-5 Excess Liability Insur.			
93-6 Sales Tax On Indirects			
93-7 SDG&E Internal Costs	270,000		
93-8 EPC Fee			
	317,000	966,508	
Contingency	40.004		
94-1 Contingency on Const Eq	18,821		
94-3 Contingency on Material	16,813 76,116		
94-4 Contingency on Labor	76,116		
94-5 Contingency on Subcontr.	2,250		
94-6 Contingency on Scrap			
94-7 Contingency on Indirect	47,550		
	161,550	1,128,058	
Escalation			
Escalation 96-1 Escalation on Const Equip			
96-1 Escalation on Const Equip			
96-1 Escalation on Const Equip 96-3 Escalation on Material 96-4 Escalation on Labor 96-5 Escalation on Subcontract			
96-1 Escalation on Const Equip 96-3 Escalation on Material 96-4 Escalation on Labor			
96-1 Escalation on Const Equip 96-3 Escalation on Material 96-4 Escalation on Labor 96-5 Escalation on Subcontract			
96-1 Escalation on Const Equip 96-3 Escalation on Material 96-4 Escalation on Labor 96-5 Escalation on Subcontract 96-6 Escalation on Scrap		1,128,058	
96-1 Escalation on Const Equip 96-3 Escalation on Material 96-4 Escalation on Labor 96-5 Escalation on Subcontract 96-6 Escalation on Scrap		1,128,058	

Total 1,128,058 SDG&E/Depreciation/Exh No: SDG&E-36-WP-S/Witness: D. A. Watson Page শৃশুণ of 322



Phas	e Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cos
)	WHOLE PLANT DEMOLITION									
10.21.00	CIVIL WORK									
	REMOVE FENCE		370.00 LF	-	-		44	3,945	2,050	5
	INCORPORATE EXISTING PAVED SURFACES INTO NEW	EXISTING PAVED SURFACES (IF	1,500.00 SY	-	-		180	15,993	8,312	24
	PARKING LOT	NOT DISTURBED, WILL NOT BE DEMOLISHED)								
	CIVIL WORK						224	19,938	10,363	30
10.22.00										
	BUILDING/EQUIPMENT FOUNDATION/PAD	SCR	89.00 CY	-	=		100	8,935	2,202	1
	BUILDING/EQUIPMENT FOUNDATION/PAD	STACK FDN	36.00 CY	-	-		41	3,614	891	
	BUILDING/EQUIPMENT FOUNDATION/PAD	RAW AND DEMIN WATER TANKS	84.00 CY	-	-		95	8,433		1
	BUILDING/EQUIPMENT FOUNDATION/PAD	AMMONIA AND WASH DOWN TANK CURBS AND WALL	27.00 CY	-	-		30	2,711	668	
	BUILDING/EQUIPMENT FOUNDATION/PAD	850 LF OF PERIMETER CURB	45.00 CY	-	=		51	4,518		
	BUILDING/EQUIPMENT FOUNDATION/PAD	SWITCHYARD AND MAIN TRANSFORMER FDN	20.00 CY	-	=		23	2,008	495	
	BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMERS FDN	8.00 CY	-	-		9	803	198	
	BUILDING/EQUIPMENT FOUNDATION/PAD	CONTROL / SWITCHGEAR BUILDING	22.00 CY	-	-		25	2,209		
	TURBINE GENERATOR FDN	BOTH CT'S AND GENERATOR	148.00 CY	-	-		266 _	23,774	5,858	2
	CONCRETE						639	57,004	14,047	7
10.23.00										
	STRUCTURAL, GIRT AND GALLERY STEEL	INCLUDED STEEL SOLUMNS	57.00 TN	-	=		58	4,955		
	PERIMETER SHEET METAL WALL STEEL	INCLUDES STEEL COLUMNS	31.00 TN	-	-		84 ₋ 142	7,161 12,116	2,388	1
10.24.00	ARCHITECTURAL									
10.24.00	CONTROL / SWITCHGEAR BUILDING	13' X 40' X 12'H	6,240.00 CF	_	_		19	1,558	519	
	ELECTRICAL BUILDING	12' X 50' X 12'H	7,200.00 CF	_	_		22	1,798		
	MASONRY WALLS	80'L X 22'H X 2' THICK	1,760.00 SF	_	_		14	1,172		
	ARCHITECTURAL		.,				54	4,528		
10.26.00	MISCELLANEOUS STRUCTURAL ITEM									
	MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE		1.00 LT	-	=		300	23,982	6,831	3
	MISCELLANEOUS STRUCTURAL ITEM						300	23,982	6,831	30
10.31.00										
	COMBUSTION TURBINE	FT8 SWIFTPAC (2 CTs W/GENERATOR AND ACCESSORIES	119.00 TN	-	-		417	33,295	9,484	2
	SCR CASING		19.00 TN	-	=		51	4,101	1,168	
	SCR CAVITY DUCTWORK		39.00 TN	-	-		105	8,418		1
	TANKS AND SILOS	47,000 GAL, RAW WATER STORAGE TANK	12.00 TN	-	-		32	2,590	738	
	TANKS AND SILOS	47,000 GAL, DEMINERALIZED WATER TANK	12.00 TN	-	-		32	2,590	738	
	TANKS AND SILOS	12,000 GAL, AQUEOUS AMMONIA TANK	5.00 TN	-	-		14	1,079	307	
	FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID		25.00 TN	-	-		68	5,396	1,537	
	MISCELLANEOUS EQUIPMENT		15.00 TN	-	-		41	3,238	922	
	CT AIR INTAKE SYSTEM W DUCTS & SILENCER	2 CT'S	28.00 TN	-	-		76	6,043	1,721	
	WASHDOWN DRAIN TANK		2.00 TN	-	-		8	640	182	
	CT LUBE OIL SYSTEM		3.00 TN	-	-		15	1,199		
	STEEL EXHAUST STACK	55 FT X 10 FT DIA	20.00 TN	-	-		41 _	3,238	922	
	MECHANICAL EQUIPMENT						899	71,826	20,459	9:
10.35.00	PIPING LARGE BORE PIPING, VALVES AND HANGERS	3550 LF	24.00 TN				49	3,885	1,107	
	SMALL BORE PIPING, VALVES AND HANGERS	0000 LI	8.00 TN	-	-		16	1,295		
	FIRE LINES AND HYDRANTS		1.00 LT	_	_		80	6,395		
	PIPING		1.00 E1				145	11,575		1
40.44.04	ELECTRICAL EQUIPMENT									
10.41.00		ONE (1813 13 48 El/ Deprentation/								

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.41.00	ELECTRICAL EQUIPMENT	40.010//4001/	0.00 TN				24	4.000	540	0.470
		TRANSFORMERS OUTDOOR LIGHT POLE / FIXTURE	13.8 KV / 480 V	9.00 TN 1.00 LT	-	-		24 150	1,922 11,991	548 3,416	2,470 15,407
		MISCELLANEOUS ELECTRICAL EQUIPMENT		103.00 TN	-	-		367	29,337	8,356	37,693
		ELECTRICAL EQUIPMENT						541	43,251	12,319	55,570
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
		CONDUIT CABLE TRAY		12,000.00 LF 2,500.00 LF	-	-		120 100	9,593 7,994	2,732 2,277	12,325 10,271
		RACEWAY, CABLE TRAY, & CONDUIT		2,000.00 2.				220	17,587	5,009	22,596
	10.43.00	CABLE									
		COPPER WIRE / CABLE - MEDIUM VOLTAGE		4,500.00 LF	-	-		90	7,195		9,244
		COPPER WIRE / CABLE - LOW VOLTAGE CABLE		25,000.00 LF	=	=		250 340	19,985	5,693 7,742	25,678 34,921
		CABLE						340	27,180	7,742	34,921
	10.44.00	CONTROL & INSTRUMENTATION CONTROL & INSTRUMENTATION		1.00 LT	=	_		100	7,994	2,277	10,271
		CONTROL & INSTRUMENTATION						100	7,994	2,277	10,271
		WHOLE PLANT DEMOLITION						3,604	296,981	86,240	383,221
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL		-78.00 TN	-	(13,650)	-	0			(13,650)
		CARBON STEEL		-253.00 TN	-	(44,275)	-	0			(44,275)
		CARBON STEEL CARBON STEEL	BUILDINGS CONDUIT, 1.5" DIA. AVG SIZE, 2.63	-5.32 TN -15.78 TN	-	(931) (2,761)	-	0			(931) (2,761)
			LBS/LF								
		CARBON STEEL CARBON STEEL	CABLE TRAY, 6 LBS/LF	-7.50 TN -88.00 TN	-	(1,312) (15,400)	-	0			(1,312) (15,400)
		CARBON STEEL CARBON STEEL	MISCELLANEOUS ELECTRICAL	-103.00 TN	-	(18,025)	-	0			(18,025)
		OTES! / CORDED MIX ADOS TRANSFORMED : 400 M/A	EQUIPMENT	0.00 TN		(0.450)		0			
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA MIXED STEEL		-9.00 TN	-	(3,150) (99,505)		0		-	(3,150) (99,505)
	18.30.00	COPPER									
	10.30.00	#2 SOLID COPPER / TUBING	BUS BAR	-0.20 TN	-	(1,229)	_				(1,229)
		#2 INSULATED COPPER WIRE		-4.00 TN	=	(9,760)		0		_	(9,760)
		COPPER				(10,989)		0			(10,989)
		SCRAP VALUE				(110,494)		0			(110,494)
21.00.00		CIVIL WORK									
	21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED.	308.00 CY	6,160	=					6,160
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	111.00 CY	2,220	-					2,220
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	273.00 CY	5,460	-					5,460
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE CONCRETE DEBRIS IS RECYCLED.	28.00 CY	560	-					560
		HAULING	NO DISPOSAL FEE		14,400					-	14,400
	04.04.00	MACCELL									
	21.21.00	MASS FILL MASS FILL, COMMON EARTH 6 INCHES THICK	COVER DISTURBED AREAS OF SITE	652.00 CY	=	=	13,040	23	2,079	2,190	17,310
			WITH 1' OF BACKFILL MATERIAL								
		MASS FILL					13,040	23	2,079	2,190	17,310
	21.52.00	WASTE DISPOSAL									
		DISPOSAL AND TRANSPORTATION FEE	RUBBISH & TENANT DEBRIS	20.00 CY	600	-				-	600
		WASTE DISPOSAL			600						600

Estimate No.: 33965B Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/Appr: GA/BA/BA

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	21.57.00	ROAD, PARKING AREA, & SURFACED AREA COVER DISTURBED AREAS OF SITE WITH 2.5" OF ASPHALT OVER 4" OF CRUSHED ROCK BASE	NEW PARKING LOT	1,955.00 SY	-	-	78,200	450	37,411	10,369	125,980
		ROAD, PARKING AREA, & SURFACED AREA					78,200	450	37,411	10,369	125,980
		CIVIL WORK			15,000		91,240	472	39,490	12,559	158,289

APPENDIX B. CONCEPTUAL ESTIMATE OF COST — FERC ACCOUNTS

Estimator GA

Labor rate table 21CASAN

Project No. A14520.001
Estimate Date 11/30/21
Reviewed By BA
Approved By BA
Estimate No. 33965B

Estimate No.: 33965B Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/App: GA/BA/BA



Area	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	OTHER PROPUSTION, OTRUGTURES & IMPROVEMENTS	44.047	(10.004)	400.007	4.040	040.045	00 705	450.050
341	OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS	11,017	(16,331)	182,667	1,048	219,215	62,705	459,273
342	OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND	3,618	(13,650)		316	65,033	14,713	69,713
	ACCESSORIES							
344	OTHER PRODUCTION - GENERATORS	8,898	(44,275)		1,479	299,831	69,030	333,484
345	OTHER PRODUCTION - ACCESSORY ELECTRIC	913	(36,238)		1,233	242,879	58,034	265,588
	EQUIPMENT							

Estimate No.: 33965B Project No.: A14520.001 Estimate Date: 11/30/21 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC CAYAMACA PEAK ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Estimate Totals

Description	Amount	Totals	Hours
Labor	826,958		4,076
Material	182,667		
Subcontract	24,445		
Construction Equipment Scrap Value	204,483 (110,494)		
	1,128,059	1,128,059	
General Conditions			
Additional Labor Costs			
Site Overheads			
Other Construction Indirects			
		1,128,059	
Project Indirect Costs			
		1,128,059	
Contingency			
		1,128,059	
Escalation			
		1,128,059	
Total		1,128,059	
General Conditions, Indirect Costs and Conting	gency are allocated in	the line items above.	



a Group	Phase	Description	Notes	Quantity	Subcontract	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	Pnase	Description	Notes	Quantity	Cost	Scrap value	Wateriai Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
341		OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS									
10.00.00		WHOLE PLANT DEMOLITION									
	10.21.00	CIVIL WORK									
		REMOVE FENCE INCORPORATE EXISTING PAVED SURFACES INTO NEW	EXISTING PAVED SURFACES (IF NOT	370.00 LF 1,500.00 SY	-	-		44 180	9,696 39,307	4,244 17,204	13,9 56,5
		PARKING LOT	DISTURBED, WILL NOT BE DEMOLISHED)	1,000.00 01							
		CIVIL WORK						224	49,002	21,448	70,4
	10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	850 LF OF PERIMETER CURB	45.00 CY	_			51	11,104	2,304	13,4
		BUILDING/EQUIPMENT FOUNDATION/PAD	CONTROL / SWITCHGEAR BUILDING	22.00 CY	-			25	5,428		6,5
		CONCRETE						75	16,532	3,430	19,9
	10.23.00	STEEL									
		STRUCTURAL, GIRT AND GALLERY STEEL PERIMETER SHEET METAL WALL	INCLUDES STEEL COLUMNS	57.00 TN 31.00 TN				58 84	12,178 17,601	2,021 2,921	14, ²
		STEEL	INGEGRES OF LEE COLONING	31.00 114				142	29,779	4,942	34,7
	10.24.00	ARCHITECTURAL									
		CONTROL / SWITCHGEAR BUILDING	13' X 40' X 12'H	6,240.00 CF	-	-		19	3,829	1,074	4,9
		ELECTRICAL BUILDING MASONRY WALLS	12' X 50' X 12'H 80'L X 22'H X 2' THICK	7,200.00 CF 1,760.00 SF	-			22 14	4,418 2,880	1,240 808	5,6 3,6
		ARCHITECTURAL	SSEXEETIXE THION	1,700.00				54	11,128	3,122	14,2
	10.35.00	PIPING									
		FIRE LINES AND HYDRANTS PIPING		1.00 LT	-	-		80 80	15,718 15,718	3,770 3,770	19,4 19,4
		WHOLE PLANT DEMOLITION						576	122,159	36,712	158,8
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL CARBON STEEL	BUILDINGS	-5.32 TN -88.00 TN	-	(931) (15,400)		0			(93 (15,40
		MIXED STEEL			-	(16,331)		0		-	(16,33
		SCRAP VALUE				(16,331)		0			(16,33
21.00.00		CIVIL WORK									
	21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	308.00 CY	10,039						10,0
			DISPOSAL FEE	000.00						_	
		HAULING			10,039						10,03
	21.21.00	MASS FILL MASS FILL, COMMON EARTH 6 INCHES THICK	COVER DISTURBED AREAS OF SITE WITH	652.00 CY	_		26,107	23	5,111	4,533	35,7
			1' OF BACKFILL MATERIAL	002.00							
		MASS FILL					26,107	23	5,111	4,533	35,7
	21.52.00	WASTE DISPOSAL DISPOSAL AND TRANSPORTATION FEE	RUBBISH & TENANT DEBRIS	20.00.00	070						
		WASTE DISPOSAL	RUBBISH & LENAINT DEBRIS	20.00 CY	978 978					-	9
	21.57.00	ROAD, PARKING AREA, & SURFACED AREA									
		COVER DISTURBED AREAS OF SITE WITH 2.5" OF ASPHALT OVER 4" OF CRUSHED ROCK BASE	NEW PARKING LOT	1,955.00 SY	-	-	156,560	450	91,946	21,460	269,9
		ROAD, PARKING AREA, & SURFACED AREA					156,560	450	91,946	21,460	269,9
		CIVIL WORK 341 OTHER PRODUCTION - STRUCTURES			11,017 11,017	(16,331)	182,667 182,667	1,048	97,057 219,215	25,994 62,705	316,73 459,27
		& IMPROVEMENTS			11,017	(16,331)	102,007	1,040	219,215	62,705	459,27
342		OTHER PRODUCTION - FUEL HOLDERS,									
J42		PRODUCERS AND ACCESSORIES									
		WHOLE PLANT DEMOLITION									
10.00.00											
10.00.00	10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	RAW AND DEMIN WATER TANKS	84.00 CY				95	20,727	4,301	25,0



a G	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cos
			CONCRETE						125	27,389	5,683	33,
		10.31.00	MECHANICAL EQUIPMENT									
			TANKS AND SILOS TANKS AND SILOS	47,000 GAL, RAW WATER STORAGE TANK 47,000 GAL, DEMINERALIZED WATER TANK	12.00 TN 12.00 TN	-	-		32 32	6,366 6,366		
			TANKS AND SILOS	12,000 GAL, AQUEOUS AMMONIA TANK	5.00 TN	-	-		14	2,652		
			MISCELLANEOUS EQUIPMENT		15.00 TN	-	-		41	7,957		
			WASHDOWN DRAIN TANK		2.00 TN	-	-		8	1,572	377	
			MECHANICAL EQUIPMENT						127	24,913	5,976	3
		10.35.00	PIPING LARGE BORE PIPING, VALVES AND HANGERS	3550 LF	24.00 TN				49	9,549	2,290	
			SMALL BORE PIPING, VALVES AND HANGERS		8.00 TN	-	-		16	3,183		
			PIPING						65	12,731	3,054	1
			WHOLE PLANT DEMOLITION						316	65,033	14,713	7
18.0	00.00	18.10.00	SCRAP VALUE MIXED STEEL									
		10.10.00	CARBON STEEL		-78.00 TN	_	(13,650)	_	0			(1
			MIXED STEEL				(13,650)		0		-	(13
			SCRAP VALUE				(13,650)		0			(1:
21.0	00.00		CIVIL WORK									
		21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	111.00 CY	3,618						
				DISPOSAL FEE	111.00 01						-	
			HAULING CIVIL WORK			3,618 3,618						
			342 OTHER PRODUCTION - FUEL			3,618	(13,650)		316	65,033	14,713	6
			HOLDERS, PRODUCERS AND									
			ACCESSORIES									
344			OTHER PRODUCTION - GENERATORS									
	00.00	10 22 00	WHOLE PLANT DEMOLITION									
		10.22.00		SCR	89.00 CY	-	-		100	21,960	4,557	
		10.22.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	STACK FDN	36.00 CY	- -	- -		41	8,883	1,843	
		10.22.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN			:	:		41 266	8,883 58,429	1,843 12,124	
		10.22.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD	STACK FDN	36.00 CY	: : :	: : :		41	8,883	1,843 12,124	
		10.22.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM	STACK FDN	36.00 CY 148.00 CY				41 266 407	8,883 58,429 89,272	1,843 12,124 18,525	1
			WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE	STACK FDN	36.00 CY	:	:		41 266	8,883 58,429 89,272 58,942	1,843 12,124 18,525	1
			WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM	STACK FDN	36.00 CY 148.00 CY	:	:		41 266 407	8,883 58,429 89,272	1,843 12,124 18,525	
			WHOLE PLANT DEMOLITION CONCRETE BUILDING/SEQUIPMENT FOUNDATION/PAD BUILDING/SEQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS STRUCTURAL ITEM	STACK FDN BOTH CT'S AND GENERATOR	36.00 CY 148.00 CY 1.00 LT	:	:		41 266 407 300 300	8,883 58,429 89,272 58,942	1,843 12,124 18,525 14,138	1
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM	STACK FDN	36.00 CY 148.00 CY				41 266 407	8,883 58,429 89,272 58,942	1,843 12,124 18,525 14,138	1
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CTs W/GENERATOR AND	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN				41 266 407 300 300 417 51	8,883 58,429 89,272 58,942 58,942 81,830	1,843 12,124 18,525 14,138 14,138 19,628 2,418	1
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CTs W/GENERATOR AND	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 39.00 TN				41 266 407 300 300 417 51 105	8,883 58,429 89,272 58,942 58,942 81,830 10,079 20,688	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962	1
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CTs W/GENERATOR AND ACCESSORIES	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN	-	-		41 266 407 300 300 417 51 105 68	8,883 58,429 89,272 58,942 81,830 10,079 20,688 13,262	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181	
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN	-	-		41 266 407 300 300 417 51 105 68 76 15	8,883 58,429 89,272 58,942 58,942 81,830 10,079 20,688	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563	1
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CTs W/GENERATOR AND ACCESSORIES	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 39.00 TN 25.00 TN 28.00 TN	-	-		41 266 407 300 300 417 51 105 68 76 15 41	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909	
		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN	-	-		41 266 407 300 300 417 51 105 68 76 15	8,883 58,429 89,272 58,942 81,830 10,079 20,688 13,262 14,853 2,947	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707	1
10.0		10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN	-	-		417 300 300 417 51 105 68 76 15 411 772	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	1
10.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/SEQUIPMENT FOUNDATION/PAD BUILDING/SEQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION SCRAP VALUE	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN	-	-		417 300 300 417 51 105 68 76 15 411 772	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	11 18 36
10.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN	-			417 300 300 417 51 105 68 76 15 411 772	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	11 31
10.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/SEQUIPMENT FOUNDATION/PAD BUILDING/SEQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FDN CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION SCRAP VALUE MIXED STEEL CARBON STEEL MIXED STEEL MIXED STEEL MIXED STEEL MIXED STEEL	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN 3.00 TN	-	(44,275)		41 266 407 300 300 417 51 105 68 76 15 41 772 1,479	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	1 3 3
10.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION SCRAP VALUE MIXED STEEL CARBON STEEL	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN 3.00 TN	-		-	41 266 407 300 300 417 51 105 68 76 15 41 772 1,479	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	1 3 3
18.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION SCRAP VALUE MIXED STEEL CARBON STEEL MIXED STEEL SCRAP VALUE CIVIL WORK	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN 3.00 TN	-	(44,275)	-	41 266 407 300 300 417 51 105 68 76 15 41 772 1,479	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	11 31 ((4
18.0	00.00	10.26.00	WHOLE PLANT DEMOLITION CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD BUILDING/EQUIPMENT FOUNDATION/PAD TURBINE GENERATOR FON CONCRETE MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE MISCELLANEOUS STRUCTURAL ITEM MECHANICAL EQUIPMENT COMBUSTION TURBINE SCR CASING SCR CAVITY DUCTWORK FUEL GAS COMPRESSOR AND GAS CONDITIONING SKID CT AIR INTAKE SYSTEM W DUCTS & SILENCER CT LUBE OIL SYSTEM STEEL EXHAUST STACK MECHANICAL EQUIPMENT WHOLE PLANT DEMOLITION SCRAP VALUE MIXED STEEL CARBON STEEL MIXED STEEL SCRAP VALUE	STACK FDN BOTH CT'S AND GENERATOR FT8 SWIFTPAC (2 CT'S WIGENERATOR AND ACCESSORIES 2 CT'S	36.00 CY 148.00 CY 1.00 LT 119.00 TN 19.00 TN 25.00 TN 28.00 TN 3.00 TN 3.00 TN	- - - - - - - -	(44,275)	-	41 266 407 300 300 417 51 105 68 76 15 41 772 1,479	8,883 58,422 58,942 58,942 81,830 10,079 20,688 13,262 14,853 2,947 7,957	1,843 12,124 18,525 14,138 14,138 19,628 2,418 4,962 3,181 3,563 707 1,909 36,368	11



Group	Phase	Description	Notes	Quantity	Subcontract	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
Gloup	i ilase	·	Notes	Quantity	Cost	Octap value	waterial cost	wan nours	Labor Cost	Equip Amount	
		CIVIL WORK			8,898						8,8
		344 OTHER PRODUCTION - GENERATORS			8,898	(44,275)		1,479	299,831	69,030	333,48
5		OTHER PRODUCTION - ACCESSORY									
		ELECTRIC EQUIPMENT									
10.00.00		WHOLE PLANT DEMOLITION									
	10.22.00	CONCRETE BUILDING/EQUIPMENT FOUNDATION/PAD	SWITCHYARD AND MAIN TRANSFORMER	20.00 CY				23	4,935	1,024	5
		BOILDING/EQUIPMENT FOUNDATION/FAD	FDN	20.00 C1	-			23	4,533	1,024	3
		BUILDING/EQUIPMENT FOUNDATION/PAD	AUX TRANSFORMERS FDN	8.00 CY	-	-		9	1,974	410	2
		CONCRETE						32	6,909	1,434	8,
	10.41.00	ELECTRICAL EQUIPMENT									
		TRANSFORMERS	ONE (1) 13.8 KV / 4.16 KV, ONE (1) 13.8 KV / 480 V	9.00 TN	-	-		24	4,725	1,133	5
		OUTDOOR LIGHT POLE / FIXTURE	400 V	1.00 LT	-	-		150	29,471	7,069	36
		MISCELLANEOUS ELECTRICAL EQUIPMENT		103.00 TN	-	-		367	72,103		89
		ELECTRICAL EQUIPMENT						541	106,299	25,497	131
	10.42.00	RACEWAY, CABLE TRAY, & CONDUIT									
		CONDUIT		12,000.00 LF	-	-		120	23,577		2
		CABLE TRAY		2,500.00 LF	-	-		100	19,647		2
		RACEWAY, CABLE TRAY, & CONDUIT						220	43,224	10,368	53
	10.43.00	CABLE									
		COPPER WIRE / CABLE - MEDIUM VOLTAGE COPPER WIRE / CABLE - LOW VOLTAGE		4,500.00 LF 25,000.00 LF	-	-		90 250	17,682 49,118		2
		CABLE		25,000.00 EF	-	-		340	66,800		82
	10.44.00	CONTROL & INSTRUMENTATION									
	10.44.00	CONTROL & INSTRUMENTATION		1.00 LT		_		100	19,647	4,713	24
		CONTROL & INSTRUMENTATION						100	19,647		24
		WHOLE PLANT DEMOLITION						1,233	242,879	58,034	300
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63 LBS/LF	-15.78 TN	-	(2,761)	-	0			(2
		CARBON STEEL CARBON STEEL	CABLE TRAY, 6 LBS/LF MISCELLANEOUS ELECTRICAL EQUIPMENT	-7.50 TN -103.00 TN		(1,312) (18,025)	-	0			(1 (18
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-9.00 TN		(3,150)		0			(3
		MIXED STEEL				(25,249)		0			(25
	18.30.00	COPPER									
		SOLID COPPER	BUS BAR	-0.20 TN	-	(1,229)	-				(1
		#2 INSULATED COPPER WIRE		-4.00 TN	- ,	(9,760)	-	0		-	(9
		SCRAP VALUE				(10,989) (36,238)		0			(10, (36,
21.00.00		CIVIL WORK									
21.00.00	21.18.00	HAULING									
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	28.00 CY	913	-					
		HAULING	DISPOSAL FEE		913					-	
		CIVIL WORK			913						
		345 OTHER PRODUCTION - ACCESSORY			913	(36,238)		1,233	242,879	58,034	265,5

APPENDIX C. EXPLANATION OF VARIANACE FROM THE PREVIOUS COST STUDY

Cost Category	2021 Cost Es	stimate	2016 Cost Es	timate	Delta	% of total	Discussion
						cost	
Labor							
Labor - Direct	400 400	\$336,471					
Labor Supervision	\$20,188						The 2016 estimate included all demolition contractor costs in labor. The 2021 cost estimate broke out demolition contractor costs
Show-up time	\$6,729						(subcontracts, construction equipment, general conditions - labor).
Construction Management	\$36,339						
Field Office Expenses	\$7,995						
Safety	\$7,179						Average labor hourly labor cost increased by 9.4%.
Temporary Facilities	\$5,462						
Mob/Demob	\$5,756						
Small tools & consumables	\$3,634						
General Liability Insurance	\$3,634						
Constr Equip Mob/Demob	\$9,880						
Legal Expenses/Claims	\$850						
General Conditions (Indirect) - Labor		\$107,646					
Subcontract		\$15,000					
Construction Equipment		\$98,799					
Labor Subtotal		\$557,916		\$510,052	9.4%	4.2%	
Material							
Material w/o freight	\$91,240						The 2021 cost estimate for material is 13.5% more than 2016.
General Conditions -Freight on Material	\$4,562						The 2021 Cost estimate for material is 15.5% more than 2010.
Material Subtotal		\$95,802		\$84,371	13.5%	1.0%	
Scrap							The 2021 cost estimate for scrap is 22.7% less than 2016. The main reasons are: (a) cost for scrap mixed steel increased by 114%. Cost for mixed steel in 2021 based on a 12-month average is \$175 per ton as
Mixed Steel	-\$99,505		-\$46,101				compared to 2016 based on a 3-month average of \$87 per ton
Mixed Steel							(b) cost for copper decreased by -98.6%. Cost for copper in 2021 was broken out into #2 copper (solid) and #2 (insulated wire) as
Copper	-\$10,989		-\$96,880				compared to 2016 which was based on #1 copper (solid bright)
Subtotal Scrap Value		-\$110,494		-\$142,981	-22.7%	2.9%	
Subtotal - Direct & Indirect Demolition		\$543,224		\$451,442	20.3%	8.1%	
Contractor G&A and Profit							
Contractor G&A	\$43,764		\$25,503		71.6%		Contractor G&A is 71.6% higher. 2021 estimate is 7% of labor, equipment, and materials. 2016 estimate was 5% of labor and
							materials. Contractor Profit is 31.5%t higher. 2021 estimate is 10% of labor, equipment, and materials. 2016 estimate was 8% of labor and
Contractor Profit	\$62,520		\$47,554		31.5%		materials.
Subcontractor Contractor G&A and Profit		\$106,284		\$73,057	45.5%	2.9%	Increase in Contractor G&A and profit based on S&L database of actual demolition cost since 2016
Indirect							
Engineering	\$47,000		\$45,000 `				
Construction Management	\$0		\$10,490				Higher cost due to SDGE internal costs in support of demolition as compared to 2016 where no SDGE internal costs were included
Other SDGE Internal Costs	\$270,000		\$0				
Subtotal Indirect Costs	7 5,500	\$317,000	, , , , , , , , , , , , , , , , , , , 	\$55,490	471%	23.2%	
Contingency		\$161,550		\$173,190	-6.7%	-1.0%	Contingency is less (-6.7%). Contingency in 2021 is 15% and not applied to scrap. Contingency in 2016 was 20% and applied to scrap.
Total		\$1,128,058		\$753,179	49.8%		
SCRAP	\$/ton	tons	\$/ton	tons			
Carbon Steel	\$175	551	\$87	529			Carbon steel scrap quantity is essentially the same
Steel/Copper mix (large transformers)	\$350	9	707	323			Carbon/copper is for transformer.
	2230	3	¢2.460	20			
#1 Copper	ĆC 145	0.3	\$3,460	28			Copper in 2016 was based on solid bright (#1 grade) copper
#2 Copper	\$6,145	0.2					Copper broken out into solid bar and insulated copper wire
#2 Insulated Copper Wire	\$2,440	4					Lower copper quantity in 2021 due to copper included in steel/copper mix for larger transformers
Labor hours	4,076 h	hours	4,465 h	ours	-8.7%		The labor hours for the 2021 cost estimate are -8.7% less than the 2016 cost estimate. The main reason is that the 2021 cost estimate lincludes subcontracts (w/o labor hours), based on updated S&L standards

SL-016628.D_SDGE Decom(Desert Star)

Decommissioning Study

Prepared for San Diego Gas & Electric Company
Desert Star Energy Center

Prepared by Sargent & Lundy

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Sargent & Lundy is one of the oldest and most experienced full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, and fossil fuels. Sargent & Lundy delivers comprehensive project services—from consulting, design, and implementation to construction management, commissioning, and operations/maintenance—with an emphasis on quality and safety. The firm serves public and private sector clients in the power and energy, gas distribution, industrial, and government sectors.

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ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIX B. CONCEPTUAL COST ESTIMATE — FERC ACCOUNTS

APPENDIX C. EXPLANATION OF VARIANACE FROM THE PREVIOUS COST STUDY

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
ACC	air-cooled condenser
CCW	closed cooling water
СТ	combustion turbine
Desert Star	Desert Star Energy Center
FERC	Federal Energy Regulatory Commission
GSU	generator step-up transformer
HRSG	heat recovery steam generator
Owner	San Diego Gas & Electric Company
PCB	polychlorinated biphenyl
S&L	Sargent & Lundy, L.L.C.
SCR	selective catalytic reduction
SDG&E	San Diego Gas & Electric Company
ST	steam turbine

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual cost estimate for the dismantlement of the Desert Star Energy Center (Desert Star) and estimate the average service life of the facility's peer group. The work scope included updating the 2016 conceptual demolition cost estimate and the benchmarking analysis for the facility.

METHODOLOGY

The S&L methodology for developing the cost estimate consists of three elements: (1) S&L experience in developing plant demolition costs and the existing S&L database for numerous other projects; (2) use of the unit cost factor methodology; and (3) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by SDG&E. These drawings and documents were used to estimate the building foundation sizes, building volumes, steel quantities, and the quantity of piping, valves, and other equipment. Additionally, S&L performed a site walkdown to evaluate the site for dismantlement and determine any project-specific requirements. This site walkdown was performed in 2016, but recent discussions with the Owner and facility management confirmed that no significant modifications have occurred since that time. This information was used with unit cost factors developed by S&L based on industry data and experience. The unit cost factors for concrete removal, steel removal, and cost cutting were developed from labor and material cost information, and S&L estimated the quantities of recoverable metals that could be recovered and sold for scrap. As such, the estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

The benchmarking analysis considers publicly available data to determine the average service life of similar facilities.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning Desert Star is shown in Table ES-1. The cost estimate, divided into FERC accounts, is shown in Table ES-2. All costs are in 2021 U.S. dollars, and the total is the same in both tables: \$11,226,187. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

Table ES-1 — Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$7,496,912	-
Labor	_	\$4,069,698
Subcontracts	_	\$253,380
Equipment	_	\$1,928,009
Material	_	\$1,245,825
General Conditions (Decommissioning Contractor Indirect) Costs	\$2,873,137	-
Scrap Value	(\$1,978,169)	-
Subtotal Demolition Contractor Costs	\$8,391,880	-
Project Indirect Costs	\$1,112,000	-
Engineering	-	\$210,000
SDG&E Internal Costs	-	\$902,000
Contingency Costs	\$1,722,307	-
Total Demolition Costs	\$11,226,187	-

Table ES-2 — FERC Account Cost Estimate Summary

FERC No.	Description	Total Cost
311	Structures & Improvements	\$3,671,588
312	Boiler Plant Equipment	\$2,243,392
314	Turbo Generator Units	\$1,316,775
315	Accessory Electrical Equipment	\$412,082
316	Miscellaneous Power Plant Equipment	\$39,201
341	Other Production – Structures & Improvements	\$2,455,075
342	Other Production – Fuel Holders, Producers, and Accessories	\$12,092
344	Other Production – Generators	\$844,735
345	Other Production – Accessory Electric Equipment	\$231,248
_	General Conditions	Included Above
_	Engineering	Included Above
_	SDG&E Internal Costs	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$11,226,188

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform an independent conceptual cost estimate for the dismantlement of the Desert Star Energy Center

(Desert Star) and estimate the average service life of the facility's peer group. The work scope included

updating the 2016 conceptual demolition cost estimate, report, and benchmarking analysis.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers over the

years, the Sargent & Lundy Consulting Group has become one of the premier power project consultants in

the power industry, and this commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineering services—including

decommissioning cost estimations and average service life evaluations—for both global and domestic

electric power assets.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimonial services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations expertise

to support consulting services such as those performed for Desert Star.

1.3. FACILITY DESCRIPTION

Desert Star is a 2x2x1 gas-fired, combined-cycle power plant located about 40 miles southeast of Las

Vegas, Nevada. The plant is rated at 490 MW and became operational in May 2000. The plant consists of

two Siemens-Westinghouse 501FC+ combustion turbine (CT) generators and a Westinghouse BB 33-65

steam turbine (ST). Each gas turbine generator is rated for 160 MW, and the ST is rated for 170 MW. Each

CT exhausts into a separate Nooter Ericksen triple-pressure heat recovery steam generator (HRSG)

equipped with selective catalytic reduction (SCR). The steam produced by the two HRSGs drives the single

ST generator, and the exhaust steam is condensed in a 30 Bay GEA air-cooled condenser (ACC).

Views of the overall sites, the Unit 2 HRSG, and the ACC are shown in Figure 1-1, Figure 1-2, and Figure 1-3, respectively.



Figure 1-1 — Desert Star Overview

Figure 1-2 — Desert Star Unit 2 HRSG





Figure 1-3 — Desert Star ACC





2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of deterministic and

stochastic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of foundations, linear feet of piping, equipment, etc.). Stochastic methods were also used if

quantitative information (e.g., fire lines and hydrants, miscellaneous electrical equipment, etc.) was

unavailable.

The cost estimate was developed based on drawings, documents, and data provided by the Owner. These

drawings and documents were used to estimate the building foundation sizes, building volumes, steel

quantities, and the quantity of piping, valves, and other equipment.

The S&L methodology for developing the cost estimate consists of three elements: (1) S&L experience in

developing plant demolition cost and the existing S&L database for other projects; (2) use of the unit cost

factor methodology; and (3) quotes from previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

include both summaries and details for each type of work performed, indirect costs, and contingencies. The

database report lists costs by buildings, plant systems, and other categories.

S&L developed an inventory of plant piping, valves, equipment, HVAC ducts, concrete, galleries, cable

trays, and other equipment based on a review of drawings and a site walkdown that evaluated

dismantlement and determined any project-specific requirements. This information was used with unit cost

factors developed by S&L based on industry data and experience. Unit cost factors for concrete removal,

steel removal, cost cutting, and other tasks were developed from labor and material cost information. S&L

also estimated the quantities of recoverable metals that could be recovered and sold for scrap. As such,

the estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other

salvage value besides the value of scrap metal at the end of its life.

S&L worked from site general arrangement drawings and company documentation for the facilities,

including information about any existing metal cleaning storage ponds, asbestos inventories,

polychlorinated biphenyl (PCB) inventories, or sludge ponds. S&L relied on SDG&E to identify the location

of environmental issues that need to be considered in the estimates (S&L's scope of work excludes a

detailed survey and testing program to identify such problems).

2.2. COST ESTIMATE SUMMARY

The summary of the Desert Star decommissioning cost estimate is shown in Table 2-1. The commercial and technical basis for the estimate is described in Section 3, and the detailed estimate is included in Appendix A. The cost estimate breakdown into FERC accounts is shown in Table 2-2, and the allocation of FERC accounts is shown in Appendix B. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

The 2021 cost estimate format was changed to be consistent with S&L's current standards. The variance between the 2021 and 2016 cost estimate is shown in Appendix C.

Table 2-1 — Desert Star Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$7,496,912	-
Labor	_	\$4,069,698
Subcontracts	_	\$253,380
Equipment	-	\$1,928,009
Material	-	\$1,245,825
General Conditions (Decommissioning Contractor Indirect) Costs	\$2,873,137	-
Scrap Value	(\$1,978,169)	-
Subtotal Demolition Contractor Costs	\$8,391,880	-
Project Indirect Costs	\$1,112,000	-
Engineering	-	\$210,000
SDG&E Internal Costs	_	\$902,000
Contingency Costs	\$1,722,307	-
Total Demolition Costs	\$11,226,187	-

Table 2-2 — Desert Star Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
311	Structures & Improvements	\$3,671,588
312	Boiler Plant Equipment	\$2,243,392
314	Turbo Generator Units	\$1,316,775
315	Accessory Electrical Equipment	\$412,082
316	Miscellaneous Power Plant Equipment	\$39,201
341	Other Production – Structures & Improvements	\$2,455,075
342	Other Production – Fuel Holders, Producers, and Accessories	\$12,092
344	Other Production – Generators	\$844,735
345	Other Production – Accessory Electric Equipment	\$231,248
_	General Conditions	Included Above
_	Engineering	Included Above
-	SDG&E Internal Costs	Included Above
_	Contingency	Included Above
-	Total Project Cost	\$11,226,188

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for Las Vegas, Nevada as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever prevails in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for arrival time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from supplied engineering information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included in the decommissioning contractor indirect costs for the following:

- Labor supervision (additional compensation for the labor foreman/supervisors)
- Construction management
- Field office expenses
- Safety
- Temporary facilities
- Mobilization/demobilization
- Legal expenses/claims
- Small tools and consumables
- General liability insurance
- Construction equipment mobilization/demobilization
- Freight on material
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], materials [direct material cost and freight cost], and equipment)
- Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], materials [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions; as such, the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) in the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is estimated at \$30/ton, resulting in the values shown in Table 3-2:

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
#2 Copper	6145
#2 Insulated Copper Wire	2440

Note: 1 ton = 2000 lbs.

6. Project Schedule

Desert Star has an 18-month construction schedule.

7. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, the
 engineering required to place the plant in a safe shutdown, and any unique engineering
 required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the facility.

Table 3-2 — SDG&E Internal Costs in Support of Decommissioning

Activity	Estimated Cost
Labor to prepare the site for demolition, including drain oils, drain reagents, de- energization of the power buses, etc.	\$602,000
Site security	\$80,000
Subcontracts to remove chemicals, oils, and reagents from the site	\$100,000
SDG&E project management, permitting, and procurement	\$120,000
Total	\$902,000

8. Escalation Rates

Escalation rates were excluded from the estimates.

¹ www.americanrecycler.com

9. Sales and Use Taxes

Sales and use taxes were excluded from the estimates.

10. Contingency

- A 15% contingency is applied for labor, material, equipment, subcontracting, and indirect costs. General conditions (indirect demolition contractor costs) are allocated across labor, material, and equipment.
- There is no contingency on scrap value.

11. Contract Basis

The contracting strategy is a multiple lump sum for the estimate.

12. Assumptions

- The facility will be in safe-shutdown mode and ready for a decommissioning contractor to begin work.
- All chemicals and lubricating oils will be removed from the facilities to be properly disposed of by the utility before demolition. Chemical removal will include ammonia hydroxide and 25,000 gallons of CCW glycol. Oil removal will include all oil-filled systems and equipment such as lubrication systems, transformers, ACC fans, CCW fans, etc.
- No extraordinary environmental costs for demolition will be needed.
- There will be no PCBs on site at the time of demolition.
- Switchyards within the plant boundaries are not part of the scope, nor are access roads to these facilities.
- All items above grade and to a depth of one foot—including foundations—will be demolished.
 Any other items buried more than one foot deep will remain in place.
- Underground piping will be abandoned in place.
- Underground piping larger than four feet in diameter will be filled with sand or slurry and capped at the ends to prevent collapse (though there was no such piping noted at the site).
 Non-metal pipes will be collapsed.
- All demolished materials are considered debris, except for organic combustibles and nonembedded metals, which have scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- Handling onsite and offsite disposal of hazardous materials will be performed in compliance with methods approved by SDG&E's Environmental Services Department.
- All borrow (fill) material will be from offsite sources.
- Catalyst will be removed and returned to the original equipment manufacturer before demolition.

- Most of the water in the evaporation ponds will evaporate after retirement. Removing the solids and/or any pond liner after evaporation is not included in the estimate as an SDG&E internal cost or as a demolition cost.
- The entire site (ponds included) will be covered with 6 inches of material. Pond berms are to be leveled without consideration to the final topography or elevation of the ponds.
- The water from the demineralized water/reverse-osmosis tanks will be removed from the tanks by SDG&E prior to demolition (up to 500,000 gallons).

4. REFERENCES

- 1. Sargent & Lundy Cost Database
- 2. RS Means Cost Data, 2021
- 3. Engineering drawings, equipment lists, and other information provided by San Diego Gas & Electric Company
- 4. 2020 Form EIA-860 Data Schedule 3, "Generator Data" (retired and canceled units only)
- 5. Scrap Metals MarketWatch West Coast (Zone 1), www.americanrecycler.com
- 6. Lease Agreement The City of Boulder City and El Dorado Energy, LLC
- 7. Lease Agreement First Renewal Option, 2016

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DISMANTLE DESERT STAR

SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY

Estimator GA

Labor rate table 21NVLAS

 Project No.
 A14520.001

 Estimate Date
 03/12/2022

Reviewed By BA
Approved By BA
Estimate No. 31088D

Estimate No.: 31088D Project No.: A14520.001 Estimate Date: 03/12/2022 Prep./Rev/App.: GA/BA/BA

SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY



Group	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00	WHOLE PLANT DEMOLITION		(4.070.400)		45,045	3,323,442	1,082,369	4,405,811
18.00.00 21.00.00	SCRAP VALUE CIVIL WORK TOTAL DIRECT	253,380 253,380		1,245,825 1,245,825	8,811 53,856	746,256 4,069,698	845,639 1,928,009	(1,978,169) 3,091,101 5,518,743

SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY



Estimate Totals

Description	Amount	Totals	Hours
Labor	4,069,698		53,856
Material	1,245,825		
Subcontract	253,380		
Construction Equipment	1,928,009 (1,978,169)		
Scrap Value	5,518,743	5,518,743	
General Conditions			
Additional Labor Costs			
90-1 Labor Supervision	244,182		
90-2 Show-up Time 90-3 Cost Due To OT 5-10's	81,394		
90-4 Cost Due To OT 6-10's			
90-5 Per Diem			
Site Overheads	400 505		
91-1 Construction Management 91-2 Field Office Expenses	439,527 96,696		
91-3 Material&Quality Control	30,030		
91-4 Site Services			
91-5 Safety	86,829		
91-6 Temporary Facilities 91-7 Temporary Utilities	66,061		
91-8 Mobilization/Demob.	69,621		
91-9 Legal Expenses/Claims	10,285		
Other Construction Indirects	40.050		
92-1 Small Tools & Consumables 92-2 Scaffolding	43,953		
92-3 General Liability Insur.	43,953		
92-4 Constr. Equip. Mob/Demob	192,801		
92-5 Freight on Material	62,291		
92-6 Freight on Scrap 92-7 Sales Tax			
92-8 Contractors G&A	591,106		
92-9 Contractors Profit	844,438		
	2,873,137	8,391,880	
Project Indirect Costs			
93-1 Engineering Services	210,000		
93-2 CM Support			
93-3 Start-Up/Commissioning 93-4 Start-Up/Spare Parts			
93-5 Excess Liability Insur.			
93-6 Sales Tax On Indirects			
93-7 SDG&E Internal Cost 93-8 EPC Fee	902,000		
93-6 EFC Fee	1,112,000	9,503,880	
Opention and an area			
Contingency 94-1 Contingency on Const Eq	367,286		
94-3 Contingency on Material	229,574		
94-4 Contingency on Labor	920,640		
94-5 Contingency on Subcontr.	38,007		
94-6 Contingency on Scrap	400.000		
94-7 Contingency on Indirect	166,800	44 220 407	
	1,722,307	11,226,187	
Escalation			
96-1 Escalation on Const Equip			
96-3 Escalation on Material 96-4 Escalation on Labor			
96-5 Escalation on Subcontract			
96-6 Escalation on Scrap			
96-7 Escalation on Indirects		44.000.100	
		11,226,187	
98 Interest During Constr			
		11,226,187	

Total 11,226,187 SDG&E/Depreciation/Exh No: SDG&E-36-WP-S/Witness: D. A. Watson Page 199 of 322



roup	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
00.00		WHOLE PLANT DEMOLITION									
	10.21.00	CIVIL WORK									
		REMOVE FENCE		8,260.00 LF	-	-	-	330	27,093	15,258	42,3
		PAVED SURFACES, 6 IN THICK	STEAM PLANT	9,029.00 SY	=	=	•	1,083	88,845	50,035	138,8
		PAVED SURFACES, 6 IN THICK	OTHER PRODUCTION	9,029.00 SY	=	=	•	1,083	88,845	50,035	138,8
		CIVIL WORK						2,497	204,784	115,328	320,1
	10.22.00	CONCRETE									
		HRSG / STACK FDN	U-1, S-030 REV D	480.00 CY	-		-	540	44,545	11,875	56,4
		HRSG / STACK FDN	U-2, S-033 REV D	480.00 CY	=	=	=	540 7	44,545	11,875	56,4
		CEMS ENCLOSURE	U-1, S-031 REVD, 8'X21'X1'	6.00 CY 6.00 CY	-		-	7	557	148 148	7
		CEMS ENCLOSURE	U-12 S-031 REVD, 8'X21'X1'		-	-	•	3	557 278	74	7
		AIR COMPRESSOR AIR DRYER	S-034 HRSG FOUNDATION AREA S-034 HRSG FOUNDATION AREA	3.00 CY 1.00 CY	-	-	•	3	93	74 25	1
		AIR RECEIVER	S-034 HRSG FOUNDATION AREA S-034 HRSG FOUNDATION AREA	35.00 CY	=	•	-	39	3,248	866	4,1
		BOILER FEED PUMPS (4)	S-034 HRSG FOUNDATION AREA	33.00 CY				37	3,062	816	3,8
		SCR SKID	S-034 HRSG FOUNDATION AREA	8.00 CY	_	_		9	742	198	9,0
		BURNER SKID	S-034 HRSG FOUNDATION AREA	1.00 CY	_	_	-	1	93	25	1
		BURNER BLOWER SKID	S-034 HRSG FOUNDATION AREA	1.00 CY	_	_	-	1	93	25	1
		BLOWDOWN TANK	S-034 HRSG FOUNDATION AREA	2.00 CY	-		-	2	186	49	2
		EXCITATION SKID	S-039 STEAM TURBINE/GENERATOR	6.00 CY	-		-	7	557	148	7
			EQUIPMENT FDNS					_			
		EXCITATION TRANSFORMER	S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS	4.00 CY	-	-	-	5	371	99	4
		STEAM TURBINE LUBE OIL MODULE	S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS	24.00 CY	-	-	-	27	2,227	594	2,8
		SEAL OIL SUPPLY SKID	S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS	8.00 CY	-	-	-	9	742	198	ę
		GLAND STEAM CONDENSER SKID	S-039 STEAM TURBINE/GENERATOR	3.00 CY	-	-	-	3	278	74	3
		GLAND STEAM SUPPLY SKID	EQUIPMENT FDNS S-039 STEAM TURBINE/GENERATOR	9.00 CY	-	-		10	835	223	1,0
		MAIN & AUX TRANSFORMER FDNS	EQUIPMENT FDNS S-045 MAIN & AUX TRANSFORMERS	148.00 CY	-		-	167	13,735	3,661	17,3
		MAIN & AUX TRANSFORMER FDNS	(1) S-047 MAIN & AUX TRANSFORMERS	160.00 CY				180	14,848	3,958	18,8
			(2)		-	-	•				
		SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT)		22.00 CY	-	-	-	25	2,042	544	2,5
		SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT)		57.00 CY	-	-	-	64	5,290	1,410	6,7
		AQUEOUS AMMONIA STORAGE TANK AND UNLOADING AREA FDNS	S-076	196.00 CY	-		-	221	18,189	4,849	23,0
		PIPE RACK FOUNDATION	S-048	218.00 CY				245	20,231	5,393	25,6
		AIR COOLED CONDENSER FDN	S-60 REV J	440.00 CY				495	40,833	10,885	51,7
		AIR COOLED CONDENSER AREA MISC FDN	S-61 REVG	60.00 CY				68	5,568	1,484	7,
		FLASH TANK AND TRANSFER PUMP FDN	S-062	23.00 CY	_			26	2,134	569	2,
		CCW HEAT EXCHANGER, PUMP AND HEAD TANK FDNS	S-068	62.00 CY	_			70	5,754	1,534	7,
		FIRE WATER STORAGE TANK FDN	S-070, Steam Plant	25.00 CY	-	-		28	2,320	618	2,
		FIRE WATER STORAGE TANK FDN	S-070, Other Plant	25.00 CY	-	-		28	2,320	618	2
		DEMIN WATER STORAGE TANK FDN	S-070	50.00 CY	-	-		56	4,640	1,237	5
		WATER TREATMENT FDNS		130.00 CY	-	-		146	12,064	3,216	15
		MISC FDNS		80.00 CY	-	-		90	7,424	1,979	9
		CONTROL/ADMINISTRATION BLDG	S-043 Steam Plant @ 50%	352.00 CY	-	=		396	32,666	8,708	41.
		CONTROL/ADMINISTRATION BLDG	S-043, Other Plant @ 50%	352.00 CY	-		-	396	32,666	8,708	41.
		SAMPLE BUILDING	DWG S-073	27.00 CY	-	-	-	30	2,506	668	3
		BULK STORAGE BUILDING	S-074, 50% Steam Plant	28.00 CY	-		-	32	2,598	693	3
		BULK STORAGE BUILDING	S-074 , 50% Other Plant	28.00 CY	Ξ	=	•	32	2,598	693	3
		SAMPLE PANEL BUILDING	28'X22'X12 HIGH STEEL BLDG	29.00 CY	=	-	•	33	2,691	717	3
		WAREHOUSE #2	30'X40'X24' HIGH STEEL BLDG 50% Steam Plant	28.00 CY	-	-	-	32	2,598	693	3
		WAREHOUSE #2	30'X40'X24' HIGH STEEL BLDG, 50% Other Plant	28.00 CY	-	-	-	32	2,598	693	3
		VISITOR CENTER	24'X64'X10' STEEL BLDG	72.00 CY	-			81	6,682	1,781	8
		PHOTOVOLTAIC ARRAY SUPPORTS	72 CAISSONS	25.00 CY	_		-	28	2,320	618	2
		NEW EQUIPMENT BUILDING	Steam Plant @ 50%	94.00 CY	_		-	106	8,723	2,325	11
		NEW EQUIPMENT BUILDING	Other Plant @ 50%	94.00 CY	_			106	8,723	2,325	11
		NEW WAREHOUSE #3	Steam Plant @ 50%	104.00 CY	-	-		117	9,651	2,573	12
		NEW WAREHOUSE #3	Other P90 & & Depreciation/E	~ h 18/1-00 (C)(X) (20 F 26 W/D C/	Mitnaga. D A	Motoon	117	9.651	2,573	12

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SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY



Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.22.00	CONCRETE									
	TURBINE PEDESTAL	U-1, S-021 REV F	720.00 CY	=	=		1,296	106,907	28,499	135
	TURBINE PEDESTAL	U-2, S-025 REV F	720.00 CY	-	-		1,296	106,907	28,499	135
	STEAM TURBINE GEN COLUMNS	S-036, S-037	673.00 CY	-	-		1,211	99,928	26,639	126
	CONCRETE						8,496	700,817	186,822	887,
10.23.00	STEEL									
	PIPE RACK	50% Steam Plant S-052,-53,-54 & -55	85.00 TN	-	-		86	6,723	1,456	8
	PIPE RACK	50% other plant S-052,-53,-54 & -55	85.00 TN	-	-		86	6,723	1,456	8
	MISCELLANEOUS STEEL	CCW PIPE RACK, PIPE SUPPORTS , MISC BRACING ETC.	100.00 TN	-	-		102	7,910	1,713	9
	GALLERIES	S-056 + NEW PLATFORMS FOR GENERATOR AND HRSG DOORS	40.00 TN	-	-		41	3,164	685	3
	S-056 + NEW PLATFORMS FOR GENERATOR AND HRSG DOORS	PV-1 & 2	10.00 TN	-	-		10	791	171	
	STEEL						325	25,311	5,482	30,
10.24.00	ARCHITECTURAL									
	CONTROL/ADMINISTRATION BLDG	188'X79'X12' HIGH STEEL BLDG, 50% Steam Plant	89,112.00 CF	-	-		267	20,029	7,413	27
	CONTROL/ADMINISTRATION BLDG	188'X79'X12' HIGH STEEL BLDG, 50% Otther Plant	89,112.00 CF	-	-		267	20,029	7,413	27
	SAMPLE BUILDING BULK STORAGE BUILDING	30X24X10' HIGH STEEL BLDG 56'X13'X12 HIGH STEEL BLDG, 50%	7,200.00 CF 4,368.00 CF		-		22 13	1,618 982	599 363	2 1
	BULK STORAGE BUILDING	Steam Plant 56'X13'X12 HIGH STEEL BLDG, 50%	4,368.00 CF	-	-		13	982	363	1
	OAARD E BANEL BUILDING	Other Plant								
	SAMPLE PANEL BUILDING WAREHOUSE #2	28'X22'X12 HIGH STEEL BLDG 30'X40'X24' HIGH STEEL BLDG, 50%	7,392.00 CF 19,200.00 CF	-	-		22 58	1,661 4,315	615 1,597	2
	WAREHOUSE #2	Steam Plant 30'X40'X24' HIGH STEEL BLDG, 50% Other Plant	19,200.00 CF	-	-		58	4,315	1,597	
	VISITOR CENTER (AT PHOTOVOLTAIC FIELD)	24'X64'X10' STEEL BLDG	15,360.00 CF				46	3,452	1,278	4
	NEW EQUIPMENT BUILDING	45'X90'X26' HIGH STEEL BLDG, 50% Steam Plant	52,650.00 CF	=	=		158	11,834	4,380	16
	NEW EQUIPMENT BUILDING	45'X90'X26' HIGH STEEL BLDG, 50% Other Plant	52,650.00 CF	-	-		158	11,834	4,380	16
	NEW WAREHOUSE #3	45'X100'X21' HIGH STEEL BLDG, 50% Steam Plant	47,250.00 CF	-	-		142	10,620	3,931	14
	NEW WAREHOUSE #3	45'X100'X21' HIGH STEEL BLDG, 50% Other Plant	47,250.00 CF	-	-		142	10,620	3,931	14
	ARCHITECTURAL	Culti Filant					1,365	102,291	37,861	140
10.26.00	MISCELLANEOUS STRUCTURAL ITEM									
	MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM SITE		1.00 LT	-	-		500	35,385	11,385	46
	MISCELLANEOUS STRUCTURAL ITEM						500	35,385	11,385	46
10.31.00	MECHANICAL EQUIPMENT COMBUSTION TURBINE	U-1. SIEMENS STG6-5000F	213.00 TN	_	_		746	52.759	16,975	69
	SOMBOOTION TO COME	(501FC+)C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS	210.00					02,700	10,070	ŭ.
	COMBUSTION TURBINE	U-2, SIEMENS STG6-5000F (501FC+)C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY	213.00 TN	-	-		746	52,759	16,975	69
	HEAT RECOVERY STEAM GENERATOR	LOW NOX BURNERS U-1, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR	2,156.00 TN	-	-		7,546	534,030	171,822	70
	HEAT RECOVERY STEAM GENERATOR	INC 110' STACK U-2, 3-PRESS HRSG W/REHEAT SUPPLEMENTAL DUCT BURNERS INCL INTERGRAL DEAERATOR, SCR	2,156.00 TN	-	-		7,546	534,030	171,822	70
	STEAM TURBINE GENERATOR	INC 110' STACK SIEMENS/WESTINGHOUSE	465.00 TN				1,628	115,178		152

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Description MECHANICAL EQUIPMENT STEAM TURBINE GENERATOR AIR COMPRESSOR, CENTRIFUGAL CCW HEAT EXCHANGER DEMIN WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	Notes B33/65CC, 175 MW CONDENSING REHEAT TURBINE W STANDARD ACCESSORIES 2 @ 1335 SCFM STATION 10 CELLS @ 30,000 LB EA 250,000 GALLON, 38' DIA X 30' HIGH, 50% Steam Plant 250,000 GALLON, 3' DIA X 30' HIGH, 50% Other Plant	Quantity 465.00 TN 9.00 TN 150.00 TN 30.00 TN 15.00 TN	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Co
AIR COMPRESSOR, CENTRIFUGAL CCW HEAT EXCHANGER DEMIN WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	REHEAT TURBINE W STANDARD ACCESSORIES 2 @ 1335 SCFM STATION 10 CELLS @ 30,000 LB EA 250,000 GALLON, 38' DIA X 30' HIGH 250,000 GALLON, 38' DIA X 30' HIGH, 50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH,	9.00 TN 150.00 TN 30.00 TN	-	-		1,628	115,178	37,058	15
AIR COMPRESSOR, CENTRIFUGAL CCW HEAT EXCHANGER DEMIN WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	REHEAT TURBINE W STANDARD ACCESSORIES 2 @ 1335 SCFM STATION 10 CELLS @ 30,000 LB EA 250,000 GALLON, 38' DIA X 30' HIGH 250,000 GALLON, 38' DIA X 30' HIGH, 50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH,	9.00 TN 150.00 TN 30.00 TN	-	-		1,628	115,178	37,058	15
CCW HEAT EXCHANGER DEMIN WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	2 @ 1335 SCFM STATION 10 CELLS @ 30,000 LB EA 250,000 GALLON, 38' DIA X 30' HIGH 250,000 GALLON, 38' DIA X 30' HIGH , 50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH ,	150.00 TN 30.00 TN							
CCW HEAT EXCHANGER DEMIN WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	10 CELLS @ 30,000 LB EA 250,000 GALLON, 38' DIA X 30' HIGH 250,000 GALLON, 38' DIA X 30' HIGH, 50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH,	150.00 TN 30.00 TN	=	-		18	1,290	415	
RAW/FIRE WATER STORAGE TANK RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	250,000 GALLON, 38' DIA X 30' HIGH , 50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH ,			=		304	21,496	6,916	
RAW/FIRE WATER STORAGE TANK AQUEOUS AMMONIA STORAGE TANK WATER TREATMENT DEMINERALIZATION & CHEMICAL	50% Steam Plant 250,000 GALLON, 38' DIA X 30' HIGH ,	15.00 TN	-	-		81	5,732	1,844	
AQUEOUS AMMONIA STORAGE TANK NATER TREATMENT DEMINERALIZATION & CHEMICAL			=	-		41	2,866	922	
WATER TREATMENT DEMINERALIZATION & CHEMICAL		15.00 TN	=	-		41	2,866	922	
	20,000 GALLON,	6.00 TN 30.00 TN	-	-		16 61	1,146 4,299	369 1,383	
TREATMENT EQUIPMENT AIR COOLED CONDENSER & ACCESSORIES	250K BUNDLES @ 12 TN EA, 50D	3,500.00 TN	-	-		7,088	501,582	161,382	
	BUNDLES @ 10 TN EA & 30-200 HP FANS								
BOILER FEED PUMPS	U-1, 2 @ 1350 GPM FOR HRSGS, 2150 HP	22.00 TN	=	-		59	4,204	1,353	
BOILER FEED PUMPS	U-2, 2 @ 1350 GPM FOR HRSGS, 2150 HP	22.00 TN	-	-		59	4,204	1,353	
CT LUBE OIL SYSTEM INCL FIN FAN COOLER	U-1	3.00 TN	-	-		12	849	273	
			=	=					
			-	-					
			-	-					
FIRE PUMPS	U-0, 2 @ 1500 GPM @ 125 PSI, 300	0.80 TN	=	=		4	283	91	
FIRE PUMPS	U-0, 2 @ 1500 GPM @ 125 PSI, 300	0.80 TN	-	-		4	283	91	
MISCELLANEOUS PUMPS	14 SMALL PUMPS E.G. TRANSFER, DEMIN WTR RAW WATER, VACUUM , BLOWDOWN SUMPS AND SUMP	2.50 TN	-	-		13	885	285	
CONDENSATE PUMPS	U-0, 3 @ 1400 GPM & 625 TDH, 300	4.00 TN	=	=		20	1,415	455	
MECHANICAL EQUIPMENT	НР					26,079	1,845,627	593,824	2,4
PIPING									
			=	=					
			-	-					
			-	-					
			-	-					
THE LINES ATTI STORTED	REMOVE HYDRANTS, 50% Steam	1.00 E1				40	2,001	311	
FIRE LINES & HYDRANTS	U-0, ABANDON UNDERGND LINES	1.00 LT	=	=		40	2,831	911	
PIPING	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					1,224	86,631	27,873	
ELECTRICAL EQUIPMENT									
			-	-					
			-	-					
			-	-					
			_	-					
		1.00 LT	-	-		50			
ELECTRICAL EQUIPMENT	U-0, CONTROL RM, 50% Other Plant	1.00 LT	-	=		50	3,539	1,139	
ELECTRICAL EQUIPMENT						1,778	125,856	40,494	1
RACEWAY, CABLE TRAY, & CONDUIT	Oteans Pleast 070/ 11 4	00.450.00.15					04.00=	0.000	
			=	=					
			-	-					
	Other Plant 33% U-2	14,850.00 LF	-	-					
CABLE TRAY	Steam Plant 67% U-1	1,675.00 LF	-	-		67	4,742	1,526	
CABLE TRAY			0 C 00 MD 0"	A//	\A/=4===	33	2,335	751	
	COLER FEED PUMPS CT LUBE OIL SYSTEM INCL FIN FAN COOLER CT LUBE OIL SYSTEM INCL FIN FAN COOLER CLOSED COOLING WATER PUMPS CONDENSATE COLLECTION TANK FUEL GAS PREHEAT FIRE PUMPS CIRE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS CONDENSATE PUMPS MECHANICAL EQUIPMENT PIPING CIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS PIPING ALVES AND HANGERS PIPING FUR SAND FUR	### SOILER FEED PUMPS	U-1, 2 @ 1350 GPM FOR HRSGS, 22,00 TN	U-1, 2 @ 1330 GPM FOR HRSGS, 22.00 TN 2150 HP 21	U1_2 @ 150 GPM FOR HRSGS, 22.00 TN - - -	DULBE FEED PUMPS	DOLLER FEED PUMPS	DILER FEED PLAMPS	1.1.2 (2) (30.50 PF M PCR HRSCS). 2.2.0 TM



Company Phase Description Notes Quantity Subcontract Cost Scrap Value Material Cost Man Hours Labor Cost Equation Labor Cost La	1,526 751 25,047 4,424 2,179 4,424 2,179 7,628	6,267 3,087 102,894 18,175 8,952 18,175
CABLE TRAY Steam Plant 67% U-2 1,675.00 LF 67 4,742 CABLE TRAY Other Plant 33% U-2 825.00 LF 33 2,335 RACEWAY, CABLE TRAY, & CONDUIT 10.43.00 CABLE	751 25,047 4,424 2,179 4,424 2,179 7,628	3,087 102,894 18,175 8,952 18,175
CABLE TRAY Other Plant 33% U-2 825.00 LF 33 2,335 RACEWAY, CABLE TRAY, & CONDUIT 10.43.00 CABLE	751 25,047 4,424 2,179 4,424 2,179 7,628	3,087 102,894 18,175 8,952 18,175
1,100 77,847 10.43.00 CABLE	25,047 4,424 2,179 4,424 2,179 7,628	18,175 8,952 18,175
10.43.00 CABLE	4,424 2,179 4,424 2,179 7,628	18,175 8,952 18,175
	2,179 4,424 2,179 7,628	8,952 18,175
COPPER WIRE / CABLE - MEDIUM VOLTAGE Steam Plant 67% U-1 19.430.00 LF 194 13.751	2,179 4,424 2,179 7,628	8,952 18,175
	4,424 2,179 7,628	18,175
COPPER WIRE / CABLE - MEDIUM VOLTAGE Other Plant 33% U-1 9,570.00 LF - 96 6,773	2,179 7,628	
COPPER WIRE / CABLE - MEDIUM VOLTAGE Steam Plant 67% U-2 19,430.00 LF 194 13,751	7,628	
COPPER WIRE / CABLE - MEDIUM VOLTAGE Other Plant 33% U-2 9,570.00 LF 96 6,773		8,952 31,336
COPPER WIRE / CABLE - LOW VOLTAGE Steam Plant 67% U-1 67,000.00 LF - - - 335 23,708 COPPER WIRE / CABLE - LOW VOLTAGE Other Plant 33% U-1 33,000.00 LF - - - 165 11,677	3,757	15,434
COPPER WIRE / CABLE - LOW VOLTAGE Steam Plant 67% U-2 67,000.00 LF 335 23,708	7,628	31,336
COPPER WIRE / CABLE - LOW VOLTAGE Other Plant 33% U-2 33,000.00 LF 165 11,677	3,757	15,434
CABLE 1,580 111,817	35,977	147,793
10.44.00 CONTROL & INSTRUMENTATION		
CONTROL & INSTRUMENTATION 1.00 LT 100 7.077	2,277	9,354
CONTROL & INSTRUMENTATION 100 7,077	2,277	9,354
WHOLE PLANT DEMOLITION 45,045 3,323,442	1,082,369	4,405,811
18.00.00 SCRAP VALUE		
18.10.00 MIXED STEEL		
CARBON STEEL -4,526.00 TN - (792,050) -		(792,050)
CARBON STEEL CONDUIT, 1.5" DIA. AVG SIZE, 2.63 -79.00 TN - (13,825) - LBS/LF		(13,825)
CARBON STEEL CONDUIT, 1.5" DIA. AVG SIZE, 2.63 -39.00 TN - (6,825) - LBS/LF		(6,825)
CARBON STEEL CABLE TRAY, 6 LBS/LF -10.00 TN - (1,750) -		(1,750)
CARBON STEEL CABLE TRAY, 6 LBS/LF -4.95 TN - (866) -		(866)
CARBON STEEL -4,601.00 TN - (805,175) -		(805,175)
CARBON STEEL -11.50 TN - (2,012) - CARBON STEEL -10.80 TN - (1,890) -		(2,012)
CARBON STEEL -10.80 TN - (1,890) - CARBON STEEL -101.80 TN - (17,815) -		(1,890) (17,815)
CARBON STEEL -659.00 TN - (115,325) -		(115,325)
CARBON STEEL MISC ELECT EQUIPMENT -60.00 TN - (10,500) -		(10,500)
CARBON STEEL BUILDINGS -80.00 TN - (14,000) -		(14,000)
CARBON STEEL BUILDINGS -80.00 TN - (14,000) -		(14,000)
CARBON STEEL FENCE -20.00 TN - (3.500) -		(3,500)
CARBON STEEL MISC ELECT EQUIPMENT -122.00 TN - (21,350) - STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA -261.00 TN - (91,350) -		(21,350) (91,350)
STEEL / COPPER MIA - LARGE TRANSFORMER > 100 KVA -201.00 TN - (45,150) - (51,500) - (51,		(45,150)
MIXED STEEL (1,957,384)		(1,957,384)
18.30.00 COPPER		
#2 SOLID COPPER / TUBING BUS BAR -0.67 TN - (4,117) -		(4,117)
#2 SOLID COPPER / TUBING BUS BAR -0.33 TN - (2,028) -		(2,028)
#2 INSULATED COPPER WIRE -4.00 TN - (9,760) -		(9,760)
#2 INSULATED COPPER WIRE -2.00 TN - <u>(4,880)</u> -		(4,880)
COPPER (20,785)		(20,785)
SCRAP VALUE (1,978,169)	((1,978,169)
21.00.00 CIVIL WORK		
21.17.00 EXCAVATION		
EXCAVATION, BULLDOZER LEVEL POND BERMS 190,163.00 CY 5,705 483.204	547,555	1,030,760
EXCAVATION, BELEVICE ON BENNIS 188, 165.00 CT	547,555	1,030,760
21.18.00 HAULING		
HAULING TO RECYCLE FACILITY CONCRETE DEBRIS IS RECYCLED. 662.00 CY 13,240 -		13,240
NO DISPOSAL FEE HAULING TO RECYCLE FACILITY CONCRETE DEBRIS IS RECYCLED. 1,636.00 CY 32,720 -		32,720
NO DISPOSAL FEE CONDETTE DEDIS 16 DECYCLE D. 1 242 00 CV. 26 240		00.040
HAULING TO RECYCLE FACILITY CONCRETE DEBRIS IS RECYCLED. 1.312.00 CY SDG&E-36-40/P-S/Witness: D. A. Watson Page 1명3 ⁷ of 322		26,240

SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	21.18.00	HAULING									
		HAULING TO RECYCLE FACILITY	NO DISPOSAL FEE	1,312.00 CY	26,240	-					26,240
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	170.00 CY	3,400	-					3,400
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED.	119.00 CY	2,380	-					2,380
			NO DISPOSAL FEE								
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	703.00 CY	14,060	-					14,060
		HAULING TO RECYCLE FACILITY	CONCRETE PAVING DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,505.00 CY	30,100	=					30,100
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	25.00 CY	500	-					500
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,440.00 CY	28,800	-					28,800
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	217.00 CY	4,340	-					4,340
		HAULING TO RECYCLE FACILITY	CONCRETE PAVING DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,505.00 CY	30,100	-					30,100
		HAULING			185,880					_	185,880
	21.21.00	MASS FILL									
		MASS FILL, COMMON EARTH 6 INCHES THICK		86,981.00 CY	-	-	.,,	3,044	257,855		1,771,264
		MASS FILL, COMMON EARTH 6 INCHES THICK, C/T SPECIFIC OTHER PLANT		607.00 CY	=	-	8,522	21	1,799	2,039	12,361
		MASS FILL, COMMON EARTH 6 INCHES THICK, PHOTOVOLTAIC PLANT		1,146.00 CY	-	-	16,090	40	3,397	3,850	23,337
		MASS FILL					1,245,825	3,106	263,052	298,084	1,806,961
	21.52.00	WASTE DISPOSAL									
		DISPOSAL AND TRANSPORTATION FEE	CONCRETE DEBRIS, DISPOSED ON SITE	CY		=					
		DISPOSAL AND TRANSPORTATION FEE	RUBBISH &TENANT DEBRIS	2,250.00 CY	67,500	-				_	67,500
		WASTE DISPOSAL			67,500						67,500
		CIVIL WORK			253,380		1,245,825	8,811	746,256	845,639	3,091,101

APPENDIX B. CONCEPTUAL COST ESTIMATE — FERC ACCOUNTS

Estimator GA

Labor rate table 21NVLAS

 Project No.
 A14520.001

 Estimate Date
 3/12/2022

Reviewed By BA
Approved By BA
Estimate No. 31088D

Estimate No.: 31088D Project No.: A14520.001 Estimate Date: 3/12/2022 Prep/Rev/App: GA/BA/BA



Area	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
311	STRUCTURES AND IMPROVEMENTS	141,134	(17,500)	1,910,307	6,255	989,139	648,508	3,671,588
312	BOILER PLANT EQUIPMENT	41,663	(792,050)		17,132	2,365,834	627,946	2,243,392
314	TURBO GENERATOR UNITS	33,412	(805,175)		11,852	1,655,531	433,007	1,316,775
315	ACCESSORY ELECTRIC EQUIPMENT	4,329	(142,152)		3,160	433,782	116,124	412,082
316	MISCELLANEOUS POWER PLANT EQUIPMENT	3,030	(2,012)		205	30,818	7,365	39,20
341	OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS	56,230	(15,890)	38,500	8,379	1,339,656	1,036,579	2,455,07
342	OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES	637	(17,815)		164	24,093	5,177	12,09
344	OTHER PRODUCTION - GENERATORS	36,672	(115,325)		5,026	741,969	181,419	844,73
345	OTHER PRODUCTION - ACCESSORY ELECTRIC EQUIPMENT	5,526	(70,249)		1,684	234,288	61,683	231,24

Estimate No.: 31088D Project No.: A14520.001 Estimate Date: 3/12/2022 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC DESERT STAR DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Estimate Totals

Des	cription	Amount	Totals	Hours
bor sterial bcontract onstruction Equipment ocess Equipment	_	7.815.109 1,948,807 322,633 3.117.808 (1,978,169) 11,226,188	11,226,188	53,856
eneral Conditions Iditional Labor Costs te Overheads her Construction Indirects				
			11,226,188	
oject Indirect Costs			11,226,188	
entingency			11,226,188	
calation			11,226,188	
otal			11,226,188	
otal meral Conditions, Indirect Co	osts and Conting	gency are allocated in t		11,226,188



Group	Phase	Description	Notes	Quantity	Subcontract	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		STRUCTURES AND IMPROVEMENTS			Cost						
10.00.00		WHOLE PLANT DEMOLITION									
	10.21.00	CIVIL WORK									
		REMOVE FENCE		8,260.00 LF	-	-		330	52,027		76,7
		PAVED SURFACES, 6 IN THICK	STEAM PLANT	9,029.00 SY	-	-		1,083	170,611		251,5
		CIVIL WORK						1,414	222,638	105,586	328,2
	10.22.00	CONCRETE									
		AQUEOUS AMMONIA STORAGE TANK AND UNLOADING AREA FDNS	S-076	196.00 CY	-	-		221	34,929	7,841	42,7
		CONTROL/ADMINISTRATION BLDG	S-043 Steam Plant @ 50%	352.00 CY	-	-		396	62,729	14,082	76,8
		SAMPLE BUILDING	DWG S-073	27.00 CY	-	-		30	4,812		5,8
		BULK STORAGE BUILDING	S-074 , 50% Steam Plant	28.00 CY	-	-		32	4,990		6,1
		SAMPLE PANEL BUILDING WAREHOUSE #2	28'X22'X12 HIGH STEEL BLDG 30'X40'X24' HIGH STEEL BLDG 50% Steam	29.00 CY 28.00 CY	-	-		33 32	5,168 4,990		6,3 6,1
		WAREHOUSE #2	Plant	20.00 CT	-	-		32	4,990	1,120	6,1
		NEW EQUIPMENT BUILDING	Steam Plant @ 50%	94.00 CY	-	-		106	16,752	3,761	20,5
		NEW WAREHOUSE #3	Steam Plant @ 50%	104.00 CY	-	-		117	18,534		22,6
		CONCRETE						965	152,902	34,325	187,2
	10.24.00	ARCHITECTURAL									
		CONTROL/ADMINISTRATION BLDG	188'X79'X12' HIGH STEEL BLDG, 50% Steam Plant	89,112.00 CF	-	-		267	38,462	11,988	50,4
		SAMPLE BUILDING	30X24X10' HIGH STEEL BLDG	7,200.00 CF	-	-		22	3,108	969	4,0
		BULK STORAGE BUILDING	56'X13'X12 HIGH STEEL BLDG, 50% Steam Plant	4,368.00 CF	-	-		13	1,885	588	2,4
		SAMPLE PANEL BUILDING	28'X22'X12 HIGH STEEL BLDG	7,392.00 CF	_	_		22	3,190	994	4,1
		WAREHOUSE #2	30'X40'X24' HIGH STEEL BLDG, 50% Steam	19,200.00 CF	-	-		58	8,287		10,8
		NEW EQUIPMENT BUILDING	Plant 45'X90'X26' HIGH STEEL BLDG, 50% Steam	52,650.00 CF				158	22,724	7,083	29,8
		NEW WAREHOUSE #3	Plant 45'X100'X21' HIGH STEEL BLDG, 50% Steam	47,250.00 CF				142	20,394	6,356	26,7
		ARCHITECTURAL	Plant					682	98,050	30,561	128,61
		ARCHITECTURAL						602	90,030	30,561	120,01
	10.41.00	ELECTRICAL EQUIPMENT									
		OUTDOOR LIGHT POLE / FIXTURE	U-0	1.00 LT	-	-		150	20,385		25,9
		ELECTRICAL EQUIPMENT WHOLE PLANT DEMOLITION						3,211	20,385 493,975	5,523 175,995	25,90 669,91
40.00.00		CCDAD VALUE									
18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
	10.10.00	CARBON STEEL	BUILDINGS	-80.00 TN	_	(14,000)					(14,00
		CARBON STEEL	FENCE	-20.00 TN	-	(3,500)	-			_	(3,50
		MIXED STEEL				(17,500)					(17,50
		SCRAP VALUE				(17,500)					(17,50
21.00.00		CIVIL WORK									
	21.18.00	HAULING									
		HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	662.00 CY	16,859	-					16,8
		HAULING TO RECYCLE FACILITY	CONCRETE PAVING DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,505.00 CY	38,327	-					38,3
		HAULING	NO DISPOSAL FEE		55,186					-	55,1
	21.21.00	MASS FILL									
	21.21.00	MASS FILL, COMMON EARTH 6 INCHES THICK	OFFSITE SUPPLY - 10 MILE ROUND TRIP	86,981.00 CY			1,910,307	3,044	495,164	472,513	2,877,9
		WASS FIEE, COMMON EARTH O INCHES THICK	AND SPREADING	80,981.00 C1	-	-					
							1,910,307	3,044	495,164	472,513	2,877,98
		MASS FILL									
	21.52.00	WASTE DISPOSAL									
	21.52.00	WASTE DISPOSAL DISPOSAL AND TRANSPORTATION FEE	CONCRETE DEBRIS, DISPOSED ON SITE	CY 2.250.00, CV	95.040	-					9F 0
	21.52.00	WASTE DISPOSAL DISPOSAL AND TRANSPORTATION FEE DISPOSAL AND TRANSPORTATION FEE	CONCRETE DEBRIS, DISPOSED ON SITE RUBBISH &TENANT DEBRIS	CY 2,250.00 CY	85,949 85,949	-				-	85,94 85.94
	21.52.00	WASTE DISPOSAL DISPOSAL AND TRANSPORTATION FEE			85,949 85,949 141,134	:	1,910,307	3.044	495,164	472.513	85,94 85,94 3,019,11

312 **BOILER PLANT EQUIPMENT**

10.00.00 WHOLE PLANT DEMOLITION

10.22.00 CONCRETE

Estimate No.: 31088D Project No.: A14520.001 Estimate Date: 3/12/2022 Prep/Rev/Appr: GA/BA/BA



MEDITION	Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
MEDITION 12 12 12 13 13 13 13 13			10.22.00		II-1 S-030 REV D	480.00 CY	_			540	85 540	19 203	104,742
Company Comp								-					104,742
SECRET S							-	-		7		240	1,309
SCOREST SCOR							-	-					1,309
But							-	-					7,201 1,746
Part								-		1			218
Part							-	-		1			218
Part							-	-					436
10.200 Polity Month of Entown Clay (1900 1900								-					5,455
10.000 10.0							-	-					10,911
10.20.00 STEEL MODE SOS DEMON PART SOS DEMON PA						130.00 CY	-	-					28,368
MECHANIOLA EQUIPMENT 1.03.100 1.00.100				CONCRETE						1,620	256,619	57,608	314,227
13.1.00			10.23.00		509/ Steam Dignt C 052 52 54 9 55	95.00 TN				96	12.011	2.255	15 265
PACE					50% Steam Plant 5-052,-54,-54 & -55		-	-					15,265 15,265
PACE			10 31 00	MECHANICAL FOLLIPMENT									
MICHORAL DELATATION, SIGN NO. 10 1,005,508 277,568 1,005,508 277,568 1,005,508 277,568 1,005,508 277,568 1,005,508 277,568 1,005,508 277,568 1,005,508 277,568 1,005,508 1,005,508 1,005,508 1,005,508 1,005,508 1,005 1,005,508			10.01.00		U-1, 3-PRESS HRSG W/REHEAT	2,156.00 TN		-		7,546	1,025,508	277,856	1,303,364
## PLAT PECOVERY STEAM GENERATOR ## PLAT PECON GENERATOR GENERATOR ## PLAT PECON GENERATOR ## PLAT PECON GENERATOR GENERATOR ## PLAT					SUPPLEMENTAL DUCT BURNERS INCL								
SUPPLICATION OF DEMINATER STORAGE TANK 2000 GALLON, 90 bx 3.29 high 3.00 Th					STACK								
NITERIOR DECINI WITER STORAGE TIME				HEAT RECOVERY STEAM GENERATOR		2,156.00 TN	-	-		7,546	1,025,508	277,856	1,303,364
DENN WATER STORAGE TAMK 250,00 CALLON 30 DAX 37 HERH 500 0 TN													
RAWFIRE WATER STORAGE TANK 2500 COLLUN, 32 FIDAL X 37 FIGH, 50% 1500 TN 1 16 2,222 25% 22,227 10 10 10 10 10 10 10 1													
ACUBIOLIS AMMONAS FORMER THAN BY COMMONAS FORMER THAN BY COMMONAS FORMER CHEMICAL WATER REATHER TO REMINERALIZATION AS CHEMICAL SUBJECT OF THE CATE					250,000 GALLON, 38' DIA X 30' HIGH , 50%		-	-					13,991 6,995
WATER REALIZED COUNTS 10 2.00 10 10 10 10 10 10 10													
TREATMENT COUMENT DOLER FEED PLANS U.1.2 @ 1500 CPM FOR HISSOS 2150 PP 22.00 TN					20,000 GALLON,		-	-					2,798 10,493
SOLIEN FEED PURPLE 10.2 (200 TM FOR HEROSC, 219 DM FOR HEROSC, 219				TREATMENT EQUIPMENT		00.00					0,200	2,207	10,100
CONDENSATE COLLECTION TANK 10000 GALLON, 4.00 TN							-	-					10,260
MECHANICAL EQUIPMENT 15.020 17.132 2.365,834 627,946 2.983,74 18.00.00 1							-						10,260 2,764
18.00.00 18.00.00					10,000 07 22011,	1.00							2,664,287
18.10.00				WHOLE PLANT DEMOLITION						17,132	2,365,834	627,946	2,993,779
CARBON STEEL 4.528.00 TN		18.00.00		SCRAP VALUE									
MMED STEEL (792,089) (79			18.10.00										
SCRP VALUE						-4,526.00 TN	-					-	(792,050)
21.18.00													(792,050)
21.18.00		24 00 00		CIVII WORK									
HAULING TO RECYCLE FACILITY		21.00.00	21.18.00										
HAULING CIVIL WORK 312 BOILER PLANT EQUIPMENT 10.00.00 WHOLE PLANT EQUIPMENT 10.00.00 WHOLE PLANT DEMOLITION CONCRETE EXCITATION SKID STEAM TURBING LUBE OIL MODULE S049 STEAM TURBING GENERATOR S049 STEAM TURBING GENERATOR EQUIPMENT FONS SEAL OIL SUPPLY SKID S049 STEAM TURBING GENERATOR S040 CY S040 CY S050 STEAM TURBING GENERATOR				HAULING TO RECYCLE FACILITY		1,636.00 CY	41,663	-					41,663
312 BOILER PLANT EQUIPMENT 10.00.00 10.22.00 TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION CONCRETE EQUIPMENT FDNS EQUIPMENT FDNS STEAM TURBINE LUBE OIL MODULE S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS SEAL OIL SUPPLY SKID GLAND STEAM SUPPLY SKID GLAND STEAM SUPPLY SKID GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR S-039 STEAM TURBINE/GENER				HAULING	DISPOSAL FEE		41,663					-	41,663
TURBO GENERATOR UNITS WHOLE PLANT DEMOLITION 10.22.00 10.22.00 CONCRETE EXCITATION SKID EXCITATION SKID EXCITATION TRANSFORMER EXCITATION TRANSFORMER S.439 STEAM TURBINE/GENERATOR EXCITATION TRANSFORMER S.439 STEAM TURBINE/GENERATOR EXCITATION TRANSFORMER EXCITATION TRANSFORMER EXCITATION TRANSFORMER EXCITATION TRANSFORMER EXCITATION TRANSFORMER EXCITATION TRANSFORMER S.439 STEAM TURBINE/GENERATOR EXCITATION TRANSFORMER EXCITATION TRA							41,663						41,663
10.00.00 10.22.00 CONCRETE EXCITATION SKID S-0.39 STEAM TURBINE/GENERATOR 6.00 CY - - - 7 1,069 240 1; 1,069 240 2				312 BOILER PLANT EQUIPMENT			41,663	(792,050)		17,132	2,365,834	627,946	2,243,392
10.00.00 10.22.00 CONCRETE EXCITATION SKID S-0.39 STEAM TURBINE/GENERATOR 6.00 CY - - - 7 1,069 240 1; 1,069 240 2	314			TURBO GENERATOR UNITS									
EXCITATION SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS EXCITATION TRANSFORMER S-039 STEAM TURBINE/GENERATOR S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS SEAL OIL SUPPLY SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS SEAL OIL SUPPLY SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS GLAND STEAM CONDENSER SKID GLAND STEAM TURBINE/GENERATOR GLAND STEAM TURBINE/GENERATOR EQUIPMENT FONS GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR S-039 STEAM TURBINE/GENERATO		10.00.00											
EQUIPMENT FDNS S-039 STEAM TURBINE/GENERATOR 4.00 CY - - - 5 713 160 1			10.22.00										
EXCITATION TRANSFORMER S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS STEAM TURBINE LUBE OIL MODULE S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS SEAL OIL SUPPLY SKID SOURMENT FONS GLAND STEAM CONDENSER SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FONS GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR S-039 STEAM TURBINE/G				EXCITATION SKID		6.00 CY	-	-		7	1,069	240	1,309
STEAM TURBINE LUBE OIL MODULE S-039 STEAM TURBINE/GENERATOR 24.00 CY - - - 27 4.277 960 5.50				EXCITATION TRANSFORMER		4.00 CY	-	-		5	713	160	873
EQUIPMENT FORS S-039 STEAM TURBINE/GENERATOR 8.00 CY - - 9 1,426 320 1,				STEAM TURBINE LUBE OIL MODULE		24.00 CY	_	-		27	4.277	960	5,237
EQUIPMENT FDNS GLAND STEAM CONDENSER SKID S-039 STEAM TURBINE/GENERATOR EQUIPMENT FDNS GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR 9.00 CY 10 1,604 360 1,069 1,604 360 1,064 360 1,069 360 REV.J AIR COOLED CONDENSER FDN S-60 REV.J AIR COOLED CONDENSER AREA MISC FDN S-61 RBJDG&E/Depreciation/Exh No: SDG&E/S6-WP-S/Witness: D. A. Watson 68 10,692 2,400 13,1					EQUIPMENT FDNS								1,746
EQUIPMENT FDNS GLAND STEAM SUPPLY SKID S-039 STEAM TURBINE/GENERATOR 9.00 CY 10 1,604 360 1,604 EQUIPMENT FDNS AIR COOLED CONDENSER FDN S-60 REV J AIR COOLED CONDENSER AREA MISC FDN S-61 RSDG&E/Depreciation/Exh No: SDG&E/36-WP-S/Witness: D. A. Watson 68 10,692 2,400 13,100 13,000					EQUIPMENT FDNS		-	-					
EQUIPMENT FORS AIR COOLED CONDENSER FDN S-60 REV. J S				GLAND STEAM CONDENSER SKID		3.00 CY	-	-		3	535	120	655
AIR COOLED CONDENSER FDN S-60 REV.J S-60 REV.J S-60 REV.J S-60 REV.J S-61 RSDDG&E/Depreciation/Exh No: SDG&E-36-WP-S/Witness: D. A. Watson 68 10,692 2,400 13,10 13,10 13,10 13,10 13,10 14,10 15,10 1				GLAND STEAM SUPPLY SKID		9.00 CY	-	-		10	1,604	360	1,964
air cooled condenser area misc fdn s-61 r 55∂∂G&E/Depreciation/Exh No: S᠒Ġ&E-36-WP-S/Witness: D. A. Watson 68 10,692 2,400 13,1 Page 200⁵of 322						440.00 CY		_		495	78,411	17,602	96,014
Page 290 of 322				AIR COOLED CONDENSER AREA MISC FDN	s-61 RSWG&E/Depreciation/Ex	KN NO:SDG&E⊬3	86-WP-S/Witi	ness: D. A. V	vatson	68	10,692	2,400	13,093
						Page 2005of	322						



	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.22.00	CONCRETE			Cost						
		FLASH TANK AND TRANSFER PUMP FDN	S-062	23.00 CY	-	-		26	4,099	920	5,01
		CCW HEAT EXCHANGER, PUMP AND HEAD TANK FDNS	S-068	62.00 CY		-		70	11,049	2,480	13,52
		STEAM TURBINE GEN COLUMNS	S-036, S-037	673.00 CY	-	-		1,211 _	191,894	43,078	234,97
		CONCRETE						1,930	305,769	68,641	374,41
	10.23.00	STEEL MISCELLANEOUS STEEL	CCW PIPE RACK, PIPE SUPPORTS , MISC	100.00 TN	-			102	15,189	2,770	17,95
			BRACING ETC.					_			
		STEEL						102	15,189	2,770	17,95
	10.31.00	MECHANICAL EQUIPMENT									
		STEAM TURBINE GENERATOR	SIEMENS/WESTINGHOUSE B33/65CC, 175 MW CONDENSING REHEAT TURBINE W	465.00 TN	-	-		1,628	221,179	59,927	281,10
			STANDARD ACCESSORIES								
		CCW HEAT EXCHANGER	10 CELLS @ 30,000 LB EA	150.00 TN	-	-		304	41,280	11,185	52,4
		AIR COOLED CONDENSER & ACCESSORIES	250K BUNDLES @ 12 TN EA, 50D BUNDLES	3,500.00 TN	-	-		7,088	963,197	260,974	1,224,17
		CLOSED COOLING WATER PUMPS	@ 10 TN EA & 30-200 HP FANS 2 @ 7000 GPM @ 213 TDH, 550 HP	4.00 TN				16	2,174	589	2,76
		CONDENSATE PUMPS	U-0, 3 @ 1400 GPM & 625 TDH, 300 HP	4.00 TN				20	2,718	736	3,45
		MECHANICAL EQUIPMENT						9,055	1,230,548	333,411	1,563,95
	10.35.00	PIPING									
		PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT, 67 % Steam Plant	182.00 TN	-	-		369	50,086	13,571	63,65
		PIPING, VALVES AND HANGERS	U2, 14,300 LF/UNIT, 67% Steam Plant	196.00 TN	-	-		397	53,939	14,615	68,55
		PIPING WHOLE PLANT DEMOLITION						765 11,852	104,025 1,655,531	28,185 433,007	132,21 2,088,53
								11,032	1,000,001	433,007	2,000,30
18.00.00		SCRAP VALUE									
	18.10.00	MIXED STEEL									
		CARBON STEEL MIXED STEEL		-4,601.00 TN		(805,175) (805,175)				-	(805,17 (805,17
		SCRAP VALUE				(805,175)					(805,175
						(****,					(3.3.7
21.00.00		CIVIL WORK									
	21.18.00										
	21.10.00	HAULING	CONCRETE DEPRIS IS DECYCLED NO	1 212 00 CV	22.442						22.44
	21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	1,312.00 CY	33,412	-					33,41
	21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	1,312.00 CY		-				-	
	21.10.00			1,312.00 CY	33,412 33,412 33,412	-				-	33,41
	21110.00	HAULING TO RECYCLE FACILITY HAULING		1,312.00 CY	33,412	(805,175)		11,852	1,655,531	433,007	33,41 33,41
315	21.10.00	HAULING TO RECYCLE FACILITY HAULING CIVIL WORK		1,312.00 CY	33,412 33,412	(805,175)		11,852	1,655,531	433,007	33,41 33,41
315		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS		1,312.00 CY	33,412 33,412	(805,175)		11,852	1,655,531	433,007	33,41 33,41
		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE			33,412 33,412	(805,175)					33,41 33,41 1,316,77
		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS		148.00 CY	33,412 33,412	(805,175)		167	26,375	5,921	33,41 33,41 1,316,77
		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND	DISPOSAL FEE		33,412 33,412	(805,175)					33,41 33,41 1,316,77
315 10.00.00		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS	DISPOSAL FEE	148.00 CY	33,412 33,412	(805,175)		167	26,375	5,921	33,41 33,41 1,316,77
	10.22.00	HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE	DISPOSAL FEE	148.00 CY	33,412 33,412	(805,175)		167 25	26,375 3,921	5,921 880	33,41 33,41 1,316,77
		HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT	S-045 MAIN & AUX TRANSFORMERS (1)	148.00 CY 22.00 CY	33,412 33,412	(805,175)		167 25 191	26,375 3,921 30,295	5,921 880 6,801	33,41 33,41 1,316,77 32,21 4,81
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant	148.00 CY	33,412 33,412	(805,175)		167 25 191	26,375 3,921	5,921 880 6,801 25,679	33,4' 33,4' 1,316,77 32,2 4,8 37,06
	10.22.00	HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT	S-045 MAIN & AUX TRANSFORMERS (1)	148.00 CY 22.00 CY 261.00 TN	33,412 33,412	(805,175)		167 25 191	26,375 3,921 30,295 94,776	5,921 880 6,801	33,41 33,41 1,316,77 32,24 4,80 37,09
	10.22.00	HAULING TO RECYCLE FACILITY HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant	148.00 CY 22.00 CY 261.00 TN 122.00 TN	33,412 33,412	(805,175)		167 25 191 697 326	26,375 3,921 30,295 94,776 44,302	5,921 880 6,801 25,679 12,003	33,41 33,47 1,316,77 32,21 4,81 37,08 120,4 56,31 8,6
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873	5,921 880 6,801 25,679 12,003 1,841 39,524	33,41 33,41 1,316,77 32,21 4,81 37,05 120,44 56,34 8,6: 185,35
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT CONDUIT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873	5,921 880 6,801 25,679 12,003 1,841 39,524	33,41 33,41 1,316,77 32,21 4,81 37,09 120,41 56,31 8,63 185,39
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT CONDUIT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 40,974	5,921 880 6,801 25,679 12,003 1,841 39,524	33,41 33,41 1,316,77 32,25 4,80 37,09 120,44 56,30 8,60 185,39
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT CONDUIT CONDUIT CONDUIT CONDUIT CABLE TRAY	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2 Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT 30,150.00 LF 30,150.00 LF	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26.375 3.921 30,295 94.776 44.302 6.795 145,873 40,974 40,974 9,105	5,921 880 6,801 25,679 12,003 1,841 39,524 11,102 11,102 2,467	33,41 33,41 1,316,77 32,2; 4,8; 37,08 120,4; 56,3; 8,6; 185,38 52,0; 52,0; 11,5;
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT CONDUIT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 40,974	5,921 880 6,801 25,679 12,003 1,841 39,524	33,41 33,41 1,316,77 32,25 4,86 37,09 120,44 56,34 8,66 185,39
	10.22.00 10.41.00 10.42.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT CONDUIT CONDUIT CABLE TRAY CABLE TRAY RACEWAY, CABLE TRAY, & CONDUIT	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2 Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT 30,150.00 LF 30,150.00 LF	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 9,105 9,106	5,921 880 6,801 25,679 12,003 1,841 39,524 11,102 11,102 2,467 2,467	33,4' 33,4' 1,316,77 1,316,77 32,2 4,8 37,0! 120,4 56,3 8,6 185,3!
	10.22.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT CONDUIT CONDUIT CONDUIT CONDUIT CONDUIT CABLE TRAY	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2 Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT 30,150.00 LF 30,150.00 LF	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 9,105 9,106	5,921 880 6,801 25,679 12,003 1,841 39,524 11,102 11,102 2,467 2,467	33,41 33,41 1,316,77 32,25 4,86 37,09 120,44 56,36,36 8,63 185,39 52,00 52,00 11,50 11,50 1127,29
	10.22.00 10.41.00 10.42.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT RACEWAY, CABLE TRAY, & CONDUIT CONDUIT CONDUIT CONDUIT CABLE TRAY RACEWAY, CABLE TRAY, & CONDUIT CONDUIT CONDUIT CABLE TRAY CABLE TRAY RACEWAY, CABLE TRAY, & CONDUIT CABLE COPPER WIRE / CABLE - MEDIUM VOLTAGE COPPER WIRE / CABLE - MEDIUM VOLTAGE	U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-2 Steam Plant 67% U-2 Steam Plant 67% U-1 Steam Plant 67% U-1 Steam Plant 67% U-1 Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT 30,150.00 LF 1,675.00 LF 1,675.00 LF	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073 302 302 67 67 737	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 9,105 9,105 100,159	5,921 880 6,801 25,679 12,003 1,841 39,524 11,102 11,102 2,467 2,467 27,138	33,41 33,41 1,316,77 1,316,77 32,25 4,86 37,09 120,45 56,30 8,65 185,39 52,07 52,07 11,57 127,29 33,56 33,56 33,56
	10.22.00 10.41.00 10.42.00	HAULING CIVIL WORK 314 TURBO GENERATOR UNITS ACCESSORY ELECTRIC EQUIPMENT WHOLE PLANT DEMOLITION CONCRETE MAIN & AUX TRANSFORMER FDNS SPARE TRANSFORMER (ALSTOM) PAD AND CONTAINMENT) CONCRETE ELECTRICAL EQUIPMENT TRANSFORMERS MISC ELECT EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT ELECTRICAL EQUIPMENT CONDUIT CONDUIT CONDUIT CABLE TRAY CABLE TRAY CABLE TRAY CABLE TRAY CABLE TRAY CABLE TRAY CABLE COPPER WIRE / CABLE - MEDIUM VOLTAGE	S-045 MAIN & AUX TRANSFORMERS (1) U-1, U-2, 67% Steam Plant U-1, U-2, 67% Steam Plant U-0, CONTROL RM, 50% Steam Plant U-0, CONTROL RM, 50% Steam Plant Steam Plant 67% U-1 Steam Plant 67% U-1 Steam Plant 67% U-2 Steam Plant 67% U-1	148.00 CY 22.00 CY 261.00 TN 122.00 TN 1.00 LT 30,150.00 LF 1,675.00 LF 1,675.00 LF	33,412 33,412	(805,175)		167 25 191 697 326 50 1,073 302 67 67 737	26,375 3,921 30,295 94,776 44,302 6,795 145,873 40,974 9,105 9,105 100,159	5,921 880 6,801 25,679 12,003 1,841 39,524 11,102 11,102 2,467 2,467 27,138	33,41 33,41 1,316,77! 1,316,77! 32,29 4,80 37,09! 120,45 56,30 8,63 185,39! 52,07 11,57 11,57 127,29 33,56 33,56 57,88 57,88

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Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		10.44.00	CONTROL & INSTRUMENTATION									
			CONTROL & INSTRUMENTATION		1.00 LT	-	-		100	13,590	3,682	17,272
			CONTROL & INSTRUMENTATION WHOLE PLANT DEMOLITION						3,160	13,590 433,782	3,682 116,124	17,272 549,905
			WHOLE PLANT DEMOLITION						3,160	433,762	110,124	549,905
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL	00NDUIT 4 50 DIA AVO 0175 0 00 1 DOU 5	70.00 TN		(40.005)					(40.005)
			CARBON STEEL CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63 LBS/LF CABLE TRAY, 6 LBS/LF	-79.00 TN -10.00 TN	-	(13,825) (1,750)	-				(13,825) (1,750)
			CARBON STEEL	MISC ELECT EQUIPMENT	-122.00 TN	-	(21,350)	-				(21,350)
			STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA		-261.00 TN	-	(91,350)	-			-	(91,350)
			MIXED STEEL				(128,275)					(128,275)
		18.30.00	COPPER									
			#2 SOLID COPPER / TUBING	BUS BAR	-0.67 TN	-	(4,117)	-				(4,117)
			#2 INSULATED COPPER WIRE COPPER		-4.00 TN	-	(9,760)	-			-	(9,760) (13,877)
			SCRAP VALUE				(142,152)					(142,152)
												, , ,
	21.00.00	04 40 00	CIVIL WORK									
		21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	170.00 CY	4,329	_					4,329
				DISPOSAL FEE							_	
			HAULING			4,329						4,329
			215 ACCESSORY ELECTRIC EQUIPMENT			4,329 4,329	(142,152)		3,160	433,782	116,124	4,329 412,082
			313 ACCESSORT ELECTRIC EQUIPMENT			4,323	(142,132)		3,100	455,762	110,124	412,002
316			MISCELLANEOUS POWER PLANT									
			EQUIPMENT									
	10.00.00		WHOLE PLANT DEMOLITION									
		10.22.00	CONCRETE									
			AIR COMPRESSOR AIR DRYER	S-034 HRSG FOUNDATION AREA S-034 HRSG FOUNDATION AREA	3.00 CY 1.00 CY	-	-		3	535 178	120 40	655 218
			AIR RECEIVER	S-034 HRSG FOUNDATION AREA	35.00 CY	-			39	6,237	1,400	7,637
			MISC FDNS		80.00 CY	-	-		90	14,257	3,200	17,457
			CONCRETE						134	21,207	4,761	25,967
		10.31.00	MECHANICAL EQUIPMENT									
			AIR COMPRESSOR, CENTRIFUGAL	2 @ 1335 SCFM STATION	9.00 TN	-	-		18	2,477	671	3,148
			MISCELLANEOUS PUMPS	14 SMALL PUMPS E.G. TRANSFER, DEMIN WTR RAW WATER, VACUUM, BLOWDOWN	2.50 TN	-	-		13	1,699	460	2,159
				SUMPS AND SUMP PUMPS								
			MECHANICAL EQUIPMENT						31	4,176	1,131	5,307
		10.35.00	PIPING									
		10.35.00	FIRE LINES & HYDRANTS	U-0, ABANDON UNDERGND LINES REMOVE	1.00 LT	-			40	5,436	1,473	6,909
				HYDRANTS, 50% Steam Plant								
			PIPING WHOLE PLANT DEMOLITION						205	5,436 30,818	1,473 7,365	6,909 38,183
			WHOLE PLANT DEMOLITION						205	30,616	7,305	30,103
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL									
			CARBON STEEL MIXED STEEL		-11.50 TN	-	(2,012)	-			-	(2,012) (2,012)
			SCRAP VALUE				(2,012)					(2,012)
	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	119.00 CY	3,030						3,030
				DISPOSAL FEE							-	
			HAULING CIVIL WORK			3,030 3,030						3,030 3,030
			316 MISCELLANEOUS POWER PLANT			3,030	(2,012)		205	30,818	7,365	39,201
			3.3 SELLANDOON ONLIN LAN			5,550	(=,512)		200	55,010	,,505	55,201



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	10.00.00		WHOLE PLANT DEMOLITION									
		10.21.00	CIVIL WORK							.=		
			PAVED SURFACES, 6 IN THICK CIVIL WORK	OTHER PRODUCTION	9,029.00 SY	-	-		1,083 1,083	170,611 170,611	80,912 80,912	251,524 251,524
			CIVIL WORK						1,003	170,011	00,912	251,524
		10.22.00	CONCRETE									
			CONTROL/ADMINISTRATION BLDG	S-043, Other Plant @ 50%	352.00 CY	-	-		396	62,729 4.990	14,082	76,811
			BULK STORAGE BUILDING WAREHOUSE #2	S-074 , 50% Other Plant 30'X40'X24' HIGH STEEL BLDG, 50% Other	28.00 CY 28.00 CY	-	-		32 32	4,990 4.990	1,120 1,120	6,110 6,110
			W. W. E. 1000 E. W. E.	Plant	20.00					1,000	1,120	0,110
			VISITOR CENTER	24'X64'X10' STEEL BLDG	72.00 CY	-	-		81	12,831	2,880	15,711
			PHOTOVOLTAIC ARRAY SUPPORTS	72 CAISSONS	25.00 CY	-	-		28	4,455	1,000	5,455
			NEW EQUIPMENT BUILDING NEW WAREHOUSE #3	Other Plant @ 50%	94.00 CY 104.00 CY	-	-		106 117	16,752 18,534	3,761 4,161	20,512 22,694
			CONCRETE	Other Plant @ 50%	104.00 CY	-	-		791	125,280	28,124	153,404
			CONCRETE						751	120,200	20,124	100,404
		10.23.00	STEEL									
			S-056 + NEW PLATFORMS FOR GENERATOR AND HRSG	PV-1 & 2	10.00 TN	-	-		10	1,519	277	1,796
			DOORS STEEL						10	1 510	277	1,796
			STEEL						10	1,519	211	1,790
		10.24.00	ARCHITECTURAL									
			CONTROL/ADMINISTRATION BLDG	188'X79'X12' HIGH STEEL BLDG, 50% Otther Plant	89,112.00 CF	-	-		267	38,462	11,988	50,450
			BULK STORAGE BUILDING	56'X13'X12 HIGH STEEL BLDG, 50% Other	4,368.00 CF	-	-		13	1,885	588	2,473
			WARFILOUISE #0	Plant	10.000.00.05				50	0.007	0.500	40.070
			WAREHOUSE #2	30'X40'X24' HIGH STEEL BLDG, 50% Other Plant	19,200.00 CF	-	-		58	8,287	2,583	10,870
			VISITOR CENTER (AT PHOTOVOLTAIC FIELD)	24'X64'X10' STEEL BLDG	15,360.00 CF	-	-		46	6,630	2,066	8,696
			NEW EQUIPMENT BUILDING	45'X90'X26' HIGH STEEL BLDG, 50% Other	52,650.00 CF	-	-		158	22,724	7,083	29,807
			NEW WAREHOUSE #3	Plant 45'X100'X21' HIGH STEEL BLDG, 50% Other	47,250.00 CF		-		142	20,394	6,356	26,750
			ARCHITECTURAL	Plant					684	98,381	30,664	129,045
			AKOIIILOTOKAL						004	30,301	30,004	123,043
		10.31.00	MECHANICAL EQUIPMENT									
			FIRE PUMPS	U-0, 2 @ 1500 GPM @ 125 PSI, 300 HP, Other	0.80 TN	-	-		4	544	147	691
			MECHANICAL FOLUDMENT	Plant						544	147	691
			MECHANICAL EQUIPMENT						4	544	147	691
		10.35.00	PIPING									
			FIRE LINES & HYDRANTS	U-0, ABANDON UNDERGND LINES REMOVE	1.00 LT	-	-		40	5,436	1,473	6,909
			PIPING	HYDRANTS, 50% Other Plant					40	5,436	1,473	6,909
			WHOLE PLANT DEMOLITION						2,612	401,771	1,473	543,369
									2,0.2	101,111	111,000	010,000
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL									
			CARBON STEEL CARBON STEEL	BUILDINGS	-10.80 TN -80.00 TN	-	(1,890)					(1,890)
			MIXED STEEL	BUILDINGS	-80.00 IN	-	(15,890)				-	(14,000) (15,890)
			SCRAP VALUE				(15,890)					(15,890)
												, , ,
	21.00.00		CIVIL WORK									
		21.17.00	EXCAVATION SUIL DOZED	LEVEL BOND DEDMO	400 400 00 00				5.705	207 205	005.450	1 010 001
			EXCAVATION, BULLDOZER EXCAVATION	LEVEL POND BERMS	190,163.00 CY	-	-		5,705 5,705	927,905 927,905	885,459 885,459	1,813,364 1,813,364
			EXOAVATION						0,700	327,300	000,400	1,010,004
		21.18.00	HAULING									
			HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	703.00 CY	17,903	-					17,903
			HAULING TO RECYCLE FACILITY	DISPOSAL FEE CONCRETE PAVING DEBRIS IS RECYCLED.	1,505.00 CY	38,327						38,327
			HAULING TO RECTCLE FACILITY	NO DISPOSAL FEE	1,505.00 C1	30,327	-					30,327
			HAULING			56,230	-				=	56,230
		04.07.55	MAGG FILL									
		21.21.00	MASS FILL MASS FILL, COMMON EARTH 6 INCHES THICK, C/T	OFFSITE SUPPLY - 10 MILE ROUND TRIP	607.00 CY			13,331	21	3,456	3,297	20,084
			SPECIFIC OTHER PLANT	AND SPREADING	007.00 C1	-	-	15,551	21	3,430	5,297	20,004
			MASS FILL, COMMON EARTH 6 INCHES THICK,	OFFSITE SUPPLY - 10 MILE ROUND TRIP	1,146.00 CY	-	-	25,169	40	6,524	6,226	37,918
			PHOTOVOLTAIC PLANT	AND SPREADING								



