Scattergood Generating Station

UNIT 3 REPOWERING PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

Volume 1

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Prepared by:

Los Angeles Department of Water and Power
111 North Hope Street, Room 1044
Los Angeles, CA 90012

Technical Assistance Provided by:

POWER Engineers, Inc.
731 East Ball Road, Suite 100
Anaheim, CA 92805

Draft
Environmental Impact Report

Scattergood Generating Station
Unit 3 Repowering Project

Los Angeles, California

Los Angeles Department of Water and Power
111 North Hope Street
Los Angeles, California 90012

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ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
AB	Assembly Bill
AD	*Anno Domini*
AF	Acre feet
AGL	Above ground level
AMSL	Above mean sea level
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
BACT	Best available control technology
Basin Plan	Los Angeles Regional Water Quality Control Plan
BMPs	Best Management Practices
BP	Before Present
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CCA	California Coastal Act
CCAA	California Clean Air Act
CCGS	Combined cycle generating system
CCR	California Code of Regulations
CEC	California Energy Commission
CEMS	Continuous emissions monitoring system
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbon
CGS	California Geological Survey
CH_4	Methane
CHL	California Historic Landmarks
CHP	California Highway Patrol
CHWCL	California Hazardous Waste Control Law
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CRHR	California Register of Historical Resources
CTG	Combustion turbine generator
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DG	Distributed Generation
DOC	California Department of Conservation
DPW	Los Angeles Department of Public Works

Abbreviation	Definition
DSM	Demand Side Management
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESB	El Segundo Blue butterfly
FAA	Federal Aviation Administration
FEA	Final Environmental Assessment
FRP	Federal Response Plan
FTA	Federal Transit Administration
GE	General Electric
GHG	Greenhouse gas
gpd	Gallons per day
GWh	Gigawatt-hour
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
HGS	Harbor Generating Station
HI	Hazard indexes
HnGS	Haynes Generating Station
HRA	Health risk assessment
HRSG	Heat Recovery Steam Generator
HTP	Hyperion Treatment Plan
HVAC	Heating, Ventilating, and Air Conditioning
I-105	Interstate 105
ICU	Intersection Capacity Utilization
IRP	2010 Power Integrated Resources Plan
IS	Initial Study
kV	Kilovolt
kW	Kilowatt
LADOT	City of Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAMC	Los Angeles Municipal Code
LARWQCB	Los Angeles Regional Water Quality Control Board
LAX	Los Angeles International Airport
L_{dn}	Day/night noise level
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent noise level
LOS	Level of Service
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximum Exposed Individual at an existing residential receptor
MEIW	Maximum Exposed Individual at an existing occupational worker receptor
Metro	Los Angeles County Metropolitan Transit Authority
mgd	Million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
MW	Megawatt

Abbreviation	Definition
MWh	Megawatt hour
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
NOP	Notice of Preparation
NOP/IS	Notice of Preparation/Initial Study
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	Ozone
Ocean Plan	Water Quality Control Plan for Ocean Waters of California
OHP	California State Office of Historic Preservation
OT	Oil tank
OTC	Once-through cooling
Pb	Lead
PCB	Polychlorinated biphenyl
PM	Particulate matter
PM_{10}	Suspended particulate matter
$PM_{2.5}$	Fine particulate matter
POTW	Publicly Owned Treatment Work
PPV	Peak particle velocity
PRC	Public Resources Code
PRR	Paleontological Resources Report
Qal	Quaternary Alluvium
Qbs	Quaternary Beach Sand
Qls	Quaternary Loose Dune Sand
Qos	Quaternary Older Dune Sands
RCRA	Resource Conservation and Recovery Act
RECLAIM	Regional Clean Air Incentives Market
RMS	Root mean square
RPS	Renewable Portfolio Standard
RWQCB	California Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCGS	Simple cycle generating system
SCR	Selective catalytic reduction
SF_6	Sulfur hexafluoride
SGS	Scattergood Generating Station
SIP	State Implementation Plan
SMARTS	Storm Water Multiple Application and Report Tracking System
SO_2	Sulfur dioxide
SoCal Gas	Southern California Gas Company

Abbreviation	Definition
SOON	Surplus Off-Road Opt-In for NOx
SO_x	Sulfur oxides
SPCC Plan	Spill Prevention, Control and Countermeasure Plan
STG	Steam turbine generators
Storm Water Construction Permit	NPDES General Permit for Storm Water Discharges Associated with Construction Activity
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California
TIA	Transportation Impact Analysis
TMDL	Total maximum daily load
USC	United States Code
V/C	Volume to capacity ratio
Vdb	Decibel notation
VGS	Valley Generating Station
VOCs	Volatile Organic Compound
WSAC	Wet surface air cooler

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CHAPTER 1: EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to evaluate potential effects on the environment associated with the Scattergood Generating Station (SGS) Unit 3 Repowering Project (proposed project), which is located in the City of Los Angeles, California. The City of Los Angeles Department of Water and Power (LADWP) is the public agency with the principal responsibility for carrying out and approving the proposed project and is the lead agency under the California Environmental Quality Act of 1970 (CEQA) responsible for preparing the EIR.

1.2 PURPOSE OF THE EIR

This EIR serves as an informational document for decision-makers and the public regarding potential environmental impacts of the proposed project. It will be used by LADWP and responsible agencies with approval authority for the proposed project in assessing such impacts and their possible mitigation. These agencies must take into account the information in this EIR before considering approvals for the proposed project. This EIR is not a policy document of LADWP regarding the desirability of the proposed project or any of the potential project alternatives discussed herein.

1.3 OVERVIEW OF THE PROPOSED PROJECT

LADWP proposes to remove the existing SGS electrical generation Unit 3 from operation and replace its generating capacity with modern high-efficiency generation units constructed within the SGS property boundaries. Existing Unit 3 is a natural gas-fired steam boiler generation unit that was put into operation in 1974. It has a maximum gross generating capacity of 460 megawatts (MW). The generation units that would replace Unit 3 under the proposed project would have a gross generating capacity of up to 590 MW, depending on the type and configuration of the units provided. As part of the proposed project, LADWP would also physically and permanently derate (i.e., reduce the generating capacity of) the existing SGS generation Unit 1 by the necessary amount such that there would be no increase in the total gross generating capacity of the station. The proposed project would also include associated cooling units, pollution control systems, and ancillary facilities necessary for the operation of the new generation units. Existing Unit 3 would also be demolished under the proposed project. The project would be implemented in part pursuant to a formal Settlement Agreement between LADWP and the South Coast Air Quality Management District (SCAQMD) related to air pollutant emissions from stationary sources under the *Regional Clean Air Incentives Market* (RECLAIM) program. The proposed generation units would substantially improve the LADWP generation system's efficiency, reliability, and flexibility compared to the existing steam boiler unit they would replace. The project would also be implemented in part to comply with the California State Water Resources Control Board (SWRCB) *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* related to the once-through cooling system for Unit 3.

1.3.1 Location

SGS is located at 12700 Vista Del Mar in the City of Los Angeles. Primary access is off of Vista Del Mar on the western boundary of the SGS property. Secondary access is off of Grand Avenue, which divides the SGS property into northern and southern parcels.

Dockweiler State Beach is located to the west of SGS and Vista Del Mar. The approximately 130-acre Hyperion Treatment Plant (HTP), which also services the City of Los Angeles, is located to the north of SGS. Residential neighborhoods are located to the northeast and east of SGS and a 1.5-square-mile

Chevron Corporation oil refinery is located to the south. Figure 1.3-1 illustrates the regional location of SGS.

1.4 PROJECT OBJECTIVES

The goal of the proposed project is to improve the LADWP generation system's efficiency, reliability, and flexibility. Specific objectives related to this goal include:

- Achieving a net reduction in air pollutant emissions at SGS by repowering pursuant to the May 2003 Settlement Agreement between LADWP and SCAQMD, as amended (September 2011)
- Reducing the consumption of natural gas relative to the amount of energy produced and, as a result, also reducing the production of greenhouse gases (GHGs)
- Providing for the energy demands of the City of Los Angeles
- Providing for base load generation requirement to help meet the basic demand for energy in the service area
- Facilitating the integration of intermittent renewable power resources into the LADWP generation system
- Increasing the reliability of the electrical power generation system
- Eliminating the need to use ocean water for cooling the proposed generation units and thereby reducing the use of ocean water for generator cooling at SGS

1.5 PROJECT ELEMENTS

Two development scenarios are under consideration and analysis to meet the proposed project objectives and serve as the basis for the environmental analysis in this EIR. Generation Scenario 1 would include a single combined cycle generating system (CCGS) that would consist of a natural gas-fired combustion turbine generator (CTG) paired with a heat recovery steam generator (HRSG) that would provide steam to drive a steam turbine generator (STG), and a simple cycle generating system (SCGS) consisting of two high-efficiency natural gas-fired CTGs. Generation Scenario 2 would consist of two separate and operationally distinct CCGSs.