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			MASS FILL					38,500	61	9,979		58,002
			CIVIL WORK			56,230		38,500	5,766	937,885	894,982	1,927,596
			341 OTHER PRODUCTION - STRUCTURES & IMPROVEMENTS			56,230	(15,890)	38,500	8,379	1,339,656	1,036,579	2,455,075
342			OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES									
	10.00.00	10.22.00	WHOLE PLANT DEMOLITION CONCRETE									
		10.22.00	FIRE WATER STORAGE TANK FDN CONCRETE	S-070, Other Plant	25.00 CY	-	-		28 28	4,455 4,455		5,455 5,455
		10.23.00	STEEL						20	4,400	1,000	0,400
		10.20.00	PIPE RACK	50% other plant S-052,-53,-54 & -55	85.00 TN	_			86	12,911	2,355	15,265
			STEEL						86	12,911		15,265
		10.31.00	MECHANICAL EQUIPMENT RAW/FIRE WATER STORAGE TANK	250,000 GALLON, 38' DIA X 30' HIGH , 50%	15.00 TN				41	5,504	1,491	6,995
			FUEL GAS PREHEAT	Other Plant 2 SHELL & TUBE HT EX	1.00 TN				5	680		864
			FIRE PUMPS	U-0, 2 @ 1500 GPM @ 125 PSI, 300 HP,	0.80 TN	-	-		4	544		691
			MECHANICAL EQUIPMENT	Steam Plant					50	6,727	1,823	8,550
			WHOLE PLANT DEMOLITION						164	24,093	5,177	29,270
	18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
		10.10.00	CARBON STEEL		-101.80 TN		(17,815)					(17,815)
			MIXED STEEL				(17,815)	•			-	(17,815)
			SCRAP VALUE				(17,815)					(17,815)
	21.00.00	04.40.00	CIVIL WORK									
		21.18.00	HAULING HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO DISPOSAL FEE	25.00 CY	637	-					637
			HAULING	5101 007 E 1 EE		637						637
			CIVIL WORK			637	(4= 04=)			0.1.000		637
			342 OTHER PRODUCTION - FUEL HOLDERS, PRODUCERS AND ACCESSORIES			637	(17,815)		164	24,093	5,177	12,092
344	10.00.00	40.00.00	OTHER PRODUCTION - GENERATORS WHOLE PLANT DEMOLITION CONCRETE									
		10.22.00	TURBINE PEDESTAL	U-1, S-021 REV F	720.00 CY		-		1,296	205,295		251,382
			TURBINE PEDESTAL CONCRETE	U-2, S-025 REV F	720.00 CY		-		1,296 2,592	205,295 410,591		251,382 502,763
		10.23.00	STEEL									
			GALLERIES	S-056 + NEW PLATFORMS FOR GENERATOR AND HRSG DOORS	40.00 TN	-	-		41	6,076		7,184
			STEEL						41	6,076	1,108	7,184
		10.26.00	MISCELLANEOUS STRUCTURAL ITEM MISCELLANEOUS SMALL OBSTACLE REMOVAL FROM		1.00 LT		-		500	67,950	18,411	86,361
			SITE MISCELLANEOUS STRUCTURAL ITEM						500	67,950	18,411	86,361
		10.31.00	MECHANICAL EQUIPMENT									
			COMBUSTION TURBINE	U-1, SIEMENS STG6-5000F (501FC+)C/T - NOMINAL 170 MW, FIRING NATURAL GAS	213.00 TN	-	-		746	101,314	27,451	128,765
			COMBUSTION TURBINE	ONLY, W DRY LOW NOX BURNERS U-2, SIEMENS STG6-5000F (501FC+)C/T - NOMINAL 170 MW, FIRING NATURAL GAS ONLY, W DRY LOW NOX BURNERS	213.00 TN	-	-		746	101,314	27,451	128,765
			CT LUBE OIL SYSTEM INCL FIN FAN COOLER	U-1	3.00 TN	-	-		12	1,631		2,073
			CT LUBE OIL SYSTEM INCL FIN FAN COOLER MECHANICAL EQUIPMENT	U-2	3.00 TN	-			12 1,515	1,631 205,890		2,073 261,675
				SDC&E/Depreciation/Ex	N CDC 0 E C	C / \ / D C / \ / : t	D A 1A		.,010	200,000	55,766	201,07



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
		10.35.00	PIPING									
			PIPING, VALVES AND HANGERS PIPING, VALVES AND HANGERS	U1, 14,000 LF/UNIT, 33 % Other Plant U2, 14,300 LF/UNIT, 33% Other Plant	90.00 TN 97.00 TN	-			182 196	24,768		31,479 33,927
			PIPING VALVES AND HANGERS PIPING	02, 14,300 EF/ONIT, 33% Other Plant	97.00 TN	-	-		379	26,694 51,462		65,406
			WHOLE PLANT DEMOLITION						5,026	741,969		923,388
	18.00.00		SCRAP VALUE									
		18.10.00	MIXED STEEL									
			CARBON STEEL MIXED STEEL		-659.00 TN	-	(115,325) (115,325)	-			-	(115,325) (115,325)
			SCRAP VALUE				(115,325)					(115,325)
	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.10.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	1,440.00 CY	36,672						36,672
				DISPOSAL FEE							-	
			HAULING CIVIL WORK			36,672						36,672
			344 OTHER PRODUCTION - GENERATORS			36,672 36,672	(115,325)		5,026	741,969	181,419	36,672 844,735
			344 OTHER PRODUCTION - GENERATORS			30,672	(115,325)		5,026	741,303	101,419	044,735
345			OTHER PRODUCTION - ACCESSORY ELECTRIC EQUIPMENT									
	10.00.00	10.22.00	WHOLE PLANT DEMOLITION CONCRETE									
		10.22.00	MAIN & AUX TRANSFORMER FDNS	S-047 MAIN & AUX TRANSFORMERS (2)	160.00 CY	-			180	28,513	6,401	34,914
			SPARE TRANSFORMER (ALSTOM) PAD AND		57.00 CY	-	-		64	10,158		12,438
			CONTAINMENT) CONCRETE						244	38,671	8,681	47,352
		10.41.00	ELECTRICAL EQUIPMENT									
		10.41.00	TRANSFORMERS	U-1, U-2, 33% Other Plant	129.00 TN	_			345	46,843	12,692	59,535
			MISC ELECT EQUIPMENT	U-1, U-2, 33% Other Plant	60.00 TN	-	-		160	21,788		27,691
			ELECTRICAL EQUIPMENT	U-0, CONTROL RM, 50% Other Plant	1.00 LT	-	-		50	6,795		8,636
			ELECTRICAL EQUIPMENT						555	75,426	20,436	95,862
		10.42.00	RACEWAY, CABLE TRAY, & CONDUIT CONDUIT	Other Plant 33% U-1	14,850.00 LF				149	20,181	5,468	25,649
			CONDUIT	Other Plant 33% U-2	14,850.00 LF	-	-		149	20,181		25,649
			CABLE TRAY	Other Plant 33% U-1	825.00 LF	-	-		33	4,485	1,215	5,700
			CABLE TRAY	Other Plant 33% U-2	825.00 LF	-	-		33	4,485		5,700
			RACEWAY, CABLE TRAY, & CONDUIT						363	49,332	13,366	62,698
		10.43.00	CABLE COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 229/ LL4	0.570.00 1.5				06	12.006	2.524	16,530
			COPPER WIRE / CABLE - MEDIUM VOLTAGE COPPER WIRE / CABLE - MEDIUM VOLTAGE	Other Plant 33% U-1 Other Plant 33% U-2	9,570.00 LF 9,570.00 LF	-	-		96 96	13,006 13,006		16,530
			COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-1	33,000.00 LF	-	-		165	22,424		28,499
			COPPER WIRE / CABLE - LOW VOLTAGE	Other Plant 33% U-2	33,000.00 LF	-	-		165	22,424		28,499
			WHOLE PLANT DEMOLITION						521 1,684	70,859 234,288		90,058 295,970
	40.00.00		000401441115									
	18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
		10.10.00	CARBON STEEL	CONDUIT, 1.5" DIA. AVG SIZE, 2.63 LBS/LF	-39.00 TN	-	(6,825)	-				(6,825)
			CARBON STEEL	CABLE TRAY, 6 LBS/LF	-4.95 TN	-	(866)	-				(866)
			CARBON STEEL STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA	MISC ELECT EQUIPMENT	-60.00 TN -129.00 TN	-	(10,500) (45,150)	-				(10,500) (45,150)
			MIXED STEEL		-125.00 TN	-	(63,341)				=	(63,341)
		18.30.00	COPPER									
			#2 SOLID COPPER / TUBING	BUS BAR	-0.33 TN	-	(2,028)	-				(2,028)
			#2 INSULATED COPPER WIRE		-2.00 TN	-	(4,880)				-	(4,880)
			COPPER SCRAP VALUE				(6,908) (70,249)					(6,908) (70,249)
							(10,249)					(10,249)
	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.18.00	HAULING TO RECYCLE FACILITY	CONCRETE DEBRIS IS RECYCLED. NO	217.00 CY	5,526	_					5,526
				DISPOSAL FEE	217.00 01	3,320	•					5,520

Estimate No.: 31088D Project No.: A14520.001 Estimate Date: 3/12/2022 Prep/Rev/Appr: GA/BA/BA



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			HAULING			5,526					·	5,526
			CIVIL WORK			5,526						5,526
			345 OTHER PRODUCTION - ACCESSORY			5,526	(70,249)		1,684	234,288	61,683	231,248
			ELECTRIC EQUIPMENT				, , ,					

APPENDIX C. EXPLANATION OF VARIANACE FROM THE PREVIOUS COST STUDY

Cost Category, Desert Star	2021 Cost E	stimate	2016 Cost E	ctimata	Delta	% of total	Discussion
Cost Category, Desert Star	2021 0030 1	Stillate	2010 0030 1	Stillate	Deita	cost	Discussion
Labor							
Labor - Direct		\$4,069,698					
Labor Supervision	\$244,182						The 2016 estimate included all demolition contractor costs in labor. The 2021 cost estimate broke out demolition contractor costs
Show-up time	\$81,394						(subcontracts, construction equipment, general conditions - labor).
Construction Management	\$439,527						
Field Office Expenses	\$96,696						Average hourly labor cost increased by 19%. The average labor cost for the 2021 cost estimate is \$69.99/hr. as compared to the
Safety	\$86,829						2016 cost estimate of \$58.66.
Temporary Facilities	\$66,061						
Mob/Demob	\$69,621						The 2021 estimate includes the cost of leveling the pond berms. Per SDGE direction, this was not included in the 2016 estimate.
Small tools & consumables	\$43,953						
General Liability Insurance	\$43,953						
Constr Equip Mob/Demob	\$192,801						
Legal Expenses/Claims	\$10,285						
General Conditions (Indirect) - Labor		\$1,375,302					
Subcontract		\$253,380					
Construction Equipment		\$1,928,009					
Labor Subtotal		\$7,626,389		\$6,486,187	17.6%	10.2%	
Material							
Material w/o freight	\$1,245,825						The 2021 cost estimate for material is -6.1% less than 2016.
General Conditions -Freight on Material	\$62,291						
Material Subtotal		\$1,308,116		\$1,393,132	-6.1%	-0.8%	
Scrap							The 2021 cost estimate for scrap is -19.5% less than 2016. The main reasons are: (a) cost for scrap mixed steel increased by 114%. Cost for mixed steel in 2021 based on a 12-month average is \$175 per ton as
Mixed Steel	-\$1,957,384		-\$950,092				compared to 2016 based on a 3-month average of \$87 per ton
Copper	-\$20,785		-\$1,507,072				(b) cost for copper decreased by -98.6%. Cost for copper in 2021 was broken out into #2 copper (solid) and #2 (insulated wire) as
	-320,783	4	-31,307,072	40			compared to 2016 which was based on #1 copper (solid bright)
Subtotal Scrap Value		-\$1,978,169		-\$2,457,164		4.3%	
Subtotal - Direct & Indirect Demolition		\$6,956,336		\$5,422,155	28.3%	13.7%	
Contractor G&A and Profit							
Contractor G&A	\$591,106		\$324,309		82.3%		Contractor G&A is 82.3 percent higher. 2021 estimate is 7% of labor, equipment, and materials. 2016 estimate was 5% of labor and
							materials.
Contractor Profit	\$844,438		\$630,346		34.0%		Contractor G&A is 34 percent higher. 2021 estimate is 10% of labor, equipment, and materials. 2016 estimate was 8% of labor and materials.
Subcontractor Contractor G&A and Profit		\$1,435,544		\$954,655	50.4%	4.3%	Increase in Contractor G&A and profit based on S&L database of actual demolition cost since 2016
		Ψ1, 100,0 · ·		435 1,000	301170		and the second s
Indirect	¢240.000		¢200.000.1				
Engineering Construction Management	\$210,000 \$0		\$200,000 ` \$127,536				Higher cost due to SDGE internal costs in support of demolition as compared to 2016 where no SDGE internal costs were included
Other SDGE Internal Costs	\$902.000		\$127,536 \$0				righer cost due to 3DGE internal costs in support of demonstron as compared to 2016 where no 3DGE internal costs were included
Subtotal Indirect Costs	\$902,000	\$1,112,000	\$0	\$327,536	2/10%	7.0%	
		. , ,					Contingency is less (-25.9%). Contingency in 2021 is 15% and not applied to scrap. Contingency in 2016 was 20% and applied to
Contingency		\$1,722,307		\$2,323,735		-5.4%	scrap.
Total		\$11,226,187		\$9,028,081	24.3%		
SCRAP	\$/ton	tons	\$/ton	tons			
Carbon Steel	\$175	10,845	\$87	10,738	1		Carbon steel scrap quantity is essentially the same
Steel/Copper mix (large transformers)	\$350	390			1		Carbon/copper is for transformer.
# 1 Copper			\$3,460	436	1		Copper in 2016 was based on solid bright (#1 grade) copper
#2 Copper	\$6,145	1			1		Copper broken out into solid bar and insulated copper wire
#2 Insulated Copper Wire	\$2,440	6					Lower copper quantity in 2021 due to copper included in steel/copper mix for larger transformers
Labor hours	53,856	hours	56,934	hours	-5.4%		The labor hours for the 2021 cost estimate are -5.4% less than the 2016 cost estimate. The main reason is that the 2021 cost estimate includes subcontracts (w/o labor hours), based on updated S&L standards, and no planting or seeding.

SL-016628.E_SDGE Decom(PV)

Decommissioning Study

Prepared for San Diego Gas & Electric Company Photovoltaic (PV Sites)

Prepared by Sargent & Lundy

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ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIXES

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DECOMMISSION PV SITES

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
AC	alternating current
BESS(s)	battery energy storage system(s)
DC	direct current
FERC	Federal Energy Regulatory Commission
LID	light-induced degradation
O&M	operations and maintenance
Owner	San Diego Gas & Electric Company
PV	photovoltaic
S&L	Sargent & Lundy LLC
SDG&E	San Diego Gas & Electric Company

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual decommissioning cost estimate SDG&E's portfolio of photovoltaic (PV) generation sites. The work scope included updating the 2016 conceptual demolition cost estimate and report as well as the benchmarking analysis.

METHODOLOGY

The S&L methodology for developing the cost estimate consisted of three elements: (i) S&L experience in developing plant demolition costs and the S&L database for numerous other projects; (ii) the use of the unit cost factor methodology; and (iii) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by SDG&E, including the number of PV panels at each site. These drawings and documents were used to steel quantities, electrical equipment quantities, and other related items. S&L performed a site walkdown of a typical roof-installed PV site and a canopy-type PV installation to review the site components and determine any unique site-specific requirements. This site walkdown was performed in 2016; however, recent discussions with SDG&E confirmed that no significant modifications have occurred since that time other than the removal of six sites from the portfolio.

The gathered information was used with unit cost factors developed by S&L based on industry data and experience. Unit cost factors for panel removal, concrete removal, steel removal, cutting costs, etc. were developed from labor and material cost information. S&L estimated the quantities of metals that could be recovered and sold for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life. Solar panels were assumed to be recycled by a company such as We Recycle Solar at a cost to SDG&E of \$20/panel based on a publication by the National Renewable Energy Laboratory and verbal information from We Recycle Solar.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning the SDG&E PV sites is shown in Table ES-1. The cost estimate broken into FERC accounts is shown in Table ES-2. All costs are in 2021 U.S. dollars, and the total in both tables is \$8,499,701. Decommissioning costs are expected to increase by the end of service life due to escalation.

Table ES-1 — Cost Estimate Summary for PV Sites

			Includes Contingency Subcontract Subcontractor SDG&E													
	Customer	Location	Sub	contract		abor Cost		contractor lirect Cost	-	DG&E mal Costs	Con	an Value	G	&A and Profit	7	otal Cost
Poof	Top PV Sites	Locution		COST	LC	iboi cost	IIIU	irect cost	inter	nui costs	SCI	up vuiue		riojit	-	otal Cost
1	X-nth (formerly TKG)	Roof	Ś	82,271	Ś	57,890	\$	12,518	Ś	15,195	\$	(7,452)	¢	19,453	Ś	179,875
2	Reuben H Fleet (Science Center)	Roof	\$	168,176	Ś	149,951	\$	28,149	\$	34,170	\$	(19,320)		43,743	Ś	404,868
3	Hunter Industries	Roof	Ś	151,685	Ś	133,005	\$	25,204	\$	30,595	\$	(17,163)	-	39,167	Ś	362,494
4	The Towers at Bressi Ranch	Roof	\$	127,397	Ś	104.876	\$	20,611	\$	25,019	\$	(13,571)	-	32,029	Ś	296,360
5	Del Sur Elementary	Roof	\$	77,717	\$	52,732	\$	11,667	\$	14,163	\$	(6,780)		18,131	Ś	167,631
6	Ladera Ranch 555	Roof	\$	94,018	Ś	68,942	\$	14,529	\$	17,637	\$	(8,894)	-	22,578	Ś	208,809
7	High Tech High Chula Vista	Roof	\$	159,827	Ś	140,368	\$	26,580	\$	32,265	\$	(18,071)	-	41,305	Ś	382,274
8	Hanna Gabriel Wells	Roof	\$	48,116	\$	18,562	Ś	6,081	\$	7,382	\$	(,,		9,451	Ś	87,203
9	San Diego CC Skills Center	Roof	Ś	102,557	Ś	79,098	Ś	16,168	\$	19,627	Ś	(10,162)	\$	25,126	Ś	232,414
10	Alterra Apartments	Roof	\$	104,075	\$	80,420	\$	16,416	\$	19,927	\$	(10,373)	-	25,510	Ś	235,975
11	Thomas Jefferson School of Law	Roof	\$	79,045	Ś	54,055	Ś	11,895	\$	14,440	\$	(7,004)	-	18,485	Ś	170,916
12	Broadway Pier Cruise Ship Terminal	Roof	\$	61,778	Ś	34,023	\$	8,633	\$	10,480	\$	(4,389)	-	13,416	Ś	123,941
13	Wilco	Roof	\$	459,770	Ś	466,635	\$	81,549	\$	98,992	\$	(60,119)	-	126,727	Ś	1,173,553
14	High Tech High North County	Roof	Ś	98,003	Ś	73,792	Ś	15,303	\$	18,576	Ś	(9,499)	-	23,781	Ś	219,957
15	Urban Corps	Roof	\$	54,378	\$	25,778	\$	7,262	\$	8,816	\$	(3,314)	-	11,286	\$	104,206
16	Pacific Ridge School	Roof	\$	51,532	\$	22,530	\$	6,731	\$	8,171	\$	(2,869)		10,460	\$	96,555
17	Sanford Burnham Medical Research	Roof	\$	173,489	\$	155,991	\$	29,141	\$	35,375	\$	(20,117)	\$	45,286	\$	419,164
18	High Tech High Chula Vista K-8	Roof	\$	160,586	\$	141,412	\$	26,740	\$	32,460	\$	(18,168)	\$	41,555	\$	384,585
19	CSUSM - Public Safety Building	Roof	\$	66,332	\$	39,328	\$	9,494	\$	11,525	\$	(5,089)	\$	14,754	\$	136,345
20	SDG&E EIC (roof)	Roof	\$	76,579	\$	51,262	\$	11,437	\$	13,883	\$	(6,620)	\$	17,773	\$	164,314
21	UCSD - Revelle College	Roof	\$	69,368	\$	43,017	\$	10,086	\$	12,243	\$	(5,529)	\$	15,674	\$	144,859
22	Soledad	Roof	\$	123,982	\$	101,348	\$	20,009	\$	24,289	\$	(13,031)	\$	31,094	\$	287,692
23	Pacific Station	Roof	\$	130,813	\$	109,152	\$	21,287	\$	25,841	\$	(14,074)	\$	33,080	\$	306,099
24	UCSD - Structural & Materials Engr	Roof	\$	143,716	\$	124,173	\$	23,734	\$	28,811	\$	(15,987)	\$	36,883	\$	341,329
25	UCSD MESOM	Roof	\$	89,654	\$	64,078	\$	13,721	\$	16,656	\$	(8,250)	\$	21,323	\$	197,182
26	Village Lindo Paseo	Roof	\$	60,640	\$	32,553	\$	8,402	\$	10,200	\$	(4,229)	\$	13,057	\$	120,623
27	Del Lago Academy	Roof	\$	180,700	\$	164,383	\$	30,510	\$	37,036	\$	(21,172)	\$	47,413	\$	438,870
Subt	otal - Roof														\$	7,388,093

					Includes	s Con	tingency								
	Customer	Location	Subcontract Cost		bor Cost		contractor lirect Cost	-	DG&E	Sci	rap Value	l -	&A and Profit	T	otal Cost
Carp	ort PV Sites														
28	Sony Corporation	Carport - Canopy	\$ 21,574	\$	213,014	\$	13,041	\$	15,831	\$	(64,508)	\$	23,712	\$	222,664
29	County Operations Center Parking Structure A	Carport - Canopy	\$ 45,448	\$	470,350	\$	28,494	\$	34,589	\$	(143,774)	\$	51,807	\$	486,913
30	SDG&E EIC (parking)	Carport, Free- standing, Multi-axis	\$ 6,486	\$	72,326	\$	4,416	\$	5,361	\$	(21,303)	\$	8,029	\$	75,314
31	Sharp Rees Stealy Wellness Center	Carport - Canopy	\$ 8,602	\$	83,979	\$	5,209	\$	6,324	\$	(24,790)	\$	9,472	\$	88,796
32	San Diego Zoo	Carport - Canopy	\$ 10,764	\$	104,625	\$	6,459	\$	7,841	\$	(31,257)	\$	11,744	\$	110,175
33	Fast EV Suncharge/Del Lago Park N Ride	Carport - Canopy	\$ 2,162	\$	18,058	\$	1,228	\$	1,490	\$	(4,452)	\$	2,232	\$	20,717
34	Agua Hedionda	Carport - Canopy	\$ 2,116	\$	10,048	\$	822	\$	998	\$	(1,787)	\$	1,495	\$	13,692
35	Civita Westpark Apartments	Carport	\$ 8,648	\$	88,813	\$	5,474	\$	6,645	\$	(26,199)	\$	9,954	\$	93,336
Subt	otal - Carport													\$	1,111,608
	TOTAL Rooftop + Carport													\$	8,499,701

Table ES-2 — Cost Estimate Summary by FERC Account for PV Sites

			E344.1:	Generators	E345.1: A	ccessory		TAL COST
	Customer	Location	- Solar		Electrica	l Equipment	10	OTAL COST
Roof	Top PV Sites							
1	X-nth (formerly TKG)	Roof	\$	172,680	S	7.195	s	179.875
2	Reuben H Fleet (Science Center)	Roof	5	388,673	S	16,195	Š	404,868
3	Hunter Industries	Roof	\$	347,994		14,500	Š	362,494
4	The Towers at Bressi Ranch	Roof	5	284,506	5	11,854	Š	296,360
5	Del Sur Elementary	Roof	5	160.925	S	6,705	Š	167,631
6	Ladera Ranch 555	Roof	\$	200,457	S	8,352	Š	208,809
7	High Tech High Chula Vista	Roof	S	366,983	S	15,291	Š	382,274
8	Hanna Gabriel Wells	Roof	\$	83,715	\$	3,488	Š	87,203
9	San Diego CC Skills Center	Roof	S	223,118	S	9,297	Š	232,414
10	Alterra Apartments	Roof	\$	226,536	S	9,439	S	235,975
	Thomas Jefferson School of Law	Roof	5	164,079	S	6,837	s	170,916
12	Broadway Pier Cruise Ship Terminal	Roof	S	118,983	S	4.958	S	123,941
	Wilco	Roof	5	1,126,611	S	46,942	Ś	1.173,553
	High Tech High North County	Roof	\$	211.158	S	8,798	S	219.957
		Roof	\$		\$	4,168	Ś	104,206
16	Urban Corps Pacific Ridge School	Roof	\$	100,037 92.693	-		S	96,555
	Sanford Burnham Medical Research	Roof	\$		\$	3,862		
			\$	402,398	\$	16,767	\$	419,164 384,585
	High Tech High Chula Vista K-8	Roof	-	369,202		15,383	S	
	CSUSM - Public Safety Building	Roof	\$	130,891	\$	5,454	-	136,345
	SDG&E EIC (roof)	Roof	\$	157,741	-	6,573	\$	164,314
	UCSD - Revelle College	Roof	\$	139,065	\$	5,794	\$	144,859
	Soledad	Roof	\$	276,184	\$	11,508	\$	287,692
	Pacific Station	Roof	\$	293,855	\$	12,244	\$	306,099
	UCSD - Structural & Materials Engr	Roof	\$	327,676	\$	13,653	\$	341,329
	UCSD MESOM	Roof	\$	189,295	\$	7,887	\$	197,182
	Village Lindo Paseo	Roof	\$	115,799	\$	4,825	\$	120,623
27	Del Lago Academy	Roof	\$	421,315	\$	17,555	\$	438,870
Subto	otal - Roof		\$	7,092,569	\$	295,524	5	7,388,093
Carpo	ort PV Sites							
28	Sony Corporation	Carport - Canopy	\$	213,757	\$	8,907	\$	222,664
29	County Operations Center Parking Structur	Carport - Canopy	\$	467,437	\$	19,477	\$	486,913
		standing, Multi-						
30	SDG&E EIC (parking)	axis	S	72,302	S	3,013	s	75,314
	Sharp Rees Stealy Wellness Center	Carport - Canopy	S	85,244	S	3,552	Š	88,796
	San Diego Zoo	Carport - Canopy	5	105,768	5	4,407	s	110,175
	Fast EV Suncharge/Del Lago Park N Ride	Carport - Canopy	\$	19,889	S	829	Š	20,717
34	Agua Hedionda	Carport - Canopy	\$	13,144	\$	548	Ś	13,692
	Civita Westpark Apartments	Carport	\$	89,602	\$	3,733	\$	93,336
	otal - Carport	-	\$	1,067,144	S	44,464	5	1,111,608
20010	Sur pur t		 	2,007,244		11,101	_	2/22/000
TOTA	AL Rooftop + Carport		s	8,159,713	s	339,988	\$	8,499,701

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform a conceptual cost estimate for the dismantlement of the SDG&E portfolio of rooftop and carport

photovoltaic (PV) generation sites. The work scope included updating the 2016 conceptual demolition cost

estimate and report. The estimate for the 4950-kW utility-scale Ramona PV site is summarized under a

separate report.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers, over

the years Sargent & Lundy Consulting has become one of the premier power project consultants in the

power industry. This commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineer services, including

decommissioning cost estimation.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimony services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations experience

to support consulting services such as those performed for the PV sites.

1.3. PV ROOFTOP AND CARPORT DESCRIPTIONS

SDG&E's portfolio of PV sites consists of three types of installations: rooftop, canopy, and utility-scale sites. The rooftop and canopy sites are addressed in this report, and a separate S&L report summarizes the Ramona utility-scale site decommissioning estimate. Many of the rooftop and canopy sites are part of the San Diego Sustainable Communities program that engages local partners to be involved with renewable energy projects in the area. Descriptions of the sites are as follows:

- Most rooftop installations are fixed-tilt PV panels located on commercial buildings, school and university buildings, and other structures. The oldest rooftop PV installation was energized in 2004, and they range in size from 16 to 384 kW.
- Canopy-mounted PV sites are primarily freestanding carport canopies located in parking lots. "Solar tree" canopy installations are multi-axial while the rest are fixed-tilt. The oldest canopy site installed was energized in 2009, and the sites range in size from 5 to 359 kW.

2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of stochastic and

deterministic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of PV panels, steel framing, etc.). Stochastic methods were also used if quantitative information

(e.g., quantity of conduits, miscellaneous electrical equipment) was unavailable.

The cost estimate was developed based on the list of PV projects, typical drawings, and data provided by

the Owner and found in the S&L database. (Satellite images from Google Maps were used to determine

the installation type for some canopy sites.) These drawings and documents were used to estimate the

quantity of aluminum framing, the quantity of steel in canopy and in-ground frames, and other components.

The number of panels at each site was provided by SDG&E.

The methodology for developing the cost estimate consisted of three elements: (i) S&L experience in

developing plant demolition costs and the existing S&L database for numerous other projects; (ii) the use

of the unit cost factor methodology; and (iii) quotes from previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

include details for each type of work performed, indirect costs, and contingencies.

The SDG&E portfolio of PV sites provided the number of panels, power rating, and type of installation. S&L

visited a representative rooftop installation and solar tree site at the SDG&E Energy Innovation Center in

2016. This information was used with unit cost factors developed by S&L based on industry data alongside

S&L experience. Unit cost factors for PV panel removal, roof repair, steel removal for canopy sites, and

other tasks were developed from labor and material cost information. S&L estimated the quantities of

recoverable metals that could be recovered and sold for scrap. The estimate includes the value of scrap

metals; however, equipment is assumed to have no resale or other salvage value besides the value of

scrap metal at the end of its life. Solar panels were assumed to be recycled by a company such as We

Recycle Solar at a cost to SDG&E of \$20/panel based on a publication by the National Renewable Energy

Laboratory and verbal information from We Recycle Solar.

S&L relied on SDG&E to identify the location of environmental problems that need to be considered in the

estimates (none were identified). The S&L scope of work excludes a detailed survey and testing program

to identify such problems.

2.2. COST ESTIMATE SUMMARY

2.2.1. PV Energy Sites

The summary of the cost estimate for decommissioning the portfolio of PV energy sites is shown in Table 2-1. The commercial and technical basis for the estimate is included in Section 3, and the detailed estimate is included in Appendix A. The cost estimate breakdown into FERC accounts is shown in Table 2-2. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of service life of the asset due to escalation and other factors.

Table 2-1 — Cost Estimate Summary for PV Sites

						Includes	. Cont	ingency								
			Subcontro	ict			Subc	ontractor	SI	OG&E			G	&A and		
	Customer	Location	Cost		Lab	or Cost	Indi	rect Cost	Inter	nal Costs	Scr	ap Value		Profit	T	otal Cost
Roof	Top PV Sites											,		,		
1	X-nth (formerly TKG)	Roof	\$ 82,2	71	\$	57,890	\$	12,518	\$	15,195	\$	(7,452)	\$	19,453	\$	179,875
2	Reuben H Fleet (Science Center)	Roof	\$ 168,1	76	\$	149,951	\$	28,149	\$	34,170	\$	(19,320)	\$	43,743	\$	404,868
3	Hunter Industries	Roof	\$ 151,6	85	\$	133,005	\$	25,204	\$	30,595	\$	(17,163)	\$	39,167	\$	362,494
4	The Towers at Bressi Ranch	Roof	\$ 127,3	97	\$	104,876	\$	20,611	\$	25,019	\$	(13,571)	\$	32,029	\$	296,360
5	Del Sur Elementary	Roof	\$ 77,7	17	\$	52,732	\$	11,667	\$	14,163	\$	(6,780)	\$	18,131	\$	167,631
6	Ladera Ranch 555	Roof	\$ 94,0	18	\$	68,942	\$	14,529	\$	17,637	\$	(8,894)	\$	22,578	\$	208,809
7	High Tech High Chula Vista	Roof	\$ 159,8	27	\$	140,368	\$	26,580	\$	32,265	\$	(18,071)	\$	41,305	\$	382,274
8	Hanna Gabriel Wells	Roof	\$ 48,1	16	\$	18,562	\$	6,081	\$	7,382	\$	(2,389)	\$	9,451	\$	87,203
9	San Diego CC Skills Center	Roof	\$ 102,5	57	\$	79,098	\$	16,168	\$	19,627	\$	(10,162)	\$	25,126	\$	232,414
10	Alterra Apartments	Roof	\$ 104,0	75	\$	80,420	\$	16,416	\$	19,927	\$	(10,373)	\$	25,510	\$	235,975
11	Thomas Jefferson School of Law	Roof	\$ 79,0	45	\$	54,055	\$	11,895	\$	14,440	\$	(7,004)	\$	18,485	\$	170,916
12	Broadway Pier Cruise Ship Terminal	Roof	\$ 61,7	78	\$	34,023	\$	8,633	\$	10,480	\$	(4,389)	\$	13,416	\$	123,941
13	Wilco	Roof	\$ 459,7	70	\$	466,635	\$	81,549	\$	98,992	\$	(60,119)	\$	126,727	\$	1,173,553
14	High Tech High North County	Roof	\$ 98,0	03	\$	73,792	\$	15,303	\$	18,576	\$	(9,499)	\$	23,781	\$	219,957
15	Urban Corps	Roof	\$ 54,3	78	\$	25,778	\$	7,262	\$	8,816	\$	(3,314)	\$	11,286	\$	104,206
16	Pacific Ridge School	Roof	\$ 51,5	32	\$	22,530	\$	6,731	\$	8,171	\$	(2,869)	\$	10,460	\$	96,555
17	Sanford Burnham Medical Research	Roof	\$ 173,4	89	\$	155,991	\$	29,141	\$	35,375	\$	(20,117)	\$	45,286	\$	419,164
18	High Tech High Chula Vista K-8	Roof	\$ 160,5	86	\$	141,412	\$	26,740	\$	32,460	\$	(18,168)	\$	41,555	\$	384,585
19	CSUSM - Public Safety Building	Roof	\$ 66,3	32	\$	39,328	\$	9,494	\$	11,525	\$	(5,089)	\$	14,754	\$	136,345
20	SDG&E EIC (roof)	Roof	\$ 76,5	79	\$	51,262	\$	11,437	\$	13,883	\$	(6,620)	\$	17,773	\$	164,314
21	UCSD - Revelle College	Roof	\$ 69,3	68	\$	43,017	\$	10,086	\$	12,243	\$	(5,529)	\$	15,674	\$	144,859
22	Soledad	Roof	\$ 123,9	82	\$	101,348	\$	20,009	\$	24,289	\$	(13,031)	\$	31,094	\$	287,692
23	Pacific Station	Roof	\$ 130,8	13	\$	109,152	\$	21,287	\$	25,841	\$	(14,074)	\$	33,080	\$	306,099
24	UCSD - Structural & Materials Engr	Roof	\$ 143,7	16	\$	124,173	\$	23,734	\$	28,811	\$	(15,987)	\$	36,883	\$	341,329
25	UCSD MESOM	Roof	\$ 89,6	54	\$	64,078	\$	13,721	\$	16,656	\$	(8,250)	\$	21,323	\$	197,182
26	Village Lindo Paseo	Roof	\$ 60,6	40	\$	32,553	\$	8,402	\$	10,200	\$	(4,229)	\$	13,057	\$	120,623
27	Del Lago Academy	Roof	\$ 180,7	00	\$	164,383	\$	30,510	\$	37,036	\$	(21,172)	\$	47,413	\$	438,870
Subt	otal - Roof														\$	7,388,093

			Includes Contingency												
			Sub	bcontract			l	contractor	"	SDG&E			 &A and		
	Customer	Location		Cost	La	bor Cost	In	direct Cost	Inte	rnal Costs	Sci	ap Value	Profit	T	otal Cost
Carpo	ort PV Sites														
		Carport -													
28	Sony Corporation	Canopy	\$	21,574	\$	213,014	\$	13,041	\$	15,831	\$	(64,508)	\$ 23,712	\$	222,664
	County Operations Center Parking	Carport -													
29	Structure A	Canopy	\$	45,448	\$	470,350	\$	28,494	\$	34,589	\$	(143,774)	\$ 51,807	\$	486,913
		Carport, Free- standing,													
30	SDG&E EIC (parking)	Multi-axis	\$	6,486	\$	72,326	\$	4,416	\$	5,361	\$	(21,303)	\$ 8,029	\$	75,314
31	Sharp Rees Stealy Wellness Center	Carport - Canopy	\$	8,602	\$	83,979	\$	5,209	\$	6,324	\$	(24,790)	\$ 9,472	\$	88,796
32	San Diego Zoo	Carport - Canopy	\$	10,764	\$	104,625	\$	6,459	\$	7,841	\$	(31,257)	\$ 11,744	\$	110,175
33	Fast EV Suncharge/Del Lago Park N Ride	Carport - Canopy	\$	2,162	\$	18,058	\$	1,228	\$	1,490	\$	(4,452)	\$ 2,232	\$	20,717
34	Agua Hedionda	Carport - Canopy	\$	2,116	\$	10,048	\$	822	\$	998	\$	(1,787)	\$ 1,495	\$	13,692
35	Civita Westpark Apartments	Carport	\$	8,648	\$	88,813	\$	5,474	\$	6,645	\$	(26,199)	\$ 9,954	\$	93,336
Subto	otal - Carport							-						\$	1,111,608
	TOTAL Rooftop + Carport													Ś	8,499,701

Table 2-2 — Cost Estimate Summary by FERC Account for PV Sites

			E344.1:	Generators	E345.1: Acces	sory	-	TAL COST
	Customer	Location	- Solar		Electrical Eq	uipment	10	TAL COST
Roof	Top PV Sites							
	X-nth (formerly TKG)	Roof	\$	172,680	\$	7,195	Ś	179,875
2	Reuben H Fleet (Science Center)	Roof	\$	388,673	-	16,195	Ś	404,868
3	Hunter Industries	Roof	\$	347,994	-	14,500	Ś	362,494
4	The Towers at Bressi Ranch	Roof	\$	284,506		11.854	s	296,360
5	Del Sur Elementary	Roof	\$	160,925	\$	6,705	Ś	167,631
6	Ladera Ranch 555	Roof	\$	200,457	-	8,352	Ś	208,809
7	High Tech High Chula Vista	Roof	\$	366,983	S	15,291	S	382,274
8	Hanna Gabriel Wells	Roof	\$	83,715	S	3,488	Ś	87,203
9	San Diego CC Skills Center	Roof	S	223,118		9.297	Ś	232,414
10	Alterra Apartments	Roof	\$	226,536	S	9,439	Ś	235,975
11	Thomas Jefferson School of Law	Roof	\$	164,079	-	6,837	Ś	170,916
12	Broadway Pier Cruise Ship Terminal	Roof	\$	118,983	\$	4,958	s	123,941
13	Wilco	Roof	\$	1,126,611	-	46,942	Ś	1.173,553
14	High Tech High North County	Roof	\$	211.158	-	8,798	Ś	219,957
	Urban Corps	Roof	\$	100,037	S	4,168	Ś	104,206
	Pacific Ridge School	Roof	\$	92,693		3,862	S	96,555
17	Sanford Burnham Medical Research	Roof	\$	402,398	S	16,767	Ś	419,164
18	High Tech High Chula Vista K-8	Roof	\$	369,202	-	15,383	Ś	384,585
	CSUSM - Public Safety Building	Roof	\$	130.891	S	5.454	s	136,345
	SDG&E EIC (roof)	Roof	\$	157,741	-	6,573	Ś	164,314
21	UCSD - Revelle College	Roof	\$	139,065	\$	5,794	Ś	144,859
	Soledad	Roof	\$	276,184	S	11,508	s	287,692
	Pacific Station	Roof	\$	293,855	\$	12,244	Ś	306,099
24	UCSD - Structural & Materials Engr	Roof	\$	327,676	S	13,653	s	341,329
	UCSD MESOM	Roof	\$	189,295	S	7,887	S	197,182
26	Village Lindo Paseo	Roof	\$	115,799	S	4,825	Ś	120,623
27	Del Lago Academy	Roof	\$	421,315	S	17,555	Ś	438,870
Subto	otal - Roof		S	7.092,569	S	295,524	S	7,388,093
Subto	nui - Nooj		٦	7,032,303	3	293,324	Ş	7,300,033
Carpo	ort PV Sites							
28	Sony Corporation	Carport - Canopy	\$	213,757	\$	8,907	\$	222,664
29	County Operations Center Parking Structur	Carport - Canopy	\$	467,437	\$	19,477	\$	486,913
		standing, Multi-		•				
30	SDG&E EIC (parking)	axis	s	72,302	s	3,013	s	75,314
	Sharp Rees Stealy Wellness Center	Carport - Canopy	\$	85,244	S	3,552	Ś	88,796
32	San Diego Zoo	Carport - Canopy	S	105,768	S	4.407	Ś	110,175
33	Fast EV Suncharge/Del Lago Park N Ride	Carport - Canopy	\$	19,889	S	829	Ś	20,717
34	Agua Hedionda	Carport - Canopy	\$	13,144	S	548	\$	13,692
35	Civita Westpark Apartments	Carport	\$	89,602	S	3,733	\$	93,336
	otal - Carport		s	1,067,144	S	44,464	5	1,111,608
Subit	itai - Carport		٥	1,007,144	3	44,404	٥	1,111,008
TOTA	AL Rooftop + Carport		s	8.159.713	S	339,988	s	8,499,701

The decommissioning cost of PV sites on a per-panel basis varies with site characteristics and the number of panels. In general, decommissioning costs at sites with fewer panels are higher per panel than sites with many panels due to economy of scale. For example, the SDG&E rooftop site "Pacific Ridge School" has 102 panels and a decommissioning cost of approximately \$947 per panel. In contrast, the SDG&E rooftop site "Hunter Industries" has six times the number of panels, 608, and a decommissioning cost of

approximately \$596 per panel. The trend between decommissioning costs per panel and the number of panels is asymptotic and levels out for sites with a significant number of panels.

2.2.2. Variance from 2016 Study

The following list summarizes the changes from S&L's 2016 report. Note that material quantities and labor hours in the estimate were unchanged from 2016.

- Six sites were removed from the list, and several of the remaining 35 sites were renamed. The removed sites were all rooftop installations, and they totaled 1259 kW.
- The 2016 estimates assumed that the panels would be disposed with rubbish removed from the site. This has been replaced with a higher cost, where SDG&E pays a company such as We Recycle Solar to recycle the panels for \$20/panel. This cost is based on a publication by the National Renewable Energy Laboratory and a conversation with We Recycle Solar.
- The contractor general and administrative costs and profit were increased from 5% and 8%, respectively, to 7% and 10% based on the S&L database.
- SDG&E internal costs were added to the estimate. These were excluded from the 2016 estimate.
 The internal costs include disconnecting the units from the grid and securing and managing the contractor.
- The current estimates utilize updated labor rates, material costs, and scrap value to current 2021 values.

3. BASIS OF ESTIMATE

The basis for the cost estimates is as follows:

The decommissioning cost estimates in Section 2 and Appendix A are for the dismantlement and removal of 35 different PV sites. In general, the sites can be categorized into two groups: rooftop installations and canopy installations. The rooftop installations are mounted on bolts attached to roofs. The canopy installations are freestanding, and the demolition of the canopy's steel and concrete structure is included

with the decommissioning costs.

The cost estimates are based primarily on the data provided by SDG&E and S&L's experience with similar

projects.

3.1. PROCEDURE

In general, the methodology to decommission the PV sites is as follows:

· Rooftop Installations

De-energize the system.

Dismantle and remove all electrical equipment.

Remove solar panels.

Remove panel racking.

Remove mounting points on the rooftop.

Remove repair/patch roof holes/damage from removing mounting bolts.

• Remove the inverter, combiner box, and electrical box aboveground conduits and wiring.

Remove transformers.

Attain scrap value for metals.

Recycle the panels.

Dispose of materials.

Canopy Installations

De-energize the system.

Dismantle and remove all electrical equipment.

Remove the solar panels.

Remove the panel racking.

Remove the steel canopy structure and cut for scrap as necessary.

- Demolish the steel structures' concrete foundations and remove the concrete down to one foot.
- Cap and abandon the conduit.
- Remove the inverter, combiner box, and electrical box aboveground conduits and wiring.
- Remove the transformers.
- Attain scrap value for metals.
- Recycle the panels.
- Dispose of materials.

3.2. PRICING AND QUANTITIES

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for San Diego, California as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for show-up time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from engineering-supplied information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included in the cost estimate as direct costs as noted for the following:

- Labor supervision
- Construction management
- Field office expenses
- Safety
- Temporary facilities
- Mobilization/demobilization
- Legal expenses/claims
- Small tools and consumables
- General liability insurance

- Construction equipment mobilization/demobilization
- Freight on material
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)
- Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and are part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions; as such, the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is estimated at \$30/ton, resulting in the values shown in Table 3-1:

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
Aluminum	1172
#2 Insulated Copper Wire	2440
Stainless Steel	1217

Note: 1 ton = 2000 lbs.

6. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, engineering required to place the relevant equipment in safe shutdown, and any unique engineering required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the stations such as disconnecting the units from the grid and securing and managing the contractor.

7. Escalation Rates

Escalation rates are not included.

8. Sales and Use Taxes

Sales and use taxes are not included.

9. Contingency

A 15% contingency is applied for material, labor, and indirect expenses.

¹ www.americanrecycler.com

There is no contingency on scrap value.

10. Contract Basis for Estimates

The contracting strategy is a multiple lump sum for the estimates.

11. Assumptions

- All electrical equipment and wiring is de-energized by SDG&E.
- Transmission/distribution equipment beyond each PV sites' step-up transformer is excluded from the estimate. This includes overhead transmission wires, switchyards, substations, etc.
- Per SDG&E's direction, all rooftop PV panels are assumed to be fixed to the roof by four bolts. A cost of \$165/panel has been allocated for roof repair based on S&L's database of experience with similar repair work.
- No extraordinary environmental costs for demolition will be needed.
- All items above grade and to a depth of one foot will be demolished (canopy foundations).
 All foundations will be removed. Any other items buried more than one foot deep will remain in place.
- Solar panels are recycled by a company such as We Recycle Solar at a cost to SDG&E of \$20/panel based on a publication by the National Renewable Energy Laboratory and verbal information from We Recycle Solar.
- All demolished materials are considered debris, except for non-embedded metals that have scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.

4. REFERENCES

- 12. Sargent & Lundy Cost Database.
- 13. RSMeans Cost Data, 2021.
- 14. Engineering Drawings, Equipment Lists and other information provided by San Diego Gas & Electric.
- 15. Scrap Metals MarketWatch West Coast (Zone 1), www.americanrecycler.com.
- 16. Satellite images of sites (Google Maps).
- 17. A Circular Economy for Solar Photovoltaic System Materials: Drivers, Barriers, Enablers, and U.S. Policy Considerations by T. Curtis, H. Buchanan, L Smith, and G. Heath for the DOE National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-74550, April 2021.

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DECOMMISSION PV SITES

Facility
Nameplate
Date Energized (KW) Panel Qty

Project ID 1	Code XNT		Customer X-nth (formerly TKG)	Address 5670 Oberlin Dr, San Diego	PV Location Te Roof P	ech. V	Date Energiz 6/2	ed (kW 1/2004) Panel Qty 40.70 2	64				
Area Roof top	Group	Phase	Description	Notes	Quantity		Subcontrac	t Cost Scra	p Value Material Cos	Man Hours	Crew Rate	Labor Cost	Tota	al Cost
	11.00.00	11.22.00	Demolition Concrete											
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /0	CY				9 /MH	\$ 140.47	\$ 1	1,264 \$	1,264
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring at inverter		1 E/ 1 E/					9 /MH 2 /MH	\$ 127.80 \$ 127.80		1,150 \$ 256 \$	1,150 256
			Disconnect wiring at combiner boxes, remove boxes		2 E/	Α				21 /MH	\$ 127.80	\$ 2	2,684 \$	2,684
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		2 E/ 264 E/					15 /MH 40 /MH	\$ 127.80 \$ 127.80		i,917 \$ 5,112 \$	1,917 5,112
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		264 E	A				11 /MH	\$ 127.80		1,406 \$	1,406
			Demo conduit from rack to tie point Demo conduit from rack to transformer		1 E/ 1 E/					9 /MH 7 /MH	\$ 127.80 \$ 127.80		1,150 \$ 895 \$	1,150 895
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 E/ 1 E/					38 /MH 2 /MH	\$ 127.80 \$ 127.80		1,856 \$ 256 \$	4,856 256
			Remove inverters Remove PV panel and place in dumpster		1 E/ 264 E/	A				4 /MH 132 /MH	\$ 127.80	\$	511 \$ 5.870 \$	511
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		264 E					59 /MH	\$ 127.80 \$ 127.80		7,540 \$	16,870 7,540
			Remove lightning projection and other auxiliary equipment		1 E/					25 /MH	\$ 127.80		3,195 \$	3,195
			Remove transformer Demolition		1 LT	T	\$	- \$	- \$ -	10 /MH	\$ 127.80		1,278 \$ 0,339 \$	1,278 50,339
	18.00.00		Scrap Value											
		18.10.00	Mixed Steel Steel	1 EA, inverter 402 kW	0.18 TI	'N		\$	(32)	/мн			\$	(32
			Steel Steel	Service rack components Conduit and fittings	0.07 TI 0.07 TI	N		\$	(12) (12)	/MH /MH			\$	(12 (12
			Steel	Transformers	2.15 TI	N		\$	(376)	/MH			\$	(376
			Steel	Roof ladder, 1@ 350 lb each	0.03 TI	N		\$	(5)	/MH			\$	(5
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	1.8 TI	N		\$	(2,110)	/мн			\$	(2,110
		18.30.00	Copper											
			Copper Copper	1 EA, 402 kW inverter Wire	0.06 TI 0.4 TI			\$	(146) (976)	/MH /MH			\$	(146 (976
			Copper	Transformers	1.02 TI			\$	(2,489)	/MH			\$	(2,489
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	2112 LE			\$	(1,285)	/мн			\$	(1,285
			Conduit and fittings Scrap Value	100 @ 1 lb each	14.77 LE		s	- \$	(9) (7,452) \$ -	/мн		S	\$ - \$	(7,452
	21.00.00		Civil Work				,	. ,	(7,432) 3			,	. ,	(7,432
		21.19.00	Disposal											
			Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	1 E	А		1,800		/мн			\$	1,800
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 E/		\$	900		/MH			\$	900
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	7 /0	CY	\$	280 2,980 \$	- \$ -	/мн		\$	- \$	280 2,98 0
	24.00.00		Architectural											
		24.37.00	Roofing Roof repair at fix points	Installation	264 E	Α	\$ 4	3,560		/мн		s	- \$	43,560
			Architectual					3,560 \$	- \$ -	,		\$	- \$	43,560
Direct Cos	ts												\$	89,427
	61.00.00	C4 00 00	Construction Indirect Miscellaneous											
		61.99.00	Downspout / Chute		1 15	S		5,000		/мн			\$	25,000
			Construction Indirect					5,000 \$	- \$ -			\$	- \$	25,000
Subtotal							\$ 7	1,540 \$	(7,452) \$ -			\$ 50	0,339 \$	114,427
	91.00.00	91.0	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense										\$	8,010
		91.10	Contractor's Profit										\$	11,443 19,453
Direct Cos	ts + Constri	ction Indire	ct Costs				\$ 7	1,540 \$	(7,452) \$ -			\$ 50	7,339 \$	133,880
	93.00.00		Indirect Costs									. 50		
	33.00.00		Engineering, Procurement, & Project Services										\$	8,033
			2 Construction Management Support 3 SDG&E Internal Costs										\$ \$	2,678 13,388
	95.00.00		Contingency											
			Contingency on Subcontractor Contingency on Scrap Value				\$ 1	.0,731	-				\$	10,731
		95.3	Contingency on Material					¥	\$ -				\$	-
			Contingency on Labor									\$ 7	7,551 \$	7,551
		95.5	5 Contingency on Indirect										\$	3,615
Total	•			-			\$ 8	2,271 \$	(7,452) \$ -			\$ 57	,890 \$	179,875

Facility

Project ID 2	Code RHF		Customer Reuben H Fleet (Science Center)	Address 1875 El Prado, San Diego	PV Location Tech. Roof PV	Date Energized 3/30/20	Facility Nameplat (kW) 007 10	e Panel Qty 0.10 684	4				
Area Roof top	Group	Phase	Description	Notes	Quantity	Subcontract Co	ost Scrap Va	lue Material Cost	Man Hours	Crew Rate Labo	or Cost	Total Cost	
	11.00.00	11.22.00	Demolition <i>Concrete</i>										
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY				23 /MH	\$ 140.47 \$	3,231	s :	3,231
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		1 EA 1 EA 5 EA 5 EA 684 EA				24 /MH 6 /MH 55 /MH 40 /MH 103 /MH	\$ 127.80 \$ \$ 127.80 \$ \$ 127.80 \$ \$ 127.80 \$ \$ 127.80 \$	3,067 767 7,029 5,112 13,163	\$ \$ \$	3,067 767 7,029 5,112 3,163
			Disconnect and remove grounding at PV panels and racks, Remove ground rods Demo conduit from rack to tie point Demo conduit from rack to transformer Demo conduit from combiners to inverter Remove Conduits to inverters Remove inverters Remove PV panel and place in dumpster Remove prosts where panel is fixed to roof		684 EA 1 EA 1 EA 1 EA 1 EA 1 EA 684 EA 684 EA				28 /MH 24 /MH 18 /MH 98 /MH 6 /MH 9 /MH 342 /MH 153 /MH	\$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$ \$ 127.80 \$ \$	767	\$ 5 12 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3,578 3,067 2,300 2,524 767 1,150 3,708 9,553
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT				64 /MH 25 /MH	\$ 127.80 \$ \$ 127.80 \$	3,195	\$	8,179 3,195
			Demolition			\$ -	\$	- \$ -		\$	130,392	\$ 130	0,392
	18.00.00	18.10.00	Scrap Value Mixed Steel Steel Steel Steel Steel Steel	1 EA, inverter 402 kW Service rack components Conduit and fittings Transformers Roof ladder, 1@ 350 lb each	0.48 TN 0.18 TN 0.19 TN 5.57 TN 0.07 TN		\$ \$ \$ ((84) (32) (33) 975) (12)	/MH /MH /MH /MH /MH			\$ \$ \$ \$ \$	(84) (32) (33) (975) (12)
		18.20.00	Stainless Steel					462)	/мн			s (*	
		18.30.00	Stainless Steel Copper	1788 Racks, 13.61 lbs each	4.66 TN		, ,,		,			, ,	5,462)
			Copper Copper Copper	1 EA, 402 kW inverter Wire Transformers	0.15 TN 1.04 TN 2.65 TN		\$ (2,	366) 538) 466)	/MH /MH /MH			\$ (2	(366) 2,538) 6,466)
		18.50.00	Aluminum PV Module Conduit and fittings Scrap Value	1788 Modules @ 8 lbs each 100 @ 1 lb each	5472 LB 38.26 LB	\$ -	\$ (3, \$	330) (23) 320) \$ -	/мн /мн	\$		\$	3,330) (23) 9,320)
	21.00.00	21.19.00	Civil Work Disposal Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	4 EA	\$ 7.2	00		/мн			s :	7.200
		21.20.00	Dumpster, 40 CY Capacity	Fix point rods	1 EA		00		/MH			\$	900
		21.20.00	Backfill Foundation backfill, imported material fill Civil Work	Backfill concrete pads	7 /CY		80 \$	- \$ -	/МН	\$		\$ \$	280 8,380
	24.00.00	24.37.00	Architectural Roofing										
			Roof repair at fix points Architectual	Installation	684 EA	\$ 112,8 \$ 112,8	60 60 \$	- \$ -	/MH	\$ \$	-	\$ 112	2,860 2,860
Direct Cos	ts												2,312
	61.00.00	61.99.00	Construction Indirect Miscellaneous										
			Downspout / Chute Construction Indirect		1 LS	\$ 25,0 \$ 25,0	00 \$	- \$ -	/MH	\$			5,000 5,000
Subtotal						\$ 146,2	40 \$ (19,	320) \$ -		ş	130,392	\$ 25	7,312
	91.00.00		Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Profit									\$ 25	8,012 5,731 3,743
Direct Cos	ts + Constru	ıction Indired	ct Costs			\$ 146,2	40 \$ (19,	320) \$ -		ş	130,392	\$ 30:	1,055
	93.00.00	93.2	Indirect Costs Engineering, Procurement, & Project Services Construction Management Support SDG&E Internal Costs									\$ 6	8,063 6,021 0,105
	95.00.00	95.2 95.3	Contingency Contingency on Subcontractor Contingency on Scrap Value Contingency on Material Contingency on Labor			\$ 21,9	36 \$	- \$ -		\$		\$ 21,93 \$ \$ \$ \$	36.00 - - 9,559
			Contingency on Indirect							,			8,128
Total						\$ 168,1	76 \$ (19,3	320) \$ -		\$	149,951		,868

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty	
		1840 La Costa Meadows Rd, San						
3 HIII	Hunter Industries	Marcos	Roof	PV/	12/4/200	7	101.80	60

3	HUI		Hunter Industries	Marcos	Roof	PV		12/4/2007	101.8	0 60	18				
Area	Group	Phase	Description	Notes	Quantity		Subcont	ract Cost Sc	rap Value	Material Cost	Man Hours	Crew Rate Labor	Cost	Total Cost	
Roof top	11.00.00		Demolition												
		11.22.00	Concrete	Electrical equipment (Transformer,											
			Concrete	inverter, etc.) pad		7 /CY					20 /MH	\$ 140.47 \$	2,809	\$	2,809
		11.41.00	Electrical Equipment												
			Disconnect wiring and components at service rack Disconnect wiring at inverter			1 EA 1 EA					22 /MH 5 /MH	\$ 127.80 \$ \$ 127.80 \$	2,812 639	\$ \$	2,812 639
			Disconnect wiring at combiner boxes, remove boxes			4 EA					49 /MH	\$ 127.80 \$	6,262	\$	6,262
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels			4 EA 08 EA					35 /MH 91 /MH	\$ 127.80 \$ \$ 127.80 \$	4,473 11,630		4,473 11,630
			Disconnect and remove grounding at PV panels and racks,												
			Remove ground rods Demo conduit from rack to tie point		60	08 EA 1 EA					24 /MH 22 /MH	\$ 127.80 \$ \$ 127.80 \$	3,067 2,812	\$ \$	3,067 2,812
			Demo conduit from rack to transformer Demo conduit from combiners to inverter			1 EA 1 EA					16 /MH 87 /MH	\$ 127.80 \$	2,045 11.119	\$	2,045 11.119
			Remove Conduits to inverters			1 EA					5 /MH	\$ 127.80 \$ \$ 127.80 \$	639		639
			Remove inverters			1 EA					8 /MH	\$ 127.80 \$	1,022		1,022
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		60	08 EA 08 EA					304 /MH 136 /MH	\$ 127.80 \$ \$ 127.80 \$	38,851 17,381	\$	38,851 17,381
			Remove lightning projection and other auxiliary equipment			1 EA					57 /MH	\$ 127.80 \$	7,285	4	7,285
			Remove transformer			1 LT					22 /MH	\$ 127.80 \$	2,812	\$	2,812
			Demolition				\$	- \$	-	\$ -		\$	115,657	\$	115,657
	18.00.00	10 10 00	Scrap Value												
		18.10.00	Mixed Steel Steel	1 EA, inverter 402 kW		13 TN		\$	(75)	/MH			\$	(75)
			Steel	Service rack components	0.:	16 TN 17 TN		\$	(28)	/MH			\$	(28)
			Steel Steel	Conduit and fittings Transformers		17 IN 95 TN		\$	(30 (866		/MH /MH			\$ \$ \$	(866)
			Steel	Roof ladder, 1@ 350 lb each	0.0	D6 TN		\$	(11)	/MH			\$	(11)
		18.20.00	Stainless Steel												
			Stainless Steel	1788 Racks, 13.61 lbs each	4.:	14 TN		\$	(4,852)	/MH			\$	(4,852)
		18.30.00	Copper												
			Copper Copper	1 EA, 402 kW inverter Wire		14 TN 92 TN		\$	(342		/MH /MH			\$	(342)
			Copper	Transformers	2.3	35 TN		\$	(5,734		/MH			\$	(5,734)
		18.50.00	Aluminum												
			PV Module Conduit and fittings	1788 Modules @ 8 lbs each 100 @ 1 lb each	48	54 LB 34 LB		\$	(2,960 (21)	/MH /MH			\$	(2,960)
			Scrap Value	100 @ 110 00011			\$	- \$	(17,163) \$ -	,,,,,,	\$	-	\$	(17,163)
	21.00.00		Civil Work												
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels											
			Dumpster, 40 CY Capacity	to recycler)		3 EA	\$	5,400			/MH			\$	5,400
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods		1 EA	\$	900			/MH			\$	900
			Foundation backfill, imported material fill	Backfill concrete pads		7 /CY	\$	280			/MH			\$	280
			Civil Work				\$	6,580 \$	-	\$ -		\$	-	\$	6,580
	24.00.00	24.37.00	Architectural Roofing												
		24.37.00	Roof repair at fix points	Installation	60	08 EA	\$	100,320			/MH	\$		\$:	100,320
			Architectual				\$	100,320 \$	-	\$ -		\$	-	\$	100,320
Direct Cos	ts													\$ 2	205,394
	61.00.00		Construction Indirect												
		61.99.00	Miscellaneous Downspout / Chute			1 LS	S	25,000			/MH			Ś	25,000
			Construction Indirect			1 13	\$	25,000 \$	-	\$ -	/iviH	\$		\$	25,000
Subtotal							s	131,900 \$	(17.163) \$ -		s	115,657	\$:	230,394
	91.00.00		Other Direct & Country sties In the Country						, .,_55			*	,,		, *
	91.00.00		Other Direct & Construction Indirect Costs Contractor's General and Administration Expense												16,128
			Contractor's Profit											\$	23,039 39,167
Direct Cos	ts + Constri	uction Indirec	t Costs				\$	131,900 \$	(17,163) \$ -		\$	115,657	5	269,561
	93.00.00	02.4	Indirect Costs											c	16,174
		93.2	Engineering, Procurement, & Project Services Construction Management Support											\$	5,391
		93.3	SDG&E Internal Costs											\$	26,956
	95.00.00		Contingency												
			Contingency on Subcontractor Contingency on Scrap Value				\$	19,785 S						\$	19,785
		95.3	Contingency on Material					Ş		\$ -		_		\$	-
		95.4	Contingency on Labor									\$	17,349	\$	17,349
		95.5	Contingency on Indirect											\$	7,278
Total							\$	151,685 \$	(17,163)\$ -		\$	133,005	\$ 3	62,494
								· , ¥	, ,_ ,_ ,_			7	,-35	, ,	,

Project ID	Code		Customer	Address	PV Location		Date Energiz	ed (kW		Panel Qty					
	TBR		The Towers at Bressi Ranch	6156 Innovation Way, Carlsbad, CA	Roof	PV		8/2008	80.40	48	-				
Roof top	Group	Phase	Description	Notes	Quantity		Subcontrac	t Cost Scr	ap Value	Material Cost	Man Hours	Crew Rate	Labor Cost	Total Cost	
	11.00.00	11.22.00	Demolition Concrete												
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	:	7 /CY					16 /MH	\$ 140.47	\$ 2,248	3 \$ 2,2	248
		11.41.00	Electrical Equipment												
		11.41.00	Disconnect wiring and components at service rack			1 EA					17 /MH	\$ 127.80	\$ 2,173	3 \$ 2,:	173
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes			L EA B EA					4 /MH 38 /MH	\$ 127.80 \$ 127.80	\$ 4,856	L \$.5 5 \$ 4,8	511 856
			Pull wire from combiners to inverter		3	B EA					28 /MH	\$ 127.80	\$ 3,578	3 \$ 3,5	578
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks,		48	EA .					72 /MH	\$ 127.80	\$ 9,202	2 \$ 9,2	202
			Remove ground rods			EA .					19 /MH	\$ 127.80			428
			Demo conduit from rack to tie point Demo conduit from rack to transformer			1 EA 1 EA					17 /MH 13 /MH		\$ 2,173 \$ 1.661		173 661
			Demo conduit from combiners to inverter		:	1 EA					69 /MH	\$ 127.80	\$ 8,818	3 \$ 8,8	818
			Remove Conduits to inverters Remove inverters			1 EA 1 EA					4 /MH 6 /MH	\$ 127.80 \$ 127.80			511 767
			Remove PV panel and place in dumpster		48	EA					240 /MH	\$ 127.80	\$ 30,672	\$ 30,6	672
			Remove points where panel is fixed to roof		48) EA					107 /MH	\$ 127.80	\$ 13,675	\$ \$ 13,6	575
			Remove lightning projection and other auxiliary equipment			L EA					45 /MH	\$ 127.80			751
			Remove transformer Demolition			1 LT	\$	- \$	-	\$ -	17 /MH	\$ 127.80	\$ 2,173 \$ 91,196		173 196
	18.00.00		Scrap Value												ļ
	10.00.00	18.10.00	Mixed Steel												
			Steel Steel	1 EA, inverter 402 kW Service rack components		4 TN 3 TN		\$	(60) (23)		/MH /MH				(60) (23)
			Steel	Conduit and fittings	0.1	TN		\$	(23)		/MH			\$	(23)
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	3.9	1 TN 5 TN		\$	(684) (9)		/мн /мн				684) (9)
				Kool lauder, 1@ 330 ib each	0.0	o IIV		ş	(9)		/MH			ş	(9)
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	3.2	7 TN		S	(3,832)		/MH			\$ (3.8	832)
				,							,				
		18.30.00	Copper Copper	1 EA, 402 kW inverter	0.1	1 TN		\$	(268)		/MH			\$ (2	268)
			Copper	Wire	0.7	3 TN		\$	(1,781)		/MH			\$ (1,7	781)
			Copper	Transformers	1.8	5 TN		\$	(4,538)		/MH			\$ (4,5	538)
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	384			\$	(2,337)		/мн			\$ (2,3	337)
			Conduit and fittings	100 @ 1 lb each	26.8			\$	(16)		/MH /MH			\$	(16)
			Scrap Value				\$	- \$	(13,571)	\$ -			\$ -	\$ (13,5	571)
	21.00.00		Civil Work												
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels											
			Dumpster, 40 CY Capacity	to recycler)		B EA		5,400			/MH				400
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods		1 EA	\$	900			/MH			\$ 9	900
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads		7 /CY	\$ \$	280 6,580 \$		s -	/MH		s -	\$ 6.5	280 580
							,	0,380 \$	-	,			,	, o,.	,,,,
	24.00.00	24.37.00	Architectural Roofing												ļ
			Roof repair at fix points	Installation	48	EA .		79,200			/MH		\$ -	\$ 79,2	
			Architectual				\$ 7	79,200 \$	-	\$ -			\$ -	\$ 79,2	200
Direct Cos	ts													\$ 163,4	405
	61.00.00		Construction Indirect												
		61.99.00	Miscellaneous Downspout / Chute			1 LS	\$ 2	25,000			/MH			\$ 25,0	000
			Construction Indirect			1.13		25,000 \$	-	\$ -	/IVIII		\$ -	\$ 25,0	
Subtotal							S 11	10.780 \$	(13,571)	s -			\$ 91,196	5 \$ 188,4	405
							, -		(==,=:=,	•					
	91.00.00	91.09	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense											\$ 13,:	188
		91.10	Contractor's Profit											\$ 18,8	840
														\$ 32,0	
Direct Cos	ts + Constr	ruction Indired	ct Costs				\$ 11	10,780 \$	(13,571)	\$ -			\$ 91,196	5 \$ 220,4	434
	93.00.00		Indirect Costs												
		93.1	Engineering, Procurement, & Project Services Construction Management Support											\$ 13,2 \$ 4,4	226 409
			SDG&E Internal Costs											\$ 22,0	
	95.00.00		Contingency												
			Contingency on Subcontractor				\$ 1	16,617						\$ 16,617	00.5
			Contingency on Scrap Value Contingency on Material					\$		\$ -				\$	
			Contingency on Labor										\$ 13,679.45	5 \$ 13,6	679
		95.5	Contingency on Indirect											\$ 5,9	952
			<u> </u>						/+a·						
Total							\$ 12	7,397 \$	(13,571)	5 -			\$ 104,876	\$ 296,3	360

State Part	Project ID	Code		Customer	Address	PV Location Tech.	Date Ene	rgized (k		Panel Qty						
Married Professor Marr		DSE		Del Sur Elementary	15665 Paseo Del Sur, San Diego	Roof PV		9/5/2008								
1.52 Common	Area Roof top		Phase		Notes	Quantity	Subcont	ract Cost Sc	rap Val	ue Material Cost	Man Hours	Crew Rate	Labor Cost	1	Fotal Cost	
1.100 1.00		11.00.00	11.22.00													
14-100 Control control profession of control contr				Concrete		7 /CY					8 /MH	\$ 140.47	\$ 1	,124	\$	1,124
1.6.			11.41.00	Electrical Equipment												
A				Disconnect wiring and components at service rack								\$ 127.80	\$ 1			1,150
And an international short in continuous short				Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes							19 /MH	\$ 127.80	\$ 2	,428	\$	2,428
Discussion of the company of the plane 1.5				Pull wire from combiners to inverter		2 EA					14 /MH	\$ 127.80	\$ 1	,789		1,789
Remote prosition for the control of the control o				Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks,		240 EA					36 /MH	\$ 127.80	\$ 4	,601	Ş	4,601
The content from an an invariance 1				Remove ground rods												
Second Content																
Remote version of place in control of the control																
Name of Part and any of the Control of Section 1 And Sec																
Remark plants perspective and other seatlowy equipment 1.1				Remove PV panel and place in dumpster		240 EA					120 /MH	\$ 127.80	\$ 15	,336	\$	15,336
Recommendation				Remove points where panel is fixed to roof		240 EA					54 /MH	\$ 127.80	\$ 6	,901	ş	6,901
1.1000																
## 19.00 Mode Start Start ## 19.00 Mode Start 14.0 mode ## 10.0 mode 1.0 mode 1.						1 []	\$	- \$		- \$ -	9 /MH	\$ 127.80				
14.50 Month of Month See		18.00.00		Scrap Value												
Seef Service not components 0.0 ft 5 1111 0.04 0.04 5 1111 0.04		_5.55.65	18.10.00	Mixed Steel				_								
13.100 Solvines Seef 1788 back, 13.61 ble sech 1.61 hr 5 1.50 bl Asis 5 1.5								\$		(30)					\$ \$	(30)
13.100 Solvines Seef 1788 back, 13.61 ble sech 1.61 hr 5 1.50 bl Asis 5 1.5				Steel	Conduit and fittings	0.07 TN		\$		(12)	/MH				\$	(12)
13.100 Solvines Seef 1788 back, 13.61 ble sech 1.61 hr 5 1.50 bl Asis 5 1.5				Steel	Transformers	1.96 TN		\$	(:		/MH				\$	(343)
18.00 Coper 16.4 color 1788 Rocks 1288 Rocks					Noor lauder, 1@ 330 to each	0.02		,		(4)	/14111				,	(4)
18.00			18.20.00		1788 Racks, 13.61 lbs each	1.63 TN		Ś	(1.9	910)	/MH				s	(1.910)
Copper			10 20 00	Cannon												
18.00 Author			10.30.00											1	\$	
18.50 Alexandra 1.788 Modulus 1.788 Modulus 1.00 1.0 to each						0.37 TN		\$		903)	/MH				ş c	(903)
P. Module 1788 Modules @ Bito seach 1920 LB 5 1,1680 Mel 5 1,1360					Transformers	0.95 IN		ş	(2,	269)	/IVIN				>	(2,209)
Control and fittings			18.50.00		1788 Modules @ 8 lbs each	1920 IB		\$	(1 -	168)	/мн				c	(1 168)
11.00.00				Conduit and fittings		13.42 LB		\$		(8)					\$	(8)
Dispose Disp				Scrap Value			\$	- \$	(6,	780) \$ -			Ş	- ;	Ş	(6,780)
Dumpster, 4D CY Cipacity 1 EA \$ 1,800 1,641 \$ 1,800 1,		21.00.00	24 40 00													
Dumpster, ADC Capacity 10 recycler) 1 EA 5 1,000			21.19.00	Disposal	Concrete, PV panels, rubbish (panels											
Backfill Backfill Backfill Contracted pads 7 / CY \$ 280 / MeH \$ 280				Dumpster, 40 CY Capacity	to recycler)										ş	
Civil Work			21.20.00	Backfill											\$	
Architectural Architectura				Foundation backfill, imported material fill	Backfill concrete pads	7 /CY		280			/MH		•			280
2437.00 Roofing Roof							•	-, +		•			•		•	_,
Architectual S 39,000 S S S S S S S S S S S S S S S S S		24.00.00	24.37.00													
S 1,654 S 1,000 Construction Indirect S 1,000 Miscelloneous S 25,000 Miscelloneous S 25,000 S S S 25,000 S S S S S S S S S				Roof repair at fix points	Installation	240 EA					/MH		\$			
61.00.00 Construction Indirect				Attitettaai			,	33,000 3		. ,			,		•	
Miscellaneous Muscellaneous Muscellaneou	Direct Cos	's													\$	81,654
Downsport (Potte 1 LS 25,000 MH 5 25,000		61.00.00		Construction Indirect												
Construction Indirect S 25,000 S - S - S 25,000			61.99.00	Miscellaneous Downspout / Chute		1 LS	S	25.000			/MH				s	25.000
91.00.00 Other Direct & Construction Indirect Costs 91.00 Contractor's Foroit Direct Costs + Construction Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.2 Construction Management Support 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.4 Contingency on Labor 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Cont							\$	25,000 \$		- \$ -			\$		\$	25,000
1,00 Contractor's General and Administration Expense \$ 7,466 \$ 10,665	Subtotal						\$	67,580 \$	(6,	780) \$ -			\$ 45	,854	\$ 1	06,654
1,00 Contractor's General and Administration Expense \$ 7,466 \$ 10,665		01 00 00		Other Direct & Construction Indicest Costs												
S 18,131 S 18,132 S 18,133 S		91.00.00	91.09	9 Contractor's General and Administration Expense											\$	7,466
Direct Costs + Construction Indirect Costs \$ 67,580 \$ (6,780) \$ - \$ 45,854 \$ 124,785			91.10	Contractor's Profit											\$	10,665
93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 DOS& Internal Costs 93.5 DOS& Internal Costs 93.5 Contingency 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Indirect																
93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 SDG&E Internal Costs 5 7,487 93.2 Construction Management Support 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.1 Contingency on Scrap Value 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Material 95.4 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.6 8,78	Direct Cos	s + Consti	uction Indire	ect Costs			Ş	67,580 \$	(6,	780) \$ -			\$ 45	,854	\$ 1	24,785
93.2 Construction Management Support 93.3 SDG&E Internal Costs Contingency 95.00.00 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Indirect 95.6 R78 S		93.00.00	02.5												c	7 /107
95.00.00 Contingency 95.1 Contingency on Subcontractor 95.1 Contingency on Scrap Value 95.2 Contingency on Material 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect \$ 3,369			93.2	2 Construction Management Support											\$	2,496
9.5.1 Contingency on Subcontractor 9.5.2 Contingency on Subcontractor 9.5.2 Contingency on Subcontractor 9.5.3 Contingency on Subcontractor 9.5.4 Contingency on Material 9.5.4 Contingency on Labor 9.5.5 Contingency on Indirect \$ 3,369			93.3	3 SDG&E Internal Costs											\$	12,479
95.2 Contingency on Scrap Value \$. \$. \$. \$. \$ 3.569 . \$ \$ \$ \$ \$ 3.569 . \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ 3.569 . \$		95.00.00		Contingency												
95.3 Contingency on Material \$ - \$ - \$ - 6,878 \$ 6,878 \$ - 6,878 \$			95.1 95.1	1 Contingency on Subcontractor 2 Contingency on Scrap Value			\$	10,137							\$ 10, \$	137.00
95.5 Contingency on Indirect \$ 3,369			95.3	3 Contingency on Material				,		\$ -					\$	-
			95.4	4 Contingency on Labor									\$ 6	,878	\$	6,878
Total \$ 77,717 \$ (6,780) \$ - \$ 52,732 \$ 167,631			95.5	5 Contingency on Indirect											\$	3,369
	Total						\$	77,717 \$	(6,7	'80) \$ -			\$ 52,	,732	\$ 16	57,631

							N	ameplate						
Project ID 6	Code LRF		Customer Ladera Ranch 555	Address 555 Corporate Drive, Ladera Ranch	PV Location Tech. Roof PV	Date Ene	ergized (k 9/17/2008	(W) 49.2	Panel Qty 31	5				
Area	Group	Phase	Description	Notes	Quantity	Subcon	tract Cost S	crap Value	Material Cost	Man Hours	Crew Rate	Labor Cost	Total Co	ost
Roof top	11.00.00		Demolition											
		11.22.00	Concrete	Electrical equipment (Transformer,										
			Concrete	inverter, etc.) pad	7 /CY					11 /MH	\$ 140.47	\$ 1,54	5 \$	1,545
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 FA					11 /MH	\$ 127.80	\$ 1.40	6 S	1.406
			Disconnect wiring at inverter		1 EA					3 /MH	\$ 127.80		3 \$	383
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter		2 EA 2 EA					25 /MH 18 /MH	\$ 127.80 \$ 127.80		5 \$ D \$	3,195 2,300
			Disconnect and remove wiring at PV panels		315 EA					47 /MH	\$ 127.80	\$ 6,00	7 \$	6,007
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		315 EA					13 /MH	\$ 127.80	¢ 166	1 \$	1,661
			Demo conduit from rack to tie point		1 EA					11 /MH	\$ 127.80	\$ 1,40	6 \$	1,406
			Demo conduit from rack to transformer Demo conduit from combiners to inverter		1 EA 1 EA					8 /MH 45 /MH	\$ 127.80 \$ 127.80		2 \$ 1 \$	1,022 5.751
			Remove Conduits to inverters		1 EA					3 /MH	\$ 127.80		3 \$	383
			Remove inverters		1 EA 315 EA					4 /MH	\$ 127.80 \$ 127.80		1 \$	511
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		315 EA					158 /MH 70 /MH	\$ 127.80		2 3 6 \$	20,192 8,946
			Remove lightning projection and other auxiliary equipment		1 EA					30 /MH	\$ 127.80	\$ 3,83	4 \$	3,834
			Remove transformer Demolition		1 LT	\$	- 5	; .	\$ -	11 /MH	\$ 127.80	\$ 1,40		1,406 59,950
	18.00.00		Scrap Value											
	16.00.00	18.10.00	Mixed Steel											
			Steel Steel	1 EA, inverter 402 kW Service rack components	0.22 TN 0.08 TN		\$	(39		/MH /MH			\$	(39)
			Steel	Conduit and fittings	0.08 TN 0.09 TN		\$	5 (16		/MH			\$ \$ \$	(14)
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	2.57 TN 0.03 TN		9	(450		/MH /MH			\$ \$	(450)
		18.20.00	Stainless Steel	Noor lauder, 1@ 330 to each	0.03		*	, (2	,	/WIII			Į.	(3)
		18.20.00	Stainless Steel	1788 Racks, 13.61 lbs each	2.14 TN		Ş	(2,508)	/мн			\$	(2,508)
		18.30.00	Copper											
			Copper	1 EA, 402 kW inverter	0.07 TN		\$			/MH			\$	(171)
			Copper Copper	Wire Transformers	0.48 TN 1.22 TN		ç	(1,171)	/MH /MH			\$	(1,171) (2,977)
		18.50.00	Aluminum											
			PV Module	1788 Modules @ 8 lbs each	2520 LB		9	(1,533)	/MH			\$	(1,533)
			Conduit and fittings Scrap Value	100 @ 1 lb each	17.62 LB	\$	- \$	(11 6 (8,894		/MH		\$ -	\$	(11) (8,894)
	21.00.00		Civil Work											
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels										
			Dumpster, 40 CY Capacity	to recycler)	2 EA	\$	3,600			/MH			\$	3,600
		21.20.00	Dumpster, 40 CY Capacity	Fix point rods	1 EA	\$	900			/MH			\$	900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/мн			\$	280
			Civil Work			\$	4,780 \$		\$ -			\$ -	\$	4,780
	24.00.00	24.37.00	Architectural Roofing											
		24.37.00	Roof repair at fix points	Installation	315 EA	\$	51,975			/MH		\$ -	\$	51,975
			Architectual			\$	51,975 \$	-	\$ -			\$ -	\$	51,975
Direct Cos	ts												\$	107,810
	61.00.00		Construction Indirect											
		61.99.00	Miscellaneous Downspout / Chute		1 LS	S	25,000			/MH			S	25,000
			Construction Indirect			\$	25,000 \$	-	\$ -	,		\$ -	\$	25,000
Subtotal						\$	81,755 \$	(8,894) \$ -			\$ 59,95	0 \$	132,810
	91.00.00		Other Direct & Construction Indirect Costs											
			9 Contractor's General and Administration Expense										\$	9,297
		91.10	Contractor's Profit										\$	13,281 22,578
Direct Cos	ts + Const	ruction Indire	rt Costs			s	81,755 \$	(8,894) 5 -			\$ 59,95	n s	155,388
J.,, CC, CO3	93.00.00		Indirect Costs			7	02,733 4	. (0,034	, +			- 55,55		133,300
	93.00.00	93.	Indirect Costs ! Engineering, Procurement, & Project Services										\$	9,323.30
			2 Construction Management Support 3 SDG&E Internal Costs										\$	3,107.77 15,539
		93.3											ş	15,539
	95.00.00	95	Contingency ! Contingency on Subcontractor			\$	12,263						\$	12,263.25
1		95.2	Contingency on Scrap Value			7	\$	-					\$,203.23
1		95.3 95.4	3 Contingency on Material 4 Contingency on Labor						\$ -			\$ 8,99	\$ 2 \$	- 8,992
												5,55		
		95.5	5 Contingency on Indirect										\$	4,195
Total						\$	94,018	(8,894)\$ -			\$ 68,94	2 \$	208,809

						ivamepiate	
Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty

7	HTC		High Tech High Chula Vista	1945 Discovery Falls Drive, Chula Vista	a Roof PV		2/9/2009	101	64	D			
Area Roof top	Group	Phase	Description	Notes	Quantity	Subc	ontract Cost S	crap Value N	Naterial Cost	Man Hours	Crew Rate Labo	r Cost 1	otal Cost
	11.00.00	11.22.00	Demolition Concrete										
		11.22.00	Concrete	Electrical equipment (Transformer,	7 (0)					24 (44)	44047	2.050	
				inverter, etc.) pad	7 /CY					21 /MH	\$ 140.47 \$	2,950	\$ 2,950
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA					23 /MH	\$ 127.80 \$	2,939	\$ 2,939
			Disconnect wiring at inverter		1 EA					6 /MH	\$ 127.80 \$	767	\$ 767
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter		5 EA 5 EA					51 /MH 37 /MH	\$ 127.80 \$ \$ 127.80 \$	6,518 4,729	
			Disconnect and remove wiring at PV panels		640 EA					96 /MH	\$ 127.80 \$	12,269	
			Disconnect and remove grounding at PV panels and racks,		540.54					25 /8411	427.00 4	2 222	
			Remove ground rods Demo conduit from rack to tie point		640 EA 1 EA					26 /MH 23 /MH	\$ 127.80 \$ \$ 127.80 \$	3,323 2,939	
			Demo conduit from rack to transformer		1 EA					17 /MH	\$ 127.80 \$	2,173	\$ 2,173
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA 1 EA					92 /MH 6 /MH	\$ 127.80 \$ \$ 127.80 \$	11,758 767	
			Remove inverters		1 EA					9 /MH	\$ 127.80 \$	1,150	
			Remove PV panel and place in dumpster		640 EA					320 /MH	\$ 127.80 \$	40,896	
			Remove points where panel is fixed to roof		640 EA					143 /MH	\$ 127.80 \$	18,275	\$ 18,275
			Remove lightning projection and other auxiliary equipment		1 EA					60 /MH	\$ 127.80 \$	7,668	
			Remove transformer Demolition		1 LT	s		s - 5	s -	23 /MH	\$ 127.80 \$	2,939 122,059	\$ 2,939 \$ 122,059
						•	•	•			,		,
	18.00.00	18.10.00	Scrap Value Mixed Steel										
		20.20.00	Steel	1 EA, inverter 402 kW	0.45 TN		\$	\$ (79)		/MH			\$ (79)
			Steel	Service rack components	0.17 TN		9	\$ (30)		/MH			\$ (30)
			Steel Steel	Conduit and fittings Transformers	0.18 TN 5.22 TN		9	\$ (32) \$ (914)		/MH /MH			\$ (30) \$ (32) \$ (914)
			Steel	Roof ladder, 1@ 350 lb each	0.06 TN		3			/MH			\$ (11)
		18.20.00	Stainless Steel										
			Stainless Steel	1788 Racks, 13.61 lbs each	4.36 TN		9	5 (5,110)		/MH			\$ (5,110)
		18.30.00	Copper										
			Copper	1 EA, 402 kW inverter	0.14 TN		5	ŝ (342)		/MH			\$ (342)
			Copper Copper	Wire Transformers	0.97 TN 2.48 TN		9			/MH /MH			\$ (2,367) \$ (6,051)
				· · · · · · · · · · · · · · · · · · ·	2.40 114			(0,031)		7001			(0,031)
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	5120 LB		5	\$ (3,116)		/MH			\$ (3,116)
			Conduit and fittings	100 @ 1 lb each	35.79 LB		9	\$ (22)		/MH			\$ (22)
			Scrap Value			\$	- ;	(18,071)			\$	-	\$ (18,071)
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)	4 EA	\$	7,200			/MH			
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900			/MH			\$ 900
		21.20.00	Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/мн			\$ 280
			Civil Work		-	\$	8,380	s - \$	-		\$	-	\$ 8,380
	24.00.00		Architectural										
		24.37.00	Roofing Roof repair at fix points	Installation	640 EA	S	105,600			/MH			\$ 105,600
			Roof repair at fix points Architectual	mateliduUli	64U EA	\$	105,600	\$ - \$	\$ -	/MH	\$	-	
Direct Cos	+-												\$ 217,969
													217,969
	61.00.00	61.99.00	Construction Indirect Miscellaneous										
		01.99.00	Downspout / Chute		1 LS	\$	25,000			/MH			
			Construction Indirect			\$	25,000	s - \$	s -		\$	-	
Subtotal						\$	138,980	\$ (18,071) \$	s -		ş	122,059	\$ 242,969
	91.00.00		Other Direct & Construction Indirect Costs										
	31.00.00	91.09	Contractor's General and Administration Expense										\$ 17,008
			Contractor's Profit										\$ 24,297
													\$ 41,305
Direct Cos	ts + Constru	uction Indirec	t Costs			\$	138,980	(18,071)	s -		\$	122,059	\$ 284,273
	93.00.00		Indirect Costs										
		93.1	Engineering, Procurement, & Project Services										\$ 17,056.40
		93.2 93.3	Construction Management Support SDG&E Internal Costs										\$ 5,685.47 \$ 28,427
	95.00.00	95.1	Contingency Contingency on Subcontractor			\$	20,847.00						\$ 20,847.00
		95.2	Contingency on Scrap Value				5	\$ - \$					
			Contingency on Material Contingency on Labor					\$	-		¢	18,308.92	\$ - \$ 18,309
											,		
		95.5	Contingency on Indirect										\$ 7,675
Total						\$	159,827	\$ (18,071) \$	\$ -		\$	140,368	\$ 382,274

March Policy Policy Description De	Project ID			Customer	Address	PV Location Tech.	Date Ener	rgized (kW		anel Qty					
March Marc		HGW		Hanna Gabriel Wells	1955 Bacon St. San Diego	Roof PV			16.30	84					
1.5.1.00 1.5.1.00			Phase		Notes	Quantity	Subcont	ract Cost Scr	rap Value M	laterial Cost	Man Hours	Crew Rate	Labor Cost	Tot	tal Cost
1.1.1.0 Secretary Secre		11.00.00	11.22.00												
14.4.00 20.000 20.00000 20.0000 20.0000 20.00000 20.00000 20.00000 20.00000 20.000000 20.00000				Concrete		7 /CY					3 /MH	\$ 140.47	\$	121 \$	421
Concentrating of configured consequences are are as 1.0			11.41.00	Electrical Equipment											
Secure of the principle from the content of the principle of the princip				Disconnect wiring and components at service rack									\$		
Decomposed continuous single per Younger				Disconnect wiring at combiner boxes, remove boxes		1 EA					7 /MH	\$ 127.80	\$	395 \$	895
Counted and more quoting of the plant and more quoting of the pl				Pull wire from combiners to inverter		1 EA					5 /MH			539 \$	639
Amount of the most is part				Disconnect and remove grounding at PV panels and racks,											
Description of the mark to produce 1.0 2.00 5 17.0 5 12.5 5 12.5 1.5															
Manusco Capable Services 1.5 A 1				Demo conduit from rack to transformer		1 EA					2 /MH	\$ 127.80	\$	256 \$	256
Marries preserving region is designed by the property of the															
Remote paths appears before part of med 16 A 17 A 18 17 18 18 17 18 18 18				Remove inverters		1 EA					1 /MH	\$ 127.80	\$	128 \$	128
Remove lighting projections and other southery equipment 1.1				Remove PV panel and place in dumpster Remove points where panel is fixed to roof											
Reference foundment															
11,000 15,000 150				Remove transformer									\$	883 \$	383
14.10				Demolition			\$	- \$	- \$				\$ 16,:	141 \$	16,141
Seef 1.6 km morter ASD NW 0.06 Th 5 (13) A.01 5 (13)		18.00.00	10 10 00												
Seal Conduct and filtings	1		18.10.00	Steel				\$	(11)					\$	(11)
State Transformer Col. Tr. \$ (133)	1				Service rack components			\$	(4)		/MH			\$	(4)
Series Reginators 18 July 18						0.02 IN 0.68 TN		\$	(119)					\$	(4) (119)
1.5.00 Copper 16.4 62 NW Investor 0.27 Th \$ 1600 Mel \$ 1600 Copper Copper 10.4 62 NW Investor 0.21 Th \$ 1600 Mel \$ 5 1317 Mel \$				Steel	Roof ladder, 1@ 350 lb each	0.01 TN		\$			/мн			\$	(2)
12.0.00 Copper 15.4.403 W/ Inverter 0.02 Th \$ (80)			18.20.00		1788 Racks, 13.61 lbs each	0.57 TN		\$	(668)		/мн			\$	(668)
Copper			18 30 00	Conner											
1.50.00 Contract Transformer Contract C				Copper				\$						\$	
185,000 Automotion						0.13 TN 0.33 TN		\$	(317)		/MH /MH			\$	(317)
PM Module			40.50.00						,		,				, , , ,
11,00,00 Citif Wink Compared Concrete, PV panels, rubbish (panels to recycler) 1 EA 5 1,800 AAH 5 1,			18.50.00		1788 Modules @ 8 lbs each	672 LB		\$	(409)		/MH			\$	(409)
11.00					100 @ 1 lb each	4.7 LB		\$			/MH		•	\$	
1,10,00 Disposed				,			,	,	(2,505)				,	,	(2,505)
Concrete, PC panels, obbind (panels to recycle) 1 EA 5 1,800 AH 5 3,800		21.00.00	21.19.00												
Dumpster, 40 CY Capacity Fex point rods 1 EA 5 900 //AH 5 900					Concrete, PV panels, rubbish (panels	4.51		4.000			***				4.000
Foundation backfill imported material fill Backfill concrete pads 7 / CV \$ 280				Dumpster, 40 CY Capacity	Fix point rods		\$							\$	
Carl Work			21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/MH			s	280
24.37.00 Roofing Roo				Civil Work			\$	2,980 \$	- \$	-			\$	- \$	2,980
Roof repair at tix points Installation 84 EA \$ 133,860 MH \$ - \$ 13,860		24.00.00													
Architectual S 13,860 \$ - \$ - \$ \$ 13,860 \$ - \$ \$ \$ 13,860 \$ - \$ \$ \$ 13,860 \$ - \$ \$ \$ \$ \$ \$ \$ \$ \$			24.37.00		Installation	84 EA	\$	13,860			/MH		s	- \$	13,860
61.00.00 Construction Indirect 61.99.00 Miscellaneous Downspout / Dutze Construction Indirect 5 25,000 \$ - \$ - \$ 25,000 Subtotal 5 41,840 \$ (2,389) \$ - \$ 16,141 \$ 55,592 91.00 Contractor's Seneral and Administration Expense 91.00 Contractor's Profit 92.00 Contractor's Profit 93.00 Contractor's Profit 94.00 Contractor's Profit 95.00 Contingency on Subportator 95.00 Contingen							\$	13,860 \$	- \$	-	,		\$	- \$	13,860
61.99.00 Miscellaneous Dumspout Chute 1 LS S 25,000 MH S 25,000 S S S S S S S S S	Direct Cos	ts												\$	30,592
61.99.00 Miscellaneous Dumspout Chute 1 LS S 25,000 MH S 25,000 S S S S S S S S S		61.00.00		Construction Indirect											
Construction Indirect			61.99.00	Miscellaneous		115	¢	35 000			/8.411				35.000
91.00.00 Other Direct & Construction Indirect Costs 91.00 Contractor's General and Administration Expense 91.01 Contractor's Frofit Direct Costs + Construction Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.2 Construction Indirect Costs 95.00.00 Contragency 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect						115			- \$	-	/мн		\$	т.	
91.00.00 Other Direct & Construction Indirect Costs 91.00 Contractor's General and Administration Expense 91.01 Contractor's Frofit Direct Costs + Construction Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.2 Construction Indirect Costs 95.00.00 Contragency 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect	Subtotal						•	41 840 S	(2.389) \$				\$ 16	141 5	55 592
S 3,891	Subtotui						7	42,040 9	(2,303)				, 10,.	,	33,332
91.10 Contractor's Profit \$ 5,559 Direct Costs + Construction Indirect Costs \$ 41,840 \$ (2,389) \$. \$ 5,16,141 \$ 65,042 93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 SDG& Internal Costs 95.00.00 Contingency 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Material 95.4 Contingency on Material 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.7 Sontingency on Indirect 95.8 Sontingency on Indirect 95.8 Sontingency on Indirect 95.7 Sontingency on Indirect 95.8 Sontingency on Indirect 95.9 Sontingency on Indirect 95.1 Sontingency on Indirect 95.2 Sontingency on Indirect 95.3 Sontingency on Indirect 95.4 Sontingency on Indirect 95.5 Sontingency on Indirect 95.5 Sontingency on Indirect 95.7 Sontingency on		91.00.00	91.09	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense										S	3.891
Direct Costs + Construction Indirect Costs \$ 41,840 \$ (2,389) \$ - \$ 5 16,141 \$ 65,042			91.10	Contractor's Profit										\$	5,559
93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 DOSÉ Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Indirect 95.5 Contingency on Indirect															
93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 SDG&E Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Srap Value 95.2 Contingency on Srap Value 95.3 Contingency on Material 95.4 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect \$ 1,756	Direct Cos	ts + Constr	uction Indire	ct Costs			\$	41,840 \$	(2,389) \$	-			\$ 16,:	141 \$	65,042
93.2 Construction Management Support 93.3 SDG8E Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.2 Contingency on Material 95.3 Contingency on the Scrap Value 95.4 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect \$ 1,301 \$ 5,6,276 \$ 5 \$ 6,276.00 \$ 5 \$ 6,276.00 \$ 5 \$ 5 \$ 7 \$ 5 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7 \$ 7		93.00.00	02.4											c	3.003
95.00.00 Contingency 95.1 Contingency on Subcontractor 95.1 Contingency on Scrept Value 95.2 Contingency on Material 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect			93.2	Construction Management Support										\$	1,301
9.5.1 Contingency on Subcontractor 9.5.2 Contingency on Subcontractor 9.5.2 Contingency on Sucrept Value 9.5.3 Contingency on Material 9.5.4 Contingency on Labor 9.5.5 Contingency on Indirect \$ 1,756			93.3	SDG&E Internal Costs										\$	6,504
9.5.1 Contingency on Subcontractor 9.5.2 Contingency on Subcontractor 9.5.2 Contingency on Subcontractor 9.5.2 Contingency on Material 9.5.3 Contingency on Material 9.5.4 Contingency on Labor 9.5.5 Contingency on Indirect \$ 1,756		95.00.00		Contingency											
95.3 Contingency on Material \$ - 95.4 Contingency on Labor \$ 2,421.12 95.5 Contingency on Indirect \$ 1,756	1			Contingency on Subcontractor			\$	6,276.00 c							6,276
95.5 Contingency on Indirect \$ 1,756			95.3	Contingency on Material				Ş	\$	-				\$	
			95.4	Contingency on Labor									\$ 2,421	.12 \$	2,421
			95.5	Contingency on Indirect										\$	1,756
	Total						\$	48,116 \$	(2,389) \$	-			\$ 18,5	62 \$	87,203

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty	
9 SDC	San Diego CC Skills Center	4343 Ocean View Blvd B, San Diego	Roof	PV	7/8/2009		56.90	360

9	SDC		San Diego CC Skills Center	4343 Ocean View Blvd B, San Diego	Roof PV		7/8/2009	56.90	360)			
Area Roof top	Group	Phase	Description	Notes	Quantity	Sub	contract Cost S	crap Value Ma	aterial Cost	Man Hours	Crew Rate Labor Co	ost To	otal Cost
	11.00.00	11.22.00	Demolition Concrete										
		11:12:00	Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY					12 /MH	\$ 140.47 \$	1,686 \$	1,686
				inverter, etc.) pau	7 / С1					12 /WH	3 140.47 3	1,000 3	1,080
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA					13 /MH	\$ 127.80 \$	1,661 \$	1,661
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		1 EA 3 EA					3 /MH 29 /MH	\$ 127.80 \$ \$ 127.80 \$	383 \$ 3,706 \$	383 3.706
			Pull wire from combiners to inverter		3 EA					21 /MH	\$ 127.80 \$	2,684 \$	
			Disconnect and remove wiring at PV panels		360 EA					54 /MH	\$ 127.80 \$	6,901 \$	6,901
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		360 EA					14 /MH	\$ 127.80 \$	1,789 \$	1,789
			Demo conduit from rack to tie point Demo conduit from rack to transformer		1 EA 1 EA					13 /MH 10 /MH	\$ 127.80 \$ \$ 127.80 \$	1,661 \$ 1,278 \$	
			Demo conduit from combiners to inverter		1 EA					52 /MH	\$ 127.80 \$	6,646 \$	
			Remove Conduits to inverters Remove inverters		1 EA 1 FA					3 /MH 5 /MH	\$ 127.80 \$ \$ 127.80 \$	383 \$ 639 \$	
			Remove PV panel and place in dumpster		360 EA					180 /MH	\$ 127.80 \$	23,004 \$	
			Remove points where panel is fixed to roof		360 EA					81 /MH	\$ 127.80 \$	10,352 \$	10,352
			Remove lightning projection and other auxiliary equipment		1 EA					34 /MH	\$ 127.80 \$	4,345 \$	
			Remove transformer Demolition		1 LT	s		- 5		13 /MH	\$ 127.80 \$	1,661 \$ 68,781 \$	1,661 68,781
						\$	- 3	>	-		,	00,/01 \$	00,/81
	18.00.00	18.10.00	Scrap Value Mixed Steel										
		20.20.00	Steel	1 EA, inverter 402 kW	0.25 TN		\$	(44)		/MH		\$	(44)
			Steel Steel	Service rack components Conduit and fittings	0.09 TN 0.1 TN		\$	(16)		/MH /MH		\$ \$ \$	(16)
			Steel	Transformers	2.93 TN		\$	(513)		/MH			
			Steel	Roof ladder, 1@ 350 lb each	0.04 TN		\$	(7)		/MH		\$	
		18.20.00	Stainless Steel										
			Stainless Steel	1788 Racks, 13.61 lbs each	2.45 TN		\$	(2,871)		/MH		\$	(2,871)
		18.30.00	Copper										
			Copper Copper	1 EA, 402 kW inverter Wire	0.08 TN 0.55 TN		5	(195)		/MH /MH		\$	(195)
			Copper	Transformers	1.39 TN		Ş			/MH		\$	(3,392)
		18.50.00	Aluminum										
			PV Module	1788 Modules @ 8 lbs each	2880 LB		Ş	(1,752)		/MH		\$	
			Conduit and fittings Scrap Value	100 @ 1 lb each	20.13 LB	\$	- \$	(12) (10,162) \$	-	/MH	\$	- \$	(12)
	24 00 00		Civil Work										
	21.00.00	21.19.00	Disposal										
			Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	2 EA	s	3,600			/MH		s	3,600
			Dumpster, 40 CY Capacity	Fix point rods	1 EA	\$	900			/MH		\$	900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	S	280			/MH		\$	280
			Civil Work	buckiii concrete paus	, , , , ,	\$	4,780 \$	- \$	-	,,,,,,	\$	- \$	
	24.00.00		Architectural										
		24.37.00	Roofing										
			Roof repair at fix points Architectual	Installation	360 EA	\$	59,400 59,400 \$	- \$	-	/MH	\$ \$	- \$ - \$	
Direct Cos						,	, ,	•			•	\$	
Direct Cos	t)											Ş	122,/99
	61.00.00	61.99.00	Construction Indirect Miscellaneous										
		01.33.00	Downspout / Chute		1 LS	\$	25,000			/MH		\$	
			Construction Indirect			\$	25,000 \$	- \$	-		\$	- \$	25,000
Subtotal						\$	89,180 \$	(10,162) \$	-		\$	68,781 \$	147,799
	91.00.00		Other Direct & Construction Indirect Costs										
			Contractor's General and Administration Expense									\$	
		91.10	Contractor's Profit									s s	14,780 25,126
			15.00					(40::			_		
Direct Cos	ts + Constru	uction Indirec	ct Costs			\$	89,180 \$	(10,162) \$	-		\$	68,781 \$	172,925
	93.00.00	02.4	Indirect Costs										10.375
		93.2	Engineering, Procurement, & Project Services Construction Management Support									\$	3,458
		93.3	SDG&E Internal Costs									\$	17,292
	95.00.00		Contingency										
			Contingency on Subcontractor			\$	13,377					\$	
			Contingency on Scrap Value Contingency on Material				\$	· -	-			\$	-
			Contingency on Labor								\$	10,317 \$	10,317
		95.5	Contingency on Indirect									\$	4,669
Total						Ś	102 557 4	(10,162) \$			Ś	79,098 \$	
rutdi						Þ	102,557	(10,102) \$			>	ל פנט,כי	232,414