Either development scenario would consist of two primary generation systems: a CCGS that would provide base-load generation, and either a CCGS or an SCGS that would provide peak-load generation capability. The primary components of the CCGS (whether a base-load or peak-load unit) would be a natural gas-fired CTG, an HRSG, and an STG. The primary components of the SCGS would be two separate natural gas-fired CTGs. In addition to these primary components, numerous other facilities would be necessary to support the operation of the proposed generation units. These would include cooling systems; electrical breakers, transformers, and switchyard equipment; natural gas compressors; and wastewater storage and treatment facilities. Figure 1.5-1 provides the general location of the various elements of the proposed project at SGS.

The proposed base-load CCGS, including the associated dry cooling facility, electrical breakers, transformers, air intake filter, exhaust stack, and other ancillary elements, would encompass approximately four acres in the northwest corner of the SGS property. This area is currently occupied by several lower-intensity functions, all of which would be removed. In order to provide sufficient level area to accommodate the CCGS, the embankment that separates the lower terrace from the middle terrace of SGS would need to be cut back, and a retaining wall would be constructed to support the portion of the embankment that would remain. The removal of the existing road that connects the lower terrace with the middle terrace along the northwest perimeter of SGS would also be required.

FIGURE 1.3-1. REGIONAL MAP

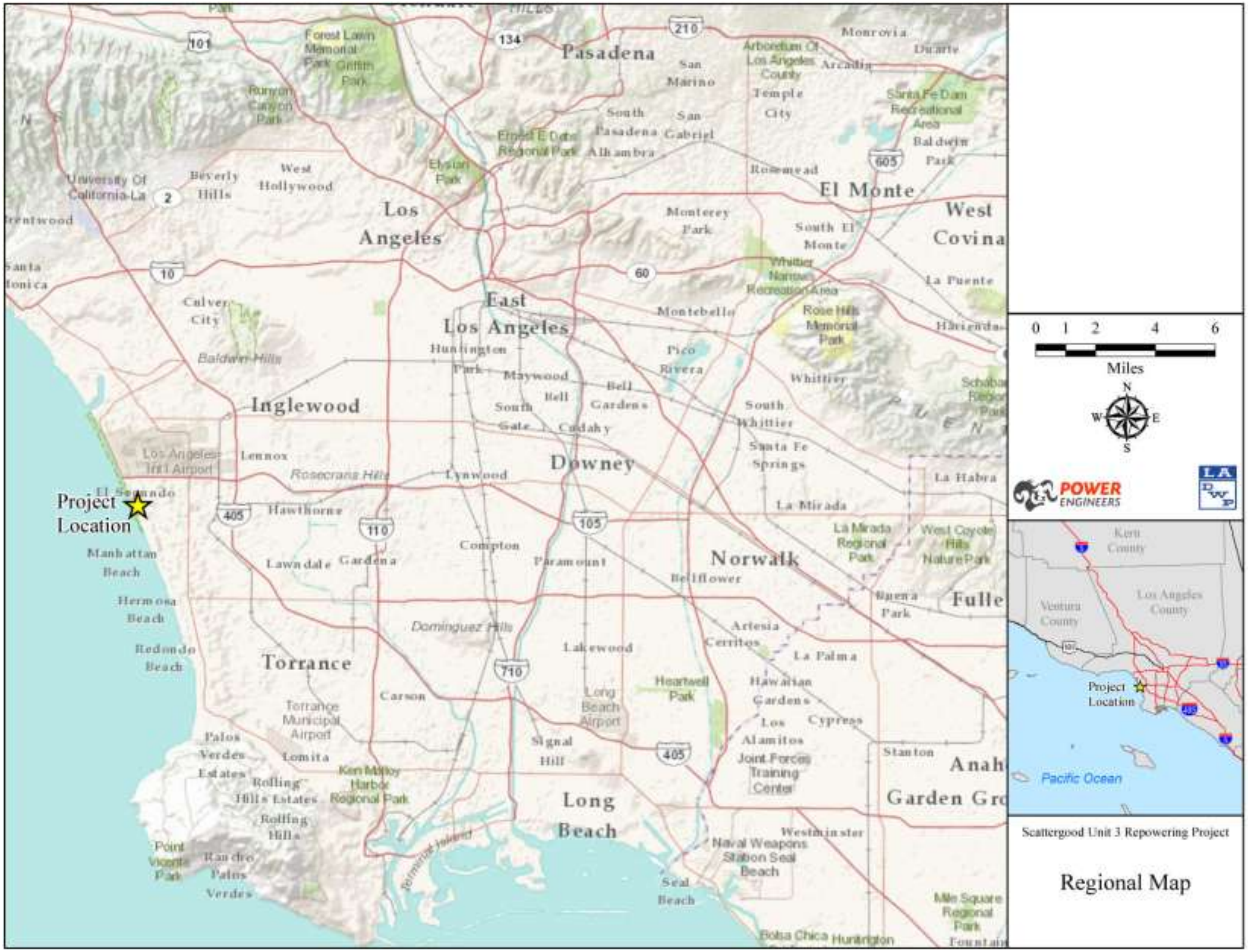


FIGURE 1.5-1. LOCATION OF PROPOSED REPOWERING FACILITIES

The HRSG exhaust stack would be approximately 213 feet in height. The HRSG itself, excluding the stack, would be approximately 95 feet tall. The element with the single largest footprint would be the dry cooling unit, which would be approximately 220 feet long, 130 feet wide, and 100 feet tall. The cooling unit would be an open lattice steel structure where water circulated in closed-loop pipelines would be cooled by means of an induced mechanical draft created by a series of fans.

The proposed peak-load generation system would be located on the middle terrace of SGS. The peak-load system would encompass an area of approximately three acres. This area is currently occupied by several lower-intensity functions, all of which would be removed. The middle terrace is also the location of two cooling tower facilities associated with the existing SGS generation units that would remain in place. The abandoned fuel oil tank, which is located in the southern half of the proposed peak-load generation unit site, is situated in a recessed spill containment area that is approximately 16 feet below the surrounding grade. This area, which is approximately 1.75 acres in size, would need to be filled.

If an SCGS is utilized for peak-load generation, excluding the exhaust stack, the CTG structure of the SCGS would be approximately 40 feet in height. The exhaust stacks for each CTG would be approximately 100 feet in height. The air-cooled heat exchanger units associated with each CTG of the SCGS would be approximately 90 feet long, 50 feet wide, and 25 feet tall.

If a CCGS is utilized for peak load generation, excluding the exhaust stack, the HRSG would be the tallest element of the peak-load CCGS, at approximately 95 feet tall. The HRSG exhaust stack would be approximately 170 feet in height. The dry cooling unit for the STG would be approximately 120 feet long, 80 feet wide, and 25 feet tall.

The proposed switchyard improvements would consist of circuit breakers, disconnect switches, and H-frame structures for stringing conductors. The switchyard would be located directly south of the existing SGS switchyard facility on the middle terrace. It would require a total additional footprint of approximately one acre.

Each CTG unit would be connected via underground pipelines to an individual natural gas compressor unit(s) required to provide the necessary pressures for combustion in the high-efficiency combustion turbines. The individual gas compressors would be relatively small units, but the entire block, located near the Grand Avenue gate, would require a total footprint of approximately 0.5 acre.

The wastewater treatment facilities for the proposed project would include three aboveground cylindrical storage tanks for the detention and settlement of wastewater. The tanks would be approximately 50 feet in diameter. They would be located in the southwest corner of the northern parcel of SGS, on the site of an existing open wastewater settlement basin and tank, which would be removed.

1.6 PROJECT CONSTRUCTION

Construction of the proposed project would consist of three primary phases of work: site preparation, generation unit construction and commissioning, and Unit 3 decommissioning and demolition. Each phase of work would require truck deliveries and/or haul trips and the operation of heavy equipment, including cranes, excavators, loaders, graders, dozers, backhoes, and various types of trucks.

Other than the delivery of materials and supplies to the site and the hauling of debris from the site, most construction activities, including supplies laydown, soil excavation and stockpiling, and equipment storage, would be confined within the SGS boundaries. It is anticipated that approximately 440 parking spaces to support construction activity would be available on site. Assuming an average vehicle occupancy of 1.2 (i.e., that one out of every six workers would either carpool or use an alternate means of transportation to reach the project site), these spaces would accommodate all worker vehicles, even during the peak of construction activity.

Construction of the proposed project generation units would take approximately 3.25 years to complete. Construction would begin in late 2012 and continue to completion at the end of 2015. The demolition of Unit 3, including necessary pre-demolition activities, would require an additional five years to accomplish.

1.7 PROJECT OPERATIONS

1.7.1 Power Generating Equipment

The proposed CCGS (whether the base-load or peak-load unit) would include one CTG paired with one STG. The excess heat from the CTG would be exhausted through the HRSG to produce steam, which would drive the STG. The SCGS would include two CTG units. The new generation units would be designed to provide a gross capacity between 525 and 590 MW, depending which Generation Scenario was implemented. The CTGs would be fired by natural gas to produce electricity. Natural gas would be obtained through the site's existing gas supply lines.