Column C								Faci Nar	neplate				
March Marc								ergized (kW) Panel Qty				
10.100	10	GTA		Alterra Apartments	8717 Fletcher Parkway, La Mesa	Roof PV		4/27/2010	64.70 368	1			
March Control Contro		Group	Phase	Description	Notes	Quantity	Subcon	tract Cost Scr	ap Value Material Cost	Man Hours	Crew Rate Labor Cos	t	Total Cost
1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		11 00 00		Demolition									
Secretary Secr		11.00.00	11.22.00	Concrete									
1.4.160 Control entrol ent				Consents	Electrical equipment (Transformer,	7 (0)				12 /5411	C 140.47 C	1 606	¢ 1.60
Secure comment and comment and any and compression and any and compression and any any and compression and any any any any and any				Concrete	inverter, etc.) pad	7 / (٢				12 /MH	\$ 140.47 \$	1,686	\$ 1,686
Secure of the property of th			11.41.00										
Columned and region and programs of prog						1 EA				13 /MH	\$ 127.80 \$	1,661	\$ 1,665
## aff or the monocolorous investors investors investors in the control of the co										29 /MH	\$ 127.80 \$	3,706	\$ 3,706
Disconsect and more growth graft property and makes 12				Pull wire from combiners to inverter									
## Among proud rath						368 EA				55 /MH	\$ 127.80 \$	7,029	\$ 7,029
Conc. cond. inform case to point Conc. cond. inform case Conc. cond. inform. case Conc. cond.				Remove ground rods		368 EA				15 /MH	\$ 127.80 \$	1,917	\$ 1,917
Street contain from combinates to consider the considerate to contain from combinates and the contained of				Demo conduit from rack to tie point		1 EA				13 /MH	\$ 127.80 \$	1,661	\$ 1,665
### Street Control to Household Street Control to 1 1 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				Demo conduit from rack to transformer Demo conduit from combiners to inverter		1 EA				10 /MH 53 /MH	\$ 127.80 \$ \$ 127.80 \$	6 773	\$ 1,278
Recommendation of the Configuration of				Remove Conduits to inverters		1 EA				3 /MH	\$ 127.80 \$	383	\$ 383
## Remove global parties and the facility represent 1.6 A.				Remove inverters									
Perform physics projection and other analyse pegament 1.0 1.10 1						368 EA					\$ 127.80 \$ \$ 127.80 \$	23,515	\$ 23,515
Response parameter 3 t						300 27					y 127.00 y	10,400	20,400
14,000 1													
13,000 15,000 15,000 15 15,000 1						1 LT	•			13 /MH			
24.00 Mode Steel 24.00 Mode Steel 25.00 Mode Steel 26.00 Mode Steel 26.00 Mode Steel 26.00 Mode Steel 27.00 Mode S				<i>Emonion</i>			,	,	*		,	03,331	, ,,,,,,
Seef 11.1. montre 62.00 0.05 th 5 (60) //est 5 (10) //est		18.00.00											
Seal			18.10.00	Mixed Steel	1 EA invertor 403 kW	0.26 TN		c	(46)	/MALI			c ///
Seal				Steel	Service rack components	0.1 TN		\$	(18)	/мн			\$ (18
Seel Boof Indices 18 20 Book Seel See				Steel	Conduit and fittings	0.1 TN		\$	(18)	/MH			\$ (18
12.20.00				Steel Steel	Transformers Roof ladder 1@ 350 lb each	3 TN 0.04 TN		\$		/MH /MH			\$ (525
13.500 Copper 16.4 02 kW inverter					1001 100011, 1@ 330 10 00011	0.04		7	(7)	,			7
18.000 Capper 15.0.00 Vive 0.00 Th 5 (198) And 5 (198) Capper Vive 0.00 Th 5 (198) And 5 (1.346) And 5 (1.346) Capper Transformers 1.4 °C Th 5 (1.346) And 5 (1.346)			18.20.00										
Copper 12 A, AD 34/monters 0.08 TN 5 (138) AAB 5 (1286 Capper Wile 0.08 TN 5 (1386) ABH 5 (1286 Capper Wile 0.08 TN 5 (1386) ABH 5 (1286 Capper Wile 0.08 TN 5 (1286 Capper Wile Wile Wile 0.08 TN 5 (1286 Capper Wile				Stainless Steel	1788 Racks, 13.61 lbs each	2.5 TN		\$	(2,930)	/MH			\$ (2,930
Copper Transformers			18.30.00										
1.6.2 Try 1.6.													
18.500 1.78								\$	(3,465)				
PM Module													
Conditating titings 100 @ 1 lb each 20.58 (18 \$ (13) [AbH \$ (13) Scrap Variet			18.50.00	Aluminum BV Modulo	1700 Modulor @ 9 lbr oach	2044 LD			(1.701)	/6411			ć (1.70:
11,00,00 Cirk Work					100 @ 1 lb each	2944 LB 20.58 LB		\$		/MH			\$ (1,79. \$ (1)
2.1.19.00 Disposed Concrete, PV panels, rubbish (panels to recycler) 2 EA 5 3,600 /AH 5 3,000 /AH 7 A /AH /A				Scrap Value			\$	- \$	(10,373) \$ -		\$	-	\$ (10,37
2.1.19.00 Disposed Concrete, PV panels, rubbish (panels to recycler) 2 EA 5 3,600 /AH 5 3,000 /AH 7 A /AH /A		21 00 00		Civil Work									
Dumpster, 40°C (Capacity to recycled) 1 EA \$ 3,600 MAH \$ 3,500		21.00.00	21.19.00										
Dumpster, 40 CY Capacity Fix point rods 1 EA 5 900 AH 5 900													
Bodylin													
Carl Work			21.20.00	Backfill									
24,3000 Architectural Roofing Roofing Roofing Roofing at fit points Installation 368 EA \$ 60,720 Architectural \$. \$ 60,720 \$. \$. \$. \$ 60,720 \$. \$. \$. \$. \$. \$. \$. \$. \$. \$				Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280		/MH			\$ 280
243700 Roofing Roofi				CIVII WORK			\$	4,780 \$	- \$ -		\$	-	\$ 4,780
Roof repair at the points Installation 368 EA 5 60,720 7.00		24.00.00		Architectural									
Architectual S 60,720 S S S S S S S S S			24.37.00	Roofing	Installation	269 EA	c	60.720		/MU	e		¢ 60.730
Direct Costs Construction Indirect S 125,058				Architectual	IIISIdiidiiOii	300 EA		60,720 \$	- \$ -	/IVIN	\$	÷	\$ 60,720
61.00.00 Construction Indirect 61.99.00 Miscellaneous Downsport / Chute Construction Indirect 1 LS \$ 25,000 \$. \$. \$. \$. \$. \$. \$. \$. \$.													
61.99.00 Miscellaneous Downspout / Chute Construction Indirect 1 LS \$ 25,000 \$. \$. \$. \$. \$. \$. \$. \$. \$.	Direct Cos	ts											\$ 125,058
Downsport/Obste		61.00.00											
Construction Indirect S 25,000 S S S S S S S S S			61.99.00					25.077					
Subtotal				Downspout / Chute Construction Indirect		1 LS	\$	25,000 \$	- s -	/MH	s		\$ 25,000
91.00.00 Other Direct & Construction Indirect Costs 91.09 Contractor's Seneral and Administration Expense 91.00 Contractor's Profit Direct Costs + Construction Indirect Costs 93.00.00 Indirect Cost									,				
91.09 Contractor's General and Administration Expense 91.09 Contractor's Further 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 Stock Enternal Costs 93.0 Contingency on Subscontractor 95.00.00 Contingency on Subscontractor 95.2 Contingency on Scrap Value 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.7 Contingency on Indirec	Subtotal						\$	90,500 \$	(10,373) \$ -		\$	69,931	\$ 150,058
91.09 Contractor's General and Administration Expense 91.09 Contractor's Further 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 Stock Enternal Costs 93.0 Contingency on Subscontractor 95.00.00 Contingency on Subscontractor 95.2 Contingency on Scrap Value 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.7 Contingency on Indirec		91.00.00		Other Direct & Construction Indirect Costs									
S 25,511			91.09	Contractor's General and Administration Expense									
Direct Costs + Construction Indirect Costs S 90,500 S (10,373) S S 69,931 S 175,568			91.10	Contractor's Profit									
93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 Solds Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.4 Contingency on Labor 95.5 Contingency on Indirect \$ 10,534 \$ 10,535 \$ 10,535 \$ 13,575 \$ 13,575 \$ 13,575 \$ 13,575 \$ 10,490 \$ 10,490 \$ 10,490 \$ 10,490													\$ 25,510
93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 Double Internal Costs 93.5 Contingency on Subcontractor 95.0 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.4 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect \$ 10,508	Direct Cos	ts + Constr	uction Indire	ct Costs			\$	90,500 \$	(10,373) \$ -		\$	69,931	\$ 175,568
93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 Double Internal Costs 93.5 Contingency on Subcontractor 95.0 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.3 Contingency on Subcontractor 95.4 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect \$ 10,508		02.00.00		Indiana Costs									
93.2 Construction Management Support 93.3 SDG&E Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.3 Contingency on Labor 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect		95.00.00	93.1										\$ 10,534
95.00.00 Contingency 95.1 Contingency on Subontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect 96.00.00 97.1 Significant of Significant of Significant Office of			93.2	Construction Management Support									\$ 3,513
95.1 Contingency on Subcontractor 95.2 Contingency on Support State 95.3 Contingency on Support State 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Indirect \$ 13,575 \$ 13,575 \$ 13,575 \$ 10,490 \$ 10,490 \$ 10,490 \$ 10,490	1		93.3	SDG&E Internal Costs									\$ 17,55
95.1 Contingency on Subcontractor 95.2 Contingency on Support State Stat	1	95.00.00		Contingency									
95.3 Contingency on Material \$ - \$ \$	1		95.1	! Contingency on Subcontractor			\$	13,575					\$ 13,579
95.4 Contingency on Labor \$ 10,490 \$ 10,490 \$ 10,490 \$ 4,740	1							\$	-				
95.5 Contingency on Indirect \$ 4,740									, -		\$	10,490	
Total \$ 104,075 \$ (10,373) \$ - \$ 80,420 \$ 235,975			95.5	contingency on Indirect									\$ 4,740
	Total						\$	104,075 \$	(10,373) \$ -		\$	80,420	\$ 235,975

Facility Nameplate (kW) Pan

							Name					
Project ID 11	TJL		Customer Thomas Jefferson School of Law	Address 1155 Island Ave., San Diego	PV Location Tech. Roof PV	Date Energize 1/13	ed (kW) /2011	Panel Qty 49.90 24	7			
Area	Group	Phase	Description	Notes	Quantity	Subcontract	Cost Scrap	Value Material Cost	Man Hours	Crew Rate La	bor Cost	Total Cost
Roof top	11.00.00		Demolition									
		11.22.00	Concrete	Electrical equipment (Transformer,								
			Concrete	inverter, etc.) pad	7 /CY				8 /MH	\$ 140.47 \$	1,124	\$ 1,12
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 FA				9 /MH	\$ 127.80 \$	1.150	\$ 1.15
			Disconnect wiring at inverter		1 EA				2 /MH	\$ 127.80 \$	256	
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter		2 EA 2 EA				20 /MH 14 /MH	\$ 127.80 \$ \$ 127.80 \$		
			Disconnect and remove wiring at PV panels		247 EA				37 /MH	\$ 127.80 \$	4,729	\$ 4,72
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		247 EA				10 /MH	\$ 127.80 \$	1,278	\$ 1,27
			Demo conduit from rack to tie point Demo conduit from rack to transformer		1 EA 1 EA				9 /MH 7 /MH	\$ 127.80 \$ \$ 127.80 \$	1,150 895	\$ 1,15
			Demo conduit from combiners to inverter		1 EA				35 /MH	\$ 127.80 \$	4,473	
			Remove Conduits to inverters Remove inverters		1 EA 1 EA				2 /MH 3 /MH	\$ 127.80 \$ \$ 127.80 \$	256	
			Remove PV panel and place in dumpster		247 EA				124 /MH	\$ 127.80 \$	383 15,847	\$ 15,84
			Remove points where panel is fixed to roof		247 EA				55 /MH	\$ 127.80 \$	7,029	\$ 7,02
			Remove lightning projection and other auxiliary equipment		1 EA				23 /MH	\$ 127.80 \$	2,939	\$ 2,93
			Remove transformer Demolition		1 LT	\$	- \$	- \$ -	9 /MH	\$ 127.80 \$	1,150 47,004	
	18.00.00		Scrap Value									
		18.10.00	Mixed Steel									
			Steel Steel	1 EA, inverter 402 kW Service rack components	0.17 TN 0.06 TN		\$	(30) (11)	/MH /MH			\$ (3 \$ (1
			Steel	Conduit and fittings	0.07 TN		\$	(12)	/MH			\$ (1
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	2.01 TN 0.02 TN		\$	(352) (4)	/MH /MH			\$ (35 \$
		18.20.00	Stainless Steel									
		18.20.00	Stainless Steel	1788 Racks, 13.61 lbs each	1.68 TN		\$	(1,969)	/MH			\$ (1,96
		18.30.00	Copper									
			Copper	1 EA, 402 kW inverter Wire	0.06 TN 0.38 TN		\$	(146)	/MH /MH			\$ (14 \$ (92
			Copper Copper	Transformers	0.96 TN		\$	(927) (2,342)	/MH			\$ (92 \$ (2,34
		18.50.00	Aluminum									
			PV Module Conduit and fittings	1788 Modules @ 8 lbs each 100 @ 1 lb each	1976 LB 13.81 LB		\$	(1,202)	/MH /MH			\$ (1,20
			Scrap Value	100 @ 1 to eacti	15.61 LB	\$	- \$	(7,004) \$ -	/IVIN	\$	-	\$ (7,00
	21.00.00		Civil Work									
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels								
			Dumpster, 40 CY Capacity	to recycler)	1 EA		1,800		/MH			\$ 1,80
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900		/MH			\$ 90
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	7 /CY	\$	280 2,980 \$	- \$ -	/MH	\$		\$ 28 \$ 2,98
			CIVII WORK			,	2,980 \$	- \$ -		,	-	\$ 2,98
	24.00.00	24.37.00	Architectural Roofing									
			Roof repair at fix points	Installation	247 EA		0,755		/MH	\$	-	\$ 40,75
			Architectual			\$ 40	0,755 \$	- \$ -		\$	-	\$ 40,75
Direct Cos	ts											\$ 83,73
	61.00.00	C4 0C	Construction Indirect									
		61.99.00	Miscellaneous Downspout / Chute		1 L5	\$ 25	5,000		/мн			\$ 25,00
			Construction Indirect			\$ 25	5,000 \$	- \$ -		\$	-	\$ 25,00
Subtotal						\$ 6	8,735 \$	(7,004) \$ -		\$	47,004	\$ 108,73
	91.00.00		Other Direct & Construction Indirect Costs									
			Contractor's General and Administration Expense Contractor's Profit									\$ 7,61 \$ 10,87
		91.10										\$ 18,48
Direct Cos	ts + Constru	uction Indire	ct Costs			\$ 6	8,735 \$	(7,004) \$ -		\$	47,004	\$ 127,22
	93.00.00		Indirect Costs									
	23.00.00		Engineering, Procurement, & Project Services									\$ 7,63
			Construction Management Support SDG&E Internal Costs									\$ 2,54 \$ 12,72
	05.00.00	33.3										
1	95.00.00	95.1	Contingency Contingency on Subcontractor			\$ 10	0,310					\$ 10,31
l		95.2	P Contingency on Scrap Value P Contingency on Material				\$	\$ -				\$ - \$ -
		95.4	Contingency on Labor					¥		\$	7,051	
		95.5	Contingency on Indirect									\$ 3,43
Total						\$ 79	104E ^	(7,004) \$ -		Ś	54,055	
LIOTAL						5 79	.u45 S	(7.004) S -		ς.		

Facility Nameplate (kW) Project ID Code 12 PSD Subcontract Cost Scrap Value Material Cost Man Hours Crew Rate Labor Cost Total Cost Demolition Concrete Electrical equipment (Transformer, \$ 140.47 \$ 7 /CY 5 /MH 702 \$ 702 Concrete inverter, etc.) pad Electrical Equipment
Disconnect wiring and components at service rack
Disconnect wiring at inverter
Disconnect wiring at combiner boxes, remove boxes 11.41.00 6 /MH 1 /MH 12 /MH 127.80 127.80 127.80 767 128 1,534 1 EA 1 EA 1 EA 767 128 1,534 1,150 2,939 Pull wire from combiners to inverter
Disconnect and remove wiring at PV panels
Disconnect and remove grounding at PV panels and racks, 1 EA 156 EA 1,150 \$ 2,939 \$ 9 /MH 23 /MH \$ 127.80 \$ \$ 127.80 \$ 156 EA 6 /MH 767 \$ 127.80 \$ Remove ground rods Demo conduit from rack to tie point 1 EA 1 EA 1 EA 1 EA 6 /MH 4 /MH 22 /MH 1 /MH 2 /MH 767 511 2,812 127.80 \$ 511 2,812 128 Demo conduit from rack to transformer Demo conduit from combiners to inverter Remove Conduits to inverters 127.80 \$ 127.80 \$ 127.80 \$ 128 256 Remove inverters
Remove PV panel and place in dumpster
Remove points where panel is fixed to roof 256 9,968 4,473 1 EA 156 EA 127.80 \$ 78 /MH 35 /MH 127.80 \$ 9,968 \$ 4,473 \$ 156 EA 127.80 \$ Remove lightning projection and other auxiliary equipment 1 EA 15 /MH 127.80 S 1.917 \$ 1.917 Remove transformer

Demolition 127.80 767 \$ 29,585 \$ 18.00.00 18.10.00 Mixed Steel (19) (7) (7) (222) Steel Steel Steel Steel Steel 0.11 TN 0.04 TN 0.04 TN 1.27 TN /MH /MH /MH /MH /MH (19) (7) (7) (222) (4) 1 FA. inverter 402 kW Service rack components Conduit and fittings Roof ladder, 1@ 350 lb each 18.20.00 Stainless Steel (1,242 Copper Copper Copper Copper 18.30.00 1 EA, 402 kW inverter 18.50.00 1788 Modules @ 8 lbs each 100 @ 1 lb each 8.72 LB Civil Work Disposal Concrete, PV panels, rubbish (panels to recycler) Fix point rods 1 EA Dumpster, 40 CY Capacity
Backfill
Foundation backfill, imported material fill
Civil Work 1 EA /МН 900 21.20.00 Backfill concrete pads 7 /CY /МН 24.37.00 Roofing Roof repair at fix points Architectual 156 EA 53,916 Direct Costs 61.00.00 Construction Indirect 61.99.00 Miscellaneous Downspout / Chute

Construction Indirect 25,000 **25,000** 53,720 \$ (4,389) \$ 29,585 \$ 78,916 91.00.00 Other Direct & Construction Indirect Costs 91.09 Contractor's General and Administration Expense 91.10 Contractor's Profit 5,524 7,892 13,416 Direct Costs + Construction Indirect Costs 53.720 \$ (4.389) \$ 29.585 S 92.332 Indirect Costs
93.1 Engineering, Procurement, & Project Services
93.2 Construction Management Support
93.3 SDG&E Internal Costs 93.00.00 5,540 1,847 9,233 Contingency
95.1 Contingency on Subcontractor
95.2 Contingency on Scrap Value
95.3 Contingency on Material
95.4 Contingency on Labor \$ 8,058.00 \$ -8,058 \$ 4,438 \$ \$ 2,493 61,778 \$ (4,389) \$ 34,023 \$ Total

Project ID			Customer	Address	PV Location Tech.	Date Energ	gized (kW		anel Qty				
	wco		Wilco	2633 Progress St, Vista	Roof PV		27/2010	384.30	212				
Area Roof top	Group	Phase	Description	Notes	Quantity	Subcontra	act Cost Scra	ap Value I	Material Cost	Man Hours	Crew Rate L	abor Cost	Total Cost
	11.00.00	11.22.00	Demolition Concrete										
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY					71 /MH	S 140.47 S	\$ 9,973	\$ 9,973
		44.44.00			. ,							5,510	, 5,510
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA					76 /MH	\$ 127.80 \$	\$ 9,713	
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		1 EA 15 EA					19 /MH 170 /MH	\$ 127.80 \$ \$ 127.80 \$	\$ 2,428 \$ 21,726	\$ 2,428 \$ 21,726
			Pull wire from combiners to inverter		15 EA					124 /MH	\$ 127.80 \$		
			Disconnect and remove wiring at PV panels		2128 EA					319 /MH	\$ 127.80 \$	\$ 40,768	\$ 40,768
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		2128 EA					86 /MH	\$ 127.80 \$	\$ 10,991	\$ 10,991
			Demo conduit from rack to tie point		1 EA					76 /MH	\$ 127.80 \$		\$ 9,713
			Demo conduit from rack to transformer		1 EA 1 FA					57 /MH	\$ 127.80 \$		
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA					305 /MH 19 /MH	\$ 127.80 \$ \$ 127.80 \$		
			Remove inverters		1 EA					29 /MH	\$ 127.80		\$ 3,706
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		2128 EA 2128 EA					1064 /MH 476 /MH	\$ 127.80 \$ \$ 127.80 \$		
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT					200 /MH 77 /MH	\$ 127.80 \$ \$ 127.80 \$	\$ 25,560 \$ 9,841	\$ 25,560 \$ 9,841
			Demolition			\$	- \$	-	\$ -		;	\$ 405,770	\$ 405,770
	18.00.00		Scrap Value										
1		18.10.00	Mixed Steel Steel	1 EA, inverter 402 kW	1.49 TN		\$	(261)		/MH			\$ (261)
			Steel	Service rack components	0.56 TN		\$	(98)		/MH			\$ (98)
			Steel	Conduit and fittings	0.6 TN		\$	(105)		/MH			\$ (105)
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	17.34 TN 0.21 TN		\$	(3,035) (37)		/MH /MH			\$ (3,035) \$ (37)
		18.20.00	Stainless Steel										
		10:20:00	Stainless Steel	1788 Racks, 13.61 lbs each	14.48 TN		\$	(16,971)		/MH			\$ (16,971)
		18.30.00	Copper										
			Copper	1 EA, 402 kW inverter	0.48 TN		\$	(1,171)		/MH /MH			\$ (1,171)
			Copper Copper	Wire Transformers	3.24 TN 8.24 TN		\$	(7,906) (20,106)		/MH /MH			\$ (7,906) \$ (20,106)
		18.50.00	Aluminum										
		10.50.00	PV Module	1788 Modules @ 8 lbs each	17024 LB		\$	(10,359)		/MH			\$ (10,359)
			Conduit and fittings Scrap Value	100 @ 1 lb each	119.02 LB	Ś	\$ - \$	(72) (60.119)	s -	/MH		s -	\$ (72) \$ (60,119)
			e and										
	21.00.00	21.19.00	Civil Work Disposal										
				Concrete, PV panels, rubbish (panels						/MH			
			Dumpster, 40 CY Capacity Dumpster, 40 CY Capacity	to recycler) Fix point rods	12 EA 2 EA	\$	21,600 1,800			/MH /MH			\$ 21,600 \$ 1,800
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	s	280			/MH			\$ 280
			Civil Work	backiii concrete paus	7 /61		23,680 \$	-	\$ -	/WIII	;	s -	\$ 23,680
	24.00.00		Architectural										
		24.37.00	Roofing Roof repair at fix points	Installation	2128 EA	\$:	351.120			/MH			\$ 351,120
			Architectual	IIIStaliation	2128 EA		351,120 \$		\$ -	/IVIN		\$ -	\$ 351,120
Direct Cos	ts												\$ 720,450
	61.00.00		Construction Indirect										
	02.00.00	61.99.00	Miscellaneous										
			Downspout / Chute Construction Indirect		1 L5		25,000 \$		\$ -	/MH		s -	\$ 25,000 \$ 25,000
			Construction mancet				,						,
Subtotal						\$ 3	399,800 \$	(60,119)	ş -		;	\$ 405,770	\$ 745,450
	91.00.00		Other Direct & Construction Indirect Costs										
		91.05	Contractor's General and Administration Expense Contractor's Profit										\$ 52,182 \$ 74,545
													\$ 126,727
Direct Cos	ts + Constr	ruction Indire	ct Costs			\$ 3	399,800 \$	(60,119)	s -		;	\$ 405,770	\$ 872,177
	93.00.00		Indirect Costs										
		93.1	Engineering, Procurement, & Project Services										\$ 52,331
			Construction Management Support SDG&E Internal Costs										\$ 17,444 \$ 87,218
	05.00.00												. ,
	95.00.00	95.1	Contingency Contingency on Subcontractor			\$	59,970						\$ 59,970
		95.2	? Contingency on Scrap Value				\$	-	\$ -				\$ -
			Contingency on Material Contingency on Labor						, -		5	\$ 60,865	\$ - \$ 60,865
		95.0	Contingency on Indirect										\$ 23,549
		33.3	ganey on monece										
Total						\$ 4	59,770 \$	(60,119)	\$ -		,	\$ 466,635	\$ 1,173,553

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty
		1420 West San Marcos Blvd., San					

14	HTN		High Tech High North County	1420 West San Marcos Blvd., San Marcos	Roof PV		3/11/2011	70.20	336	i			
Area	Group	Phase	Description	Notes	Quantity	Subc	ontract Cost Scr	ap Value Mate	erial Cost	Man Hours	Crew Rate Labor Co	st To	tal Cost
Roof top	11.00.00		Demolition										
		11.22.00	Concrete	Electrical equipment (Transformer,									
			Concrete	inverter, etc.) pad	7 /CY					11 /MH	\$ 140.47 \$	1,545 \$	1,545
		11.41.00	Electrical Equipment										
			Disconnect wiring and components at service rack Disconnect wiring at inverter		1 EA 1 EA					12 /MH 3 /MH	\$ 127.80 \$ \$ 127.80 \$	1,534 \$ 383 \$	1,534 383
			Disconnect wiring at combiner boxes, remove boxes		2 EA					27 /MH	\$ 127.80 \$	3,451 \$	3,451
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		2 EA 336 EA					20 /MH 50 /MH	\$ 127.80 \$ \$ 127.80 \$	2,556 \$ 6.390 \$	2,556 6.390
			Disconnect and remove grounding at PV panels and racks,									.,	,,,,,
			Remove ground rods Demo conduit from rack to tie point		336 EA 1 EA					14 /MH 12 /MH	\$ 127.80 \$ \$ 127.80 \$	1,789 \$ 1,534 \$	1,789 1,534
			Demo conduit from rack to transformer		1 EA					9 /MH	\$ 127.80 \$	1,150 \$	1,150
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA 1 EA					48 /MH 3 /MH	\$ 127.80 \$ \$ 127.80 \$	6,134 \$ 383 \$	6,134 383
			Remove inverters		1 EA					5 /MH	\$ 127.80 \$	639 \$	639
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		336 EA 336 EA					168 /MH 75 /MH	\$ 127.80 \$ \$ 127.80 \$	21,470 \$ 9,585 \$	21,470 9,585
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT					32 /MH 12 /MH	\$ 127.80 \$ \$ 127.80 \$	4,090 \$ 1,534 \$	4,090 1,534
1			Demolition Demolition		1.11	\$	- \$	- \$	-	22 /19111	\$	64,167 \$	64,167
	18.00.00		Scrap Value										
1		18.10.00	Mixed Steel									_	
1			Steel Steel	1 EA, inverter 402 kW Service rack components	0.23 TN 0.09 TN		\$	(40) (16)		/MH /MH		\$	(40) (16)
1			Steel	Conduit and fittings	0.09 TN		\$	(16)		/MH		\$ \$ \$	(16)
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	2.74 TN 0.03 TN		\$	(480) (5)		/MH /MH		\$	(480) (5)
				1001100001, 1@ 33010 00011	0.03		¥	(3)		,		Ţ	(5)
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	2.29 TN		\$	(2,684)		/MH		S	(2,684)
								(2)== ./		,			(=)== .)
		18.30.00	Copper Copper	1 EA, 402 kW inverter	0.08 TN		\$	(195)		/MH		\$	(195)
			Copper	Wire	0.51 TN		\$	(1,244)		/MH		ş	(1,244)
			Copper	Transformers	1.3 TN		\$	(3,172)		/MH		\$	(3,172)
		18.50.00	Aluminum										
			PV Module Conduit and fittings	1788 Modules @ 8 lbs each 100 @ 1 lb each	2688 LB 18.79 LB		\$	(1,636) (11)		/MH /MH		\$	(1,636) (11)
			Scrap Value			\$	- \$	(9,499) \$	-		\$	- \$	(9,499)
	21.00.00		Civil Work										
		21.19.00	Disposal	Constant Manager to the best formats									
			Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	2 EA	\$	3,600			/MH		\$	3,600
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900			/MH		\$	900
		21.20.00	Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/MH		\$	280
			Civil Work			\$	4,780 \$	- \$	-		\$	- \$	4,780
	24.00.00		Architectural										
		24.37.00	Roofing Roof repair at fix points	Installation	336 EA	S	55,440			/MH	s	- S	55,440
1			Architectual		330 En	\$	55,440 \$	- \$	-	,,,,,	ş	- \$	55,440
Direct Cos	ts											\$	114,888
												,	,-50
1	61.00.00	61.99.00	Construction Indirect Miscellaneous										
1			Downspout / Chute		1 LS	\$	25,000			/MH		\$ - \$	25,000
1			Construction Indirect			\$	25,000 \$	- \$	-		\$		25,000
Subtotal						\$	85,220 \$	(9,499) \$	-		\$	64,167 \$	139,888
1	91.00.00		Other Direct & Construction Indirect Costs										
1			Contractor's General and Administration Expense									\$	9,792 13,989
1		91.10	Contractor's Profit									\$	23,781
Direct Cor	ts + Constr	uction Indirec	t Costs			s	85.220 \$	(9.499) S	_		s	64,167 \$	163.669
						7	03,220 3	(3,733) 3			7	- 1,207 9	103,003
	93.00.00	93.1	Indirect Costs Engineering, Procurement, & Project Services									\$	9,820
1		93.2	Construction Management Support									\$	3,273
1		93.3	SDG&E Internal Costs									\$	16,367
	95.00.00		Contingency										
			Contingency on Subcontractor Contingency on Scrap Value			\$	12,783	-				\$	12,783
1		95.3	Contingency on Material				,	- \$				\$	-
1		95.4	Contingency on Labor								\$	9,625 \$	9,625
1		95.5	Contingency on Indirect									\$	4,419
Total						Ś	98,003 \$	(9,499) \$			Ś	73,792 \$	219,957
						Ψ	22,303 9	(-,) 4			¥	-,	

Project ID	Code		Customer	Address 3105 Jefferson St. San Diego	PV Location Roof	Tech.	Date Energia		eplate) 22.80	Panel Qty	,				
Area	Group	Phase	Urban Corps Description	Notes	Quantity	rv				Material Cost		Crew Rate	Labor Cost	Total (`oet
Roof top	11.00.00	riiase	Demolition	Notes	Quantity		Subcontra	LI COST SUI	ip value	iviateriai Cost	Wall Hours	Clew Rate	Labor Cost	Total	ost
	11.00.00	11.22.00	Concrete												
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad		7 /CY					4 /MH	\$ 140.47	\$ 56	52 \$	562
		11.41.00	Electrical Equipment												
			Disconnect wiring and components at service rack Disconnect wiring at inverter			1 EA 1 EA					4 /MH 1 /MH	\$ 127.80 \$ 127.80	\$ 55 \$ 10	11 \$ 18 \$	511 128
			Disconnect wiring at combiner boxes, remove boxes			1 EA					9 /MH	\$ 127.80	\$ 1,15	iO \$	1,150
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels			1 EA 17 EA					7 /MH 18 /MH		\$ 89 \$ 2.30	95 \$ 90 \$	895 2,300
			Disconnect and remove grounding at PV panels and racks,												
			Remove ground rods Demo conduit from rack to tie point			17 EA 1 EA					5 /MH 4 /MH	\$ 127.80 \$ 127.80		9 \$ 1 S	639 511
			Demo conduit from rack to transformer			1 EA					3 /MH	\$ 127.80	\$ 38	3 \$	383
			Demo conduit from combiners to inverter Remove Conduits to inverters			1 EA 1 EA					17 /MH 1 /MH	\$ 127.80 \$ 127.80		3 \$ 8 \$	2,173 128
			Remove inverters			1 EA					2 /MH	\$ 127.80	\$ 25	6 \$	256
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof			17 EA 17 EA					59 /MH 26 /MH	\$ 127.80 \$ 127.80	\$ 7,54	10 \$!3 \$	7,540 3,323
			Remove lightning projection and other auxiliary equipment Remove transformer			1 EA 1 LT					11 /MH 4 /MH	\$ 127.80 \$ 127.80	\$ 5:)6 \$!1 \$	1,406 511
			Demolition				\$	- \$	-	\$ -			\$ 22,4	16 \$	22,416
	18.00.00	10 10 00	Scrap Value Mixed Steel												
		18.10.00	Steel	1 EA, inverter 402 kW		8 TN		\$	(14)		/MH			\$	(14)
			Steel Steel	Service rack components Conduit and fittings		TN		\$	(5)		/MH /MH			\$	(5)
			Steel	Transformers	0.0	OS TN		\$	(5) (166)		/MH			\$	(5) (166)
			Steel	Roof ladder, 1@ 350 lb each	0.0	1 TN		\$	(2)		/MH			\$	(2)
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	0	.8 TN		\$	(938)		/MH			S	(938)
		18 30 00	Copper	1700 (4003, 13.01 (5) 0.00)	0.			7	(330)		,,,,,,			7	(330)
		18.30.00	Copper	1 EA, 402 kW inverter	0.0	3 TN		\$	(73)		/MH			\$	(73)
			Copper	Wire Transformers	0.1	IS TN		\$	(439) (1,098)		/MH /MH			Ş	(439) (1,098)
			Copper	Halisiothiels	0.4	IJ IIV		7	(1,030)		/WIII			,	(1,036)
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	93	6 LB		\$	(570)		/мн			\$	(570)
			Conduit and fittings Scrap Value	100 @ 1 lb each		4 LB	s	, ,	(4)		/мн			\$	(4)
							,	. ,	(3,314)				,	,	(3,314)
	21.00.00	21.19.00	Civil Work Disposal												
				Concrete, PV panels, rubbish (panels							/мн				
			Dumpster, 40 CY Capacity Dumpster, 40 CY Capacity	to recycler) Fix point rods		1 EA 1 EA	\$ \$	1,800 900			/MH /MH			\$	1,800 900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads		7 /CY	\$	280			/мн			s	280
			Civil Work				\$	2,980 \$	-	\$ -	,		\$ -	\$	2,980
	24.00.00		Architectural												
		24.37.00	Roofing Roof repair at fix points	Installation	11	I7 EA	\$	19,305			/мн		\$ -	\$	19,305
			Architectual				\$	19,305 \$	-	\$ -			\$ -	\$	19,305
Direct Cos	's													\$	41,387
	61.00.00		Construction Indirect												
		61.99.00	Miscellaneous Downspout / Chute			1 LS	\$	25,000			/MH			s	25,000
			Construction Indirect			113		25,000 \$	-	\$ -	/ivin		\$ -	\$	25,000
Subtotal							s .	47,285 \$	(3,314)	s -			\$ 22,4:	16 S	66,387
							•	,	(=)== :)	•					
	91.00.00	91.09	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense											\$	4,647
		91.10	Contractor's Profit											\$ \$	6,639 11,286
D' 6			4.5.4.				s ,	47.705 6	(2.244)						
Direct Cos		uction Indire					\$ '	47,285 \$	(3,314)	> -			\$ 22,4	16 \$	77,672
	93.00.00	93.1	Indirect Costs ! Engineering, Procurement, & Project Services											\$	4,660
		93.2	Construction Management Support											\$	1,553
		93.3	3 SDG&E Internal Costs											\$	7,767
	95.00.00	05.5	Contingency				\$	7,093						c	7.003
			Contingency on Subcontractor Contingency on Scrap Value				>	7,093	-					\$	7,093
1		95.3	3 Contingency on Material 4 Contingency on Labor							\$ -			\$ 3,36	\$ 52 \$	- 3,362
													3,36 ب		
		95.5	5 Contingency on Indirect											\$	2,097
Total							\$ 5	4,378 \$	(3,314)	\$ -			\$ 25,77	8 \$	104,206

Project ID			Customer	Address	PV Location Tech.	Date Energ	gized (kW		el Qty					
	PRS		Pacific Ridge School	6269 El Fuerte St., Carlsbad	Roof PV		/27/2011	20.90	102					
Area Roof top	Group	Phase	Description Demolition	Notes	Quantity	Subcontra	act Cost Scra	ap Value Ma	terial Cost	Man Hours	Crew Rate	Labor Cost	Т	otal Cost
	11.00.00	11.22.00	Concrete Concrete											
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY					3 /MH	\$ 140.47	\$	421 \$	421
		11.41.00	Electrical Equipment											
			Disconnect wiring and components at service rack Disconnect wiring at inverter		1 EA 1 EA					4 /MH 1 /MH	\$ 127.80 \$ 127.80	\$	511 \$ 128 \$	
			Disconnect wiring at combiner boxes, remove boxes		1 EA					8 /MH	\$ 127.80	\$ 1	,022 \$	1,022
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		1 EA 102 EA					6 /MH 15 /MH		\$ \$ 1	767 \$,917 \$	767 1,917
			Disconnect and remove grounding at PV panels and racks,											
			Remove ground rods Demo conduit from rack to tie point		102 EA 1 EA					4 /MH 4 /MH	\$ 127.80 \$ 127.80		511 S	
			Demo conduit from rack to transformer		1 EA					3 /MH	\$ 127.80	\$	383 \$	383
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA 1 EA					15 /MH 1 /MH			,917 \$ 128 \$	
			Remove inverters		1 EA					1 /MH		\$	128 \$	128
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		102 EA 102 EA					51 /MH 23 /MH			,518 \$,939 \$	
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT					10 /MH 4 /MH	\$ 127.80 \$ 127.80	\$,278 \$ 511 \$	511
			Demolition			\$	- \$	- \$	-			\$ 19,	,591 \$	19,591
	18.00.00	18.10.00	Scrap Value Mixed Steel											
		18.10.00	Steel	1 EA, inverter 402 kW	0.07 TN		\$	(12)		/MH			9	(12)
			Steel Steel	Service rack components Conduit and fittings	0.03 TN		\$	(5)		/MH /MH			9	(5)
			Steel	Transformers	0.03 TN 0.83 TN		\$	(5) (145)		/MH /MH			\$	(5) (145)
			Steel	Roof ladder, 1@ 350 lb each	0.01 TN		\$	(2)		/MH			\$	(2)
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	0.69 TN		\$	(809)		/мн			5	(809)
		18.30.00	Copper	·										
		10.30.00	Copper	1 EA, 402 kW inverter	0.02 TN		\$	(49)		/MH			\$	(49)
			Copper Copper	Wire Transformers	0.16 TN 0.39 TN		\$	(390) (952)		/MH /MH			\$	(390)
		18.50.00	Aluminum							,				, ,
		18.50.00	PV Module	1788 Modules @ 8 lbs each	816 LB		\$	(497)		/MH			\$	
			Conduit and fittings Scrap Value	100 @ 1 lb each	5.7 LB	Ś	- \$	(3) (2,869) \$	-	/MH		s	- 5	(2,869)
			Civil Work					.,,						.,,
	21.00.00	21.19.00	Disposal Disposal											
			Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	1 EA	\$	1,800			/мн			ş	1,800
			Dumpster, 40 CY Capacity	Fix point rods	1 EA	\$	900			/MH			\$	900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/MH			\$	
			Civil Work			\$	2,980 \$	- \$	-			\$	- \$	2,980
	24.00.00	24.37.00	Architectural Roofing											
		24.37.00	Roof repair at fix points	Installation	102 EA	\$	16,830			/MH		\$	- \$	
			Architectual			\$	16,830 \$	- \$	-			\$	- \$	16,830
Direct Co	its												\$	36,532
	61.00.00		Construction Indirect											
		61.99.00	Miscellaneous Downspout / Chute		1 L5	\$	25,000			/MH			9	25,000
			Construction Indirect			\$	25,000 \$	- \$	-	,		\$	- \$	
Subtotal						\$	44,810 \$	(2,869) \$	-			\$ 19	.591 \$	61,532
	91.00.00		Other Direct & Construction Indirect Costs											
		91.09	Contractor's General and Administration Expense										\$	
		91.10	Contractor's Profit										\$	6,153 10,460
Direct Co	ts + Constr	uction Indire	rt Costs			s	44,810 \$	(2,869) \$	_			\$ 19	,591 \$	
						7	.,	,_,_,,,				. 13		, 1,333
1	93.00.00		Indirect Costs Engineering, Procurement, & Project Services										\$	
			2 Construction Management Support 3 SDG&E Internal Costs										\$	
		33.3											2	,,199
	95.00.00	95.1	Contingency ! Contingency on Subcontractor			\$	6,722						\$	6,722
1		95.2	? Contingency on Scrap Value				\$	-					\$	
			3 Contingency on Material 4 Contingency on Labor					\$	-			\$ 2	,939 \$	2,939
		95.0	5 Contingency on Indirect										Ş	
		33.3	ganey on maneee											
Total						\$	51,532 \$	(2,869) \$				\$ 22,	530 \$	96,555

							Na	cility meplate					
Project ID 17	Code SBR		Customer Sanford Burnham Medical Research	Address 10905 Road to the Cure, La Jolla	PV Location Tech. Roof PV	Date E	nergized (k\ 1/28/2011	V) Panel Qt 200.20	y 712				
	Group	Phase	Description	Notes	Quantity	Subco	ontract Cost Sci	rap Value Materia	al Cost	Man Hours	Crew Rate Lab	oor Cost	Total Cost
Roof top	11.00.00		Demolition										
		11.22.00	Concrete										
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY					24 /MH	\$ 140.47 \$	3,371	\$ 3,371
		11.41.00	Electrical Equipment										
		11.41.00	Disconnect wiring and components at service rack		1 EA					25 /MH	\$ 127.80 \$	3,195	\$ 3,199
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		1 EA 5 EA					6 /MH 57 /MH	\$ 127.80 \$ \$ 127.80 \$	767 7,285	\$ 767 \$ 7,285
			Pull wire from combiners to inverter		5 EA					41 /MH	\$ 127.80 \$	5,240	\$ 5,240
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks,		712 EA					107 /MH	\$ 127.80 \$	13,675	\$ 13,675
			Remove ground rods		712 EA					29 /MH	\$ 127.80 \$	3,706	
			Demo conduit from rack to tie point Demo conduit from rack to transformer		1 EA 1 EA					25 /MH 19 /MH	\$ 127.80 \$ \$ 127.80 \$	3,195 2.428	
			Demo conduit from combiners to inverter		1 EA					102 /MH	\$ 127.80 \$	13,036	
			Remove Conduits to inverters		1 EA					6 /MH	\$ 127.80 \$	767	
			Remove inverters Remove PV panel and place in dumpster		1 EA 712 EA					10 /MH 356 /MH	\$ 127.80 \$ \$ 127.80 \$	1,278 45.497	
			Remove points where panel is fixed to roof		712 EA					159 /MH	\$ 127.80 \$	20,320	
			Remove lightning projection and other auxiliary equipment		1 EA					67 /MH	\$ 127.80 \$	8,563	\$ 8,563
			Remove transformer		1 LT					26 /MH	\$ 127.80 \$	3,323	\$ 3,323
			Demolition			\$	- \$	- \$	-		\$	135,644	\$ 135,644
	18.00.00		Scrap Value										
		18.10.00	Mixed Steel Steel	1 EA, inverter 402 kW	0.5 TN		4	(88)		/мн			\$ (88
			Steel	Service rack components	0.19 TN		\$	(33)		/MH			\$ (33
			Steel Steel	Conduit and fittings Transformers	0.2 TN 5.8 TN		\$	(35) (1,015)		/MH /MH			\$ (35 \$ (1,015
			Steel	Roof ladder, 1@ 350 lb each	0.07 TN		\$	(12)		/MH			\$ (1,013
		18.20.00	Stainless Steel										
		10.20.00	Stainless Steel	1788 Racks, 13.61 lbs each	4.85 TN		\$	(5,684)		/мн			\$ (5,684
		18.30.00	Copper										
		10.30.00	Copper	1 EA, 402 kW inverter	0.16 TN		\$	(390)		/MH			\$ (390
			Copper Copper	Wire Transformers	1.08 TN 2.76 TN		\$	(2,635) (6,734)		/MH /MH			\$ (2,635 \$ (6,734
				rialisionneis	2.70 114		7	(0,734)		/WIII			3 (0,734
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	5696 LB		\$	(3,466)		/мн			\$ (3,466
			Conduit and fittings	100 @ 1 lb each	39.82 LB		\$	(24)		/MH			\$ (24
			Scrap Value			\$	- \$	(20,117) \$	-		\$	-	\$ (20,117
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)	4 EA	\$	7,200			/MH			\$ 7,200
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900			/MH			\$ 900
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	7 /CY	\$	280 8,380 \$	- 5		/MH	S		\$ 280
						,	8,380 3	- 3	-		,		3 0,300
	24.00.00	24.37.00	Architectural Roofing										
		24.37.00	Roof repair at fix points	Installation	712 EA	\$	117,480			/мн	\$	-	\$ 117,480
			Architectual			\$	117,480 \$	- \$	-		\$	-	\$ 117,480
Direct Cost	ts												\$ 241,387
	61.00.00		Construction Indirect										
			Miscellaneous										
			Downspout / Chute Construction Indirect		1 LS	\$	25,000 \$	- S	-	/MH	s	-	\$ 25,000 \$ 25,000
							,,,,,,	•					,
Subtotal						\$	150,860 \$	(20,117) \$	-		\$	135,644	\$ 266,387
	91.00.00		Other Direct & Construction Indirect Costs										
		91.09 91.10	Contractor's General and Administration Expense Contractor's Profit										\$ 18,647 \$ 26,639
													\$ 45,286
Direct Cost	ts + Constri	uction Indirec	t Costs			s	150,860 \$	(20,117) \$	-		s	135,644	\$ 311,673
											,	•	,
	93.00.00	93.1	Indirect Costs Engineering, Procurement, & Project Services										\$ 18,700
		93.2	Construction Management Support										\$ 6,233
		93.3	SDG&E Internal Costs										\$ 31,167
	95.00.00		Contingency										
			Contingency on Subcontractor Contingency on Scrap Value			\$	22,629	-					\$ 22,629
		95.3	Contingency on Material				,	\$	-				\$ -
		95.4	Contingency on Labor								\$	20,347	\$ 20,347
		95.5	Contingency on Indirect										\$ 8,415
Total						Ś	173.489 S	(20,117) \$	-		\$	155,991	\$ 419,164
						· ·	, +0.5 \$,,, 4			Y		

Facility

						Nameplate	
Project ID Code	Customer	Address	PV Location Te	ech.	Date Energized	(kW)	Panel Qty

18	HCK		High Tech High Chula Vista K-8	1949 Discovery Falls Drive, Chula Vista	3 Roof	PV	8/8/2	011	130.10	64	4				
Area	Group	Phase	Description	Notes	Quantity		Subcontract C	ost Scra	p Value N	Naterial Cost	Man Hours	Crew Rate L	abor Cost	Total	Cost
Roof top	11.00.00		Demolition												
		11.22.00	Concrete	Electrical equipment (Transformer,											
			Concrete	inverter, etc.) pad	7	/CY					22 /MH	\$ 140.47	3,0	90 \$	3,090
		11.41.00	Electrical Equipment												
			Disconnect wiring and components at service rack Disconnect wiring at inverter		1	EA EA					23 /MH 6 /MH	\$ 127.80 : \$ 127.80 :	2,9	39 \$ 57 \$	2,939 767
			Disconnect wiring at combiner boxes, remove boxes		5	EA					52 /MH	\$ 127.80	6,6	16 \$	6,646
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		5 644	EA EA					37 /MH 97 /MH	\$ 127.80 : \$ 127.80 :	,	29 \$ 97 \$	4,729 12,397
			Disconnect and remove grounding at PV panels and racks,												
			Remove ground rods Demo conduit from rack to tie point		644 1	EA EA					26 /MH 23 /MH	\$ 127.80 ! \$ 127.80 !	3,3	23 \$ 39 \$	3,323 2,939
			Demo conduit from rack to transformer		1	EA					17 /MH	\$ 127.80	2,1	73 \$	2,173
			Demo conduit from combiners to inverter Remove Conduits to inverters			EA EA					92 /MH 6 /MH	\$ 127.80 ! \$ 127.80 !		58 \$ 57 \$	11,758 767
			Remove inverters			EA					9 /MH	\$ 127.80	1,1	50 \$	1,150
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		644 644						322 /MH 144 /MH	\$ 127.80 : \$ 127.80 :	5 41,1 5 18,4	52 \$ 03 \$	41,152 18,403
			Remove lightning projection and other auxiliary equipment Remove transformer			EA LT					61 /MH 23 /MH	\$ 127.80 : \$ 127.80 :		96 \$ 39 \$	7,796 2,939
			Demolition				\$	- \$	- \$	s -		,	122,9	57 \$	122,967
	18.00.00		Scrap Value												
		18.10.00	Mixed Steel Steel	1 EA, inverter 402 kW	0.45	TN		\$	(79)		/MH			\$	(79)
			Steel	Service rack components	0.17	TN		\$	(30)		/MH			\$	(30)
			Steel Steel	Conduit and fittings Transformers	0.18 5.25			\$	(32) (919)		/MH /MH			\$ \$ \$	(32)
			Steel	Roof ladder, 1@ 350 lb each	0.06			\$	(11)		/MH			\$	(11)
		18.20.00	Stainless Steel												
			Stainless Steel	1788 Racks, 13.61 lbs each	4.38	TN		\$	(5,133)		/MH			\$	(5,133)
		18.30.00	Copper												
			Copper	1 EA, 402 kW inverter	0.14			\$	(342)		/MH			Ş	(342)
			Copper Copper	Wire Transformers	0.98 2.49			\$	(2,391) (6,076)		/MH /MH			\$	(2,391) (6,076)
		18.50.00	Aluminum												
		10.50.00	PV Module	1788 Modules @ 8 lbs each	5152	LB		\$	(3,135)		/мн			\$	(3,135)
			Conduit and fittings Scrap Value	100 @ 1 lb each	36.02	LB	\$	\$	(22) (18,168) \$	s -	/MH		\$ -	s	(22)
							÷ .	,	(10,100)			,		,	(10,100)
	21.00.00	21.19.00	Civil Work Disposal												
			·	Concrete, PV panels, rubbish (panels				100							
			Dumpster, 40 CY Capacity Dumpster, 40 CY Capacity	to recycler) Fix point rods		EA EA	\$ 7,2	100			/MH /MH			\$	7,200 900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads		/CY		180			/мн			s	280
			Civil Work	backilli colicrete paus	/	/C1		80 \$	- 5	s -	/ivin		s -	-	8,380
	24.00.00		Architectural												
		24.37.00	Roofing												
			Roof repair at fix points Architectual	Installation	644	EA	\$ 106,2 \$ 106,2	60 \$	- 5	s -	/MH		<u> </u>	\$	106,260 106,260
L.							- 200,2		•			,			
Direct Cos	ts													ş	219,439
	61.00.00	C4 00 00	Construction Indirect												
		61.99.00	Miscellaneous Downspout / Chute		1	LS	\$ 25,0	100			/MH			\$	25,000
			Construction Indirect				\$ 25,0	000 \$	- ;	s -			s -	\$	25,000
Subtotal							\$ 139,6	40 \$	(18,168)	s -		;	5 122,9	57 \$	244,439
	91.00.00		Other Direct & Construction Indirect Costs												
	-2.00.00		Contractor's General and Administration Expense											\$	17,111
		91.10	Contractor's Profit											\$	24,444 41,555
1															
Direct Cos	ts + Constri	uction Indirec	t Costs				\$ 139,6	40 \$	(18,168)	-		;	122,9	57 \$	285,993
	93.00.00		Indirect Costs												47.
		93.1 93.2	Engineering, Procurement, & Project Services Construction Management Support											\$	17,160 5,720
		93.3	SDG&E Internal Costs											\$	28,599
	95.00.00		Contingency												
			Contingency on Subcontractor				\$ 20,9							\$	20,946
		95.3	Contingency on Scrap Value Contingency on Material					\$	- 5					\$	-
		95.4	Contingency on Labor										18,4	15 \$	18,445
		95.5	Contingency on Indirect											\$	7,722
Tota!							\$ 160.5	06 ^	(10.100)				\$ 141,41		384,585
Total							> 160,5	86 Ş	(18,168)	•			141,41	4 \$	384,585

Facility Nameplate

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty	
		Campus View Dr & La Moree Rd, San						
19 CSM	CSUSM - Public Safety Building	Marcos	Roof	PV	1/19/201	2	37.10	180

19	CSM		CSUSM - Public Safety Building	Marcos	Roof	PV	1/19/2	2012	37.10	180					
Area	Group	Phase	Description	Notes	Quantity		Subcontract (Cost Scra	p Value Ma	aterial Cost	Man Hours	Crew Rate	Labor Cost	Tota	l Cost
Roof top	11.00.00		Demolition												
		11.22.00	Concrete	Electrical equipment (Transformer,											
			Concrete	inverter, etc.) pad		7 /CY					6 /MH	\$ 140.47	\$	843 \$	843
		11.41.00	Electrical Equipment								· · · · · · · · · · · · · · · · · · ·				
		11.41.00	Disconnect wiring and components at service rack			1 EA					6 /MH	\$ 127.80		767 \$	767
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes			1 EA 1 EA					2 /MH 14 /MH	\$ 127.80 \$ 127.80		256 \$.789 \$	256 1,789
			Pull wire from combiners to inverter			1 EA					10 /MH	\$ 127.80	\$ 1	.278 \$	1,769
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks,		1	80 EA					27 /MH	\$ 127.80	\$ 3	451 \$	3,451
			Remove ground rods		1	30 EA					7 /MH	\$ 127.80	s	895 \$	895
			Demo conduit from rack to tie point			1 EA					6 /MH	\$ 127.80		767 \$	767
			Demo conduit from rack to transformer Demo conduit from combiners to inverter			1 EA 1 EA					5 /MH 26 /MH	\$ 127.80 \$ 127.80		639 \$.323 \$	639 3,323
			Remove Conduits to inverters			1 EA					2 /MH	\$ 127.80	\$	256 \$	256
			Remove inverters Remove PV panel and place in dumpster			1 EA 30 EA					2 /MH 90 /MH	\$ 127.80 \$ 127.80	\$ 11	256 \$.502 \$	256 11,502
			Remove points where panel is fixed to roof			30 EA					40 /MH	\$ 127.80		112 \$	5,112
			Demons lightning assistation and other auditors assistance			1 EA					17 /MH	\$ 127.80		.173 \$	2,173
			Remove lightning projection and other auxiliary equipment Remove transformer			1 LT					7 /MH	\$ 127.80	\$	895 \$	895
			Demolition				\$	- \$	- \$	-			\$ 34	199 \$	34,199
1	18.00.00		Scrap Value												
1		18.10.00	Mixed Steel	4.54 (2 74			(
1			Steel Steel	1 EA, inverter 402 kW Service rack components		13 TN 05 TN		\$	(23) (9)		/MH /MH			\$	(23) (9)
			Steel	Conduit and fittings	0.0	DS TN		\$	(9)		/MH			Ş	(9)
1			Steel Steel	Transformers Roof ladder, 1@ 350 lb each		17 TN 02 TN		\$	(257) (4)		/MH /MH			\$ \$ \$	(257)
1					0.			¥	(~)		,,,,,,,			¥	(4)
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	1.1	23 TN		\$	(1,442)		/MH			s	(1,442)
				1700 NBCKS, 13.01 IDS EBCII	1.	LJ IN		Ÿ	(1,442)		/WIII			ý	(1,442)
		18.30.00	Copper Copper	1 EA, 402 kW inverter	0.	04 TN		\$	(98)		/MH				(98)
			Copper	Wire		27 TN		\$	(659)		/MH			\$	(659)
			Copper	Transformers	C	.7 TN		\$	(1,708)		/MH			\$	(1,708)
		18.50.00	Aluminum												
1			PV Module Conduit and fittings	1788 Modules @ 8 lbs each 100 @ 1 lb each	14	10 LB 07 LB		\$	(876) (6)		/MH /MH			\$	(876)
			Scrap Value	100 (ft 1 ID 64CII	10.	,, LD	\$	- \$	(5,089) \$	-	/MH		\$	- \$	(6) (5,089)
	21.00.00		Civil Work												
		21.19.00	Disposal												
				Concrete, PV panels, rubbish (panels							4				
			Dumpster, 40 CY Capacity Dumpster, 40 CY Capacity	to recycler) Fix point rods		1 EA 1 EA		800 900			/MH /MH			ş s	1,800 900
		21.20.00	Backfill												
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads		7 /CY		280 980 \$	- s	_	/MH		s	s - s	280 2,980
							, -	,					•	,	_,
	24.00.00	24.37.00	Architectural Roofing												
			Roof repair at fix points	Installation	1	BO EA	\$ 29,				/MH		\$	- \$	29,700
			Architectual				\$ 29,	700 \$	- \$	-			\$	- \$	29,700
Direct Cos	sts													\$	61,789
	61.00.00		Construction Indirect												
	31.00.00	61.99.00	Miscellaneous												
			Downspout / Chute Construction Indirect			1 LS	\$ 25, \$ 25,	000 000 \$	- 5		/MH		S	. \$	25,000 25,000
										-					
Subtotal							\$ 57,	680 \$	(5,089) \$	-			\$ 34	199 \$	86,789
	91.00.00		Other Direct & Construction Indirect Costs												
			Contractor's General and Administration Expense											\$	6,075 8,679
		91.10	Contractor's Profit											\$	14,754
Disa - C			at Coata				\$ 57,	coo ^	/E 0001 *					100 ^	404 5
DIFECT COS		uction Indire	Li Losis				\$ 57,	680 \$	(5,089) \$	-			\$ 34	199 \$	101,543
1	93.00.00	0.5	Indirect Costs Engineering, Procurement, & Project Services											^	6.093
			! Engineering, Procurement, & Project Services ? Construction Management Support											\$	6,093 2,031
1			S SDG&E Internal Costs											Ş	10,154
1	95.00.00		Contingency												
	_3.00.00	95.1	! Contingency on Subcontractor				\$ 8,	652						\$	8,652
1			P. Contingency on Scrap Value B. Contingency on Material					\$	- \$					\$ \$	-
			Contingency on Material Contingency on Labor						\$				\$ 5	.130 \$	5,130
														\$	2.742
		95.5	Contingency on Indirect												2,742
Total							\$ 66,3	332 \$	(5,089) \$	-			\$ 39,	328 \$	136,345

Facility Nameplate

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty	
		4760 Clairemont Mesa Blvd, San						
20 FIR	SDG&F FIC (roof)	Diego	Roof	PV/	1/5/2012	4	17 33	23/

20	EIR		SDG&E EIC (roof)	4760 Clairemont Mesa Blvd, San Diego	Roof PV		1/5/2012	47.33	234				
Area Roof top	Group	Phase	Description	Notes	Quantity	Subco	entract Cost Scr	p Value Mater	ial Cost	Man Hours	Crew Rate Labor Co	st To	tal Cost
KOOI top	11.00.00	11.22.00	Demolition Concrete										
		11.22.00	Concrete	Electrical equipment (Transformer,	7 (0)					0 444	44047.4	4424 4	4434
				inverter, etc.) pad	7 /CY					8 /MH	\$ 140.47 \$	1,124 \$	1,124
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA					8 /MH	\$ 127.80 \$	1,022 \$	1,022
			Disconnect wiring at inverter		1 EA					2 /MH	\$ 127.80 \$	256 \$	256
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter		2 EA 2 EA					19 /MH 14 /MH	\$ 127.80 \$ \$ 127.80 \$	2,428 \$ 1.789 \$	2,428 1.789
			Disconnect and remove wiring at PV panels		234 EA					35 /MH	\$ 127.80 \$	4,473 \$	4,473
			Disconnect and remove grounding at PV panels and racks,		234 EA					9 /MH	\$ 127.80 \$	1,150 \$	1,150
			Remove ground rods Demo conduit from rack to tie point		1 EA					8 /MH	\$ 127.80 \$	1,022 \$	1,150
			Demo conduit from rack to transformer		1 EA					6 /MH	\$ 127.80 \$	767 \$	767
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA 1 EA					34 /MH 2 /MH	\$ 127.80 \$ \$ 127.80 \$	4,345 \$ 256 \$	4,345 256
			Remove inverters		1 EA					3 /MH	\$ 127.80 \$	383 \$	383
			Remove PV panel and place in dumpster		234 EA 234 EA					117 /MH 52 /MH	\$ 127.80 \$ \$ 127.80 \$	14,953 \$ 6,646 \$	14,953 6,646
			Remove points where panel is fixed to roof								3 127.00 3	0,040 5	0,040
			Remove lightning projection and other auxiliary equipment		1 EA					22 /MH	\$ 127.80 \$	2,812 \$	2,812
1			Remove transformer Demolition		1 LT	\$	- \$	- \$	-	9 /MH	\$ 127.80 \$	1,150 \$ 44,576 \$	1,150 44,576
1	40.0												
	18.00.00	18.10.00	Scrap Value Mixed Steel										
			Steel	1 EA, inverter 402 kW	0.16 TN		\$	(28)		/MH		\$	(28)
			Steel Steel	Service rack components Conduit and fittings	0.06 TN 0.07 TN		\$	(11) (12)		/MH /MH		\$ \$ \$	(11) (12)
			Steel	Transformers	1.91 TN		\$	(334)		/MH		\$	(334)
1			Steel	Roof ladder, 1@ 350 lb each	0.02 TN		\$	(4)		/мн		\$	(4)
		18.20.00	Stainless Steel										
			Stainless Steel	1788 Racks, 13.61 lbs each	1.59 TN		\$	(1,863)		/MH		\$	(1,863)
		18.30.00	Copper										
			Copper	1 EA, 402 kW inverter	0.05 TN		\$	(122)		/MH		\$	(122)
			Copper Copper	Wire Transformers	0.36 TN 0.91 TN		\$	(878) (2,220)		/MH /MH		\$	(878) (2,220)
1										,			
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	1872 LB		\$	(1,139)		/мн		\$	(1,139)
1			Conduit and fittings	100 @ 1 lb each	13.09 LB		\$	(8)		/MH		\$	(8)
1			Scrap Value			\$	- \$	(6,620) \$	-		5	- \$	(6,620)
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)	1 EA	\$	1,800			/MH		\$	1,800
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900			/MH		\$	900
			Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/мн		\$	280
			Civil Work			\$	2,980 \$	- \$	-		\$	- \$	2,980
	24.00.00		Architectural										
1		24.37.00	Roofing Roof repair at fix points	Installation	234 EA	\$	38,610			/мн	\$	- \$	38,610
1			Architectual			\$	38,610 \$	- \$	-		\$	- \$	38,610
Direct Cos	sts											\$	79,546
1	61.00.00	61.99.00	Construction Indirect Miscellaneous										
1			Downspout / Chute		1 LS	S	25,000			/МН		\$ - \$	25,000
1			Construction Indirect			\$	25,000 \$	- \$	-		\$		25,000
Subtotal						\$	66,590 \$	(6,620) \$	-		\$	44,576 \$	104,546
1	91.00.00		Other Direct & Construction Indirect Costs										
1			Contractor's General and Administration Expense									\$	7,318
		91.10	Contractor's Profit									\$	10,455 17,773
L.													
Direct Cos	sts + Constri	uction Indirec	t Costs			\$	66,590 \$	(6,620) \$	-		\$	44,576 \$	122,319
	93.00.00		Indirect Costs										
		93.1 93.2	Engineering, Procurement, & Project Services Construction Management Support									\$	7,339 2,446
		93.3	SDG&E Internal Costs									ş	12,232
	95.00.00		Contingency										
			Contingency on Subcontractor			\$	9,989					\$	9,989
			Contingency on Scrap Value Contingency on Material				\$	- \$	-			\$	-
1			Contingency on Material Contingency on Labor					Ş			\$	6,686 \$	6,686
1		gc c	Contingency on Indirect									\$	3,303
		35.5	contangency on munect										
Total						\$	76,579 \$	(6,620) \$	-		\$	51,262 \$	164,314

Contingency
95.1 Contingency on Subcontractor
95.2 Contingency on Scrap Value
95.3 Contingency on Material
95.4 Contingency on Labor

Total

Facility Nameplate (kW) Project ID Code 21 UCR Subcontract Cost Scrap Value Material Cost Man Hours Crew Rate Labor Cost Total Cost Demolition Concrete Electrical equipment (Transformer, \$ 140.47 \$ 7 /CY 7 /MH 983 \$ 983 Concrete inverter, etc.) pad Electrical Equipment
Disconnect wiring and components at service rack
Disconnect wiring at inverter
Disconnect wiring at combiner boxes, remove boxes 11.41.00 7 /MH 2 /MH 16 /MH 11 /MH 29 /MH 127.80 127.80 127.80 1 EA 1 EA 1 EA 895 \$
256 \$
2,045 \$
1,406 \$
3,706 \$ 895 256 2,045 1,406 3,706 Pull wire from combiners to inverter
Disconnect and remove wiring at PV panels
Disconnect and remove grounding at PV panels and racks, 1 EA 196 EA 127.80 \$ 127.80 \$ 196 EA 8 /MH 1,022 \$ 1,022 127.80 \$ Remove ground rods Demo conduit from rack to tie point 1 EA 1 EA 1 EA 1 EA 7 /MH 5 /MH 28 /MH 2 /MH 895 639 3,578 895 639 3,578 256 127.80 \$ Demo conduit from rack to transformer Demo conduit from combiners to inverter Remove Conduits to inverters 127.80 \$ 127.80 \$ 127.80 \$ Remove inverters
Remove PV panel and place in dumpster
Remove points where panel is fixed to roof 1 EA 196 EA 196 EA 383 12,524 5,623 3 /MH 127.80 \$ 383 12,524 98 /MH 44 /MH 127.80 \$ 127.80 \$ 5,623 \$ Remove lightning projection and other auxiliary equipment 1 EA 18 /MH 127.80 S 2.300 S 2.300 Remove transformer

Demolition 127.80 895 \$ 895 **37,406** 18.00.00 18.10.00 Mixed Steel Steel Steel Steel Steel Steel 0.14 TN 0.05 TN 0.05 TN 1.6 TN (25) (9) (9) (280) /MH /MH /MH /MH /MH (25) (9) (9) (280) (4) 1 FA. inverter 402 kW Service rack components Conduit and fittings Roof ladder, 1@ 350 lb each 18.20.00 Stainless Steel Copper Copper Copper Copper 18.30.00 1 EA, 402 kW inverter 18.50.00 1788 Modules @ 8 lbs each 100 @ 1 lb each 10.96 LB Civil Work Disposal Concrete, PV panels, rubbish (panels to recycler) Fix point rods 1 EA Dumpster, 40 CY Capacity
Backfill
Foundation backfill, imported material fill
Civil Work 1 EA /МН 900 21.20.00 Backfill concrete pads 7 /CY /МН 24.37.00 Roofing Roof repair at fix points Architectual 196 EA 32,340 \$ 67,19 Direct Costs 61.00.00 Construction Indirect 61.99.00 Miscellaneous Downspout / Chute

Construction Indirect 25,000 **25,000** 60,320 \$ (5,529) \$ 37,406 \$ 92,19 91.00.00 Other Direct & Construction Indirect Costs 91.09 Contractor's General and Administration Expense 91.10 Contractor's Profit 6,454 9,220 15,674 Direct Costs + Construction Indirect Costs 60.320 S (5.529) S 37.406 S 107.871 Indirect Costs
93.1 Engineering, Procurement, & Project Services
93.2 Construction Management Support
93.3 SDG&E Internal Costs 93.00.00

\$ 9,048 \$ - \$ \$ -

69,368 \$ (5,529) \$

9,048

5,611

2,913

\$ 5,611 \$

\$

43,017 \$

Facility Namenlate

Area (Group 11.00.00	Phase 11.22.00	Customer Soledad Description Demolition Concrete	Address 6465 Nancy Ridge Rd, San Diego Notes	PV Location Tech. Roof PV Quantity		1/30/2012		Panel Qty 9.58 46. ue Material Cost		Crew Rate	Labor Cost		Total Cost	
Roof top	11.00.00		Demolition	Notes	Quantity	Subco	ntract Cost S	icrap Val	ue Material Cost	Man Hours	Crew Rate	Labor Cost		Total Cost	
		11.22.00													
		11.22.00	Concrete												
			Concett												
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY					16 /MH	\$ 140.47	\$	2,248	ş	2,24
		11.41.00	Electrical Equipment												
			Disconnect wiring and components at service rack		1 EA					17 /MH	\$ 127.80	\$	2,173	\$	2,17
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		1 EA 3 EA					4 /MH 37 /MH	\$ 127.80 \$ 127.80	\$	511 4,729	S	51: 4,72:
			Pull wire from combiners to inverter		3 EA					27 /MH	\$ 127.80	\$	3,451	\$	3,45
			Disconnect and remove wiring at PV panels		462 EA					69 /MH	\$ 127.80	\$	8,818	\$	8,818
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		462 EA					19 /MH	\$ 127.80	\$	2,428	\$	2,428
			Demo conduit from rack to tie point		1 EA					17 /MH	\$ 127.80		2,173	\$	2,173
			Demo conduit from rack to transformer Demo conduit from combiners to inverter		1 EA 1 EA					12 /MH 66 /MH	\$ 127.80 \$ 127.80		1,534 8,435	Ş	1,534 8,435
			Remove Conduits to inverters		1 EA					4 /MH	\$ 127.80	\$	511	\$	511
			Remove inverters		1 EA					6 /MH	\$ 127.80	\$ \$ 2	767	\$	767
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		462 EA 462 EA					231 /MH 103 /MH	\$ 127.80 \$ 127.80	\$ 1	29,522 13,163	\$ \$	29,522 13,163
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT					43 /MH 17 /MH	\$ 127.80 \$ 127.80		5,495 2.173		5,499 2.173
			Demolition		111	\$	- ;	\$	- \$ -	17 /10111	J 127.00		88,129		88,129
			Scrap Value												
1	18.00.00	18.10.00	Scrap Value Mixed Steel												
			Steel	1 EA, inverter 402 kW	0.32 TN		:	\$	(56)	/MH				\$ \$	(56
			Steel Steel	Service rack components Conduit and fittings	0.12 TN 0.13 TN		:	\$	(21) (23)	/MH /MH				\$ \$	(21 (23
			Steel	Transformers	3.76 TN			\$ (6	558)	/MH				\$	(658
			Steel	Roof ladder, 1@ 350 lb each	0.05 TN		:	\$	(9)	/MH				\$	(9
		18.20.00	Stainless Steel												
			Stainless Steel	1788 Racks, 13.61 lbs each	3.14 TN		!	\$ (3,6	580)	/MH				\$	(3,680
		18.30.00	Copper												
			Copper	1 EA, 402 kW inverter	0.1 TN		:		244)	/MH				\$	(244
			Copper Copper	Wire Transformers	0.7 TN 1.79 TN		:			/MH /MH				\$	(1,708 (4,368
				Transformers	1.75			γ (1),	500)	,,,,,,				7	(4,500
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	3696 LB		:	\$ (2,2	240)	/MH				\$	(2,249
			Conduit and fittings	100 @ 1 lb each	25.84 LB			\$	(16)	/MH				\$	(16
			Scrap Value			\$	- 4	\$ (13,0	031) \$ -			\$	-	\$	(13,031
2	21.00.00		Civil Work												
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels											
			Dumpster, 40 CY Capacity	to recycler)	3 EA	\$	5,400			/MH				s	5,400
			Dumpster, 40 CY Capacity	Fix point rods	1 EA	\$	900			/MH				\$	900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280			/мн				s	280
			Civil Work	·		\$	6,580	\$	- \$ -			\$	-	\$	6,580
2	24.00.00		Architectural												
		24.37.00	Roofing												
			Roof repair at fix points Architectual	Installation	462 EA	\$	76,230 76,230	s	- s -	/MH		\$	-	\$	76,230 76,23 0
Direct Costs	5													\$	157,908
6	61.00.00		Construction Indirect												
		61.99.00	Miscellaneous Downspout / Chute		1 L5	¢	25,000			/мн				ς.	25,000
			Construction Indirect		113	\$	25,000	\$	- \$ -	/14111		\$	-	\$	25,000
Subtotal						s	107.010	ć /12	224) C			S 8	88,129		182,908
Subtotai						\$	107,810	\$ (13,0	331) \$ -			\$ 8	88,129	\$	182,908
9	91.00.00		Other Direct & Construction Indirect Costs												12.804
			Contractor's General and Administration Expense Contractor's Profit											\$	12,804
														\$	31,094
Direct Costs	s + Constri	ıction Indired	rt Costs			s	107,810	S (13.	731) \$ -			\$ 8	88,129	s	214,003
						•	,	, (==)	, +				,	•	,
9	93.00.00	Q2 1	Indirect Costs Engineering, Procurement, & Project Services											\$	12,840
		93.2	Construction Management Support											\$	4,280
		93.3	SDG&E Internal Costs											\$	21,400
	95.00.00		Contingency												
		95.1	Contingency on Subcontractor			\$								\$	16,177
			Contingency on Scrap Value Contingency on Material					\$	- \$ -					\$	
		95.4	Contingency on Labor						¥ -			\$ 1	13,219		13,219
			Contingency on Indirect											\$	5,778
		95.5	contingency on munect												
Total						\$	123,982	\$ (13,0	31) \$ -	•		\$ 10:	1,348	\$	287,692

Facility Nameplate

Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty	
		687 South Coast Highway 101,						
22 DCT	Dacific Station	Encinitas	Poof	D\/	E/1E/2017	,	100	40

Mary Company	23	PST		Pacific Station	Encinitas	Roof	PV		5/15/2012	109	498	3			
1.000 1.00		Group	Phase	Description	Notes	Quantity		Subcont	ract Cost Scra	ap Value M	aterial Cost	Man Hours	Crew Rate Labor	Cost	Total Cost
Common															
Marche Compute Section Secti			11.22.00	Concrete	Electrical equipment (Transformer										
Discounter upged professor professor and an electronic p				Concrete	inverter, etc.) pad		7 /CY					17 /MH	\$ 140.47 \$	2,388	\$ 2,388
Discounter upged professor professor and an electronic p			11.41.00	Electrical Equipment											
December of the process process process 6.6				Disconnect wiring and components at service rack			1 EA					18 /MH	\$ 127.80 \$	2,300	\$ 2,300
## Advance international community Advance international community Advance international content Advance international c															
December of all more growing of gring programs (and programs of all programs				Pull wire from combiners to inverter											
Recovery group and the section of the control of				Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks,		45	18 EA					/5 /MH	\$ 127.80 \$	9,585	\$ 9,585
Description from the first intervalence 1				Remove ground rods		49	8 EA					20 /MH	\$ 127.80 \$	2,556	\$ 2,556
Benne-content from contenters to reserver 1												18 /MH 13 /MH	\$ 127.80 \$ \$ 127.80 \$	2,300 1,661	\$ 2,300
## Annual content of the content of												71 /MH	\$ 127.80 \$	9,074	\$ 9,074
## Marrier Virginia and prize in the factors of the Section 1 (a) 12 (b) 1 (b) 1 (c)															
Remark Equivale projection and other auxiliary equipment 1.6.1 1.7.0 1.0.0 1.0.0 5				Remove PV panel and place in dumpster								249 /MH	\$ 127.80 \$	31,822	\$ 31,822
Renow Landermore 1				Remove points where panel is fixed to roof		45	18 EA					111 /MH	\$ 127.80 \$	14,186	\$ 14,186
11-000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11-0000 11															
18,000 Mont State September Septem							I LI	\$	- \$	- \$	-	18 /MH			
14.100		10 00 00		Seran Value											
Steel Service in Knopports 0.23 N 5 (22)			18.10.00	Mixed Steel											
See Red Red Fields 19 300 beach 0.05 PH \$ (0) Ant \$ \$ \$ \$ \$ \$ \$ \$ \$					1 EA, inverter 402 kW				\$	(61)					\$ (61 \$ (23
See Red Red Fields 19 300 beach 0.05 PH \$ (0) Ant \$ \$ \$ \$ \$ \$ \$ \$ \$				Steel	Conduit and fittings	0.:	L4 TN		\$	(25)		/MH			\$ (25
18.2020 Stanishou Steel 1786 Back 1, 156 Bac each 2.38 Th \$ 3.5973 Mel \$ 5 1.58															\$ (711 \$ (9
18,000 Coper 17,000 Coper 17,000 Coper 17,000 Coper 17,000 Coper 17,000 Coper					noor ladder, 1@ 550 to caer	0.0			Ÿ	(5)		,			ý (c
18.300 Coper					1788 Racks, 13.61 lbs each	3.3	N TN		S	(3.973)		/MH			\$ (3,973
Copper 1					1700 (4000), 13.01 (53 000)	3			7	(3,373)		,,,,,,			\$ (5,515
Copper			18.30.00		1 FA 402 kW inverter	0.	1 TN		S	(268)		/MH			S (268
128.000				Copper	Wire	0.3	76 TN		\$	(1,854)		/MH			\$ (1,854
PM Module 1788 Module © Bite sech 200 () 1 le sech 277.56 i B				Copper	Iransformers	1.5	TN TN		\$	(4,709)		/MH			\$ (4,709
Concrete Control and fittings 100 @ 1 lb each 27.85 lb 5 107.97 1.00 5 1.00			18.50.00		470014-1-1					(2.47.)					
21,000 Coll Work 21,000 Coll Work 21,000 Dumpster, 40C Capacity to recycled to recycled 1 16 \$ 5,000				Conduit and fittings		398 27.8	S4 LB B5 LB		\$	(17)		/MH /MH			\$ (17
21.90 Disposed Concrete, PV panels, rubbish (panels to recycler) 3 & 5 5,400 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel 5 5,500 Mel				Scrap Value				\$	- \$		-		\$	-	\$ (14,074
Dumpster, 40 CY Capacity Experience															
Dumpster, 40 CY Capacity to recycler 3 EA 5 ,5400 /hd4 5 5.4			21.19.00	Disposal	Concrete, PV namels, rubbish (panels										
Body					to recycler)			\$	5,400			/MH			
Foundation backfill, imported material fill Backfill concrete pads 7 /CV 5 280 /MH 5 2 2 2 2 2 2 2 2 2			21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods		1 EA	\$	900			/MH			\$ 900
24.90.00 Architectural 24.97.00 Roofing Roof repair at fix points Installation 498 EA \$ 82,170				Foundation backfill, imported material fill	Backfill concrete pads		7 /CY	Ŧ				/MH			7
24,370 Roofing Roofi				Civil Work				\$	6,580 \$	- \$	-		\$	-	\$ 6,580
Roof repair at the points Installation 498 EA \$ 82,170 N/H \$. \$ 82,170			24.27	Architectural											
Architectual S 82,170 S - S - S - S - S - S - S - S - S - S			24.37.00	Roof repair at fix points	Installation	49	8 EA		82,170			/мн	\$	-	
61.00.00 Construction Indirect 61.90.00 Miscellaneous Downsport / Crute Construction Indirect 5 25,000				Architectual					82,170 \$	- \$	-	•	\$	-	
Accordance Miscellaneous	Direct Cost	ts													\$ 169,591
Accordance Miscellaneous		61 00 00		Construction Indirect											
Construction Indirect S 25,000 S S S S S S S S S			61.99.00	Miscellaneous											
Substitute Sub				Downspout / Chute Construction Indirect			1 LS		25,000 ¢			/MH	•		
91.00.00 Other Direct & Construction Indirect Costs 91.09 Contractor's General and Administration Expense 91.10 Contractor's Profit 91.00 Contractor's Profit 91.00 Contractor's Profit 91.00 Indirect Costs 91.00 Indirect Costs 92. Contractor Management Support 95.00 Contingency on Subcontractor 95.1 Contingency on Scrap Value 95.2 Contingency on Scrap Value 95.3 Contingency on Indirect 95.4 Contingency on Indirect 95.5 Contingency on Indirect				CONSTRUCTOR MUNICLE							-			-	
### 1,09 Contractor's General and Administration Expense \$ 13,8	Subtotal							\$	113,750 \$	(14,074) \$	-		\$	94,915	\$ 194,591
91.10 Contractor's Profit 91.10 Contractor's Profit \$ 19.4 \$ 33.0 Direct Costs + Construction Indirect Costs 93.00.00 Indirect Costs 93.1 Engineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 Stock Internal Costs 95.00.00 Contingency 95.1. Contingency 95.1. Contingency on Scap Value 95.2 Contingency on Scap Value 95.3 Contingency on Scap Value 95.4 Contingency on Indirect 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.6 Contingency on Indirect 95.6 Contingency on Indirect		91.00.00													
S 33,0															\$ 13,621 \$ 19,459
93.00.00 Indirect Costs 93.1 Eigineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 Sock Internal Costs 93.2 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.6 Contingency on Indirect			22.20												
93.00.00 Indirect Costs 93.1 Eigineering, Procurement, & Project Services 93.2 Construction Management Support 93.3 Sock Internal Costs 93.2 Contingency on Subcontractor 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.6 Contingency on Indirect 95.6 Contingency on Indirect	Direct Cost	ts + Constru	ıction Indirec	t Costs				\$	113,750 \$	(14,074) S	-		\$	94,915	\$ 227,672
93.1 Engineering Procurement, & Project Services 93.2 Construction Management Support 93.3 Social Internal Costs 93.5 Social Internal Costs 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Material 95.4 Contingency on Material 95.4 Contingency on Indirect 95.5 Contingency on Indirect \$ 6.1		02.00.00		Indirect Costs											,
93.2 Construction Management Support 93.3 SOG&E Internal Costs 5 22,7 95.00.00 Contingency 95.1 Contingency on Subcontractor 95.2 Contingency on Scrap Value 95.3 Contingency on Scrap Value 95.3 Contingency on Labor 95.4 Contingency on Labor 95.5 Contingency on Labor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 96.5 Contingency on Indirect		93.00.00	93.1	Engineering, Procurement, & Project Services											\$ 13,660
95.00.00 Contingency 95.1 Contingency on Suborntractor 95.2 Contingency on Suborntractor 95.2 Contingency on Suborntractor 95.3 Contingency on Suborntractor 95.3 Contingency on Suborntractor 95.4 Contingency on Suborntractor 95.5 Contingency on Suborntractor 95.5 Contingency on Indirect 95.5 Contingency on Indirect 95.6 Contingency on Indirect			93.2	Construction Management Support											\$ 4,553
95.1 Contingency on Subcontractor 95.2 Contingency on Subcontractor 95.3 Contingency on Scrap Value 95.3 Contingency on Material 95.4 Contingency on Labor 95.5 Contingency on Indirect \$ 17,063 \$			93.3	PDGØE IIIFEIII9I COSES											\$ 22,767
95.2 Contingency on Scrap Value \$ - \$ \$ -		95.00.00	ac +					\$	17.062						\$ 17,063
95.3 Contingency on Material \$ - \$ 14,237 \$ 14,2 \$ 95.5 Contingency on Indirect \$ 6,1			95.2	Contingency on Scrap Value				7		-					\$ -
95.5 Contingency on Indirect \$ 6,1			95.3	Contingency on Material						\$	-		c	14 227	\$ -
													Þ	14,237	
Total \$ 130,813 \$ (14,074) \$ - \$ 109,152 \$ 306,0			95.5	Contingency on Indirect											\$ 6,147
	Total							\$	130,813 \$	(14,074) \$			\$	109,152	\$ 306,099

Total

Facility Nameplate (kW) Project ID Code 24 UCS Address Voigt Drive and Matthews Lane Subcontract Cost Scrap Value Material Cost Man Hours Crew Rate Labor Cost Total Cost Demolition Concrete Electrical equipment (Transformer, \$ 140.47 \$ 7 /CY 19 /MH 2,669 \$ Concrete inverter, etc.) pad 2,669 Electrical Equipment
Disconnect wiring and components at service rack
Disconnect wiring at inverter
Disconnect wiring at combiner boxes, remove boxes 11.41.00 20 /MH 5 /MH 45 /MH 33 /MH 85 /MH 127.80 127.80 127.80 2,556 639 5,751 4,217 2,556 639 5,751 4,217 10,863 1 EA 1 EA 4 EA 4 EA 566 EA Pull wire from combiners to inverter
Disconnect and remove wiring at PV panels
Disconnect and remove grounding at PV panels and racks, \$ 127.80 \$ \$ 127.80 \$ 10,863 \$ 566 EA 23 /MH 2,939 \$ 127.80 \$ 2,939 Remove ground rods Demo conduit from rack to tie point 1 EA 1 EA 1 EA 1 EA 20 /MH 15 /MH 81 /MH 5 /MH 127.80 \$ 2,556 1,917 2,556 1,917 Demo conduit from rack to transformer Demo conduit from combiners to inverter Remove Conduits to inverters 127.80 \$ 127.80 \$ 10,352 10,352 127.80 \$ 639 1,022 Remove inverters
Remove PV panel and place in dumpster
Remove points where panel is fixed to roof 1 EA 566 EA 566 EA 1,022 8 /MH 127.80 \$ 283 /MH 127 /MH 127.80 \$ 36,167 127.80 \$ 16,231 \$ 16,231 Remove lightning projection and other auxiliary equipment 1 EA 53 /MH 127.80 S 6.773 S 6.773 Remove transformer

Demolition 127.80 18.00.00 18.10.00 Mixed Steel Steel Steel Steel 0.4 TN 0.15 TN 0.16 TN 4.61 TN /MH /MH /MH /MH /MH (70) (26) (28) (807) (11) 1 FA. inverter 402 kW Service rack components Conduit and fittings Roof ladder, 1@ 350 lb each 18.20.00 Stainless Steel (4,512) (4,512 Copper Copper Copper Copper 18.30.00 1 EA, 402 kW inverter 0.13 TN (317) 18.50.00 1788 Modules @ 8 lbs each (2,755 (19) 100 @ 1 lb each 31.66 LB (19) (15,987) Civil Work Disposal Concrete, PV panels, rubbish (panels to recycler) Fix point rods 3 EA 5,400 900 Dumpster, 40 CY Capacity
Backfill
Foundation backfill, imported material fill
Civil Work 1 EA /MH 21.20.00 Backfill concrete pads 7 /CY /МН 24.37.00 Roofing Roof repair at fix points Architectual 566 EA 93,390 \$ 191,959 Direct Costs 61.00.00 Construction Indirect 61.99.00 Miscellaneous Downspout / Chute
Construction Indirect 25,000 **25,000** 124,970 \$ (15,987) \$ 107,976 \$ 216,959 91.00.00 Other Direct & Construction Indirect Costs 91.09 Contractor's General and Administration Expense 15,187 91.10 Contractor's Profit Direct Costs + Construction Indirect Costs 124.970 S (15.987) S 107.976 S 253.842 Indirect Costs
93.1 Engineering, Procurement, & Project Services
93.2 Construction Management Support
93.3 SDG&E Internal Costs 93.00.00 15,230 5,077 25,384 Contingency
95.1 Contingency on Subcontractor
95.2 Contingency on Scrap Value
95.3 Contingency on Material
95.4 Contingency on Labor \$ 18,746 \$ - \$ \$ -18,746 \$ 16,196 \$ \$ 6,854

143,716 \$ (15,987) \$

124,173 \$

Facility Namenlate

							Nam	neplate				
Project ID 25	Code		Customer UCSD MESOM	Address 8880 Biological Grade, La Jolla, CA	PV Location Tech. Roof PV/ES	Date Energ	ized (kW 14/2013) Panel Qty 61.10 29	2			
Area	Group	Phase	Description	Notes	Quantity	Subcontr	act Cost Scra	p Value Material Cost	Man Hours	Crew Rate Labor Cost		Fotal Cost
Roof top		riiase		Notes	Quantity	Subconti	act cost scre	ip value Material Cost	Wiaii iiouis	crew nate Labor Cost		iotal cost
	11.00.00	11.22.00	Demolition Concrete									
			Concrete	Electrical equipment (Transformer, inverter, etc.) pad	7 /CY				10 /MH	\$ 140.47 \$	1,405	\$ 1,40
				inverter, etc.) pau	7/01				10 /1011	3 140.47 3	1,403	3 1,40.
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA				10 /MH	S 127.80 S	1.278	\$ 1.27
			Disconnect wiring at inverter		1 EA				3 /MH	\$ 127.80 \$	383	\$ 38
			Disconnect wiring at combiner boxes, remove boxes		2 EA				23 /MH		2,939	
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		2 EA 292 EA				17 /MH 44 /MH	\$ 127.80 \$ \$ 127.80 \$	2,173 5,623	\$ 2,173 \$ 5,623
			Disconnect and remove grounding at PV panels and racks,									
			Remove ground rods Demo conduit from rack to tie point		292 EA 1 EA				12 /MH 10 /MH		1,534 1,278	
			Demo conduit from rack to tie point Demo conduit from rack to transformer		1 EA				8 /MH		1,278	
			Demo conduit from combiners to inverter		1 EA				42 /MH		5,368	
			Remove Conduits to inverters		1 EA				3 /MH	\$ 127.80 \$	383	
			Remove inverters Remove PV panel and place in dumpster		1 EA 292 EA				4 /MH 146 /MH	\$ 127.80 \$ \$ 127.80 \$ 1	511 18,659	\$ 51: \$ 18,659
			Remove points where panel is fixed to roof		292 EA				65 /MH		8,307	\$ 8,307
			Remove lightning projection and other auxiliary equipment		1 EA				27 /MH	\$ 127.80 \$	3,451	\$ 3,45:
			Remove transformer		1 LT				11 /MH	\$ 127.80 \$	1,406	\$ 1,406
			Demolition			\$	- \$	- \$ -		\$ 5	55,720	\$ 55,720
1	18.00.00		Scrap Value									
		18.10.00	Mixed Steel		0.2 TN			(50)				
			Steel Steel	1 EA, inverter 402 kW Service rack components	0.2 IN 0.08 TN		\$	(35) (14)	/MH /MH			\$ (35 \$ (14
			Steel	Conduit and fittings	0.08 TN		\$	(14)	/MH			\$ (14
			Steel	Transformers	2.38 TN		\$	(417)	/MH			\$ (417
			Steel	Roof ladder, 1@ 350 lb each	0.03 TN		\$	(5)	/MH			\$ (5
		18.20.00	Stainless Steel									
			Stainless Steel	1788 Racks, 13.61 lbs each	1.99 TN		\$	(2,332)	/MH		_	\$ (2,332
		18.30.00	Copper									
			Copper Copper	1 EA, 402 kW inverter Wire	0.07 TN 0.44 TN		\$	(171) (1,074)	/MH /MH			\$ (171 \$ (1,074
			Copper	Transformers	1.13 TN		\$	(2,757)	/MH			\$ (2,757
		18.50.00	Aluminum									
			PV Module	1788 Modules @ 8 lbs each	2336 LB		\$	(1,421)	/MH			\$ (1,421
			Conduit and fittings Scrap Value	100 @ 1 lb each	16.33 LB	5	- \$	(10) (8,250) \$ -	/MH	s		\$ (10 \$ (8,250
						•	•	(-)) +		•		, ,,
	21.00.00	21.19.00	Civil Work Disposal									
		21.15.00	•	Concrete, PV panels, rubbish (panels								
			Dumpster, 40 CY Capacity	to recycler)	2 EA	\$	3,600		/MH			\$ 3,600
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900		/MH			\$ 900
			Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$	280 4,780 \$	- \$ -	/MH	Ś		\$ 280 \$ 4,780
			Civil Work			\$	4,780 \$	- \$ -		\$	-	\$ 4,780
	24.00.00		Architectural									
		24.37.00	Roofing Roof repair at fix points	Installation	292 EA	Ś	48.180		/мн	s		\$ 48.180
			Architectual			\$	48,180 \$	- \$ -	,	\$	-	\$ 48,180
Direct Cos	ts											\$ 100,430
												,450
	61.00.00	61.99.00	Construction Indirect Miscellaneous									
		02.55.00	Downspout / Chute		1 LS	\$	25,000		/мн			\$ 25,000
			Construction Indirect			\$	25,000 \$	- \$ -		\$	-	\$ 25,000
Subtotal						\$	77,960 \$	(8,250) \$ -		\$ 5	55,720	\$ 125,430
	91.00.00		Other Direct & Construction Indirect Costs									
	91.00.00	91.09	Contractor's General and Administration Expense									\$ 8,780
		91.10	Contractor's Profit									\$ 12,543
												\$ 21,323
Direct Cos	ts + Constr	uction Indire	ct Costs			\$	77,960 \$	(8,250) \$ -		\$ 5	55,720	\$ 146,753
	93.00.00		Indirect Costs									
			Engineering, Procurement, & Project Services									
			2 Construction Management Support 3 SDG&E Internal Costs									\$ 2,935 \$ 14,675
		93.3										J 14,675
	95.00.00		Contingency				44.50:					
		95.1 95.2	! Contingency on Subcontractor ! Contingency on Scrap Value			\$	11,694	-				\$ 11,694 \$ -
1		95.3	3 Contingency on Material				+	\$ -				\$ -
		95.4	Contingency on Labor							\$	8,358	\$ 8,358
		95.5	5 Contingency on Indirect									\$ 3,962
Tota!							90.654. ^	(8.350) ¢		\$ 64	4.070	\$ 197,182
Total						\$	6 Pc0.to	(8,250) \$ -		\$ 64	4,078	o 197,182

Facility

Roof top	roup 1.00.00	Phase 11.22.00 11.41.00	Customer Village Lindo Paseo Description Demolition Concrete Concrete Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring at inverter Disconnect wiring at truerter Disconnect wiring at truerter Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods Demo conduit from rack to tie point	Address 5505 Lindo Paseo, San Diego, CA Notes Electrical equipment (Transformer, inverter, etc.) pad	PV Location Tech. Roof PV/ES Quantity 7 /CY 1 EA 1 EA 1 EA 1 EA 1 EA		0/2013	Panel Qty 36.60 • Value Material Co	t Man Hours	Crew Rate Labor	Cost 1	Fotal Cost
Roof top	1.00.00	11.22.00	Demolition Concrete Concrete Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring a tinverter Disconnect wiring at tinverter Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove wiring at PV panels and racks, Remove ground rods	Electrical equipment (Transformer,	7 /CY 1 EA 1 EA 1 EA 1 EA	Subcontract	t Cost Scra	o Value Material Co				
11			Concrete Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring a tinverter Disconnect wiring a tinverter Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove wiring at PV panels and racks, Remove ground rods	Electrical equipment (Transformer, inverter, etc.) pad	1 EA 1 EA 1 EA 1 EA				C /MAL		702	\$ 702
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove wiring at PV panels and racks, Remove ground rods	Electrical equipment (Transformer, inverter, etc.) pad	1 EA 1 EA 1 EA 1 EA				E /MI		702	\$ 702
		11.41.00	Disconnect wiring and components at service rack Disconnect wiring a tinverter Disconnect wiring a trombiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove wiring at PV panels and racks, Remove ground rods		1 EA 1 EA 1 EA				3 /14111	\$ 140.47 \$	702	
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods		1 EA 1 EA 1 EA							
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods		1 EA 1 EA				5 /MH 1 /MH	\$ 127.80 \$ \$ 127.80 \$	639 128	\$ 639 \$ 128
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods						12 /MH	\$ 127.80 \$	1,534	\$ 1,534
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		150 EA				9 /MH 22 /MH	\$ 127.80 \$ \$ 127.80 \$	1,150 2,812	\$ 1,150 \$ 2,812
					150 EA 1 EA				6 /MH 5 /MH	\$ 127.80 \$ \$ 127.80 \$	767 639	
			Demo conduit from rack to transformer		1 EA				4 /MH	\$ 127.80 \$	511	
			Demo conduit from combiners to inverter Remove Conduits to inverters		1 EA 1 EA				21 /MH 1 /MH	\$ 127.80 \$ \$ 127.80 \$	2,684 128	\$ 2,684 \$ 128
			Remove inverters		1 EA				2 /MH	\$ 127.80 \$		\$ 256
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof		150 EA 150 EA				75 /MH 34 /MH	\$ 127.80 \$ \$ 127.80 \$	9,585 4,345	
			Remove lightning projection and other auxiliary equipment Remove transformer		1 EA 1 LT				14 /MH 5 /MH	\$ 127.80 \$ \$ 127.80 \$	1,789 639	\$ 1,789 \$ 639
			Demolition			\$	- \$	- \$		\$	28,307	\$ 28,307
18	3.00.00		Scrap Value									
10	3.00.00	18.10.00	Mixed Steel									
			Steel Steel	1 EA, inverter 402 kW Service rack components	0.1 TN 0.04 TN		\$	(18) (7)	/MH /MH			\$ (18 \$ (7
			Steel	Conduit and fittings	0.04 TN		\$	(7)	/MH			\$ (7)
			Steel Steel	Transformers Roof ladder, 1@ 350 lb each	1.22 TN 0.02 TN		\$	(214) (4)	/MH /MH			\$ (214) \$ (4)
							*	(-)	,			* (.
		18.20.00	Stainless Steel Stainless Steel	1788 Racks, 13.61 lbs each	1.02 TN		\$	(1,195)	/MH			\$ (1,195
		40.30.00										
		18.30.00	Copper Copper	1 EA, 402 kW inverter	0.03 TN		\$	(73)	/MH			\$ (73)
			Copper	Wire Transformers	0.23 TN 0.58 TN		\$	(561)	/MH /MH			\$ (561 \$ (1,415
			Copper	Transformers	0.36 IN		ş	(1,415)	/IVIN			\$ (1,415)
		18.50.00	Aluminum PV Module	1788 Modules @ 8 lbs each	1200 LB		\$	(730)	/мн			\$ (730)
			Conduit and fittings	100 @ 1 lb each	8.39 LB		\$	(5)	/MH			\$ (5)
			Scrap Value			\$	- \$	(4,229) \$		\$	-	\$ (4,229)
21	1.00.00		Civil Work									
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels								
			Dumpster, 40 CY Capacity	to recycler)	1 EA		1,800		/MH			\$ 1,800
		21.20.00	Dumpster, 40 CY Capacity Backfill	Fix point rods	1 EA	\$	900		/MH			\$ 900
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	7 /CY	\$	280 2.980 \$	- \$	/MH	5		\$ 280 \$ 2.980
			CIVII WORK			,	2,980 \$	- \$		>	-	\$ 2,980
24	1.00.00	24.37.00	Architectural Roofing									
		24.37.00	Roof repair at fix points	Installation	150 EA		4,750		/MH	\$		\$ 24,750
			Architectual			\$ 2	4,750 \$	- \$		\$	-	\$ 24,750
Direct Costs												\$ 51,808
61	1.00.00		Construction Indirect									
		61.99.00	Miscellaneous		1 LS	\$ 2	5,000					\$ 25,000
			Downspout / Chute Construction Indirect		1 15		5,000 \$	- \$	/MH	\$		\$ 25,000 \$ 25,000
Subtotal						S 5		(4.220) 6		s	28.307	4 75,000
subtotai						\$ 5.	2,730 \$	(4,229) \$		>	28,307	\$ 76,808
91	1.00.00	01.00	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense									\$ 5,377
			Contractor's Profit									\$ 7,681
												\$ 13,057
Direct Costs +	+ Constru	ction Indire	ct Costs			\$ 5.	2,730 \$	(4,229) \$		\$	28,307	\$ 89,866
93	3.00.00		Indirect Costs									
93		93.1	! Engineering, Procurement, & Project Services									\$ 5,392
		93.2 go s	Construction Management Support SDG&E Internal Costs									\$ 1,797 \$ 8.987
		93.3										3 6,987
95	5.00.00	ar +	Contingency ! Contingency on Subcontractor			Ś	7,910					\$ 7,910
		95.2	? Contingency on Scrap Value			,	\$	-				\$ 7,910
			Contingency on Labor							\$	4.246	\$ - \$ 4,246
			Contingency on Labor							\$, .	,
		95.5	Contingency on Indirect									\$ 2,426
Γotal						\$ 60	0,640 \$	(4,229) \$		\$	32,553	\$ 120,623

Facility Nameplate

						ivallieplate	
Project ID Code	Customer	Address	PV Location	Tech.	Date Energized	(kW)	Panel Qty

27	DLA		Del Lago Academy	1740 Scenic Trail Way, Escondido, CA	Roof	PV/ES	12/	20/2013	172.80	750	1			
Area Roof top	Group	Phase	Description	Notes	Quantity		Subcontra	act Cost Scra	p Value Ma	terial Cost	Man Hours	Crew Rate Labor	Cost	Total Cost
	11.00.00	44.33.00	Demolition											
		11.22.00	Concrete	Electrical equipment (Transformer,										
			Concrete	inverter, etc.) pad		7 /CY					25 /MH	\$ 140.47 \$	3,512	\$ 3,512
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack			1 EA					27 /MH	S 127.80 S	3.451	\$ 3,451
			Disconnect wiring at inverter			1 EA					7 /MH	\$ 127.80 \$	895	\$ 895
			Disconnect wiring at combiner boxes, remove boxes			5 EA 5 EA					60 /MH 44 /MH	\$ 127.80 \$ \$ 127.80 \$	7,668 5,623	\$ 7,668 \$ 5,623
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels			50 EA					112 /MH	\$ 127.80 \$		\$ 5,623 \$ 14,314
			Disconnect and remove grounding at PV panels and racks,		_									
			Remove ground rods Demo conduit from rack to tie point			50 EA 1 EA					30 /MH 27 /MH	\$ 127.80 \$ \$ 127.80 \$	3,834 3,451	
			Demo conduit from rack to transformer			1 EA					20 /MH	\$ 127.80 \$	2,556	\$ 2,556
			Demo conduit from combiners to inverter Remove Conduits to inverters			1 EA 1 EA					107 /MH 7 /MH	\$ 127.80 \$ \$ 127.80 \$		\$ 13,675 \$ 895
			Remove inverters			1 EA					10 /MH	\$ 127.80 \$	1,278	\$ 1,278
			Remove PV panel and place in dumpster Remove points where panel is fixed to roof			50 EA 50 EA					375 /MH 168 /MH	\$ 127.80 \$ \$ 127.80 \$	47,925 21.470	\$ 47,925 \$ 21,470
			Remove lightning projection and other auxiliary equipment Remove transformer			1 EA 1 LT					70 /MH 27 /MH	\$ 127.80 \$ \$ 127.80 \$	8,946 3,451	\$ 8,946 \$ 3,451
			Demolition				\$	- \$	- \$	-		\$	142,942	\$ 142,942
1	18.00.00		Scrap Value											
1		18.10.00	Mixed Steel Steel	1 FA inverter 402 kW	0	52 TN		\$	(91)		/MH			\$ (91)
			Steel	Service rack components	(0.2 TN		\$	(35)		/мн			\$ (35)
1			Steel Steel	Conduit and fittings Transformers		21 TN 11 TN		\$	(37) (1,069)		/MH /MH			\$ (35) \$ (37) \$ (1,069)
1			Steel	Roof ladder, 1@ 350 lb each	0.	08 TN		\$	(1,069)		/MH			\$ (1,069)
		18.20.00	Stainless Steel											
		20.20.00	Stainless Steel	1788 Racks, 13.61 lbs each	į	5.1 TN		\$	(5,977)		/MH			\$ (5,977)
		18.30.00	Copper											
			Copper Copper	1 EA, 402 kW inverter Wire		17 TN 14 TN		\$	(415) (2,782)		/MH /MH			\$ (415) \$ (2,782)
1			Copper	Wire Transformers		14 IN 2.9 TN		\$	(7,076)		/MH /MH			\$ (2,782) \$ (7,076)
1		18.50.00	Aluminum											
1		20.30.00	PV Module	1788 Modules @ 8 lbs each		00 LB		\$	(3,651)		/MH			\$ (3,651)
1			Conduit and fittings Scrap Value	100 @ 1 lb each	41.	95 LB	\$	- \$	(26) (21,172) \$	-	/MH	Š	-	\$ (26) \$ (21,172)
	21.00.00		Civil Work											
		21.19.00	Disposal											
			Described to GV Councilly	Concrete, PV panels, rubbish (panels to recycler)		4 EA					/MH			\$ 7.200
			Dumpster, 40 CY Capacity Dumpster, 40 CY Capacity	Fix point rods		1 EA	\$ \$	7,200 900			/MH			\$ 7,200 \$ 900
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads		7 /CY	\$	280			/MH			\$ 280
			Civil Work	buckim concrete page		7 70.	s	8,380 \$	- \$	-	,,,,,,	\$	-	\$ 8,380
	24.00.00		Architectural											
		24.37.00	Roofing	to della	-	50 54	s :	422.750						\$ 123.750
			Roof repair at fix points Architectual	Installation	/	50 EA		123,750 \$	- \$	-	/мн	\$		\$ 123,750 \$ 123,750
Direct Cos	ts													\$ 253,899
														,
	61.00.00	61.99.00	Construction Indirect Miscellaneous											
1			Downspout / Chute Construction Indirect			1 LS		25,000 \$	- \$		/MH			\$ 25,000 \$ 25,000
			Construction inairect					,,		-		\$		
Subtotal							\$	157,130 \$	(21,172) \$	-		\$	142,942	\$ 278,899
	91.00.00		Other Direct & Construction Indirect Costs											
1			Contractor's General and Administration Expense Contractor's Profit											\$ 19,523 \$ 27.890
		32.20												\$ 47,413
Direct Cos	ts + Constri	uction Indired	t Costs				\$	157,130 \$	(21,172) \$			\$	142,942	\$ 326,312
	93.00.00		Indirect Costs											
1	23.00.00	93.1	Engineering, Procurement, & Project Services											\$ 19,579
1			Construction Management Support SDG&E Internal Costs											\$ 6,526 \$ 32,631
1		33.3												, 32,031
1	95.00.00	95.1	Contingency Contingency on Subcontractor				\$	23,570						\$ 23,570
1		95.2	Contingency on Scrap Value					\$						\$ -
			Contingency on Material Contingency on Labor						- \$	-		\$	21,441	\$ - \$ 21,441
L		95.5	Contingency on Indirect											\$ 8,810
Total							\$ 1	80,700 \$	(21,172) \$			\$	164,383	\$ 438,870

ProjID (Code		Customer	Address	PV Location Technology	DateEnergize		yNamepla	nelQty				
	SPS		Sony Corporation	16590 1/3 Via Del Campo, San Diego	Carport - Cano PV		9/2009	136.9	86	,			
Area (Group	Phase	Description	Notes	Quantity	Subcontract	Cost Scrap	Value M	aterial Cost	Man Hours	Crew Rate Lab	or Cost 1	rotal Cost
1	11.00.00		Demolition										
		11.22.00	Concrete										
			Concrete Concrete	Column foundations Electrical equipment (Transformer, in	19 /CY w 1 /CY					114 /MH 24 /MH	\$ 140.47 \$ \$ 140.47 \$	16,014 3,371	\$ 16,014 \$ 3,371
			Concrete	Electrical equipment (Transformer, In	W 1/CT					24 / IVIN	\$ 140.47 \$	3,3/1	\$ 3,371
		11.24.00	Architectural										
			Remove structural canopy		1 EA					128 /MH	\$ 140.47 \$	17,980	\$ 17,980
		11.41.00	Electrical Equipment										
		11.41.00	Disconnect wiring and components at service rack		1 EA					103 /MH	\$ 127.80 \$	13,163	\$ 13,163
			Demo conduit from rack to tie point		1 EA					26 /MH	\$ 127.80 \$	3,323	\$ 3,323
			Disconnect wiring at inverter		1 EA					26 /MH	\$ 127.80 \$	3,323	
			Disconnect wiring at combiner boxes, remove boxes Pull wire from combiners to inverter		3 EA 3 EA					106 /MH 77 /MH	\$ 127.80 \$ \$ 127.80 \$	13,547 9,841	
			Disconnect and remove wiring at PV panels		867 EA					161 /MH	\$ 127.80 \$	20,576	
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		867 EA					42 /MH	\$ 127.80 \$		\$ 5,368
			Remove PV panel and place in dumpster		867 EA					539 /MH	\$ 127.80 \$	68,884	
			Remove Conduits to inverters Remove inverters		1 EA 1 EA					13 /MH 13 /MH	\$ 127.80 \$ \$ 127.80 \$	1,661 1,661	
			Remove transformer		1 LT					51 /MH	\$ 127.80 \$	6,518	
			Demolition			\$	- \$	- \$	-		\$	185,230	\$ 185,230
	18.00.00		Scrap Value										
1 3		18.10.00	Mixed Steel										
1			Steel	1 EA, 82 kW inverter	1.96 TN		\$	(343)		/MH			\$ (343
1			Steel	Service rack components	1.51 TN		\$	(264)		/MH			\$ (264
			Steel Steel	Conduit and fittings Transformers	1.61 TN 17.89 TN		\$	(282)		/MH /MH			\$ (282
			Steel	Roof ladder, 1@ 350 lb each	0.58 TN		\$	(102)		/MH			\$ (3,131
			Steel	Canopy & steel	64.22 TN		\$	(11,239)		/MH			\$ (11,239
		18.20.00	Stainless Steel Stainless Steel	336 Racks, 13.61 lbs each	7.35 TN		\$	(8,614)		/MH			\$ (8,614
			Statilless Steel	330 RdCKS, 13.01 IDS EdCII	7.33 IN		ş	(8,014)		/IVIN			\$ (8,014
		18.30.00	Copper										
			Copper	1 EA, 82 kW inverter	0.64 TN		\$	(1,562)		/MH			\$ (1,562
			Copper Copper	Wire Transformers	5.23 TN 8.51 TN		\$	(12,761) (20,764)		/MH /MH			\$ (12,761 \$ (20,764
			Соррег	Hansionners	0.J1 IIV		7	(20,704)		/WITI			3 (20,704
		18.50.00	Aluminum										
			PV Module	336 Modules @8 lbs each	8631 LB		\$	(5,252)		/MH			\$ (5,252
			Conduit and fittings Scrap Value	100 @ 1 lb each	321 LB	Ś	- \$	(195) (64,508) \$		/MH	Ś		\$ (195
			Setup Funde			,		(04,300) \$,		, (04,500
2	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)	10 EA	\$	18,000			/MH			\$ 18,000
		21.20.00	Backfill										
			Foundation backfill, imported material fill	Backfill concrete pads	19 /CY	\$	760	- 5		/MH	Ś		\$ 760
			Civil Work			3	18,760 \$	- \$	-		\$	-	\$ 18,760
Direct Costs													\$ 139,481
١ '	51.00.00		Construction Indirect										
			Construction Indirect			\$	- \$	- \$	-		\$	-	\$ -
Subtotal						\$	18,760 \$	(64,508) \$			\$	105 220	\$ 139,481
Subtotal						2	18,700 \$	(04,308) \$	-		\$	105,230	\$ 139,461
9	91.00.00		Other Direct & Construction Indirect Costs										
			9 Contractor's General and Administration Expense										\$ 9,763.68
		91.10	O Contractor's Profit										\$ 13,948.12 \$ 23,712
													\$ 23,712
Direct Costs	+ Constr	uction Indirect	t Costs			\$	18,760 \$	(64,508) \$		\$ - \$ -	\$ - \$	185,230	\$ 139,481
9	93.00.00	02:	Indirect Costs 1 Engineering, Procurement, & Project Services										\$ 8,368.87
		93.2	2 Construction Management Support										\$ 2,789.62
		93.3	3 SDG&E Internal Costs										\$ 13,948.12
	NF 06 51												
l '	95.00.00	95 1	Contingency 2 Contingency on Subcontractor			\$	2,814						\$ 2,814
		95.2	2 Contingency on Scrap Value				\$						\$ -
		95.3	3 Contingency on Material					\$	-				\$ -
		95.4	4 Contingency on Labor								\$	27,784	\$ 27,784
		95	5 Contingency on Indirect										\$ 3,766
L													
Total						\$ 2	1,574 \$	(64,508) \$	-		Ś	213.014	\$ 222,664