1.7.2 Air Pollution Controls

The new CTGs would use a combination of processes to control air pollutant emissions. The combustor in the CCGS CTG would use dry low NO_X burners to reduce emissions of NO_X. The combustors in the SCGS CTGs would use water injection to reduce emissions of NO_X. The CTG exhaust would be routed to an oxidation catalyst to control carbon monoxide and then pass through a Selective Catalytic Reduction (SCR) catalyst to reduce NO_X emissions. Aqueous ammonia would be atomized with air and vaporized with an electric heater. The ammonia/air mixture would be blended within a static mixer and injected into the flue gas ahead of the catalyst bed via an injection grid.

1.7.3 Power Transmission

Power generated by the proposed generation units would be stepped up in voltage from 13.8 kV to either 138 kV or 230 kV using generator step-up transformers. The transformers would be connected to a switch rack, and the power would be delivered to the switchyard and the Scattergood-Olympic or Airport transmission lines.

1.7.4 Blackstart Diesel Generator

If Generation Scenario 1 were implemented, a single 2,500 kilowatt diesel generator would be installed to provide power to the proposed SCGS for emergency starts). If Generation Scenario 2 were implemented, four 2,500 kilowatt diesel generators would be installed to provide power to the proposed peak-load CCGS for emergency starts). Each diesel generator would be skid-mounted with a 2,800 gallon diesel fuel tank.

1.7.5 Auxiliary Steam Boiler

An independent source of steam would be provided for the base-load CCGS to help seal the STG in order to allow shorter startup times. The steam would be produced by an electrically heated boiler that can produce 20,000 pounds per hour of steam.

1.7.6 Ammonia Handling and Storage

As with current operations, aqueous ammonia would be used in the SCR air pollution control systems of the proposed CTGs. Ammonia for the new equipment would be obtained from the existing ammonia storage system at SGS. Ammonia would be routed from the storage tanks to CTGs via new piping. It is anticipated that no new ammonia storage facilities would be required and no increase in the number or rate of deliveries of ammonia would be required, since ammonia used for the new generators would be generally offset by the reduction in ammonia use associated with removal from service of existing Unit 3.

1.7.7 Wastewater Treatment and Disposal

Water that is used in the CCGS and SCGS must be treated to remove undesirable constituents that could foul the cooling or pollution control equipment. This water purification process generates wastewater that would be collected and treated in an upgraded SGS wastewater treatment system. The upgrade would include replacement of existing wastewater settling basins with aboveground settling tanks. Two 500-gallon per minute oil-water separators would collect potentially oily wastewater from equipment area washdowns. Oil would collect in the oil-water separators and would be removed by vacuum trucks prior to the oil collection section reaching capacity. Wastewater would be treated and discharged at a high rate of dilution in the SGS ocean water cooling outfall.

1.7.8 Cooling System Components

The proposed generation units would be cooled utilizing a closed-loop water circulation system to transfer heat from the STGs of the CCGS or the CTGs of the SCGS to the cooling system. For the CCGS, this system would condense steam exiting the STG using fans that would draw air over tubes containing the steam, and the condensate would be pumped back to the HRSG to be converted back into steam in a closed-loop cycle. For the SCGS, each CTG would have an inter-stage cooler in the compression section of the turbine. This inter-stage cooling provides cooler flow to the high-pressure compressor and increases overall efficiency and power output. The warm water in the closed-loop would be sent from the heat exchanger to the cooling system, where the water would be cooled by fans that would draw air over tubes containing the water, and the cooled water would then be pumped back to the heat exchangers. The excess heat from the closed-loop dry cooling systems would be managed by installing a wet surface air cooler (WSAC) to control lubricating oil temperature. The WSAC would consist of a three-cell unit with six fans.

By employing a closed-loop dry cooling system for the proposed generation units rather than ocean water cooling, the project would substantially reduce the amount of once-through cooling water utilized at SGS. The reduction in use of ocean waters for power plan cooling is consistent with the *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* adopted by the SWRCB. It is anticipated that replacement of Unit 3 with dry-cooled generation units would reduce the maximum once-through ocean water cooling flow by about 55 percent. The proposed repowering project would not require any modifications of the cooling water intake or outfall structures, and the plant's existing once-through cooling water circulation system would continue to serve Units 1 and 2 at a substantially reduced flow.

1.7.9 Natural Gas System

Natural gas would be the primary fuel for the CTGs of the CCGS or SCGS. New natural gas lines would be teed-off of the existing Southern California Gas Company metering station located within the SGS property near the Grand Avenue entrance. Natural gas would be supplied from the Southern California Gas Company system and routed to an on-site compressor area where it would be compressed for use in the generator systems. The compressor area would include a minimum of three screw-type compressors connected to a common header to supply each CTG.

1.7.10 Operating Personnel Requirements

Once constructed, the proposed project would not require additional personnel beyond the number currently employed at SGS to support site operations. Currently, the station employs about 120 personnel. After construction, the main gate for SGS personnel would remain along Grand Avenue. The new generation units could be operated 24 hours per day, 7 days per week.

1.7.11 Project Termination and Decommissioning

The estimated life of the new generation units is expected to be more than 25 years. Equipment that is no longer effective may then be shut down and/or decommissioned, replaced, or modified in accordance with applicable regulations, market conditions, and technology prevailing at the time of termination. Decommissioning of the new units in the future may involve a combination of salvage or disposal in accordance with applicable federal, state, and local regulations.

1.8 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed SGS Unit 3 Repowering Project has been evaluated relative to its potential to create significant adverse effects on the environment. An Initial Study (contained in Appendix A of this EIR) conducted for the proposed project identified potentially significant impacts to aesthetics/visual resources, air quality, biological resources (focusing on El Segundo blue butterfly), cultural resources (focusing on historic and paleontological resources), greenhouse gas emissions, hazards and hazardous wastes, noise, traffic and transportation, and water and wastewater. The Initial Study concluded that an EIR was required to analyze these potential effects.

In accordance with CEQA, when these effects, even with the application of mitigation measures, cannot be reduced to a less than significant level, they must be identified as unavoidable significant impacts of the proposed project. The analysis in this EIR shows that the only significant environmental impact that is unavoidable (cannot be mitigated to a level of less than significant) relates to air quality during construction and commissioning of the equipment. Refer to Chapter 4 of this EIR for a full description of environmental impacts and mitigation measures that have been proposed to help reduce the magnitude of impacts. Table 1.8-1 provides a summary of project impacts and proposed mitigation measures.

Table 1.8-1. Summary of Impacts and Mitigation Measures

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
Aesthetics/Visual Resources			
VIS-1. The proposed project would not have a substantial adverse effect on a scenic vista.	Less than significant impact	None	N/A
Air Quality			
AQ-1. The proposed project would conflict with or obstruct implementation of the applicable air quality plan; would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under any applicable federal or State ambient air quality standard.	**Construction:** Significant regional air quality impacts for NOx; Significant localized $N0_2$ impacts **Commissioning:** Significant regional air quality impacts; Less than significant localized impacts **Operation:** Less than significant regional air quality impacts; No significant localized impacts	**AIR-A** During project construction, all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 3 emissions standards, or higher, according to the following: • From January 1, 2012, to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations • On or after January 1, 2015: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. • A copy of each unit's certified tier specification, control technology documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment. **AIR-B** In the event a Tier 3 or Tier 4 engine is not	**Construction:** Significant and unavoidable impacts **Commissioning:** Significant and unavoidable impacts **Operation:** N/A

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		available for any off-road engine larger than 50 horsepower, that engine shall be equipped with a diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" if, among other reasons: 1. There is no available soot filter that has been certified by either CARB or the EPA for the engine in question; or 2. The construction equipment is intended to be on site for 10 days or less. The use of a soot filter may be terminated immediately if one of the following conditions exists: 1. The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure; 2. The soot filter is causing or is reasonably expected to cause significant engine damage; or 3. The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public. **AIR-C** All construction equipment shall be properly maintained and the engines tuned to the engine manufacturer's specifications. **AIR-D** Prohibit construction equipment from idling longer than five minutes and post signs prohibiting idling longer than five minutes at the facility entrance and near areas where construction equipment is operating. **AIR-E** The engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment. **AIR-F** Use electric welders instead of gas or diesel	

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		welders in portions of the facility where electricity is available. **AIR-G** Use on-site electricity rather than temporary power generators in portions of the facility where electricity is available. **AIR-H** Suspend all construction activities that generate air pollutant emissions during first stage smog alerts. **AIR-I** Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible. **AIR-J** Develop a Construction Emission Management Plan for each affected facility to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes.	
AQ-2: The proposed project would not result in exposure of sensitive receptors to substantial pollutant concentrations.	Less than significant impact	None	N/A
Biological Resources			
BIO-1. The proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on the federally listed as endangered El Segundo blue butterfly.	No impact	None	N/A
Cultural Resources			
CR-1. The proposed project would not cause a substantial adverse change in the significance of a historical resource.	No impact	None	N/A
CR-2. The proposed project would indirectly or directly destroy a unique paleontological resource or site or unique geologic feature.	Significant impact	**CR-A:** The project owner shall retain a qualified vertebrate paleontologist to design and implement a paleontological resource mitigation monitoring program to mitigate impacts	Less than significant

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		to significant nonrenewable resources. This plan should include a grading observation schedule to be maintained when grading in bedrock units to further evaluate the fossil resources of the site. This monitoring and mitigation plan shall be consistent with Society of Vertebrate Paleontology SVP (1994) standard guidelines for the mitigation of construction-related adverse impacts on paleontological resources, as well as the requirements of the designated museum repository for any fossils collected (SVP 1994). Specific components to be included in the monitoring program include the following: 1. A construction worker education program to inform the workforce about the potential for discovery of paleontological resources will include: a. procedures to follow if resources are discovered during any construction-related activities, including order of notification of appropriate construction personnel and LADWP officials, and redirection of construction activities while the find is evaluated; b. a description of known resources in the area; and c. instruction that these resources are protected by law and that there is a strict prohibition against collection or disturbance of any paleontological resource. 2. Excavation into the older Quaternary alluvial deposits, including the stratigraphic equivalents of the Palo Verdes Sand or San Pedro Formations, that possess a high paleontological sensitivity rating shall be monitored by a professional paleontologist. Areas to be monitoring during construction shall be determined after review of detailed geologic boring information. 3. Procedures shall be established for identification, salvage, analysis, curation and accession into a museum repository with permanent retrievable storage	

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		of any significant fossil specimens and data recovered. 4. A Paleontological Resources Report (PRR) shall be prepared, with an appended itemized inventory of specimens, upon completion of monitoring and evaluation. The report, inventory, and record of accession, when submitted to LADWP, will signify completion of the program to mitigate impacts to paleontological resources.	
Greenhouse Gas Emissions			
GHG-1. Annual mass GHG emissions from construction, circuit breaker leakage, and blackstart generator operation would not exceed the GHG mass emission threshold established by the SCAQMD of 10,000 MT/yr CO2e.	Less than significant impact	None	N/A
GHG-2: Operation of the CTGs would not exceed the base-load performance standard of 1,100 lbs CO2 per MWh.	Less than significant impact	None	N/A
Hazards and Hazardous Wastes			
HAZ-1. The proposed project is located within two miles of LAX and would result in a safety hazard for people residing or working in the area and using airport services.	Significant impact	**HAZ-A:** Prior to construction of the proposed generation units and/or prior to demolition of the Unit 3 stack, LADWP will submit plans for these components to the FAA for hazard determination pursuant to 14 CFR Part 77. LADWP will implement hazard markings or other requirements established through the review process during construction and/or demolition.	Less than significant
HAZ-2. The demolition of existing facilities would create a significant hazard to the public through emission and handling of hazardous materials at the site. A preschool is located within one-quarter mile of the SGS site boundary.	Significant impact	**HAZ-B:** Asbestos surveys will be completed for buildings to be demolished that were constructed prior to 1980 as required under National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines and pursuant to SCAQMD Rule 1403. In addition, NESHAP guidelines require that all potentially friable asbestos-containing materials be removed prior to building demolition. **HAZ-C:** A lead survey of painted surfaces and soil around buildings constructed prior to 1978 will be completed prior to	Less than significant

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		demolition. Requirements in the California Code of Regulation will be followed during demolition activities, including employee training, employee air monitoring, and dust control. Any debris or soil containing lead-based paint or coatings will be disposed of at landfills that meet acceptance criteria for the waste being disposed. **HAZ-D:** To quantify the amounts of waste to be generated and protect public health during removal, LADWP will prepare a detailed Waste Management Program prior to start of demolition activity. The purpose of the program is to create procedures for proper storage, labeling, packaging, recordkeeping, manifesting, use of waste minimization principles, and disposal of hazardous materials and waste. The following will be included: • A description of each hazardous waste component. • Waste classification procedures. • Waste container and label requirements. • Accumulation, handling, transport, treatment, and disposal procedures for each waste that protects public health. • Waste minimization procedures, including recycling opportunities. • Preparedness, prevention, contingency, and emergency procedures, including in the event of an unplanned closure or planned temporary facility closure. • All facility employees will receive awareness training for hazardous waste segregation, accumulation, and labeling; inspection of satellite accumulation areas; spill contingencies; and waste minimization procedures in accordance with Title 22 CCR. Procedures to minimize the generation of hazardous waste. Employees will be trained in procedures to reduce the	

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
		volume of hazardous wastes generated at the project. The procurement of hazardous materials will be controlled to minimize the storage of surplus materials on site and to prevent unused materials from becoming "off-specification."	
HAZ-3 The demolition of existing facilities would not create a significant hazard to the public and the environment through the routine transport, use, or disposal of hazardous materials.	Less than significant impact	None	N/A
Noise			
NOISE-1. Construction of the proposed project would expose persons to or generate noise levels in excess of City (or other applicable) standards and create a substantial temporary increase in ambient noise levels in the vicinity of the project.	Significant impact	**NOISE-A:** All construction equipment shall be properly maintained and equipped with mufflers and other suitable noise attenuation devices. **NOISE-B:** Grading and construction contractors shall endeavor to use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment). **NOISE-C:** The construction contractor shall ensure that all stockpiling and vehicle staging areas are located away from noise-sensitive receivers, to the extent feasible. **NOISE-D:** The construction contractor shall plan work such that activities that generate high noise levels will not be started outside the hours codified in the Los Angeles and El Segundo Municipal Codes, and all reasonable efforts to conclude work in progress prior to the hours listed in these codes will be taken by the construction contractor. **NOISE-E:** A public liaison for project construction shall be identified who shall be responsible for addressing public concerns about construction activities, including excessive noise. The liaison shall determine the cause of the concern (e.g., starting too early, bad muffler) and shall be required to implement reasonable measures to address the concern.	Less than significant

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
NOISE-2. Operation of the proposed project would not expose persons to or generate noise levels in excess of City (or other applicable) standards or create a substantial permanent increase in ambient noise levels in the vicinity of the project.	Less than significant impact	None	N/A
NOISE 3. Construction and operation of the proposed project would not expose people to excessive groundborne vibration.	Less than significant impact	None	N/A
Traffic and Transportation			
TRANS-1. The proposed project would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system at study intersections and on study roadway segments during construction.	No impact	None	N/A
TRANS-2. Construction activity would not exceed the level of service standards established by the county congestion management agency for designated roads or highways.	No impact	None	N/A
TRANS-3. The proposed project would not create a safety hazard during construction relative to utilizing a new gate on Grand Avenue for construction.	Less than significant impact	None	N/A
Water and Wastewater			
WATER-1. The proposed project would not result in the construction of new or expanded water supply facilities that would cause a significant environmental effect.	Less than significant impact	None	N/A
WATER-2. The proposed project would not require the construction of new storm water drainage facilities or expansion of existing facilities, nor would it substantially degrade water quality affecting current or future uses.	Less than significant impact	None	N/A

Potential Impact	Significance Determination	Mitigation Measures	Level of Significance After Mitigation
WATER-3. The proposed project would not require the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	No impact	None	N/A
WATER-4. The project would not result in a violation of NPDES permit requirements for industrial wastewater, or otherwise exceed wastewater treatment requirements of the applicable RWQCB.	No impact	None	N/A

1.9 PROJECT ALTERNATIVES

The proposed project was found to cause a temporary but nonetheless significant and unavoidable impact to air quality during construction activity, including during generator commissioning activity. In addition, the proposed project would result in several potentially significant environmental impacts that would be reduced to a less than significant level with the implementation of the identified mitigation measures. These include temporary impacts associated with construction activity related to noise, paleontological resources, and hazardous materials from the demolition of existing SGS facilities, as well as long term impacts related to hazards to aircraft navigation associated with the proposed generator units' exhaust stacks. The alternatives were developed to provide a range of reasonable options to the proposed project that might address these impacts. Table 1.9-1 provides a summary of the alternatives to the proposed project. In comparison to the feasible alternatives, the proposed project would best achieve the identified objectives and avoid or reduce long-term environmental impacts; therefore, the proposed project has been determined to be the environmentally superior alternative.

1.10 AREAS OF CONTROVERSY

Based on responses to the project Notice of Preparation and scoping, no areas of controversy have been identified for the proposed project.