ProjID	Code		Customer	Address	PV_Location Technology	DateEnergized	FacilityNamepla	t PanelOtv				
	COP		County Operations Center Parking Structure A	5555 Overland Ave, San Diego, CA	Carport - Cano PV	2/21/201:			2			
Canopy Mo	ount	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Crew Rate Labo	r Cost	Total Cost
:	11.00.00	11.22.00	Demolition Concrete									
		11.22.00	Concrete	Column foundations	43 /CY				258 /MH	\$ 140.47 \$		\$ 36,241
			Concrete	Electrical equipment (Transformer, in	w 1 /CY				24 /MH	\$ 140.47 \$	3,371	\$ 3,371
		11.24.00	Architectural		1 EA				286 /MH	\$ 140.47 \$	40,174	\$ 40,174
			Remove structural canopy		1 EA				286 / IVIN	\$ 140.47 \$	40,174	\$ 40,174
		11.41.00	Electrical Equipment Disconnect wiring and components at service rack		1 EA				229 /MH	\$ 127.80 \$	29,266	\$ 29,266
			Demo conduit from rack to tie point		1 EA				57 /MH	\$ 127.80 \$ \$ 127.80 \$	7.285	
			Disconnect wiring at inverter		1 EA				57 /MH	\$ 127.80 \$	7,285	\$ 7,285
			Disconnect wiring at combiner boxes, remove boxes		3 EA				236 /MH	\$ 127.80 \$		\$ 30,161
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		3 EA 1932 EA				172 /MH 358 /MH	\$ 127.80 \$ \$ 127.80 \$		\$ 21,982 \$ 45,752
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods		1932 EA				93 /MH	\$ 127.80 \$		\$ 11,885
			Remove PV panel and place in dumpster		1932 EA				1202 /MH	\$ 127.80 \$	153,616	\$ 153,616
			Remove Conduits to inverters		1 EA				29 /MH	\$ 127.80 \$		\$ 3,706
			Remove inverters Remove transformer		1 EA 1 LT				29 /MH 114 /MH	\$ 127.80 \$ \$ 127.80 \$	3,706 14,569	\$ 3,706 \$ 14,569
			Demolition		1	\$ -	\$ -	\$ -	224 /1011			\$ 409,000
	18.00.00		Scrap Value									
1		18.10.00	Mixed Steel									
			Steel	1 EA, 82 kW inverter	4.36 TN		\$ (763)		/MH			\$ (763
			Steel Steel	Service rack components Conduit and fittings	3.36 TN 3.58 TN		\$ (588) \$ (627)		/MH /MH			\$ (588 \$ (627
			Steel	Transformers	39.86 TN		\$ (6,976)		/MH			\$ (6,976
			Steel	Roof ladder, 1@ 350 lb each	1.29 TN		\$ (226)		/MH			\$ (226)
			Steel	Canopy & steel	143.11 TN		\$ (25,044)		/MH			\$ (25,044
		18.20.00	Stainless Steel									
			Stainless Steel	336 Racks, 13.61 lbs each	16.39 TN		\$ (19,209)	l	/MH			\$ (19,209
		18.30.00	Copper									
			Copper Copper	1 EA, 82 kW inverter Wire	1.43 TN 11.66 TN		\$ (3,489) \$ (28,450)		/MH /MH			\$ (3,489 \$ (28,450
			Copper	Transformers	18.96 TN		\$ (46,262)		/MH			\$ (46,262
		18.50.00	Aluminum									
			PV Module	336 Modules @8 lbs each	19234 LB		\$ (11,704)		/MH			\$ (11,704
			Conduit and fittings Scrap Value	100 @ 1 lb each	716 LB	\$ -	\$ (436) \$ (143,774)		/MH			\$ (436 \$ (143,774
						•	y (140)//4)			,		y (140),,,4
	21.00.00	21.19.00	Civil Work Disposal									
				Concrete, PV panels, rubbish (panels								
		21.20.00	Dumpster, 40 CY Capacity Backfill	to recycler)	21 EA	\$ 37,800	1		/MH			\$ 37,800
		21.20.00	Foundation backfill, imported material fill	Backfill concrete pads	43 /CY	\$ 1,720			/MH			\$ 1,720
			Civil Work			\$ 39,520	\$ -	\$ -		\$	-	\$ 39,520
Direct Cost:	ts											\$ 304,746
	61.00.00		Construction Indirect									
			Construction Indirect			\$ -	\$ -	\$ -		\$		\$ -
Subtotal						\$ 39.520	\$ (143,774)			Ś	409 000	\$ 304,746
						2 39,320	y (143,774)	-		,	-03,000	. J∪4,/40
1 '	91.00.00	01.00	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense									\$ 21,332.23
			Contractor's Profit									\$ 30,474.61
												\$ 51,807
Direct Cost	ts + Constru	uction Indirect	t Costs			\$ 39,520	\$ (143,774)		\$ - \$ -	\$ - \$	409,000	\$ 304,746
,	93.00.00		Indirect Costs									
		93.1	Engineering, Procurement, & Project Services									\$ 18,284.77
		93.2 93.3	Construction Management Support SDG&E Internal Costs									\$ 6,094.92 \$ 30,474.61
		33.3										
l '	95.00.00	QF 4	Contingency Contingency on Subcontractor			\$ 5,928						\$ 5,928
1			Contingency on Scrap Value			J 3,928	\$ -					\$ 5,928
		95.3	Contingency on Material					\$ -				\$ -
			Contingency on Labor							\$	61,350	\$ 61,350
1		95.5	Contingency on Indirect									\$ 8,228
Tatal						6 45.440	6 (143					
Total						\$ 45,448	\$ (143,774)			ş	4/0,350	\$ 486,913

ProjID	Code		Customer	Address	PV_Location Technology	DateEner	gized Faci	ilityNameplat Pan	elQty				
30	EIT		SDG&E EIC (parking)	4760 Clairemont Mesa Blvd, San Diego	o Carport, Free-: PV		1/17/2012	59.35100174	28	6			
Area	Group	Phase	Description	Notes	Quantity	Subcont	•	ap Value Ma			Crew Rate Labo	or Cost To	ital Cost
Canopy I	Mount 11.00.00		Demolition										
	11.00.00	11.22.00	Concrete										
			Concrete	Column foundations	6 /CY					36 /MH	\$ 140.47 \$	5,057 \$	
			Concrete	Electrical equipment (Transformer, in	vi 1/CY					24 /MH	\$ 140.47 \$	3,371 \$	3,371
		11.24.00	Architectural										
		11.24.00	Remove structural canopy		1 EA					42 /MH	\$ 140.47 \$	5,900 \$	5,900
										,		3,500 4	-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		11.41.00	Electrical Equipment										
			Disconnect wiring and components at service rack		1 EA					34 /MH	\$ 127.80 \$ \$ 127.80 \$	4,345 \$	4,345
			Demo conduit from rack to tie point Disconnect wiring at inverter		1 EA 1 EA					8 /MH 8 /MH	\$ 127.80 \$ \$ 127.80 \$	1,022 \$ 1,022 \$	1,022 1,022
			Disconnect wiring at combiner boxes, remove boxes		3 EA					35 /MH	\$ 127.80 \$	4,473 \$	4,473
			Pull wire from combiners to inverter		3 EA					25 /MH	\$ 127.80 \$	3,195 \$	3,195
			Disconnect and remove wiring at PV panels		286 EA					53 /MH	\$ 127.80 \$	6,773 \$	6,773
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		286 EA 286 EA					14 /MH 178 /MH	\$ 127.80 \$ \$ 127.80 \$	1,789 \$ 22,748 \$	1,789 22,748
			Remove PV panel and place in dumpster Remove Conduits to inverters		1 EA					4 /MH	\$ 127.80 \$	511 \$	511
1			Remove inverters		1 EA					4 /MH	\$ 127.80 \$	511 \$	511
1			Remove transformer		1 LT					17 /MH	\$ 127.80 \$	2,173 \$	2,173
1			Demolition			\$	- \$	- \$	-		\$	62,892 \$	62,892
1	18.00.00		Scrap Value										
1		18.10.00	Mixed Steel										
1			Steel	1 EA, 82 kW inverter	0.65 TN		\$	(114)		/MH		\$	(114
1			Steel	Service rack components	0.5 TN		\$	(88)		/MH		\$	(88
1			Steel Steel	Conduit and fittings Transformers	0.53 TN 5.9 TN		\$	(93) (1,033)		/MH /MH		\$	(93 (1,033
			Steel	Roof ladder, 1@ 350 lb each	0.19 TN		Š	(33)		/MH		Š	(33
			Steel	Canopy & steel	21.19 TN		\$	(3,708)		/MH		\$	(3,708
		18.20.00	Stainless Steel Stainless Steel	336 Racks, 13.61 lbs each	2.43 TN		\$	(2,848)		/MH		\$	(2,848
			Junios Acci	330 (4003, 13.01 (53 040)	2.43 111		7	(2,040)		,,,,,,		7	(2,040
		18.30.00	Copper										
			Copper	1 EA, 82 kW inverter	0.21 TN		\$	(512)		/MH		\$	
			Copper Copper	Wire Transformers	1.73 TN 2.81 TN		\$	(4,221) (6,856)		/MH /MH		\$	(4,221 (6,856
			соррег	Transformers	2.02 111		7	(0,030)		,,,,,,		7	(0,030
		18.50.00	Aluminum										
			PV Module	336 Modules @8 lbs each	2847 LB		\$	(1,732)		/MH		\$	
			Conduit and fittings Scrap Value	100 @ 1 lb each	106 LB	Ś	- Ś	(65) (21,303) \$		/MH	S	- 5	(65 (21,303
						•	•	(==,===, +			•		(,
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity		3 EA	\$	5,400			/MH		\$	5,400
		21.20.00	Dumpster, 40 CY Capacity Backfill	to recycler)		\$						\$	
1		21.20.00	Backfill Foundation backfill, imported material fill		3 EA 6 /CY	\$	240			/мн		\$	240
		21.20.00	Backfill	to recycler)				- \$	-		\$		
Direct Co	osts	21.20.00	Backfill Foundation backfill, imported material fill	to recycler)		\$	240	- \$	-		5	\$	240 5,640
Direct Co		21.20.00	Bockfill Foundation backfill, imported material fill Civil Work	to recycler)		\$	240	- \$	-		ş	- \$	240 5,640
Direct Co	osts 61.00.00	21.20.00	Backfill Foundation backfill, imported material fill	to recycler)		\$	240	- \$	-		s	- \$	240 5,640
Direct Co		21.20.00	Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect	to recycler)		\$	240	- \$	-		\$	- \$	240 5,640
Direct Co		21.20.00	Bockfill Foundation backfill, imported material fill Civil Work	to recycler)		\$	240	- \$	-		\$	- \$	240 5,640
	61.00.00	21.20.00	Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect	to recycler)		\$ \$	240 5,640 \$	- \$	-		ş	- \$ - \$	240 5,640 47,229
Direct Co	61.00.00	21.20.00	Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect	to recycler)		s s	240 5,640 \$	·	-		·	- s	240 5,640 47,229
	61.00.00		Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect	to recycler)		\$ \$	240 5,640 \$	- \$	-		ş	- \$ - \$	240 5,640 47,229
	61.00.00	91.0	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Otheror's General and Administration Expense	to recycler)		\$ \$	240 5,640 \$	- \$	-		ş	- \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04
	61.00.00	91.0	Bockfill Foundation backfill, imported material fill Givil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$	-		\$ \$	- \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91
	61.00.00	91.0	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Otheror's General and Administration Expense	to recycler)		\$ \$	240 5,640 \$	- \$	-		ş	- \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04
Subtotal	91.00.00	91.0	Bockfill Foundation backfill, imported material fill Givil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Profit	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$	-		s s	- \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029
Subtotal	91.00.00 osts + Constr	91.0 91.1	Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Profit COSTS	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$		/MH	s s	- \$ 62,892 \$ 5 - \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029
Subtotal	91.00.00	91.00 91.10 ruction Indirec	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs O Contractor's General and Administration Expense Contractor's Profit Costs Indirect Costs	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$	-	/MH	s s	- \$ 62,892 \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029
Subtotal	91.00.00 osts + Constr	91.0: 91.1t ruction Indirec 93.:	Bockfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Profit Costs Indirect Costs Indirect Costs Indirect Costs Indirect Costs Indirect Costs	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$		/MH	s s	- \$ 62,892 \$ 62,892 \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74
Subtotal	91.00.00 osts + Constr	91.0: 91.1t ruction Indirec 93.:	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs O Contractor's General and Administration Expense Contractor's Profit Costs Indirect Costs	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$	-	/MH	s s	- \$ 62,892 \$ 5 62,892 \$ \$ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74
Subtotal	91.00.00 93.00.00 93.00.00	91.0: 91.1t ruction Indirec 93.:	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs O Contractor's General and Administration Expense Contractor's Profit Costs Indirect Costs Legineering, Procurement, & Project Services Construction Management Support 3 DOS&E Internal Costs	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$	-	/MH	s s	- \$ 62,892 \$ 5 62,892 \$ \$ 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58
Subtotal	91.00.00 osts + Constr	91.0: 91.1: 93.: 93.: 93.:	Backfill Gwil Work Construction Indirect Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Profit Costs Indirect Costs Indirect Costs Indirect Costs Sock Enternal Costs Sock Construction Management Support Sock Sock Construction Management Support Sock Contingency	to recycler)		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 \$ - \$ 5,640 \$	- \$ (21,303) \$		/MH	s s	- \$ 62,892 \$ \$ 62,892 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91
Subtotal	91.00.00 93.00.00 93.00.00	91.00 91.10 93.3 93.3 93.3 95.5	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Frofit t Costs Indirect Costs Indirect Costs Construction Management Support 5 SDG&E Internal Costs Contingency Contingency Contingency Contingency Contingency	to recycler)		\$ \$ \$	240 5,640 \$	- \$ (21,303) \$ - \$ (21,303) \$		/MH	s s	- \$ 62,892 \$ 5 62,892 \$ \$ 5 62,892 \$	240 5,640 47,229 - 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91
Subtotal	91.00.00 93.00.00 93.00.00	91.00 91.10 93.1 93.1 93.1 95.1 95.9 95.9	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Frofit t Costs Indirect Costs Indirect Costs Indirect Costs Construction Management Support 5 SDG&E Internal Costs Contingency Contingency Contingency on Subcontractor Contingency on Subcontractor Contingency on Material	to recycler)		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 \$ - \$ 5,640 \$	- \$ (21,303) \$ - \$ (21,303) \$		/MH	\$ \$ \$ \$ - \$	- \$ 62,892 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 47,229 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91
Subtotal	91.00.00 93.00.00 93.00.00	91.00 91.10 93.1 93.1 93.1 95.1 95.9 95.9	Backfill Foundation backfill, imported material fill Civil Work Construction indirect Construction indirect Other Direct & Construction indirect Costs Octoractor's General and Administration Expense Contractor's Profit Costs Indirect Costs Engineering, Procurement, & Project Services Construction Management Support 3 DG&B Internal Costs Contingency Contin	to recycler)		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 \$ - \$ 5,640 \$	- \$ (21,303) \$ - \$ (21,303) \$		/MH	\$ \$ \$ \$ - \$. \$. \$. \$. \$. \$. \$. \$. \$. \$. \$	240 5,640 47,229 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91
Subtotal	91.00.00 93.00.00 93.00.00	91.0: 91.1: 93.3: 93.3: 95.95.95.95.95.95.95.95.95.95.95.95.95.9	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Frofit It Costs Indirect Costs Indirect Costs Construction Management Support 3 DGS& Internal Costs Contingency Contingency Contingency on Subcontractor Contingency on Subcontractor Contingency on Material G Contingency on Material G Contingency on Material G Contingency on Material	to recycler)		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 \$ - \$ 5,640 \$	- \$ (21,303) \$ - \$ (21,303) \$	-	/MH	\$ \$ \$ \$ - \$	- \$ 62,892 \$ 5 5 5 5 5 9,434 \$	240 5,640 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91 846 -
Subtotal	91.00.00 93.00.00 93.00.00	91.0: 91.1: 93.3: 93.3: 95.95.95.95.95.95.95.95.95.95.95.95.95.9	Backfill Foundation backfill, imported material fill Civil Work Construction Indirect Construction Indirect Construction Indirect Other Direct & Construction Indirect Costs Contractor's General and Administration Expense Contractor's Frofit t Costs Indirect Costs Indirect Costs Indirect Costs Construction Management Support 5 SDG&E Internal Costs Contingency Contingency Contingency on Subcontractor Contingency on Subcontractor Contingency on Material	to recycler)		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 \$ - \$ 5,640 \$	- \$ (21,303) \$ - \$ (21,303) \$		/MH	\$ \$ \$ \$ - \$	- \$ 62,892 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	240 5,640 47,229 3,306.04 4,722.91 8,029 47,229 2,833.74 944.58 4,722.91 846 -

ProjID	Code		Customer	Address	PV_Location Technology	DateEnergized	FacilityNamep	lat PanelQty				
31	SWC		Sharp Rees Stealy Wellness Center	300 Fir Street, San Diego, CA	Carport - Cano PV	1/31/20	74.349998	47 33	13			
		Phase	Description	Notes	Quantity	Subcontract Co.	st Scrap Value	Material Cost	Man Hours	Crew Rate Labor	Cost To	tal Cost
Canopy M	11.00.00		Demolition									
		11.22.00	Concrete									
			Concrete Concrete	Column foundations Electrical equipment (Transformer, in	7 /CY 1 /CY				42 /MH 24 /MH	\$ 140.47 \$ \$ 140.47 \$	5,900 \$ 3,371 \$	5,900 3.371
			Concrete	Liectrical equipment (Transformer, III	1/01				24 /19111	3 140.47 3	3,3/1 3	3,371
		11.24.00	Architectural									
			Remove structural canopy		1 EA				49 /MH	\$ 140.47 \$	6,883 \$	6,883
		11.41.00	Electrical Equipment									
			Disconnect wiring and components at service rack		1 EA				39 /MH	\$ 127.80 \$	4,984 \$	
			Demo conduit from rack to tie point Disconnect wiring at inverter		1 EA 1 EA				10 /MH 10 /MH	\$ 127.80 \$ \$ 127.80 \$	1,278 \$ 1,278 \$	1,278 1,278
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		3 EA				41 /MH	\$ 127.80 \$	5,240 \$	5,240
			Pull wire from combiners to inverter		3 EA				30 /MH	\$ 127.80 \$	3,834 \$	3,834
			Disconnect and remove wiring at PV panels		333 EA 333 EA				62 /MH	\$ 127.80 \$ \$ 127.80 \$	7,924 \$ 2.045 \$	7,924
			Disconnect and remove grounding at PV panels and racks, Remove ground rods Remove PV panel and place in dumpster		333 EA 333 EA				16 /MH 207 /MH	\$ 127.80 \$ \$ 127.80 \$	2,045 \$ 26,455 \$	2,045 26,455
			Remove Conduits to inverters		1 EA				5 /MH	\$ 127.80 \$	639 \$	639
			Remove inverters		1 EA				5 /MH	\$ 127.80 \$	639 \$	639
			Remove transformer Demolition		1 LT	\$ -	\$ -	\$ -	20 /MH	\$ 127.80 \$	2,556 \$ 73,025 \$	2,556 73,025
								•			,,,	.,
	18.00.00	18.10.00	Scrap Value Mixed Steel									
		10.10.00	Steel	1 EA, 82 kW inverter	0.75 TN		\$ (13	11)	/MH		\$	(131)
1			Steel	Service rack components	0.58 TN		\$ (10	12)	/MH		\$	(102)
1			Steel Steel	Conduit and fittings Transformers	0.62 TN 6.87 TN		\$ (10 \$ (1,20		/MH		\$	
			Steel	Roof ladder, 1@ 350 lb each	0.22 TN		\$ (1,20		/MH		\$	(39)
			Steel	Canopy & steel	24.67 TN		\$ (4,3)		/MH		\$	(4,317)
		18.20.00	Stainless Steel									
		10.20.00	Stainless Steel	336 Racks, 13.61 lbs each	2.82 TN		\$ (3,30	15)	/MH		\$	(3,305)
		18.30.00	Copper									
		18.30.00	Copper	1 EA, 82 kW inverter	0.25 TN		\$ (6:	.0)	/MH		\$	(610)
			Copper	Wire	2.01 TN		\$ (4,90	14)	/MH		\$	(4,904)
			Copper	Transformers	3.27 TN		\$ (7,9)	19)	/MH		\$	(7,979)
		18.50.00	Aluminum									
			PV Module	336 Modules @8 lbs each	3315 LB		\$ (2,01		/MH		\$	
			Conduit and fittings Scrap Value	100 @ 1 lb each	123 LB	\$ -	\$ (24,79	(5) (0) \$ -	/MH	Ś	- \$	(75) (24,790)
	21.00.00	21.19.00	Civil Work Disposal									
				Concrete, PV panels, rubbish (panels								
		21.20.00	Dumpster, 40 CY Capacity Backfill	to recycler)	4 EA	\$ 7,2	00		/MH		\$	7,200
		21.20.00	Foundation backfill, imported material fill	Backfill concrete pads	7 /CY	\$ 2	80		/MH		\$	280
			Civil Work			\$ 7,4	80 \$ -	\$ -		\$	- \$	7,480
Direct Cos	its										\$	55,716
												,
	61.00.00		Construction Indirect									
			Construction Indirect			\$ -	\$ -	\$ -		\$	- \$	-
Subtotal						\$ 7,4	80 \$ (24,75	10) \$ -		\$	73,025 \$	55,716
	91.00.00	91.09	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense								¢	3,900.09
			Contractor's Profit								\$	5,571.55
											\$	9,472
Direct Cos	ts + Constru	uction Indirect	Costs			\$ 7,4	80 \$ (24,79	10) \$ -	\$ - \$ -	\$ - \$	73,025 \$	55,716
	03 00 05		Indicact Casts									
	93.00.00	93.1	Indirect Costs Engineering, Procurement, & Project Services								\$	3.342.93
		93.2	Construction Management Support								\$	1,114.31
		93.3	SDG&E Internal Costs								\$	5,571.55
	95.00.00		Contingency									
1			Contingency on Subcontractor			\$ 1,1	22				\$	
1			Contingency on Scrap Value Contingency on Material				\$ -	\$ -			\$	-
		95.4	Contingency on Material					<i>y</i>		\$	10,954 \$	
			Contingency on Indirect								\$	1,504
1												
		95.5										

ProjID	Code		Customer	Address	PV Location Technology	DateEnergized	FacilityNamepla	it PanelΩtv				
				2902 Park Blvd, San Diego, CA		-						
32 Area	ZOO Group	Phase	San Diego Zoo Description	Notes	Carport - Cano PV/ES Quantity	Subcontract Cost	3 88.4000015 Scrap Value			Crew Rate Labor	Cost To	ntal Cost
Canopy N	Mount	rilase		Notes	Quantity	Subcontract Cost	Scrap value	Wia teriar Cost	Wali Hours	Crew Rate Labor	cost 10	ital Cost
	11.00.00	11.22.00	Demolition Concrete									
			Concrete	Column foundations	9 /CY				54 /MH	\$ 140.47 \$	7,585 \$	7,58
			Concrete	Electrical equipment (Transformer, in	w 1 /CY				24 /MH	\$ 140.47 \$	3,371 \$	3,37
		11.24.00	Architectural									
			Remove structural canopy		1 EA				62 /MH	\$ 140.47 \$	8,709 \$	8,70
		11.41.00	Electrical Equipment									
			Disconnect wiring and components at service rack		1 EA 1 EA				50 /MH 12 /MH	\$ 127.80 \$ \$ 127.80 \$	6,390 \$ 1,534 \$	6,390 1,534
			Demo conduit from rack to tie point Disconnect wiring at inverter		1 EA 1 EA				12 /MH 12 /MH	\$ 127.80 \$ \$ 127.80 \$	1,534 \$	
			Disconnect wiring at combiner boxes, remove boxes		3 EA				51 /MH	\$ 127.80 \$	6,518 \$	6,51
			Pull wire from combiners to inverter Disconnect and remove wiring at PV panels		3 EA 420 FA				37 /MH 78 /MH	\$ 127.80 \$ \$ 127.80 \$	4,729 \$	
			Disconnect and remove grounding at PV panels and racks, Remove ground rods		420 EA				20 /MH	\$ 127.80 \$	2,556 \$	2,550
			Remove PV panel and place in dumpster		420 EA 1 EA				261 /MH 6 /MH	\$ 127.80 \$ \$ 127.80 \$	33,356 \$ 767 \$	
			Remove Conduits to inverters Remove inverters		1 EA 1 EA				6 /MH	\$ 127.80 \$ \$ 127.80 \$	767 \$ 767 \$	
			Remove transformer		1 LT				25 /MH	\$ 127.80 \$	3,195 \$	3,19
			Demolition			\$ -	\$ -	\$ -		\$	90,978 \$	90,97
	18.00.00		Scrap Value									
		18.10.00	Mixed Steel Steel	1 EA, 82 kW inverter	0.95 TN		\$ (166	Y	/мн		\$	(16)
			Steel	Service rack components	0.73 TN		\$ (128		/MH		\$	(12)
			Steel Steel	Conduit and fittings Transformers	0.78 TN 8.66 TN		\$ (137 \$ (1,516		/MH /MH		\$	(13)
			Steel	Roof ladder. 1@ 350 lb each	0.28 TN		\$ (1,516		/MH		\$	
			Steel	Canopy & steel	31.11 TN		\$ (5,444)	/мн		\$	(5,44
		18.20.00	Stainless Steel									
			Stainless Steel	336 Racks, 13.61 lbs each	3.56 TN		\$ (4,172)	/MH		\$	(4,17)
		18.30.00	Copper									
		10.30.00	Copper	1 EA, 82 kW inverter	0.31 TN		\$ (756)	/MH		\$	(75)
			Copper	Wire Transformers	2.54 TN 4.12 TN		\$ (6,198 \$ (10,053)	/MH /MH		\$	
			Copper	Transformers	4.12 IN		\$ (10,053	1	/IVIN		Þ	(10,05
		18.50.00	Aluminum									
			PV Module Conduit and fittings	336 Modules @8 lbs each 100 @ 1 lb each	4181 LB 156 LB		\$ (2,544 \$ (95)	/MH /MH		\$	(2,544
			Scrap Value			\$ -	\$ (31,257		,	\$	- \$	
	21.00.00		Civil Work									
		21.19.00	Disposal									
			Dumpster, 40 CY Capacity	Concrete, PV panels, rubbish (panels to recycler)	5 EA	\$ 9,000)		/MH		\$	9,000
		21.20.00	Backfill									
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	9 /CY	\$ 360 \$ 9,360		\$ -	/MH	\$. \$	
			CIVII WOLK			3 3,300		, .		,		-,
Direct Co	ists										\$	69,08
	61.00.00		Construction Indirect									
			Construction Indirect			\$ -	\$ -	\$ -		\$	- \$	-
								n ¢				en 1 -
Subtotal						\$ 9,360	\$ (31,257	, > -		\$	90,978 \$	69,08
	91.00.00		Other Direct & Construction Indirect Costs									
			Contractor's General and Administration Expense Contractor's Profit								\$	4,835.65 6,908.00
											\$	
Direct Co	ısts + Constr	uction Indirect	t Costs			\$ 9,360	\$ (31,257) \$ -	\$ - \$ -	5 - 5	90,978 \$	69,08
						,				•		,
	93.00.00	93.1	Indirect Costs Engineering, Procurement, & Project Services								5	4,144.8
		93.2	? Construction Management Support								\$	1,381.6
		93.3	SDG&E Internal Costs								\$	6,908.0
	95.00.00		Contingency									
			! Contingency on Subcontractor			\$ 1,40	\$ -				\$	
		95.2 95.3	Contingency on Scrap Value Contingency on Material				,	\$ -			\$	-
			Contingency on Labor							\$	13,647 \$	13,64
		95.5	Contingency on Indirect								\$	1,865
		33.3					\$ (31,257					
Total						\$ 10.764					04,625 \$	

ProjID	Code		Customer	Address	PV_Location Technology	DateEnergized	FacilityNamepl	at PanelQty				
33	DLP		Fast EV Suncharge/Del Lago Park N Ride	3310 Del Lago Blvd D, Escondido, CA	Carport - Cano PV/ES	3/6/20	14 13.1000003	38 (50			
		Phase	Description	Notes	Quantity	Subcontract Cos	t Scrap Value	Material Cost	Man Hours	Crew Rate Labor	Cost To	tal Cost
Canopy Me	11.00.00		Demolition									
		11.22.00	Concrete									
			Concrete Concrete	Column foundations Electrical equipment (Transformer, in	1 /CY 1 /CY				6 /MH 24 /MH	\$ 140.47 \$ \$ 140.47 \$	843 \$ 3,371 \$	843 3,371
			Concrete	Ciectrical equipment (Transformer, III	1/01				24 /19111	3 140.47 3	3,3/1 3	3,3/1
		11.24.00	Architectural									
			Remove structural canopy		1 EA				9 /MH	\$ 140.47 \$	1,264 \$	1,264
		11.41.00	Electrical Equipment									
			Disconnect wiring and components at service rack		1 EA				7 /MH	\$ 127.80 \$	895 \$	895
			Demo conduit from rack to tie point Disconnect wiring at inverter		1 EA 1 EA				2 /MH 2 /MH	\$ 127.80 \$ \$ 127.80 \$	256 \$ 256 \$	256 256
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes		3 EA				7 /MH	\$ 127.80 \$	895 S	895
			Pull wire from combiners to inverter		3 EA				5 /MH	\$ 127.80 \$	639 \$	639
			Disconnect and remove wiring at PV panels		60 EA				11 /MH	\$ 127.80 \$	1,406 \$	1,406
			Disconnect and remove grounding at PV panels and racks, Remove ground rods Remove PV panel and place in dumpster		60 EA 60 EA				3 /MH 37 /MH	\$ 127.80 \$ \$ 127.80 \$	383 \$ 4,729 \$	383 4,729
			Remove Conduits to inverters		1 EA				1 /MH	\$ 127.80 \$	128 \$	128
			Remove inverters		1 EA				1 /MH	\$ 127.80 \$	128 \$	128
			Remove transformer		1 LT				4 /MH	\$ 127.80 \$	511 \$	511
			Demolition			\$ -	\$ -	\$ -		\$	15,702 \$	15,702
	18.00.00		Scrap Value									
1		18.10.00	Mixed Steel									
			Steel Steel	1 EA, 82 kW inverter Service rack components	0.14 TN 0.1 TN		\$ (2 \$ (1		/MH /MH		\$	(25) (18)
			Steel	Conduit and fittings	0.11 TN		\$ (1		/MH		\$	(19)
			Steel	Transformers	1.24 TN		\$ (1 \$ (21		/MH		\$	(217)
			Steel	Roof ladder, 1@ 350 lb each	0.04 TN		\$ (/MH		\$	(7)
			Steel	Canopy & steel	4.44 TN		\$ (77	7)	/MH		\$	(777)
		18.20.00	Stainless Steel									
			Stainless Steel	336 Racks, 13.61 lbs each	0.51 TN		\$ (59	8)	/MH		\$	(598)
		18.30.00	Copper									
			Copper	1 EA, 82 kW inverter	0.04 TN		\$ (9		/MH		\$	(98)
			Copper	Wire	0.36 TN		\$ (87	8)	/MH		\$	(878)
			Copper	Transformers	0.59 TN		\$ (1,44	0)	/MH		\$	(1,440)
		18.50.00	Aluminum									
			PV Module	336 Modules @8 lbs each	597 LB		\$ (36		/MH		\$	(363)
			Conduit and fittings Scrap Value	100 @ 1 lb each	22 LB	Ś -	\$ (1,45)		/MH	Ś	- \$	(13) (4,452)
							, 14,43	., ,		,		(4,432)
	21.00.00		Civil Work									
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels								
			Dumpster, 40 CY Capacity	to recycler)	1 EA	\$ 1,80	00		/MH		\$	1,800
		21.20.00	Backfill									
			Foundation backfill, imported material fill Civil Work	Backfill concrete pads	2 /CY		80 \$ -	s -	/MH	s	- \$	80 1,880
								*		•		
Direct Cost	ts										\$	13,130
	61.00.00		Construction Indirect									
			Construction Indirect			Ś -	\$ -	s -		Ś	- 5	
			Construction monect			,	, .	, -		,	. ,	-
Subtotal						\$ 1,88	80 \$ (4,45	2) \$ -		\$	15,702 \$	13,130
	91.00.00		Other Direct & County and an Indiana County									
	91.00.00	91.09	Other Direct & Construction Indirect Costs Contractor's General and Administration Expense								\$	919.11
			Contractor's Profit								\$	1,313.01
1											\$	2,232
Direct Cost	ts + Constru	uction Indirect	Costs			\$ 1,88	80 \$ (4,45	2) \$ -	\$ - \$ -	\$ - \$	15,702 \$	13,130
1						,				,		
	93.00.00	02.1	Indirect Costs Engineering, Procurement, & Project Services								\$	787.81
			Construction Management Support								Ś	262.60
		93.3	SDG&E Internal Costs								\$	1,313.01
1	05 00 00		Continuous									
	95.00.00	95.1	Contingency Contingency on Subcontractor			\$ 28	12				\$	282
		95.2	Contingency on Scrap Value				\$ -				\$	
1		95.3	Contingency on Material					\$ -			\$	-
1		95.4	Contingency on Labor							\$	2,355 \$	2,355
1		95.5	Contingency on Indirect								\$	355
L												
Total						\$ 2,16	2 \$ (4,45)	2) \$ -		\$	18,058 \$	20,717

Area Canopy N	AHL		Customer	Address	PV_Location Technology	DateEner	gized Facili	tyNameplat PanelQty					
Canopy N			Agua Hedionda	1580 Cannon Rd, Carlsbad, CA	Carport - Cano PV		3/28/2014 5.	300000191	24				
curropy is		Phase	Description	Notes	Quantity	Subcont	ract Cost Scra	p Value Materia	Cost Man Hours	Crew Rate	Labor Cost	Total C	Cost
	11.00.00		Demolition										
		11.22.00	Concrete Concrete	Column foundations	1 /CY				6	MH \$ 140.4	, ć 0	13 \$	843
			Concrete	Electrical equipment (Transformer, in					24 /	MH \$ 140.4	7 \$ 3,3		3,371
		11.24.00	Architectural		1 EA					MH \$ 140.4		52 \$	562
			Remove structural canopy		1 DA				4 /	WIT \$ 140.4	, , ,)Z \$	302
		11.41.00	Electrical Equipment										
			Disconnect wiring and components at service rack Demo conduit from rack to tie point		1 EA 1 EA					MH \$ 127.8i MH \$ 127.8i		13 \$ 18 \$	383 128
			Disconnect wiring at inverter		1 EA					MH \$ 127.8		18 \$	128
			Disconnect wiring at combiner boxes, remove boxes		3 EA				3 /	MH \$ 127.8	\$ 3	3 \$	383
			Pull wire from combiners to inverter		3 EA 24 EA					MH \$ 127.80 MH \$ 127.80		6 \$ 1 \$	256 511
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods		24 EA 24 EA					MH \$ 127.80 MH \$ 127.80			128
			Remove PV panel and place in dumpster		24 EA				15 /				1,917
			Remove Conduits to inverters		1 EA					MH \$ 127.8			-
			Remove inverters Remove transformer		1 EA 1 LT				1/	MH \$ 127.8i MH \$ 127.8i		\$!8 \$	128
			Demolition			\$	- \$	- \$	-				8,738
	10.00.00		Committee										
	18.00.00	18.10.00	Scrap Value Mixed Steel										
			Steel	1 EA, 82 kW inverter	0.05 TN		\$	(9)		MH		\$	(9)
			Steel Steel	Service rack components	0.04 TN 0.04 TN		\$	(7)		MH MH		\$ \$ \$	(7) (7)
			Steel	Conduit and fittings Transformers	0.5 TN		\$	(88)		MH		\$	(88)
			Steel	Roof ladder, 1@ 350 lb each	0.02 TN		\$	(4)		MH		\$	(4)
			Steel	Canopy & steel	1.78 TN		\$	(312)	/	MH		\$	(312)
		18.20.00	Stainless Steel										
			Stainless Steel	336 Racks, 13.61 lbs each	0.2 TN		\$	(234)		'мн		\$	(234)
		18.30.00	Copper										
		18.30.00	Copper	1 EA, 82 kW inverter	0.02 TN		\$	(49)	,	MH		\$	(49)
			Copper	Wire	0.14 TN		\$	(342)	,	MH		\$	(342)
			Copper	Transformers	0.24 TN		\$	(586)	/	MH		\$	(586)
		18.50.00	Aluminum										
			PV Module	336 Modules @8 lbs each	239 LB		\$	(145)		MH		\$	(145)
			Conduit and fittings Scrap Value	100 @ 1 lb each	9 LB	s	- \$	(5) (1,787) \$	/	MH	s -	\$	(5) (1,787)
			Scrap value			,	. ,	(1,707) 3			, .	,	(1,707)
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)	1 EA	\$	1,800		,	MH		\$	1,800
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads	1 /CY	\$	40			'MH		Ś	40
			Civil Work	Backiiii Coliciete paus	1/0	\$	1,840 \$	- \$	- '	IVIII	\$ -		1,840
	sts											\$	8,791
Direct Cos			Construction Indirect										
Daett COS	61.00.00												
DIELE COS	61.00.00												
DAECE COS	61.00.00		Construction Indirect			s	- Ś	- \$			\$ -	Ś	-
			Construction Indirect					,	-				-
Subtotal			Construction Indirect			\$	- \$ 1,840 \$	- \$ (1,787) \$	-				8,791
Subtotal								,	-				8,791
Subtotal			Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense					,	-			\$ \$	615.39
Subtotal			Other Direct & Construction Indirect Costs					,	-			\$ \$	615.39 879.12
Subtotal			Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense			\$	1,840 \$	(1,787) \$	-			\$ \$	615.39 879.12 1,495
Subtotal	91.00.00		Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit					,		s - s -	\$ 8,7.	\$ \$	615.39 879.12
Subtotal Direct Cos	91.00.00 sts + Constr	91.1	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit tf Costs			\$	1,840 \$	(1,787) \$		s - s -	\$ 8,7.	\$ \$	615.39 879.12 1,495
Subtotal Direct Cos	91.00.00	91.1 ruction Indirec 93.	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit Costs Indirect Costs 1 Engineering, Procurement, & Project Services			\$	1,840 \$	(1,787) \$		s - s -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791
Subtotal Direct Cos	91.00.00 sts + Constr	91.1 ruction Indirec 93. 93.	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 9 Contractor's Profit 17 Costs Indirect Costs 1 Engineering, Procurement, & Project Services 2 Construction Management Support			\$	1,840 \$	(1,787) \$		\$ - \$ -	\$ 8,7.	\$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82
Subtotal Direct Cos	91.00.00 sts + Constr	91.1 ruction Indirec 93. 93.	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit Costs Indirect Costs 1 Engineering, Procurement, & Project Services			\$	1,840 \$	(1,787) \$		s - s -	\$ 8,7.	\$ \$ \$ \$	615.39 879.12 1,495 8,791
Subtotal Direct Cos	91.00.00 sts + Constr	91.1 ruction Indirec 93 93	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit ct Costs Indirect Costs 1 Engineering, Procurement, & Project Services 2 Construction Management Support 3 SOG&E Internal Costs Contingency			s	1,840 \$	(1,787) \$	- \$ -	s - s -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82 879.12
Subtotal Direct Cos	91.00.00 ssts + Constri 93.00.00	91.1 ruction Indirec 93 93 93	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit 1 Costs Indirect Costs 1 Engineering, Procurement, & Project Services 2 Construction Management Support 3 DGG&Entermal Costs Contingeny 1 Contingeny 1 Contingeny			\$	1,840 \$	(1,787) \$	- \$ -	s - s -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82 879.12
Subtotal Direct Cos	91.00.00 ssts + Constri 93.00.00	91.1i ruction Indirec 93 93 95 95 95	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit of Costs Indirect Costs 1 Engineering, Procurement, & Project Services 2 Construction Management Support 3 DG&E Internal Costs Contringency 1 Contingency 1 Contingency 2 Contingency on Subcontractor 2 Contingency on Subcontractor 2 Contingency on Subcontractor 2 Contingency on Material			s	1,840 \$	(1,787) \$	- \$ -	s - s -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82 879.12
Subtotal Direct Cos	91.00.00 ssts + Constri 93.00.00	91.1i ruction Indirec 93 93 95 95 95	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit ct Costs Indirect Costs Engineering, Procurement, & Project Services 2 Construction Management Support 3 DO&E Internal Costs Contingency 1 Contingency 1 Contingency on Subcontractor 2 Contingency on Scrap Value			s	1,840 \$	(1,787) \$	- \$ -	\$ - \$ -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82 879.12
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Subtotal Direct Cos	91.00.00 ssts + Constri 93.00.00	91.1i ruction Indirec 93 93 95 95 95 95	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense 0 Contractor's Profit of Costs Indirect Costs 1 Engineering, Procurement, & Project Services 2 Construction Management Support 3 DG&E Internal Costs Contringency 1 Contingency 1 Contingency 2 Contingency on Subcontractor 2 Contingency on Subcontractor 2 Contingency on Subcontractor 2 Contingency on Material			s	1,840 \$	(1,787) \$	- \$ -	s - s -	\$ 8,7.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	615.39 879.12 1,495 8,791 527.47 175.82 879.12

	Code CWP		Customer Civita Westpark Apartments	Address 7777 Westside Dr, San Diego CA		Technology PV/ES	DateEnergized 4/4/20	FacilityName te_kW	PanelQty 87 35				
33	CWP		Civita Westpark Apartments	//// Westside Dr, San Diego CA	Carport	PV/ES	4/4/20	10	8/ 3:	52			
Area Canopy M		Phase	Description	Notes	Quantity		Subcontract Cos	t Scrap Value	Material Cost	Man Hours	Crew Rate	Labor Cost	Total Cost
	11.00.00	11.22.00	Demolition Concrete										
		11.22.00	Concrete	Column foundations		8 /CY				48 /MH	\$ 140.47		13 \$ 6,7
			Concrete	Electrical equipment (Transformer, in	IVI	1 /CY				24 /MH	\$ 140.47	\$ 3,37	1 \$ 3,3
		11.24.00	Architectural										
			Remove structural canopy			1 EA				52 /MH	\$ 140.47	\$ 7,30	14 \$ 7,3
		11.41.00	Electrical Equipment										
			Disconnect wiring and components at service rack			1 EA				42 /MH	\$ 127.80		8 \$ 5,3
			Demo conduit from rack to tie point Disconnect wiring at inverter			1 EA 1 EA				10 /MH 10 /MH	\$ 127.80 \$ 127.80	\$ 1,27	78 \$ 1,2 78 \$ 1,2
			Disconnect wiring at inverter Disconnect wiring at combiner boxes, remove boxes			3 EA				43 /MH	\$ 127.80		5 \$ 5,4
			Pull wire from combiners to inverter			3 EA				31 /MH			2 \$ 3,9
			Disconnect and remove wiring at PV panels Disconnect and remove grounding at PV panels and racks, Remove ground rods			52 EA 52 EA				65 /MH 17 /MH	\$ 127.80 \$ 127.80		7 \$ 8,3 7 \$ 2,1
			Remove PV panel and place in dumpster			52 EA				219 /MH	\$ 127.80		
			Remove Conduits to inverters			1 EA				5 /MH	\$ 127.80		9 \$ 6
			Remove inverters Remove transformer			1 EA 1 LT				5 /MH 21 /MH	\$ 127.80 \$ 127.80	\$ 2.68	19 \$ 6 14 \$ 2,6
			Demolition				\$ -	\$ -	\$ -	,		\$ 77,22	
	18.00.00		Scrap Value										
		18.10.00	Mixed Steel										
			Steel Steel	1 EA, 82 kW inverter Service rack components		.8 TN 51 TN			40)	/MH /MH			\$ (1 \$ (1
			Steel Steel	Service rack components Conduit and fittings		51 TN 55 TN			14)	/MH /MH			\$ (1 \$ (1
			Steel	Transformers		26 TN		\$ (1,2	71)	/MH			\$ (1,2
			Steel Steel	Roof ladder, 1@ 350 lb each Canopy & steel		23 TN 07 TN		\$ (4,5	40)	/MH /MH			\$ (4,5
			steel	Callopy & Steel	20.0	27 TIN		\$ (4,3	32)	/Will			\$ (4,5
		18.20.00	Stainless Steel			99 TN		\$ (3,5		/мн			\$ (3,5
			Stainless Steel	336 Racks, 13.61 lbs each	2.5	99 IN		\$ (3,5	J4)	/MH			\$ (3,5
		18.30.00	Copper						_				
			Copper Copper	1 EA, 82 kW inverter Wire		26 TN L3 TN		\$ (6 \$ (5,1		/MH /MH			\$ (6 \$ (5,1
			Copper	Transformers	3.4	15 TN		\$ (8,4	18)	/MH			\$ (8,4
		18.50.00	Aluminum										
		10.30.00	PV Module	336 Modules @8 lbs each		04 LB		\$ (2,1	32)	/MH			\$ (2,1
			Conduit and fittings Scrap Value	100 @ 1 lb each	13	30 LB	\$ -		79) 99) \$ -	/MH		s -	\$ (26,1
			Scrup Value				, .	3 (20,1	99) \$ -			, .	3 (20,1
	21.00.00		Civil Work										
		21.19.00	Disposal	Concrete, PV panels, rubbish (panels									
			Dumpster, 40 CY Capacity	to recycler)		4 EA	\$ 7,20	00		/MH			\$ 7,2
		21.20.00	Backfill Foundation backfill, imported material fill	Backfill concrete pads		8 /CY	\$ 33	10		/MH			\$ 3
			Civil Work					20 \$ -	\$ -	-		\$ -	\$ 7,5
Direct Cos	its												\$ 58,5
													درەد ب
	61.00.00		Construction Indirect										
			Construction Indirect	-			\$ -	\$ -	\$ -			\$ -	\$ -
Subtotal							\$ 7,52	20 \$ (26,1	99) \$ -			\$ 77,22	9 \$ 58,5
	91.00.00	91 0	Other Direct & Construction Indirect Costs 9 Contractor's General and Administration Expense										\$ 4,098.
			Contractor's Profit										\$ 5,855.
													\$ 9,9
Direct Cos	ts + Constr	uction Indirec	t Costs				\$ 7,52	20 \$ (26,1	99) \$ -	\$ - \$ -	\$ -	\$ 77,22	9 \$ 58,5
	93.00.00		Indirect Costs										
		93.1	Engineering, Procurement, & Project Services										\$ 3,513.
			2 Construction Management Support 3 SDG&E Internal Costs										\$ 1,171. \$ 5,855.
		33.3											J 3,333.
	95.00.00		Contingency				,	10					
		95.2	2 Contingency on Subcontractor 2 Contingency on Scrap Value				\$ 1,12	\$ -					\$ 1,1 \$ -
		95.3	3 Contingency on Material						\$ -				\$ -
		95.4	\$ Contingency on Labor									\$ 11,58	14 \$ 11,5
		95.5	5 Contingency on Indirect										\$ 1,5
Total							\$ 8.64	8 \$ (26,19	10\ ¢			\$ 88.81	3 \$ 93,3
Total							\$ 8,64	8 \$ (26,19	- לוכי			⇒ 88,81	3,33 ډ د

SL-016628.F_SDGE Decom(Ramona)

Decommissioning Study

Prepared for San Diego Gas & Electric Company Ramona Solar Energy Plant

Prepared by Sargent & Lundy

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Sargent & Lundy is one of the oldest and most experienced full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, and fossil fuels. Sargent & Lundy delivers comprehensive project services—from consulting, design, and implementation to construction management, commissioning, and operations/maintenance—with an emphasis on quality and safety. The firm serves public and private sector clients in the power and energy, gas distribution, industrial, and government sectors.

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Final	March 30, 2022	ES, 2.2, Appendix A

ISSUE SUMMARY AND APPROVAL PAGE

This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIX A. CONCEPTUAL COST ESTIMATE TO DECOMMISSION RAMONA SOLAR

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
CEC	California Energy Commission
FERC	Federal Energy Regulatory Commission
Owner	San Diego Gas & Electric Company
PTC	PVUSA Test Conditions
PV	photovoltaic
Ramona	Ramona Solar Energy Plant
S&L	Sargent & Lundy
SDG&E	San Diego Gas & Electric Company
STC	Standard Test Conditions

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual dismantling cost estimate and average service life estimate for the Ramona Solar Energy Plant (Ramona) near San Diego, California. The work scope included a review of drawings and documents of the facility.

METHODOLOGY

The S&L methodology for developing the cost estimate consists of three elements: (i) S&L experience in developing plant demolition costs and S&L's existing database for numerous other projects; (ii) use of the unit cost factor methodology; and (iii) quotes from previous projects for similar activities. The cost estimate was developed based on the drawings, documents, and data provided by the Owner [5]. These drawings and documents were used to estimate the foundation sizes, steel quantities, solar array material quantities, and other equipment quantities. This information was used with unit cost factors developed by S&L based on industry data and experience. Unit cost factors for concrete removal, steel removal, cutting costs, etc. were developed from labor and material cost information. S&L also estimated the quantities of metals that could be recovered and sold for scrap. The estimate includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

CONCEPTUAL COST ESTIMATE

The summary of the cost estimate for decommissioning Ramona is shown in Table ES-1. The FERC account for the estimate is E344.1 for solar generators, as shown in Table ES-2. All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of the service life of the asset due to escalation and other factors.

Table ES-1 — Ramona Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$1,962,188	-
Labor	_	\$1,256,264
Subcontracts	_	\$469,529
Equipment	-	\$193,695
Material	_	\$15,700
General Condition (Decommissioning Contractor Indirect) Costs	\$669,052	-

Description	Total Cost	Subtotal
Scrap Value	(\$156,059)	-
Subtotal Demolition Contractor Costs	\$2,475,181	-
Project Indirect Costs	\$270,000	-
Engineering	-	\$30,000
SDG&E Internal Costs	_	\$240,000
Contingency Costs	\$435,185	-
Total Demolition Costs	\$3,180,366	-

Table ES-2 — Ramona Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
E344.1	Generators - Solar	\$3,180,366
_	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
_	Total Project Cost	\$3,180,366

1. INTRODUCTION

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform an independent conceptual cost estimate for the Ramona Solar Energy Plant (Ramona) near

San Diego, California. The work scope included a review of drawings and documents of the facility.

Sargent & Lundy has been dedicated to providing complete engineering and environmental services

exclusively to the power industry since 1891. Through our work with various utilities, lending institutions,

and developers over the years, Sargent & Lundy Consulting has become one of the premier power project

consultants in the power industry. This commitment to quality is proven by the successful completion of our

ISO 9001 certification audit. Our experience encompasses independent engineer services, including

decommissioning cost estimation and average service life evaluation for both global and domestic electric

power assets.

Sargent & Lundy has engineered over 958 power plant units. We have both the benefit of extensive design

experience with feedback from operating plants, as well as individuals with extensive plant operations

experience, to support our consulting services. S&L has extensive decommissioning and related services

experience, including power plant dismantling, demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning cost estimates, decommissioning studies, and related

services for 18 clients at more than 70 stations. S&L also has extensive experience providing clients with

testimony services.

1.1. RAMONA SOLAR ENERGY PLANT

Ramona is located within the rural community of Ramona in San Diego County. The site is located on

SDG&E land at the corner of Creelman Lane and Ashley Road, approximately one-half mile west of San

Vincente Road. The solar plant utilizes 18.3 acres of land and is designed to produce power for 25 years.

Ramona consists of a total of 15,012 330-W solar photovoltaic (PV) modules, which equates to a system

size of 4.95 MW_{DC} (STC), 4.41 MW_{DC} (PTC), and 4.32 MW_{AC} (CEC). Output is limited to the 4.4-MW

combined inverter nameplate ratings. The PV system exports power to the utility power grid.

The 4-MW_{AC} system uses Hyundai silicon crystalline modules (Model No. HIS-S330TI) and fixed racking.

The current generated by module strings is collected in several combiner boxes, then routed to the DC fuse

box, inverters, and transformers. The system uses two Sunny Central 2200-US 4-MW inverters (2200 kVA

for 1000 V_{DC}) and two EATON transformers (COOPER POWER SERIES 00020A65XEPA).

The solar cells are connected in series to make up a module. The modules are placed in series called module strings; the system has 18 such strings. The module strings are wired and routed underground to a collection point at the disconnect combiner box. The system has 48 SOLARBOS combiner boxes (1000 V_{DC} , 250-A disconnect switch, 18 input circuits). The combiner box collects the DC circuits from multiple module strings and combines them into one circuit that is then routed to the inverter.

The solar PV array is installed on a ground-mounted racking structure and surrounded by a perimeter fence. The PV arrays are supported on galvanized steel posts that are driven into the ground. The inverters, transformers, switchgear, and water tank are supported on concrete pad foundations. The security camera, fencing, and shade structures are supported on posts with concrete pier foundations.

For the purposes of this report, the solar system and supporting foundations, racks, solar modules, inverters, transformers, combiners, and cables will be removed at decommissioning. The fencing, security camera, duct banks (for communication and the security camera), and access roads—including all foundations—will also be completely removed upon decommissioning. The 4000-gallon water tank and pump, switchgear station, and shade structures—including all foundations—will be removed at decommissioning. Buried conduits, cables, or other buried commodities installed in support of the project may be abandoned in place at the discretion of the landowner and in accordance with agreements with the state and the federal regulating entities. Access roads or other existing facilities that are likely to be impacted or modified during the decommissioning and reclamation process will be repaired after completion of the decommissioning phase.

The quantities of materials for the main foundations and components to be removed, salvaged, or disposed are included herein. Several materials for removed components may have salvage or resale values; however, there are some components that may have no salvage or resale values at the time of decommissioning. The disposal of waste materials will be in accordance with state and federal laws in an approved, licensed solid waste facility. Solar panels may have a resale value in the market depending on usage and working condition at the time of decommissioning. Table 1-1 summarizes the main structures and components of the solar plant included in this decommissioning report:

Table 1-1 — Ramona Components to Be Decommissioned

Component	Quantity	Unit of Measure
Solar Modules	15,012	Each
Racks	1,280	Each
Steel Posts	1,324	Each
Inverter Stations with Foundations	2	Each

Component	Quantity	Unit of Measure
Transformers with Foundations	2	Each
Combiner Boxes	48	Each
Electrical Cables and Conduits (estimated)	61,780	Linear Foot
Perimeter Fencing	3,907	Linear Foot
Access Roads	3,907	Linear Foot
Gravel	1,447	Cubic Feet
Water Tank	1	Each
Switchgear	1	Each
Camera	1	Each

2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate is based on deterministic methods. Deterministic

methods were used based on the quantity and size of equipment (e.g., the number of foundations, linear

feet of duct banks, equipment, etc.).