Table 1.9-1. Summary of Alternatives

Alternative	Feasibility	Attainment of Objectives of Proposed Project	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts
1 – No Project	Technically feasible, but would violate SCAQMD Settlement Agreement	• Would not achieve a net reduction in air pollutant emissions • Would not reduce the consumption of natural gas or the production of GHGs • Would not facilitate integration of intermittent renewable power resources into LADWP generation system • Would provide for the energy demands of the City of Los Angeles • Would not increase the reliability of the electrical power generation system • Would not reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• Would result in greater long-term impacts to air quality • Would result in greater long-term impacts related to fuel consumption and the production of GHGs • Would result in greater long-term impacts related to ocean water cooling system
2 – Modify Existing Unit 3	Infeasible because it would likely require removal of Unit 3 from service prior to replacement of generation capacity	• Not applicable due to infeasibility	• Not applicable due to infeasibility	• Not applicable due to infeasibility

Alternative	Feasibility	Attainment of Objectives of Proposed Project	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts
3 – Construct New Units at Alternative Location Outside SGS	Technically feasible, but potentially cost prohibitive and may violate SCAQMD Settlement Agreement	• Would achieve a net reduction in air pollutant emissions • Would reduce the consumption of natural gas and the production of GHGs • Would facilitate integration of intermittent renewable power resources into LADWP generation system • Would provide for the energy demands of the City of Los Angeles • May not increase the reliability of the electrical power generation system • Would reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• Would result in similar or greater short-term construction-related impacts at alternative location • Would likely result in significant long-term impacts to aesthetics, noise, safety • May result in other long-term impacts to resources (biological, cultural, traffic, localized air quality) that cannot be reasonably ascertained
4 – Develop Alternative Energy Sources	Infeasible because its implementation has already been accounted for in the proposed project	• Not applicable due to infeasibility	• Not applicable due to infeasibility	• Not applicable due to infeasibility
5 – Purchase Additional Energy from Outside Sources	Technically feasible, but potentially cost prohibitive and may violate SCAQMD Settlement Agreement	• May not achieve a net reduction in air pollutant emissions • May not reduce the consumption of natural gas and the production of GHGs • Would not facilitate integration of intermittent renewable power resources into LADWP generation system • Would partially provide for the energy demands of the City of Los Angeles • Would not increase the reliability of the electrical power generation system • Would reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• May result in additional but currently unpredictable and non-quantifiable impacts not created by the proposed project related to the production and transmission of purchased energy

CHAPTER 2: INTRODUCTION

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT AUTHORITY

Under the California Environmental Quality Act of 1970 (CEQA), as amended (Public Resources Code Section 21080(a)), an environmental review document must be prepared, reviewed, and certified by the decision-making body before action is taken on any non-exempt discretionary project proposed to be carried out or approved by a public agency in the State of California. This Environmental Impact Report (EIR) serves as the environmental review document that evaluates the potential environmental effects associated with implementation of the proposed Scattergood Generating Station (SGS) Unit 3 Repowering Project (project or proposed project), which is located in the City of Los Angeles, California. The City of Los Angeles Department of Water and Power (LADWP), a municipal utility, would fund, implement, and operate the proposed project, and therefore is the lead agency for purposes of CEQA compliance[1].

The proposed project involves removing the existing SGS electrical generation Unit 3 from operation and replacing its generating capacity with modern high-efficiency generation units constructed within the SGS property boundaries. As part of the proposed project, LADWP would also physically and permanently derate (i.e., reduce the generation capacity of) SGS generation Unit 1 by the necessary amount such that there would be no increase in the total generation capacity of SGS. Refer to Chapter 3 of this EIR (Project Description) for a detailed description of the proposed project. Implementation of the project would require: (1) certification by the City of Los Angeles Board of Water and Power Commissioners that the EIR was prepared in compliance with CEQA and that the information contained in the EIR was considered in the decision regarding the proposed project; (2) approval by the City of Los Angeles Board of Water and Power Commissioners to fund, design, and construct the proposed project; and (3) authorization and permits from affected responsible agencies. Refer to Section 2.6 for a description of the regulatory permits needed for construction and implementation.

2.2 PURPOSE OF THE EIR

This EIR will serve as an informational disclosure document for LADWP, responsible agencies, and other interested parties. The City of Los Angeles Board of Water and Power Commissioners will consider the findings of the Final EIR, in light of the entire administrative record, before certifying the Final EIR document and taking action on the project. The following are included among the stated purposes of an EIR in the CEQA Guidelines:

- Disclose significant environmental impacts that are expected to result from the construction, operation, and maintenance of the proposed project;
- Indicate ways in which significant impacts can be avoided or mitigated;
- Identify any unavoidable adverse impacts that cannot be mitigated; and
- Identify reasonable and feasible alternatives to the project that would eliminate significant adverse impacts or reduce the impacts to less than significant.

Under CEQA, the content of an EIR must reflect unbiased judgment exercised by the lead agency with regards to determining impacts, the level of significance of the impacts both prior to and after mitigation, and mitigation measures proposed to reduce impacts. CEQA also requires circulation of an EIR for public

[1] Pursuant to the Warren-Alquist Act, the California Energy Commission would not be the lead agency or a responsible agency for this project because the project would result in no increase in generating capacity at the facility.

and agency review to: (1) disclose environmental information about the project; (2) screen the document for inaccuracies or omissions; and (3) solicit feedback regarding public and agency concerns (see Section 2.4, Public Review and Decision-Making Process, for details).

Reviewers of an EIR should focus on the adequacy of the document in identifying and analyzing the potential environmental effects and the manner in which significant project impacts might be avoided or mitigated.

2.3 TERMINOLOGY USED IN THIS DOCUMENT

CEQA documents include the use of specific terminology. To aid the reader in understanding terminology and language used throughout this document, the following CEQA terms are defined below:

Proposed Project or Project: The whole of an action that has the potential to result in a direct or indirect physical change in the environment.

Environment: The baseline physical conditions that exist in the area before commencement of the proposed project and that would be potentially affected or altered by the proposed project. The environment is where significant direct or indirect impacts could occur as a result of project implementation, and it includes such elements as air quality, biological resources (i.e., flora and fauna), land use, ambient noise, mineral resources, water resources, aesthetics, and cultural resources.

Direct impacts: Impacts that would result in a direct physical change in the environment as a result of project implementation. Direct impacts would occur at the same time and place as the project.

Indirect or secondary impacts: Impacts that would result from proposed project implementation but that may occur later in time or farther removed in distance. Indirect or secondary impacts include growth-inducing impacts.

Significant impact on the environment: A substantial adverse change (as measured against established threshold(s) in the physical conditions in the proposed project area that are the result of proposed project implementation. An economic or social change may only be considered a significant impact on the environment if it results in a significant physical change.

Mitigation measures: Project-specific actions that, if adopted, would avoid or substantially reduce the proposed project's significant environmental effects. Effective mitigation measures can:

- Avoid the impact altogether;
- Minimize the impact by altering or reducing the degree or magnitude of actions related to project implementation;
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment to baseline conditions;
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the project; or
- Compensate for the impact by providing or supporting the provision of replacement resources.

Cumulative impacts: Two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The following statements also apply when considering cumulative impacts:

- The individual impacts may be changes resulting from a single project or a number of separate projects.
- The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and

reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant impacts taking place over time.

Terms used in this document to describe the level of significance of adverse impacts are defined as follows:

Less than significant: An impact that is adverse but that falls below the defined thresholds of significance and does not require mitigation.

Significant: An impact that exceeds the defined thresholds of significance. A significant impact would or could potentially cause a substantial adverse change in the environment and would require incorporation of feasible mitigation to eliminate the impact or reduce it to less than significant.

Significant and unavoidable: An adverse impact that cannot be eliminated or lessened to a less-than-significant level through incorporation of mitigation measures.

2.4 THE PUBLIC REVIEW AND DECISION-MAKING PROCESS

CEQA requires lead agencies to solicit, record, and evaluate feedback from other agencies and the interested public to aid decision-making. Additionally, CEQA requires the project to be monitored after it has been approved and permitted to ensure that any required mitigation measures are implemented, as appropriate.

Public and agency participation in the CEQA process for the proposed project has or will occur through the steps described below.

2.4.1 Notice of Preparation/Initial Study

As an initial step of the CEQA process, LADWP prepared an Initial Study to evaluate the potential for significant adverse environmental impacts that might occur from construction and operation of the proposed project. Based on the conclusions of the Initial Study evaluation (discussed further in Section 2.5.1 below and also contained in Appendix A herein), LADWP determined that the proposed project may have a significant impact on the environment and that preparation of an EIR was necessary to assess the potentially significant effects. Pursuant to Section 15082 of the CEQA Guidelines, as amended, a Notice of Preparation of a Draft EIR (NOP) was issued by LADWP. The NOP itself was distributed to approximately 200 residents, occupants, and land owners in the vicinity of the SGS. The NOP included a link to LADWP’s website where the Initial Study could be downloaded or reviewed, and included the date and location of a public scoping meeting on the proposed project. The NOP and Initial Study also were circulated to the State Clearinghouse and responsible, trustee, and local agencies. The NOP public review lasted 30 days, beginning on January 27, 2011, and ending on February 25, 2011.

2.4.2 Public Scoping Meeting

Pursuant to Section 15082(c)(1) of the CEQA Guidelines, a lead agency is required to conduct at least one scoping meeting for a project of statewide, regional, or area-wide significance. The scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed in the EIR. A public scoping meeting was hosted by LADWP on February 16, 2011, from 2:00 p.m. to 4:00 p.m. at the LADWP headquarters building in downtown Los Angeles.

NOP and EIR Scoping Results

Letters responding to the NOP were received from six agencies, individuals, and groups. No public or agency comments were received during the public scoping meeting. The letters received during the NOP/Initial Study public review period are included in their entirety in Appendix A of this EIR and are summarized in Table 2.4-1 below.

Table 2.4-1. Summary of NOP Comments

Commenter/Date	Summary of Comment
State of California Governor's Office of Planning and Research, Scott Morgan, January 27, 2011	This letter documents that the California State Clearinghouse distributed the NOP/Initial Study for the Scattergood Generating Station Unit 3 Repowering Project to 14 State agencies for review and comment.
U.S. Fish and Wildlife Service, Eric Porter, via email on February 1, 2011	The commenter indicated that the Scattergood-Olympic Transmission line right-of-way may include habitat for the federal-listed as endangered El Segundo Blue butterfly (ESB). Use of the right-of-way during construction or operations could have an impact if habitat is present. The commenter requested that if the host plant coast buckwheat is present on the right-of-way, ESB surveys during the flight season be conducted.
Santa Monica Bay Restoration Foundation, Tom Ford, February 25, 2011	The commenter encouraged LADWP to consider restoration of vegetated or ruderal areas of coastal bluff or dune with coast buckwheat to aid in the recovery of the ESB. Such restoration on the project site would be a direct benefit to ESB and is further addressed in the "Airport Dunes recovery unit" for the species by the U.S. Fish and Wildlife Service. Such restoration would also be consistent with ongoing restoration efforts for this species between Ballona and Torrance and is supported by the Santa Monica Bay Restoration Commission. The Santa Monica Bay Restoration Foundation applauds LADWP for the use of closed-cycle cooling for the proposed project, which greatly reduces the amount of ocean cooling water required to operate the plant and directly reduces entrainment and impingement impacts.
Eric Hodder, via email on February 25, 2011	The commenter asked if LADWP's role as both project proponent and lead agency is a conflict of interest, and also stated that the Coastal Commission should be included in the process. Commenter recommended that the "green belt" in the northeast part of the Scattergood property be set aside as a nature preserve, though it is currently used by trespassers, transients, and others. The commenter also stated that the project will significantly impact El Segundo residents and affect ocean views, noise, traffic, dust, long-term air quality, property values, and health of bordering residents. Therefore, LADWP should compensate these affected residents.
Heal the Bay and Santa Monica Baykeeper, Sarah Abramson Sikich and Liz Crosson, February 25, 2011	The commenters support the proposed repowering of SGS Unit 3 with air cooling technology, which moves LADWP closer to compliance with State Water Board policy on use of coastal and estuarine waters for power plant cooling. In addition, the commenters urge LADWP to move forward with complying with State Water Board policy to reduce marine life mortality associated with existing SGS Units 1 and 2. The commenters stated that it is imperative that the project comply with other environmental laws and regulations and pay attention in the Draft EIR to alternatives analysis, cumulative impacts, biological impacts on species of concern, and water quality impacts. The commenters asked how the derating of other SGS units would affect coastal marine life impacts. In addition, the use of Hyperion Waste Water for cooling of SGS Units 1 and 2 should be investigated in light of the proposed derating of the units under the proposed project. Lastly, the commenters indicated that the project should examine impacts of construction that could include impacts on water quality, wastewater disposal, and storm water runoff, and implement low-impact development practices that infiltrate, absorb, collect, and contain pollutants.

Commenter/Date	Summary of Comment
South Coast Air Quality Management District, Ian MacMillan, February 25, 2011	The South Coast Air Quality Management District (SCAQMD) wishes to receive the Draft EIR when available and directed that the air quality analysis be prepared using the SCAQMD's adopted CEQA Air Quality Handbook and subsequent guidance. The air quality analysis should identify impacts from construction/demolition and from long-term operations. The analysis should incorporate use of the SCAQMD's latest methodology for calculating $PM_{2.5}$, and should evaluate local impacts through comparison to localized significance thresholds. Should heavy duty, diesel-fueled vehicles be used during project operations, the commenter suggests performing a mobile source health risk assessment. In the event significant air quality impacts are predicted, feasible mitigation measures should be implemented (sources of such measures are contained in SCAQMD guidance documentation). The commenter notes that the emissions calculations should be based on "gross" capacities; consequently, "gross" capacities must be included in the Draft EIR. The emergency generator (blackstart diesel generator) must also be modeled to determine compliance with the new federal 1-hour NO_2 standard. It is further noted that an air quality permit cannot be issued until the CEQA process is completed.

2.4.3 Draft EIR Preparation/Notice of Completion

This Draft EIR has been distributed directly to agencies, organizations, and interested parties for comment during a 45-day public review period in accordance with Section 15087 of the CEQA Guidelines. The Draft EIR and the studies upon which it is based are also available for review at the following locations:

Location	Address
LADWP - Environmental Affairs Call for an appointment: (213) 367-5295	111 N. Hope St., Room 1044, Los Angeles, CA 90012
Los Angeles County Public Library, Hawthorne Branch	12700 Grevillea Ave. Hawthorne, CA 90250-4396
El Segundo Public Library	111 West Mariposa Avenue El Segundo, CA 90245

The Draft EIR is also available for review online at http://www.ladwp.com/envnotices. Organizations and interested members of the public are invited to comment on the information presented in this Draft EIR during the 45-day public review period.

2.4.4 Preparation and Certification of Final EIR and MMRP

Comments received and responses to those comments will be incorporated into the Final EIR. In addition, Section 15097 of the CEQA Guidelines requires that public agencies adopt a program for monitoring mitigation measures or conditions of project approval that reduce or eliminate significant impacts on the environment. Accordingly, LADWP will prepare a Mitigation Monitoring and Reporting Program (MMRP) for the proposed project as a separate document. The MMRP will be submitted to the City of Los Angeles Board of Water and Power Commissioners along with the Final EIR prior to consideration of the proposed project for approval.

The Board of Water and Power Commissioners will consider the Final EIR before certifying the document and making a final decision whether or not to approve the project.

2.5 EIR FORMAT AND CONTENT

2.5.1 Scope of this EIR

Considerations Relating to the Operation of Scattergood Generating Station

LADWP is presently involved with several activities and projects that affect the Scattergood Generating Station. These activities include programs to improve air emissions and air quality, including periodic equipment replacement and upgrades, and participation in other activities such as South Coast Air Quality Management District's (SCAQMD) air emissions and air quality permitting programs, including the Regional Clean Air Incentives Market (RECLAIM). Other projects include compliance activities associated with the SGS's waste discharge permit administered by the California Regional Water Quality Control Board and a project to improve the efficiency and reliability of area-wide electrical transmission and distribution (i.e., Scattergood-Olympic Transmission Line Project). During preparation of the Initial Study, LADWP considered whether any of these activities were part of the proposed repowering project for purposes of CEQA compliance. CEQA requires that an EIR consider "the whole of an action" that has the potential to result in a significant direct or indirect physical change in the environment (CEQA Guidelines, Section 15378). In this case, the action to plan, design, and fund the repowering of Unit 3 is separate and unrelated to the other activities; the Unit 3 repowering project is not dependent or contingent upon the completion of any of the other identified activities, and its approval does not commit LADWP or another agency to take any action regarding the other activities. All activities are on separate timelines. Although these projects may be separate from the proposed repowering project, they may be considered as contributing to cumulative impacts related to construction and/or operations, if applicable. Each of these unrelated activities is discussed briefly below.

Compliance with RECLAIM and SGS Repowering of Units 1 and 2

The proposed project is being implemented, in part, pursuant to a formal Settlement Agreement (May 2003) between LADWP and the SCAQMD to reduce air pollutant emissions from stationary sources in the South Coast Air Basin (SCAB) under the provisions of the RECLAIM program. Under this agreement, a timeline has been established for replacing (repowering) certain of LADWP's existing gas-fired steam boiler generators with modern and efficient generators. Repowering projects at LADWP's Valley Generating Station (Units 1 through 4) and Haynes Generating Station (Units 3 and 4) are complete. The repowering of Haynes Units 5 and 6 is scheduled for completion by December 2013. At SGS, the proposed repowering of Unit 3 is scheduled to be online by December 2015, while repowering of existing SGS Units 1 and 2 would occur after 2020.

The Final Environmental Assessment for the RECLAIM program (October 1993) analyzed the impacts associated with establishing the program and implementing the RECLAIM regulations. A number of subsequent environmental documents have been prepared for major program amendments and for various specific facilities identified by the RECLAIM program, including the previous LADWP repowering projects. This EIR for the SGS Unit 3 Repowering Project is, appropriately, a project-level EIR focusing only on associated construction and operations impacts involved with replacing Unit 3. It cannot address the future repowering of SGS Units 1 and 2 after 2020, since a substantial amount of speculation would be involved with specifying the generation technology that will be in use at that time. Such technology may not be commercially available at present. Under CEQA, a separate EIR addressing the Unit 1 and 2 repowering would be required prior to the implementation of this project. Under CEQA, such speculation is not warranted or required when preparing project-level EIRs. Accordingly, addressing any impacts related to the future repowering of Units 1 and 2 is beyond the scope of the proposed project and is not included in this EIR.

Renewal of Plant-wide Waste Discharge Permit

SGS currently uses a once-through ocean water cooling system for all three existing generation units. Sea water is drawn into the plant cooling system through a 12-foot-diameter submerged intake pipe located offshore. Once the ocean water passes through the plant's cooling condensers, it enters the discharge pipe system and is discharged into the ocean at a single submerged outfall terminating 1,200 feet offshore. Process water from facility operations is combined with the once-through cooling water and discharged through the same outfall to the ocean.