The cost estimate was developed based on drawings, documents, and data provided by the Owner. These

drawings and documents were used to estimate the number of solar panels, foundation sizes, steel

quantities, and other equipment quantities.

The S&L methodology for developing the cost estimate consist of three elements: (i) S&L experience in

developing plant demolition cost and S&L's existing database for numerous other projects; (ii) use of the

unit cost factor methodology; and (iii) quotes for previous projects for similar activities.

Cost estimates were created using the S&L cost model format and the S&L cost database. The estimates

developed include both summaries and details for each type of work performed, indirect costs, and

contingencies. The cost estimate database report lists costs by buildings, plant systems, and other

categories.

An inventory of solar panels, equipment, concrete, duct banks, wiring, and other equipment was developed

based on a review of the drawings. This information was used with unit cost factors developed by S&L

based on industry data and experience. Unit cost factors for concrete removal, steel removal, cutting costs,

and other tasks were developed from labor and material cost information. S&L also estimated the quantities

of recoverable metals that could be recovered and sold for scrap. The estimate includes the value of scrap

metals; however, equipment is assumed to have no resale or other salvage value besides the value of

scrap metal at the end of its life. Solar panels were assumed to be recycled by a company such as We

Recycle Solar at a cost to SDG&E of \$20/panel based on a publication by the National Renewable Energy

Laboratory and verbal information from We Recycle Solar

2.2. COST ESTIMATE SUMMARY

The summary of the cost estimate for decommissioning the Ramona Solar Energy Plant is shown in Table

2-1. The commercial and technical basis for the estimate is included in Section 3. The detailed estimate is

included in Appendix A.

The estimate is represented by the FERC account for solar generators, as shown in Table 2-2.

All costs are in 2021 U.S. dollars. The decommissioning costs are expected to increase by the end of service life of the asset due to escalation and other factors.

Table 2-1 — Ramona Cost Estimate Summary

Description	Total Cost	Subtotal
Demolition Direct Costs	\$1,962,188	-
Labor	_	\$1,256,264
Subcontracts	_	\$469,529
Equipment	_	\$193,695
Material	-	\$15,700
General Condition (Decommissioning Contractor Indirect) Costs	\$669,052	-
Scrap Value	(\$156,059)	-
Subtotal Demolition Contractor Costs	\$2,475,181	-
Project Indirect Costs	\$270,000	-
Engineering	-	\$30,000
SDG&E Internal Costs	-	\$240,000
Contingency Costs	\$435,185	-
Total Demolition Costs	\$3,180,366	-

Table 2-2 — Ramona Cost Estimate Summary by FERC Account

FERC No.	Description	Total Cost
E344.1	Generators - Solar	\$3,180,366
_	General Conditions	Included Above
_	Engineering	Included Above
_	Contingency	Included Above
_	Total Project Cost	\$3,180,366

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for San Diego, California as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from engineering-supplied information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included for the decommissioning contractor indirect costs in the cost estimate as direct costs, as noted for the following:

- Labor Supervision
- Construction Management
- Field Office Expenses
- Safety
- Temporary Facilities
- Mobilization/Demobilization
- Legal Expenses/Claims
- Small Tools and Consumables
- General Liability Insurance
- Construction Equipment Mobilization/Demobilization
- Freight on Material
- Contractor's General and Administrative Costs
- Contractor's Profit

5. Scrap

Scrap metals are a globally traded commodity and are part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions; as such, the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. The value of scrap for this study was determined by a 12-month average from *Scrap Metals MarketWatch*¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The values obtained are delivered prices to the recycler. Transportation cost to the recycler is assumed to be \$30/ton, resulting in the values below:

Table 3-1 — Scrap Value

Commodity	Scrap Value (\$/ton)
Carbon Steel	175
#2 Copper	6,145
#2 Insulated Copper Wire	2,440

Note: 1 ton = 2000 lbs.

6. PV Panel Recycle

At the end of their useful life, many PV panels are currently sent to landfills that may release substances harmful to the environment. SDG&E has elected to recycle the PV panels in lieu of landfill disposal. In this scenario, SDG&E will pay a company such as We Recycle Solar and other specialized recyclers to recycle the panels for \$20/panel. This cost is on the low end of current pricing and is based on a publication by the National Renewable Energy Laboratory and a conversation with We Recycle Solar.

7. Project Schedule

Ramona has a 12-month construction schedule.

8. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, the engineering required to place the plant in safe shutdown, and any unique engineering required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the facility.
 These costs are summarized in Table 3-2.

Table 3-2 — SDG&E Internal Costs in Support of Decommissioning

Activity	Estimated Cost
Labor to prepare the site for demolition, including drain oils, drain reagents, de- energization of the power buses, etc.	\$90,000

¹ www.americanrecycler.com

Activity	
Site security	\$60,000
Subcontracts to remove chemicals, oils, and reagents from the site	\$40,000
SDG&E project management, permitting, and procurement	\$80,000
Total	\$270,000

9. Escalation Rates

No escalation rates are included.

10. Sales and Use Taxes

Sales and use taxes are not included.

11. Contingency

- A 15% contingency is applied for material, labor, and indirect expenses.
- There is no contingency on scrap value.

12. Contract Basis for Estimate

The contracting strategy will be a multiple lump sum.

13. Assumptions

- The facility will be in safe-shutdown mode and ready for a decommissioning contractor to start work.
- All chemicals and lubricating oils will be removed from the facilities to be demolished by the utility before demolition.
- No extraordinary environmental costs for demolition will be needed.
- Switchyards within the plant boundaries are not part of the scope, nor are access roads to these facilities.
- All items above grade and to a depth of four feet will be demolished. All foundations will be removed. Any other items buried more than 4 feet deep will remain in place.
- All demolished materials are considered debris, except for organic combustibles and nonembedded metals with scrap value.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- Handling onsite and offsite disposal of hazardous materials will be performed in compliance with methods approved by SDG&E's Environmental Services Department.\
- All borrow (fill) material is assumed to be from offsite sources.

4. REFERENCES

- 1. Sargent & Lundy Cost Database.
- 2. R.S. Means Cost Data, 2021.
- 3. Engineering drawings, equipment lists, operations and maintenance records, and other information provided by San Diego Gas & Electric.
- 4. Scrap Metals MarketWatch, West Coast (Zone 1), www.americanrecycler.com.
- 5. Ramona decommissioning data provided by SDG&E in response to an information request.

APPENDIX A. CONCEPTUAL COST ESTIMATE TO DECOMMISSION RAMONA SOLAR

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS

Estimator GA

Labor rate table 21CASAN

Project No. A14520.001
Estimate Date 12/8/21
Reviewed By BA
Approved By BA
Estimate No. 35767A

Estimate No.: 35767A Project No.: A14520.001 Estimate Date: 12/8/21 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Area	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
E344.1	GENERATORS - SOLAR	198,175	(90,570)		8,004	1,296,551	268,082	1,672,238
E345.1	ACCESSORY ELECTRICAL EQUIPMENT	431,426	(65,488)	24,457	7,409	1,086,175	31,558	1,508,128

Estimate No.: 35767A Project No.: A14520.001 Estimate Date: 12/8/21 Prep/Rev/App: GA/BA/BA

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Estimate Totals

Description	on Amount	Totals	Hours
Labor Material Subcontract Construction Equipment Process Equipment	2,382,727 24,457 629,601 299,640 (156,059) 3,180,366	3,180,366	15.413
General Conditions Additional Labor Costs Site Overheads Other Construction Indirects			
		3,180,366	
Project Indirect Costs		3,180,366	
Contingency		3,180,366	
Escalation		3,180,366	
Total		3,180,366	

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Part													
1	Area	Group	Phase	Description	Notes	Quantity		Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
100 100	E344.1			GENERATORS - SOLAR									
MINISTER 1907 190		10.00.00											
19.200 1			10.21.00										
13.200 COLORATE SUMMAN CONTROL TO AMEN'S TRANS NO PUP PER 1.00 OF T						3,907.00 LF	-	-					
MICHIES PRIMER PRIMER PROPERTY NAME OF THE PROPET				CIVIL WORK						150	20,330	11,104	37,501
MICHIES DEPOMENT PROCESS PRO			10.22.00	CONCRETE									
MILESTRATE STATE MILESTRATE STATE STATE MILESTRATE STATE STATE MILESTRATE STATE							-	-			7,998		
PRINCH CONCRITE MEM STICLUM COMPAN PORTOR 1.0							-	-			-, -		
PRIVINE COLORISMET FIRE PRIVINE COLORISM							-	-					
MINOSE CONCRETE FROM SMOKE CONCRETE FROM SMOKE													
REMOVE AND LOCATION CONCRITE OKCITAMA FOR COMMENT FOR					SWITCHGEAR SHADE STRUCTURE		-	-					
PRINCE PRINCE PRODUCT NO MANUAL PRINCE P							-	-					
REMOVE MOLICONGROUT COURSETS DUTTION MY RELIABLE REMOVE RECORD AND ARTHROUGH AND ARTHROUGH REMOVE AND CONCORD COURSETS DUTTION MY REMOVE AND CONCORD MY					AC DUCTBANK	560.00 LF	-	-		280	47,393	9,525	56,918
ROUNDS CHRESTOP PC CONTRUT NO PC ALL BOOK SERVICE SERVICE NO SERVICE NO SERVICE SERVICE NO SERVICE SERVICE NO SERVICE NO SERVICE SERVICE NO SE													
PICKANET MORNOUT UNITH NUTY SOLIT NU					DC DUCTBANK	2,212.00 LF	-	-		1,770	299,522	60,198	359,720
REMONE AND LOADOUT CONCRETE DOCTORNING TO METHOR STATE STA													
Decomposition Decompositio				REMOVE AND LOADOUT CONCRETE DUCTBANK	SITE PERIMETER DUCTBANK FOR	2,772.00 LF	-	-		1,386	234,594	47,149	281,742
10.210 STEEL STE													
10.23.00 STEEL ROUNG POOT ROUNG STEEL NOWEST REMAINS TRUCTURES 130.00 FA 150.00 FA 150					CAMERAS					2 670	622 524	125 117	747 CE4
REMOVE AND LOAD STEEL ROCKONED TO 10,000 STEEL ROCK AND LOAD STEEL				CONCRETE						3,676	622,534	129,117	747,051
REMOVE AND LOAD STEEL NEWSTEEN SINCE STRUCTURES 2.0 EA			10.23.00	STEEL									
REMOVE AND LOAD STEEL SWITCHIGEAR SHADE STRUCTURES 100 EA							-	-					
REMOVE AND LOAD SECURITY CAMERN 19 FP PACE 10,31.0 RECHANCAL EQUIPMENT 10,01							-	-					
STEEL					SWITCHGEAR SHADE STRUCTURE		-	-					
10.43.00 10.47ET TAIK AND PIUP 10.0 ET 10.17ET 10.0 ET 10.47ET													
10.43.00 10.47ET TAIK AND PIUP 10.0 ET 10.17ET 10.0 ET 10.47ET													
MECHANICAL EQUIPMENT CABLE MICHANICAL EQUIPMENT DC WIRE 20,370.00 LF			10.31.00			400 17				00	0.007	0.440	44.044
10.43.00 CABLE						1.00 LI	-	-					
# # JUE DARE CU WIRE M CORDUIT OD WIRE 203700 LF - 204 30,143 6.051 35,214 M				MESTATIONE EQUI MET						00	3,037	2,110	11,211
May SC UNISLUATED WIRE IN CONDUIT AC WIRE 40,800 LF			10.43.00	CABLE									
1,000 1,00							-	-					
CABLE 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.0.0.0 1.8.							-	-					
## 18.00.00 SCRP VALUE					DC WIRE	40,000.00 LF	-	-					
18.0.00 SCRAP VALUE													
18.10.00 MARCE STEEL FENCING -16.00 TN - (6.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.472) - (3.47													
STEEL		18.00.00											
STEEL INVERTIES HAND ESTRUCTURES 1-14 TN 108			18.10.00		FFILOUIS								(0.4=0)
STEEL SWITCHGEAR SHADE STRUCTURE 0.90 TN 0 (199) . (434) . (439) . (439) . (439) . (439) . (439) . (439) . (440							-		-			-	
STEEL WATER TANK AND PUMP 2.00 TN (4.409) (4.4							-		-			-	
18.30.00 COPER #2.INSULATED COPPER WIRE #2.INS					WATER TANK AND PUMP	-2.00 TN	-					٠.	(434)
#2 INSULATED COPPER WIRE BARE COPPER WIRE COPPER COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER				MIXED STEEL				(4,409)					(4,409)
#2 INSULATED COPPER WIRE BARE COPPER WIRE COPPER COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER (86,161) COPPER			10 20 00	CORRER									
BARE COPPER INTE COPPER COPP			10.30.00			-35.40 TN		(78 234)		0			(78 234)
21.00.00 CIVIL WORK EXCAVATION EXCAV							-		-				
21.17.00 CIVIL WORK 21.17.00 EXCAVATION EXCAVAT								(86,161)	-	0			
21.17.00 EXCAVATION EXCAV				SCRAP VALUE				(90,570)		0			(90,570)
21.17.00 EXCAVATION EXCAV		04 00 00		ON W. MODIC									
EXCAVATION GRAVEL ACCESS ROAD, 4 INCHES DEEP LATTON GRAVEL ACCESS ROAD, 4 INCHES DEEP LATTON LATTON GRAVEL LATTON		21.00.00	21 17 00										
EXCAVATION 21.18.00 HAULING HAULING, 40 MILE ROUNDTRIP, 50 MPH HAULING, 40 MILE ROUNDTRIP, 50 MPH HAULING HAU			21.17.00		GRAVEL ACCESS ROAD. 4 INCHES DEEP	1.447.00 CY	-			203	35.011	30.079	65.090
HAULING, 40 MILE ROUNDTRIP, 50 MPH ACCESS ROAD GRAVEL 1,447.0 CY 30,091 21.19.00 DISPOSAL DUMPSTER, 40 CY CAPACITY NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL CONCRETE, RUBBISH, PVC CONDUIT NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL 1,447.0 CY 30,091 30,091 120.00 EA 124,772 EA 124,772 EA 124,772 EA 124,772						,				203	35,011		
HAULING, 40 MILE ROUNDTRIP, 50 MPH ACCESS ROAD GRAVEL 1,447.0 CY 30,091 21.19.00 DISPOSAL DUMPSTER, 40 CY CAPACITY NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL CONCRETE, RUBBISH, PVC CONDUIT NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL 1,447.0 CY 30,091 30,091 120.00 EA 124,772 EA 124,772 EA 124,772 EA 124,772			21.18 00	HAULING									
21.19.00 DISPOSAL DUMPSTER, 40 CY CAPACITY CONCRETE, RUBBISH, PVC CONDUIT 120.00 EA 124,772 - 124,772 NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL. EA - 2 - 124,772					ACCESS ROAD GRAVEL	1,447.00 CY	30,091	-				_	30,091
DUMPSTER, 40 CY CAPACITY CONCRETE, RUBBISH, PVC CONDUIT 120.00 EA 124,772 -				HAULING			30,091					-	30,091
DUMPSTER, 40 CY CAPACITY CONCRETE, RUBBISH, PVC CONDUIT 120.00 EA 124,772 -			04.40.00	PIOPOGAL									
NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL. EA			∠1.19.00		CONCRETE RUBBISH PVC CONDUIT	120.00 FA	124 772	_				_	124 772
				NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL.	, ,		,. 12	-				-	,2

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY - SORTED BY FERC ACCOUNTS



Area	Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
			DISPOSAL			124,772					-	124,77
		21.45.00	GRADING									
			FINISH GRADING	DUCTBANK TRENCHES AND ROADWAY - FILL IN AND BLEND/LEVEL INTO SURROUNDING AREA	71,851.00 SY	-	-		719	118,576	19,374	137,9
			GRADING	SURROUNDING AREA					719	118,576	19,374	137,94
		21.47.00	LANDSCAPING HYDRO SEEDING		14.80 AC	43,313	-			_	_	43,3
			LANDSCAPING			43,313						43,3
			CIVIL WORK			198,175			921	153,587	49,452	401,2
			E344.1 GENERATORS - SOLAR			198,175	(90,570)		8,004	1,296,551	268,082	1,672,2
345.1			ACCESSORY ELECTRICAL EQUIPMENT									
	10.00.00		WHOLE PLANT DEMOLITION									
		10.41.00	ELECTRICAL EQUIPMENT DISCONNECT/REMOVE FREE STANDING PANEL BOARD		8.00 EA	-	-		64	9,704	2,254	11,9
			RACK DISCONNECT/REMOVE INVERTERS		2.00 EA	_	_		48	7,278	1,691	8,8
			DISCONNECT / REMOVE "DISCONNECT COMBINER"		48.00 EA	-	-		96	14,053		14,
			DISCONNECT/REMOVE DC WIRING (PANEL TO		15,012.00 EA	-	-		751	109,877	2,148	112,0
			COMBINER) DISCONNECT/REMOVE GROUNDING WIRING AT PANELS AND RACKS, REMOVE GROUND RODS		15,012.00 EA	-	-		600	87,902	1,719	89,
			REMOVE PV PANEL FROM RACK		15,012.00 EA	-	-		1,501	219,754	4,296	224,
			LOAD AND BAND PV PANELS ON PALLET		15,012.00 EA		-		300	43,951	859	44,
			4' X 8' WOOD PALLET, HANDLE AND LOAD IN TRUCK	30 PANELS PER PALLET	500.00 EA	-	-	23,367	100	15,162	3,522	42,
			STEEL STRAP BANDING MATERIAL COST REMOVE "RBI" SOLAR RACKS		1.00 LT 1,280.00 EA	-	-	1,090	3,840	562,121	10,990	1, 573,
			TRANSFORMERS 2200 KVA, 34.5 KV OUTPUT		2.00 EA				3,640	7,278		8,
			REMOVE SWITCHGEAR AND SCADA CABINET		1.00 EA	-	-		60	9,097	2,113	11,
			ELECTRICAL EQUIPMENT					24,457	7,409	1,086,175		1,142,1
			WHOLE PLANT DEMOLITION					24,457	7,409	1,086,175	31,558	1,142,
	18.00.00	18.10.00	SCRAP VALUE MIXED STEEL									
			STEEL	"RBI" SOLAR RACKS AND POSTS	-261.00 TN	-	(56,637)	-			-	(56,6
			STEEL	CONDUIT, FITTINGS AND DISCONNECTS	-0.50 TN	-	(108)	-			-	(*
			STEEL STEEL	SERVICE RACK COMPONENTS INVERTERS	-0.47 TN -8.82 TN		(102) (1,914)	-			-	(1
			STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA	MEDIUM VOLTAGE BLOCK WHICH INCLUDES TRANSFORMERS 2200 KVA, 34.5	-15.50 TN	-	(6,727)	-	0		-	(1,9 (6,7
			MIVED OTES!	KV OUTPUT			(05.400)		0		-	(05.4
			MIXED STEEL SCRAP VALUE				(65,488) (65,488)		0			(65,4 (65,4
	04 00 00						(55, 55)					(, -
	21.00.00	21.18.00	CIVIL WORK HAULING									
		21.16.00	HAULING, 170 MILES TO YUMA, ARIZONA	20 PALLETS / TRUCK LOAD. TRANSPORT PV PANELS TO "WE RECYCLE SOLAR" FACILITY IN YUMA, ARIZONA	25.00 EA	50,720						50,
			HAULING			50,720					=	50,
		21.19.00	DISPOSAL									
			PV PANEL DISPOSAL FEE.	"WE RECYCLE SOLAR" , YUMA, ARIZONA	15,012.00 EA		-					380,
			DISPOSAL			380,706						380,7
			CIVIL WORK			431,426	(CE 400)	24.457	7 400	4 006 475	24 550	431,4
			E345.1 ACCESSORY ELECTRICAL EQUIPMENT			431,426	(65,488)	24,457	7,409	1,086,175	31,558	1,508,1

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY

Estimator GA

Labor rate table 21CASAN

Project No. A14520.001
Estimate Date 12/8/21
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Estimate No.: 35767A Project No.: A14520.001 Estimate Date: 12/8/21 Prep./Rev/App.: GA/BA/BA

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY



Group	Description	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
10.00.00	WHOLE PLANT DEMOLITION			15,700	14,492	1,175,287	161,728	1,352,715
18.00.00	SCRAP VALUE		(156,059)		0			(156,059)
21.00.00	CIVIL WORK	496,529			921	80,977	31,967	609,473
	TOTAL DIRECT	496.529	(156.059)	15.700	15.413	1.256.264	193,695	1.806.129

Estimate No.: 35767A Project No.: A14520.001 Estimate Date: 12/8/21 Prep./Rev/App.: GA/BA/BA

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY



Estimate Totals

Description	Amount	Totals	Hours
Labor	1,256,264		15,413
Material	15,700		
Subcontract Construction Equipment	496,529		
Process Equipment	193,695 (156,059)		
1 100030 Equipment	1,806,129	1,806,129	
General Conditions			
Additional Labor Costs	== 0=0		
90-1 Labor Supervision 90-2 Show-up Time	75,376 25,125		
90-3 Cost Due To OT 5-10's	25,125		
90-4 Cost Due To OT 6-10's			
90-5 Per Diem			
Site Overheads			
91-1 Construction Management 91-2 Field Office Expenses	135,676		
91-2 Field Office Expenses 91-3 Material&Quality Control	29,849		
91-4 Site Services			
91-5 Safety	13,568		
91-6 Temporary Facilities	20,392		
91-7 Temporary Utilities 91-8 Mobilization/Demob.	21,491		
91-9 Legal Expenses/Claims	3,175		
Other Construction Indirects	2,		
92-1 Small Tools & Consumables	13,568		
92-2 Scaffolding			
92-3 General Liability Insur. 92-4 Constr. Equip. Mob/Demob	13,568 9.685		
92-4 Constr. Equip. Mob/Demob 92-5 Freight on Material	785		
92-6 Freight on Process Equip	, 00		
92-7 Sales Tax			
92-8 Contractors G&A 92-9 Contractors Profit	126,327 180,467		
92-9 Contractors Front	669,052	2,475,181	
Project Indirect Costs			
93-1 Engineering Services	30,000		
93-2 CM Support			
93-3 Start-Up/Commissioning			
93-4 Start-Up/Spare Parts 93-5 Excess Liability Insur.			
93-6 Sales Tax On Indirects			
93-7 SDG&E Internal Costs	240,000		
93-8 EPC Fee	270,000	2,745,181	
Contingency 94-1 Contingency on Const Eq	35.446		
94-3 Contingency on Material	2.893		
94-4 Contingency on Labor	281,867		
94-5 Contingency on Subcontr.	74,479		
94-6 Contingency on Process Ea	40,500		
94-7 Contingency on Indirect	435,185	3,180,366	
Escalation			
96-1 Escalation on Const Equip			
96-3 Escalation on Material			
96-4 Escalation on Labor			
96-5 Escalation on Subcontract 96-6 Escalation on Process Egg			
96-6 Escalation on Process Edb 96-7 Escalation on Indirects			
		3,180,366	
98 Interest During Constr			
		3,180,366	
Total		3,180,366	
I Olai		3,100,366	



				Cubaantuaat						
ıp Pha	e Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
00	WHOLE PLANT DEMOLITION									
10.21.0										
	REMOVE FENCE		3,907.00 LF	=	-		156 _	13,885	7,217	21,10
	CIVIL WORK						156	13,885	7,217	21,10
10.22.0										
	BUILDING/EQUIPMENT FOUNDATION/PAD	INVERTERS, SWITCHGEAR FOUNDATIONS	28.00 CY	-	-		47	4,217	1,039	5,25
	BUILDING/EQUIPMENT FOUNDATION/PAD	WATER TANK AND PUMP PAD	13.00 CY	-	-		22	1,958	482	2,44
	BUILDING/EQUIPMENT FOUNDATION/PAD	PANEL BOARD FOUNDATIONS (8 EACH)	2.00 CY	-	-		6	535	132	66
	REMOVE CONCRETE PIER	SECURITY CAMERA POST PIER	4.00 EA	-	-		1	107	26	13
	REMOVE CONCRETE PIER	INVERTER SHADE STRUCTURE	12.00 EA	-	-		12	1,071	264	1,33
	REMOVE CONCRETE PIER	SWITCHGEAR SHADE STRUCTURE	4.00 EA	-	-		4	357	88	44
	REMOVE CONCRETE PIER	FENCE POST PIER	500.00 EA	-	-		150	13,386	3,299	16,68
	REMOVE AND LOADOUT CONCRETE DUCTBANK INCLUDING EMBEDDED PVC CONDUIT AND MANHOLE.	AC DUCTBANK	560.00 LF	-	-		280	24,987	6,157	31,14
	EXCAVATE AND BACKFILL WITH NATIVE SOIL INCLUDED REMOVE AND LOADOUT CONCRETE DUCTBANK	DC DUCTBANK	2,212.00 LF	=	=		1,770	157,919	38,914	196,83
	INCLUDING EMBEDDED PVC CONDUIT AND PULLBOXES EXCAVATE AND BACKFILL WITH NATIVE SOIL INCLUDED									
	REMOVE AND LOADOUT CONCRETE DUCTBANK INCLUDING EMBEDDED PVC CONDUIT AND PULLBOXES	SITE PERIMETER DUCTBANK FOR COMMUNICATION AND SECURITY	2,772.00 LF	ē	=		1,386	123,687	30,478	154,16
	EXCAVATE AND BACKFILL WITH NATIVE SOIL INCLUDED						0.070	202.024		400.40
	CONCRETE						3,678	328,224	80,879	409,10
10.23.0			4 00 4 00 54				704	07.000	10.004	04.00
	REMOVE AND LOAD STEEL RACKING POST REMOVE AND LOAD STEEL	INVERTER SHADE STRUCTURES	1,324.00 EA 2.00 EA	-	-		794 64	67,969	13,394	81,36 6,55
	REMOVE AND LOAD STEEL REMOVE AND LOAD STEEL	SWITCHGEAR SHADE STRUCTURE	1.00 EA	-	-		32	5,476 2,738	1,079 540	3,27
	REMOVE AND LOAD SECURITY CAMERA 10 FT POLE	OWN ON DE WINDE ON OUT ON E	4.00 EA	_	_		12	1,027	202	1,22
	STEEL						902	77,209	15,214	92,42
10.31.0	0 MECHANICAL EQUIPMENT									
	4,000 GAL WATER TANK AND PUMP		1.00 LT	-	-		60 _	4,796	1,366	6,16
	MECHANICAL EQUIPMENT						60	4,796	1,366	6,16
10.41.0										
	DISCONNECT/REMOVE FREE STANDING PANEL BOARD RACK		8.00 EA	-	-		64	5,116	1,457	6,57
	DISCONNECT/REMOVE INVERTERS		2.00 EA	-	-		48	3,837	1,093	4,93
	DISCONNECT / REMOVE "DISCONNECT COMBINER"		48.00 EA	-	-		96	7,409	178	7,58
	DISCONNECT/REMOVE DC WIRING (PANEL TO COMBINER)		15,012.00 EA	-	-		751	57,931	1,389	59,32
	DISCONNECT/REMOVE GROUNDING WIRING AT PANELS AND RACKS, REMOVE GROUND RODS	S	15,012.00 EA	-	-		600	46,345	1,111	47,45
	REMOVE PV PANEL FROM RACK		15,012.00 EA	-	-		1,501	115,863	2,777	118,64
	LOAD AND BAND PV PANELS ON PALLET		15,012.00 EA	-	-		300	23,173	555	23,72
	4' X 8' WOOD PALLET, HANDLE AND LOAD IN TRUCK	30 PANELS PER PALLET	500.00 EA	-	-	15,000	100	7,994	2,277	25,27
	STEEL STRAP BANDING MATERIAL COST		1.00 LT	-	-	700				70
	REMOVE "RBI" SOLAR RACKS		1,280.00 EA	-	-		3,840	296,371	7,104	303,47
	TRANSFORMERS 2200 KVA, 34.5 KV OUTPUT		2.00 EA	-	-		48	3,837	1,093	4,93
	REMOVE SWITCHGEAR AND SCADA CABINET ELECTRICAL EQUIPMENT		1.00 EA	=	=	15,700	7, 409	4,796 572,673	1,366 20,400	6,16 608,77
10.43.0	D CABLE									
10.43.0	#4 1/C BARE CU WIRE IN CONDUIT	DC WIRE	20,370.00 LF	_	-		204	15,903	3,265	19,16
	#4/0 3/C CU INSLUATED WIRE IN CONDUIT	AC WIRE	610.00 LF	-	_		43	3,334	684	4,01
	#250 KCMIL 1/C CU INSULATED WIRE IN CONDUIT	DC WIRE	40,800.00 LF	-	=		2,040	159,263	32,701	191,96
	CABLE						2,286	178,499	36,651	215,15

SAN DIEGO GAS & ELECTRIC RAMONA SOLAR ENERGY PLANT DECOMMISSIONG STUDY



Group	Phase	Description	Notes	Quantity	Subcontract Cost	Scrap Value	Material Cost	Man Hours	Labor Cost	Equip Amount	Total Cost
	18.10.00	MIXED STEEL									
		STEEL	"RBI" SOLAR RACKS AND POSTS	-261.00 TN	=	(56,637)	-			=	(56,637)
		STEEL	CONDUIT, FITTINGS AND DISCONNECTS	-0.50 TN	-	(108)	-			-	(108)
		STEEL	SERVICE RACK COMPONENTS	-0.47 TN	=	(102)	-			=	(102)
		STEEL	FENCING	-16.00 TN	=	(3,472)	-			=	(3,472)
		STEEL	INVERTER SHADE STRUCTURES	-1.42 TN	-	(308)	-			-	(308)
		STEEL STEEL	SWITCHGEAR SHADE STRUCTURE WATER TANK AND PUMP	-0.90 TN -2.00 TN	-	(195) (434)	-			-	(195) (434)
		STEEL	INVERTERS	-8.82 TN	-	(1,914)	-			_	(1,914)
		STEEL / COPPER MIX - LARGE TRANSFORMER > 100 KVA	MEDIUM VOLTAGE BLOCK WHICH INCLUDES TRANSFORMERS 2200 KVA, 34.5 KV OUTPUT	-15.50 TN	-	(6,727)	-	0			(6,727)
		MIXED STEEL	,			(69,898)		0		-	(69,898)
	18.30.00	COPPER									
		#2 INSULATED COPPER WIRE BARE COPPER WIRE		-35.40 TN	-	(78,234)	-	0			(78,234)
		COPPER		-1.29 TN	-	(7,927) (86,161)	-	0			(7,927) (86,161)
		SCRAP VALUE				(156,059)		0			(156,059)
21.00.00		CIVIL WORK									
	21.17.00	EXCAVATION									
		EXCAVATION, 4 INCHES DEEP	GRAVEL ACCESS ROAD, 4 INCHES DEEP	1,447.00 CY	=	=		203	18,459	19,444	37,903
		EXCAVATION						203	18,459	19,444	37,903
	21.18.00	HAULING									
		HAULING, 40 MILE ROUNDTRIP, 50 MPH	ACCESS ROAD GRAVEL	1,447.00 CY	23,731	-					23,731
		HAULING, 170 MILES TO YUMA, ARIZONA	20 PALLETS / TRUCK LOAD. TRANSPORT PV PANELS TO "WE RECYCLE SOLAR" FACILITY IN YUMA, ARIZONA	25.00 EA	40,000	-					40,000
		HAULING			63,731						63,731
	21.19.00	DISPOSAL									
		DUMPSTER, 40 CY CAPACITY NO DISPOSAL FEE FOR ACCESS ROAD GRAVEL. ASSUME IT IS REUSED	CONCRETE, RUBBISH, PVC CONDUIT	120.00 EA EA	98,400	-				-	98,400
		PV PANEL DISPOSAL FEE.	"WE RECYCLE SOLAR" , YUMA, ARIZONA	15,012.00 EA	300,240	-				-	300,240
		DISPOSAL			398,640					-	398,640
	21.45.00	GRADING									
		FINISH GRADING	DUCTBANK TRENCHES AND	71,851.00 SY	-	-		719	62,518	12,524	75,041
			ROADWAY - FILL IN AND BLEND/LEVEL INTO SURROUNDING AREA								
		GRADING						719	62,518	12,524	75,041
	21.47.00	LANDSCAPING									
		HYDRO SEEDING		14.80 AC	34,158	=	-		=		34,158
		LANDSCAPING			34,158						34,158
		CIVIL WORK			496,529			921	80,977	31,967	609,473

SL-016628.G_SDGE Decom(EV)

Decommissioning Study

Prepared for San Diego Gas & Electric Company Electric Vehicle (EV) Charging Stations

Prepared by Sargent & Lundy

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This is to certify that this document has been prepared, reviewed, and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-0405, which is based on ANSI/ISO/ASSQC Q9001 Quality Management Systems.

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APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DECOMMISSION EV CHARGING STATIONS

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
EV	Electric vehicle
FERC	Federal Energy Regulatory Commission
GE	General Electric
Owner	San Diego Gas & Electric Company
S&L	Sargent & Lundy LLC
SDG&E	San Diego Gas & Electric Company

EXECUTIVE SUMMARY

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner") to perform an independent conceptual decommissioning cost estimate for the SDG&E portfolio of electric vehicle (EV) charging stations. SDG&E indicated that the cost estimate should assume that all the charging stations are pedestal-mounted and are one of the three typical models found in SDG&E's portfolio of charging stations: General Electric (GE) WattStation, Clipper Creek, or ChargePoint. The charging stations are located throughout the SDG&E service area. The work scope included updating the 2016 conceptual demolition cost estimate and report.

METHODOLOGY

The methodology for developing the cost estimate consisted of S&L experience in developing demolition costs, the existing S&L database from numerous other projects, and use of the unit cost factor methodology. The cost estimate was developed based on information provided by SDG&E and publicly available information about the EV charging stations. This information was used to estimate the foundation sizes, quantity of steel, and other components. S&L performed a site walkdown at the SDG&E headquarters to review typical charging stations. The site walkdown was performed in 2016; however, recent discussions with the Owner and facility management confirmed that the only significant change since that time is a large increase in the number of installed stations. This information was used with cost factors developed by S&L based on industry data and experience.

S&L also estimated the quantities of metals that could be recovered and sold for scrap. The estimate herein includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage value besides the value of scrap metal at the end of its life.

CONCEPTUAL COST ESTIMATE

The estimate assumes that EV charging stations are decommissioned in batches of 25 stations at a time. The total number of stations is 2463. The summary of the cost estimate for decommissioning the SDG&E EV charging stations is shown in Table ES-1. The FERC account for these costs is E371.1 according to guidance SDG&E received from FERC. All costs are in 2021 U.S. dollars. Decommissioning costs are expected to increase by the end of service life due to escalation.

Table ES-1 — Cost Estimate Summary for EV Charging Stations

· 					In	cludes Contin	gen	су								
	Subcontro	act	Ma	terial			Sul	bcontractor		SDG&E	5	Gcrap	G	&A and		
	Cost		C	Cost	L	abor Cost	In	direct Cost	Int	ernal Costs	١	/alue		Profit	7	otal Cost
Number of EV Charging Stations																
Decommissioned at a Time:																
25	\$ 1,	035	\$	4,157	\$	87,353	\$	8,531	\$	10,664	\$	(1,217)	\$	13,474	\$	123,997
Current Number of EV Charging																
Stations in the SDG&E Portfolio:																
2463	\$ 101,	968	\$4	09,572	\$	8,606,025	\$	840,497	\$	1,050,624	\$(119,899)	\$:	1,327,431	\$	12,216,219

The total estimated cost to decommission the 2463 existing EV charging stations is \$12,216,219; therefore, the average or blended cost is approximately \$4,960 per unit. The actual decommission cost will vary with respect to the type of EV charging station, type of foundation, number of units at a single location, and other factors listed in the cost estimate.

1. INTRODUCTION

1.1. SCOPE OF WORK

Sargent & Lundy (S&L) was contracted by San Diego Gas & Electric Company ("SDG&E" or the "Owner")

to perform a conceptual decommissioning cost estimate for the SDG&E portfolio of electric vehicle (EV)

charging stations. The work scope included updating the 2016 conceptual demolition cost estimate report.

SDG&E indicated that the cost estimate should assume that all the charging stations are pedestal-mounted

and are one of the three typical models found in SDG&E's portfolio of charging stations: General Electric

(GE) WattStation, Clipper Creek, or ChargePoint. The charging stations are located throughout the SDG&E

service area.

1.2. SARGENT & LUNDY BACKGROUND

S&L has been dedicated to providing complete engineering and environmental services exclusively to the

power industry since 1891. Through work with various utilities, lending institutions, and developers over the

years, the Sargent & Lundy Consulting Group has become one of the premier power project consultants in

the power industry. This commitment to quality is proven by the successful completion of the ISO 9001

certification audit. S&L's experience encompasses independent engineer services—including

decommissioning cost estimation and average service life evaluation—for both global and domestic electric

power assets.

S&L has extensive decommissioning and related services experience, including power plant dismantling,

demolition, and layup for fossil fuel, renewable energy, and nuclear plants. This includes decommissioning

cost estimates, decommissioning studies, and related services for 18 clients at more than 70 stations. S&L

also has extensive experience providing clients with testimony services.

Having engineered over 958 power plant units, S&L has both the benefit of extensive design experience—

supported with feedback from operating plants—and individuals with extensive plant operations experience

to support consulting services such as those performed for SDG&E's EV fleet.

1.3. EV CHARGING STATION DESCRIPTIONS

EVs were first widely introduced in the United States in the early 1900s (4% of the 4192 cars manufactured at that time were electric). This was short-lived with the rise and consequent mass production of gasoline-powered cars; however, EVs are now becoming more prevalent. Several car manufacturers have increased EV production over the past few years. This development has resulted in growth in the number of EV charging stations, which has already reached approximately one million public and six million private units globally.

EV charging stations supply and meter electric power to individual EVs. The main components of an EV charging stations are noted below:

- Power Source: The power source supplies the electricity needed for the charging station.
- Charging Device: Inside the charging station is a charging device responsible for converting and transferring the electricity from the power source to the EV. Some systems include electronics that integrate payment systems with the metering of power. The charging device can be standing (i.e., a pedestal) or wall-mounted.
- Cabling and Plugs: Cablings and plugs connect EVs to charging stations. Charging stations that swap banks of batteries or charge wirelessly are not widespread and are not part of the SDG&E portfolio.
- **Controls**: Controls include the electric equipment and software necessary to control, monitor, and optimize the flow of electricity to rapidly charge/recharge EVs.

SDG&E's portfolio is comprised of 2463 EV charging stations. There are three main pedestal chargers:

• **GE WattStation Pedestal**: These charging stations are manufactured by GE and come with retractable cords. It includes "advanced network management" software tools to help the user monitor and manage the charging station remotely. The GE WattStation comes with a three-year parts warranty. Its standby power is typically 5 W, while its alternating current charging power output is 7200 W. The stand is powder-coated stainless steel. In 2017, the GE charging network was acquired by ChargePoint, whose chargers are also utilized by SDG&E. The 2017 announcement stated that the warranties would continue to be honored.

Figure 1-1 — Example GE WattStation EV Charging Station



• ClipperCreek Pedestal: These charging stations are manufactured by ClipperCreek in the United States. They feature a slim profile with a powder-coated stainless steel enclosure for environmental durability. ClipperCreek pedestal charging stations come with a three-year parts warranty.

Figure 1-2 — Example Clipper Creek EV Charging Station



• ChargePoint Pedestal: ChargePoint pedestal stations come with extended parts and labor warranty coverage for up to five additional years. Its standby power is typically 8 W, while its alternating current charging power output is up to 7200 W.

Figure 1-3 — Example ChargePoint EV Charging Station



2. COST ESTIMATE

2.1. METHODOLOGY

The methodology used for developing the cost estimate includes a combination of stochastic and

deterministic methods. Deterministic methods were used based on the quantity and size of equipment (e.g.,

the number of foundations, equipment, etc.). Stochastic methods were also used if quantitative information

(e.g., miscellaneous electrical equipment) was unavailable.

The cost estimate was developed based on drawings, documents, and data provided by the Owner and

publicly available information. These drawings and documents were used to estimate the foundation sizes,

unit volumes, equipment, and metal quantities.

The methodology for developing the cost estimate considered S&L's experience in developing demolition

costs, the existing S&L database for numerous other projects, and the use of the unit cost factor

methodology. The estimate was created using the S&L cost model format and the S&L cost database. The

estimate includes details for each type of work performed, indirect costs, and contingencies.

S&L visited representative charging stations at the SDG&E headquarters in 2016 to review typical charging

stations and determine any unique site-specific requirements. Recent discussions with the Owner and

facility management confirmed that no significant modifications have occurred since that time other than a

large increase in installed stations. This information was used with cost factors developed by S&L based

on industry data and experience. Cost factors for concrete removal and other tasks were developed from

labor and material cost information.

S&L also estimated the quantities of metals that could be recovered and sold for scrap. The estimate herein

includes the value of scrap metals; however, equipment is assumed to have no resale or other salvage

value besides the value of scrap metal at the end of its life.

2.2. COST ESTIMATE SUMMARY

2.2.1. EV Charging Stations

The estimate assumes that EV charging stations are decommissioned by 25 stations at a time. The total

number of stations is 2463. The summary of the cost estimate for decommissioning the SDG&E EV stations

is shown in Table 2-1. The FERC account for these costs is E371.1 according to guidance SDG&E received

from FERC. All costs are in 2021 U.S. dollars. Decommissioning costs are expected to increase by the end

of service life due to escalation.

The commercial and technical basis for the estimate is included in Section 2. The detailed estimate is included in Appendix A.

Table 2-1 — Cost Estimate Summary for Electric Vehicle Charging Stations

· 					Inc	cludes Contin	gency	1								
	Subcon	tract	Mat	terial			Subo	ontractor		SDG&E	5	Gcrap	G	&A and		
	Cos	st	C	ost	L	abor Cost	Indi	rect Cost	Inte	ernal Costs	l	/alue		Profit	T	otal Cost
Number of EV Charging Stations																
Decommissioned at a Time:																
25	\$	1,035	\$	4,157	\$	87,353	\$	8,531	\$	10,664	\$	(1,217)	\$	13,474	\$	123,997
Current Number of EV Charging																
Stations in the SDG&E Portfolio:																
2463	\$ 10	01,968	\$ 40	9,572	\$	8,606,025	\$	840,497	\$	1,050,624	\$(:	119,899)	\$ 1	1,327,431	\$	12,216,219

The total cost to decommission the 2463 existing EV charging stations is estimated to be \$12,216,219; therefore, the average or blended cost is approximately \$4,960 per unit. The actual decommission cost will vary with respect to the type of EV charging station, type of foundation, number of units at a single location, and other factors listed in the cost estimate.

2.2.2. Variance from 2016 Study

The following list summarizes the changes from the S&L 2016 report. Note that material quantities and labor hours in the estimate were unchanged from 2016 (per 25 charging stations).

- The number of charging stations increased tenfold. In 2016, there were 206 stations compared to 2463 in 2021.
- The current estimate utilizes updated labor rates, material costs, and scrap value to current 2021 values.
- The depth of foundation to be removed was revised from 3 feet to 1 foot.
- The contractor general and administrative costs and profit were increased from 5% and 8%, respectively, to 7% and 10% based on the S&L database.
- SDG&E internal costs were added to the estimate. These were excluded from the 2016 estimate.
 The internal costs include disconnecting the units from the grid and securing and managing the contractor.

3. BASIS OF ESTIMATE

The basis for the cost estimate is as follows:

The decommissioning cost estimates in Section 2 and Appendix A are for the dismantlement and removal of 2463 pedestal-type, EV charging stations. SDG&E indicated that all charging stations are assumed to

be the pedestal type, of which there are three models: GE WattStation, ClipperCreek, and ChargePoint.

The cost estimate is based primarily on data provided by SDG&E and S&L's experience with similar

equipment.

3.1. PROCEDURE

In general, the methodology to decommission an EV charging station fixed to existing pavement or concrete

considers the following:

The charging station will be de-energized and disconnected by SDG&E.

The charging station pedestal will be unbolted or otherwise removed from the base.

• The in-ground conduit and cable will be cut, capped, and abandoned in place.

• Internal electronics, cables, conduits, wires, controls, and other related items will be separated from

the station metal pedestal and disposed.

The pedestal will be demolished for stainless steel recycling.

Bolts or other connections left in existing pavement or concrete will be cut and removed.

• Damage to existing pavement or concrete will be repaired using appropriate patch repair material.

Any bollards will be completely cut out, removed from the site, and disposed.

• Holes left from bollard removal will be filled with concrete.

In general, the procedure to decommission an EV charging station fixed to a free-standing foundation is as

follows:

The charging station will be de-energized and disconnected by SDG&E.

• The charging station pedestal will be unbolted or otherwise removed from the base.

• The concrete foundation will be removed down to one foot.

• The in-ground conduit and cable will be cut, capped, and abandoned in place.

• Internal electronics, cables, conduits, wires, controls, and other related items will be separated from

the station metal pedestal and disposed.

The pedestal will be demolished for stainless steel recycling.

- Any bollards will be completely cut out, removed from the site, and disposed.
- Holes left from bollard removal will be filled with concrete.

3.2. PRICING AND QUANTITIES

1. Construction Labor Wages

Craft labor rates (or craft hourly rates) for the cost estimate are based on the prevailing wages for San Diego, California as published in *R.S. Means Labor Rates for the Construction Industry* (2021). These prevailing rates are representative of union or non-union rates, whichever is prevailing in the area. Costs have been added to cover social security, workmen's compensation, and federal and state unemployment insurance. The resulting burdened craft rates were then used to develop typical crew rates applicable to the task being performed.

2. Labor Work Schedule and Incentives

- The labor estimate is based on a 40-hour workweek with no per diem or other labor incentives.
- An allowance for show-up time is included if workers arrive and are then sent home.

3. Quantity Sources

Quantities of pieces of equipment and/or bulk material commodities used in this cost estimate were developed from supplied engineering information from the sites and the S&L database.

4. General Conditions Cost

Allowances were included in the cost estimate for the decommissioning contractor indirect costs for the following:

- Labor supervision and safety
- Small tools and consumables
- General liability insurance
- Contractor general and administrative costs (7% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)
- Contractor's profit (10% of labor [direct labor, additional labor cost, site overheads, and other construction indirect cost], material [direct material cost and freight cost], and equipment)

5. Scrap

Scrap metals are a globally traded commodity and part of the larger metals industry. The value of scrap metal is subject to constantly changing economic conditions, as such the price of mixed steel, stainless steel, copper, and aluminum can vary greatly over time as a result of global supply and demand. Stainless steel is assumed to be the only scrap metal from the charging stations worth salvaging.

The value of scrap for this study was determined by a 12-month average from Scrap Metals MarketWatch¹ (November 2020–October 2021) for the West Coast (Zone 1) of the United States. The value obtained is the delivered price to the recycler. Transportation cost to the recycler is estimated at \$30/ton (2000 lbs.), resulting in a stainless steel scrap value of \$1217/ton.

6. Indirect Expenses

- Engineering is included to cover preparation of the decommissioning work specification, engineering required to place the charging stations in safe shutdown, and any unique engineering required during demolition.
- SDG&E internal costs are included to cover costs in support of decommissioning the stations such as disconnecting the units from the grid and securing and managing the contractor.

7. Escalation Rates

Escalation rates were excluded from the estimate.

8. Sales and Use Taxes

Sales and use taxes were excluded from the estimate.

9. Contingency

- A 15% contingency is applied for material, labor, and indirect expenses.
- There is no contingency on scrap value.

10. Contract Basis for Estimate

The contracting strategy is a multiple lump sum for the estimate.

11. Assumptions

- The cost estimate is based on 25 EV charging stations being decommissioned at a time.
- All stations are pedestal-mounted type, as was assumed per SDG&E in 2016.
- Most EV charging stations are in series of 2–10 pedestals in parking lots and garages. Some individual pedestals have two protective bollards while others have none or are protected by curbs; consequently, to account for the removal of bollards, one bollard for each pedestal is included with the estimate.
- SDG&E has indicated that conduits in rights of way to pedestals will be abandoned in place.
- Underground facilities, such as conduits, will be included through other accounts per SDG&E. These are not included in this decommissioning cost estimate.
- Pedestal foundations and bollards shall be removed to three feet below grade.
- Bollard weight and dimensions are for a typical unit and are based on a manufacturer drawing (1700 lbs.; 2-ft diameter by 3-ft height and 7.5-in. diameter by 4.33 ft; 10.75 ft3 of concrete per bollard).2

¹ www.americanrecycler.com

- Based on observations during the site visit, a review of charging station installation manuals, and street views of SDG&E stations on Google Maps, the EV charging station were found to be installed on sidewalks, pavement, curbs, and other structures. Some stations were fixed to freestanding foundations surrounded by soil. Half of the pedestals are assumed to be fixed to 2-ft x 2-ft x 3-ft deep foundations, and the remaining half are assumed to be fixed to existing concrete or pavement.
- The estimate considers that freestanding pedestal foundations will be removed, demolished for scrap, and backfilled (with a volume of 12 ft³ per foundation).
- All borrow (fill) material is assumed to be from offsite sources.
- The estimate assumes that the process of removing bolts from existing concrete will result in some damage to existing surfaces. A material allowance of 5 yd³ of concrete repair per station is assumed for the project.
- The pedestal weight is based on the GE WattStation. The weight of salvageable stainless steel is estimated to be 80 lbs. based on GE specifications. This weight is typical for pedestaltype EV charging stations.
- The amount of mixed steel, aluminum, copper, and other valuable metals is considered too small to salvage. All demolished materials are considered debris except for stainless steel.
- The basis for salvage estimating is for scrap value only. No resale of equipment or material is included.
- No extraordinary environmental costs for demolition will be needed.

4. REFERENCES

- 12. Sargent & Lundy Cost Database.
- 13. RSMeans Cost Data, 2021.
- 14. Engineering drawings, equipment lists, operations and maintenance records, and other information provided by San Diego Gas & Electric.
- 15. Scrap Metals MarketWatch West Coast (Zone 1), www.americanrecycler.com.
- 16. Bollard Dimensions Vaugh Concrete Products, www.vaughnconcreteproducts.com/bollards.

APPENDIX A. CONCEPTUAL ESTIMATE OF COST TO DECOMMISSION EV CHARGING STATIONS

San Diego Gas & Electric Decommissioning Cost Estimates Electric Vehicle Charging Stations

Total Number of EV Charging Stations

2463

Number of EV Charging Stations Decommissioned at one time

Area	Group	Phase	Description	Notes	Quantity	Subco	ntract Cost Scr	ap Value	Material Cos	t Man Hours	Crew Rate La	bor Cost	Total Cost
	11.00.00		Demolition										
	11.00.00	11.22.00	Concrete										
			Concrete	Foundations 2'x2'x1'	2.0 CY					103 /MH	\$ 140.47 \$	14,448	3 \$ 14
				Protective Bollards, 103 @ 0.39 cu yd									
			Concrete	each	5.0 CY					257 /MH	\$ 140.47 \$	36,121	\$ 36
		11.41.00	Electrical Equipment										
			Remove pedestal from base		25 EA					50 /MH	\$ 127.80 \$	6,390) \$ 6
			Remove control units, conduit, wiring, other electronics, etc.		25 EA					125 /MH	\$ 127.80 \$	15,975	\$ 15
			Demolition			\$	- \$	-	\$ -		\$	72,934	\$ 72,
	18.00.00		Scrap Value										
		18.20.00	Stainless Steel										
			Stainless Steel	Pedestals @ 80 lbs. each	1 TN		\$	(1,217)		/MH			\$ (1
			Scrap Value			\$	- \$	(1,217)	\$ -		\$	-	\$ (1
	21.00.00		Civil Work										
		21.19.00	Disposal		7.0 CY								
		21.20.00	Dumpster, 40 CY Capacity Backfill	For concrete, electronics, rubbish	1 EA	\$	900			/MH			\$
		21.20.00	Foundation backfill, imported material fill		1.0 CY				\$ 4	10			Ś
			Civil Work			\$	900 \$	-		10	\$	-	\$
	24.00.00		Architectural										
			Concrete										
			Repair of concrete from removed pedestal base.		5.0 CY				\$ 2,75	5.0 CY	\$ 275.00 \$	1,375	5 \$ 4
			Foundation backfill, pedestals on concrete/asphalt surfaces		1.0 CY				\$ 13	1.0 CY	\$ 275.00 \$	275	\$
			Foundation backfill, bollards	Installation	5.0 CY				\$ 68		\$ 275.00 \$		
			Architectual			\$	- \$	-	\$ 3,57	75	\$	3,025	\$ 6
Subtotal						\$	900 \$	(1,217)	\$ 3,61	15	\$	75,959	9 \$ 79
	91.00.00		Other Direct & Construction Indirect Costs										
			Contractor's General and Administration Expense										\$ 5
		91.10	Contractor's Profit										\$ 7
													\$ 13
Direct Cos	ts + Constru	ction Indirect	t Costs			\$	900 \$	(1,217)	\$ 3,61	15	\$	75,959	92,
	93.00.00		Indirect Costs										
		93.1	1 Engineering, Procurement, & Project Services										\$ 5
			2 Construction Management Support										\$ 1
		93.3	3 SDG&E Internal Costs										\$ 9
	95.00.00		Contingency										
			1 Contingency on Subcontractor			\$	135						\$
			2 Contingency on Scrap Value				\$	-					\$
			3 Contingency on Material 4 Contingency on Labor						\$ 54	12	\$	11,394	\$ \$ 11
		33.4	- Containgulary on Educati								Ş	11,394	, J
		95.5	5 Contingency on Indirect										\$ 2
Subtotal	for	25	EV Charging Stations			\$	1,035 \$	(1,217)	\$ 4,15	7	\$	87,353	\$ 123,
			F.V.Chausius Chabina	•			101.000 1	(440.05-)	A 400	_		0.000	4 40
Total for		2463	3 EV Charging Stations			Ś	101,968 \$	(119,899)	\$ 409,57	4	Ş	8,606,025	\$ 12,216,