The statewide Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, also known as the Once-through Cooling (OTC) Policy, was adopted by the State Water Resources Control Board (SWRCB) in May 2010 and amended in July 2011. The policy seeks to reduce the impingement and entrainment impacts associated with cooling water intake structures on marine and estuarine life by either substantially reducing the quantity of ocean water used for cooling or by implementing other technological measures whose effects would be comparable to flow reduction. Under an approved amendment to the policy, LADWP has until December of 2024 to comply with the policy for SGS Units 1 and 2. Under the OTC Policy, both wet and dry cooling are acceptable technological options to once-through cooling. Interim measures are required until the facility is in full compliance. One of the interim measures requires the installation of marine mammal exclusionary bars within one year of the effective date of the OTC Policy, which was October 1, 2011. These bars prevent large mammals, such as sea lions and seals, from entering the intake and were installed at SGS in February 2008. Other interim measures, such as funding mitigation projects to offset impacts until in compliance with the Policy will commence on October 1, 2015 and continue until SGS has completely eliminated once-through cooling.

The once-through cooling intake and discharge system, the handling of process wastewater generated during operations at SGS, and treated storm water discharges are governed by the facility's existing National Pollutant Discharge Elimination System (NPDES) permit. SGS's NPDES permit (CA0000370, Order No. 00-083) became effective June 29, 2000, and is currently active until it is renewed.. An application for permit renewal has been submitted to the Regional Water Quality Control Board (RWQCB) by LADWP. The NPDES permit establishes water quality standards for an approximately five-year period. Disposition of issues such as the new OTC Policy, receiving water standards, and entrainment and impingement are considerations for the permit review and renewal process.

Because the new generation units are designed not to utilize ocean water for cooling, aspects relating to the potential adverse impacts of once-through cooling are not applicable to the proposed project. The proposed decommissioning of Unit 3 would result in a substantial reduction in the use of ocean water for generator cooling. The decommissioning of Unit 3 and repowering with air-cooled generation units would reduce the maximum volume of ocean water drawn through the cooling system at SGS by about 55 percent (or 270.7 million gallons per day). The proposed de-rating of Unit 1 would further reduce the maximum amount of ocean water needed for cooling generation units at SGS. The elimination of ocean water cooling at SGS Unit 3 is consistent with the OTC Policy and would have generally positive impacts by virtue of the reduced flow and related reduction in entrainment and impingement of marine organisms. Consequently, the impacts of the proposed project due to discontinuation of once-through cooling in Unit 3 are not further evaluated in this EIR, but will be addressed by the renewal process for the SGS discharge permit. Since the discharge permit renewal process is under the regulatory control of the SWRCB in conjunction with the RWQCB and is a separate regulatory process with a timeline that is different from the proposed project, the renewal of the SGS wastewater discharge permit is not specifically addressed in this EIR. However, process waste discharges are evaluated for compliance with the current discharge regulations.

Proposed Scattergood-Olympic Transmission Line Project

Power produced at SGS is transmitted from the site through two primary transmission systems, the Scattergood-Olympic 230 kilovolt (kV) Line 2 and the Scattergood-Airport 138 kV Lines 1 and 2. These systems transmit power to substations serving the greater western Los Angeles area. Under normal operating conditions, the transmission systems are able to transmit the SGS output, but there is not sufficient excess capacity for changing load conditions. This transmission capacity limitation does not provide for optimum power distribution in the service area, a situation that has existed for many years.

LADWP is presently preparing an EIR for the Scattergood-Olympic Transmission Line Project, which considers construction and operation of a new subsurface electric transmission cable serving western Los Angeles. Inadequate distribution capacity would be rectified by provision of an additional distribution circuit and would be unaffected by repowering. That is, the Scattergood-Olympic Transmission Project is needed whether or not SGS is repowered and is on a separate timeline from the proposed project. Likewise, the Unit 3 repowering is unaffected by the transmission project. Consequently, LADWP determined that separate EIRs for the transmission project and the repowering project were appropriate under CEQA.

Conclusions of the Initial Study Relative to Technical Issues

The analysis contained in the Initial Study established the specific issues to be addressed in this project-level EIR. That evaluation focused on the potentially significant construction and operation impacts involved with repowering Unit 3 at SGS. Potentially significant effects may occur relative to the environmental resource topics listed below. These topics are addressed in detail in Chapter 4 of this EIR:

- Aesthetics (analysis focused on scenic vistas)
- Air Quality
- Biological Resources (analysis focused on the El Segundo blue butterfly)
- Cultural Resources (analysis focused on historic and paleontological resources)
- Greenhouse Gas Emissions
- Hazards and Hazardous Wastes (analysis focused on obstructions to aircraft navigation and hazardous wastes generated during the demolition of existing facilities at SGS)
- Noise
- Traffic and Transportation
- Water and Wastewater

Based on the Initial Study for the proposed project, several potential environmental impacts were determined not to be significant. Environmental resource topics that were determined to have no impact or less than significant impacts and do not, therefore, require further analysis in this EIR under CEQA (Section 15128 of the CEQA Guidelines) are as follows:

- Aesthetics (except potential impacts to scenic vistas)
- Agricultural and Forestry Resources
- Biological Resources (except potential impacts to the El Segundo blue butterfly)
- Cultural Resources (except potential impacts to historical and paleontological resources)
- Geology/Soils
- Hazards and Hazardous Materials (except potential hazards to aircraft navigation and generation of hazardous wastes during the demolition of existing facilities at SGS)
- Hydrology and Water Quality (except as addressed under water and wastewater)
- Land Use/Planning
- Mineral Resources

- Population and Housing
- Public Services
- Recreation
- Utilities and Service Systems (except potential impacts to water and wastewater)

See Chapter 4 of this EIR for a discussion of why certain impacts were found not to be significant. More detailed discussions may be found in the Initial Study included in Appendix A of this document.

Issues Raised During the NOP Process

During the NOP review period, LADWP received comments recommending that certain environmental issues be addressed in the EIR that were not included in the scope put forth in the NOP and Initial Study. The NOP comments are summarized in Table 2.4-1, above, and included in their entirety in Appendix A of this EIR. The disposition of these comments is addressed below.

Marine Impacts Due to Derating of Units 1 and 2

In the Heal the Bay/Santa Monica Baykeeper letter response to the NOP, it was suggested that the impact on coastal marine life of derating of other SGS generation units be addressed.

This EIR addresses the repowering of SGS Unit 3, including the attendant reduction in once-through ocean water cooling volumes that would result. As noted above, this substantial reduction in volume of cooling water (including that associated with the derating of Unit 1) is considered inherently beneficial in its impact on coastal marine life and is consistent with new OTC policy. Furthermore, once-through cooling is regulated by the wastewater discharge permit review process of the RWQCB, which is on-going. Consequently, the renewal of the SGS discharge permit relative to once-through cooling volumes is not specifically addressed in this EIR. In addition, the total quantities of ocean water used for cooling are regulated by the permit; operating at a substantially lower discharge volume is not a violation of the permit, and no adverse impacts would occur.

Relative to the effects on marine resources of the use of ocean water cooling for Units 1 and 2, LADWP will continue its extensive marine water quality monitoring activities to ensure compliance with the NPDES permit. These data are retained by the RWQCB and are in the public domain.

Use of Reclaimed Water as Cooling Water for Units 1 and 2

In the Heal the Bay/Santa Monica Baykeeper letter response, it was also suggested that the use of Hyperion Treatment Plant wastewater for cooling of Units 1 and 2 should be investigated in the EIR. The evaluation of the use of reclaimed water for Units 1 and 2 is beyond the scope of the SGS Unit 3 Repowering Project. Actions relating to Units 1 and 2 relative to repowering, cooling water use (waste discharge standards), and reliability are subject to separate discretionary action and implementation schedule. Consequently, use of reclaimed water relative to Units 1 and 2 is not considered further in this EIR. As discussed above, the current schedule to fully comply with the OTC policy at SGS in relation to Units 1 and 2 is 2024. The repowering of any existing active generation unit is a significant undertaking that must be done in a sequence that ensures generating capacity is continuously available from the facility. Consequently, under the proposed project, Unit 3 must remain operational (including the existing once-through cooling system) until the new replacement units (including the dry cooling system) are fully commissioned and online. Any alteration of the Units 1 and 2 cooling systems must also follow a similar process, and changes in the cooling system for the units will therefore be addressed in a future repowering project (post-2020) that also addresses generation efficiency and a reduction in air pollution and greenhouse gas emissions. An earlier modification of the cooling systems for Units 1 and 2, as suggested in the comments, would represent a major undertaking that would likely not be implementable prior to nor be consistent with the future repowering plans for the units, which would likely include land-based dry or wet cooling. Furthermore, since once-through cooling at SGS depends on the relatively cool temperature of ocean water, the use of effluent from Hyperion Treatment Plant is generally not a viable cooling option because of the elevated temperature of the effluent.

El Segundo Blue Butterfly Habitat Restoration and Establishment of Greenbelt

The Santa Monica Bay Restoration Foundation recommended that LADWP restore vegetated and ruderal areas of coastal bluff within the project site with specific attention to restoring coast buckwheat, the host plant for the endangered El Segundo blue butterfly (ESB). While LADWP supports the efforts of the U.S. Fish and Wildlife Service and the Santa Monica Bay Restoration Foundation to preserve the ESB, field surveys confirmed that no coast buckwheat plants exist in areas to be affected by repowering. Thus, the proposed project has no impact on the ESB or its host plant and there is no nexus for establishing a restoration program or creating habitat on the site.

A U.S. Fish and Wildlife Service representative also commented that the Scattergood-Olympic Transmission Line right-of-way that traverses from SGS northerly along the bluff could contain coast buckwheat and that use of the right-of-way, including for parking of construction worker vehicles, could have an adverse impact on ESB. A private citizen also commented that a "green belt" should be established in the northeast portion of the site (taken to mean the area along the bluffs under and near the transmission line) for the benefit of ESB. Since the NOP was issued, LADWP has decided not to allow vehicle parking in the transmission right-of-way outside of the current fence-line (addressed in the project description, Chapter 3). No vegetated areas of the right-of-way on the bluff would be used for parking or otherwise affected by construction. Thus, there is no potential for project impact on coast buckwheat or ESB in bluff areas.

2.5.2 Required EIR Content and Organization

CEQA Guidelines provide that each EIR contain certain essential elements of discussion. Table 2.5-1 identifies each CEQA element that must be included in this EIR along with a reference to the corresponding section where the elements are discussed.

Table 2.5-1. Required EIR Discussion Elements

CEQA Required Element	Section of EIR
Table of Contents (Section 15122 of the CEQA Guidelines)	Table of Contents
Summary (Section 15123 of the CEQA Guidelines)	Chapter 1
Project Description (Section 15124 of the CEQA Guidelines)	Chapter 3
Environmental Setting (Section 15125 of the CEQA Guidelines)	Chapter 4
Environmental Impact Analysis (Section 15126 of the CEQA Guidelines) • Significant Environmental Effects • Significant Environmental Effects That Cannot be Avoided • Mitigation Measures	Chapter 4
Cumulative Impacts (Section 15130 of the CEQA Guidelines)	Chapter 4
Alternatives to the Proposed Project (Section 15126.6 of the CEQA Guidelines)	Chapter 5
Long Term Implications of the Proposed Project (Section 15126.2 of the CEQA Guidelines) • Significant Irreversible Environmental Changes • Growth-Inducing Impacts	Chapter 6
Effects Found Not to be Significant (Section 15128 of the CEQA Guidelines)	Chapter 4
List of Organizations, Agencies and Persons Consulted and List of Preparers (Section 15129 of the CEQA Guidelines)	Chapter 7
References (Section 15129)	Chapter 8

The contents of this EIR are organized in the following manner.

Chapter 1. Executive Summary: The Executive Summary of the EIR provides the reader an opportunity to understand the project and its effects in a summary form. The Executive Summary includes a brief description of the project, a summary of environmental impacts and mitigation measures, a summary comparison of the project alternatives, and a description of areas of controversy.

Chapter 2. Introduction: The Introduction describes the purpose of CEQA and the EIR, common terminology that is used in the EIR, the public review and the decision-making process, and the format and content of the EIR. The introduction also identifies the lead and responsible agency discretionary actions required for the project and contact persons for the EIR.

Chapter 3. Description of the Proposed Project: This section describes the objectives to be achieved by the proposed project, as well as the location and characteristics of the project. Construction and operational aspects of the project and relevant background information are included.

Chapter 4. Environmental Analysis: This section of the EIR includes a description of the existing environmental conditions and regulatory background for each resource area analyzed, thresholds of significance for impact determination, and an analysis of potentially significant impacts. Mitigation measures that may reduce the magnitude of significant impacts and cumulative and residual impact (impact after mitigation) are also identified.

Chapter 5. Alternatives to the Proposed Project: This section addresses alternatives to the project as proposed. Including the No Project Alternative, five alternatives are evaluated:

- No Project
- Modify Existing Unit 3
- Construct New Units at Alternative Location Outside SGS
- Develop Alternative Energy Sources
- Purchase Additional Energy

Chapter 6. Other CEQA Considerations: This section describes the long-term effects of the proposed project, including significant irreversible environmental changes and growth-inducing impacts, as required by CEQA.

Chapter 7. Organizations and Persons Consulted: This section includes a list of agencies and persons consulted and a list of preparers of the EIR.

Chapter 9. References: This section lists reference materials used to compile the EIR.

Appendices: The NOP and Initial Study, technical reports and studies, and other relevant information are included as appendices. The appendices are contained in a separate volume.

2.6 LEAD AND RESPONSIBLE AGENCY DISCRETIONARY ACTIONS

Prior to construction and operation of the proposed project, LADWP would secure the required regulatory permits and approvals, including those from the SCAQMD in the form of the “authority to construct” and “permit to operate.” Changes to the SGS wastewater treatment system would require an amendment of the site’s NPDES permit from the SWRCB and the RWQCB. Currently, SGS is operating under an administratively extended NPDES permit while new discharge regulations are being formulated by the RWQCB. It is anticipated that this permit will be renewed in the near future and any modifications due to the proposed repowering project would be incorporated into the NPDES permit.

The project would be constructed and operated under various federal and State laws, some of which could require regulatory action by governmental agencies and some of which are already applicable to the site. For example, oversize loads on trucks and the transportation of hazardous/flammable materials require a transportation permit from the California Department of Transportation. Use and storage of hazardous materials on the site requires compliance with the Resource Conservation and Recovery Act under State and federal Environmental Protection Agencies. Under the Clean Water Act, discharges of storm water for construction projects in excess of one acre are regulated under a General Storm Water Construction Activities Permit issued by the SWRCB, with oversight by the RWQCB. However, it is noted that the renewal of the SGS facility wastewater discharge permit (affecting the once-through cooling system) is an action that is a separate regulatory process with a timeline that is different from the proposed repowering project. Consequently, the renewal of the SGS discharge permit is not specifically addressed in the EIR.

For the proposed project, the SCAQMD, SWRCB, and RWQCB are considered responsible agencies under CEQA. A Responsible Agency means "a public agency which proposes to approve a project for which a lead agency is preparing an EIR" (CEQA Guidelines Section15381). The Federal Aviation Administration, while not a responsible agency for CEQA purposes, would issue a binding determination based on its review of airspace and safety considerations of proposed facilities. Potential approvals and permits from these agencies and LADWP are as follows:

City of Los Angeles Department of Water and Power

- Certification by the Board of Water and Power Commissioners that the EIR was prepared in accordance with CEQA and other applicable codes and guidelines
- Approval by the Board of Water and Power Commissioners of the proposed project

South Coast Air Quality Management District

- Permit to Construct
- Permit to Operate
- Fugitive Dust Abatement Plan Approval (Rule 403)

State Water Resources Control Board and Los Angeles Regional Water Quality Control Board

- General Discharge Permit for construction dewatering and hydrostatic test water
- General Storm Water Permit Associated with Construction Activities
- Amendment of the NPDES Permit for wastewater treatment system modifications

Federal Aviation Administration

- Navigation and Safety Hazard Evaluation pursuant to 14 CFR Part 77.

2.7 CONTACT PERSONS

The primary contact person for this EIR is Ms. Julie Van Wagner, Los Angeles Department of Water and Power, 111 North Hope Street, Room 1044, Los Angeles, CA 90012. Ms. Van Wagner can be reached via email at julie.vanwagner@ladwp.com. A secondary point of contact is Mr. Charles Holloway, who can be reached via email at charles.holloway@ladwp.com.

CHAPTER 3: DESCRIPTION OF THE PROPOSED PROJECT

3.1 OVERVIEW OF THE PROPOSED PROJECT

The Los Angeles Department of Water and Power (LADWP) proposes to remove the existing Scattergood Generating Station (SGS) electrical generation Unit 3 from operation and replace its generating capacity with modern high-efficiency generation units constructed within the SGS property boundaries. Existing Unit 3 is a natural gas-fired steam boiler generation unit that was put into operation in 1974. It has a maximum gross generating capacity of 460 megawatts (MW). The generation units that would replace Unit 3 under the proposed project would have a gross generating capacity of up to 590 MW, depending on the type and configuration of the units provided. As part of the proposed project, LADWP would also physically and permanently derate (i.e., reduce the generating capacity of) the existing SGS generation Unit 1 by the necessary amount such that there would be no increase in the total gross generating capacity of the station. The proposed project would also include associated cooling units, pollution control systems, and ancillary facilities necessary for the operation of the new generation units. Existing Unit 3 would also be demolished under the proposed project. The project would be implemented in part pursuant to a formal Settlement Agreement between LADWP and the South Coast Air Quality Management District (SCAQMD) related to air pollutant emissions from stationary sources under the *Regional Clean Air Incentives Market* (RECLAIM) program. The proposed generation units would substantially improve the LADWP generation system's efficiency, reliability, and flexibility compared to the existing steam boiler unit they would replace. The project would also be implemented in part to comply with the California State Water Resources Control Board (SWRCB) *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* related to the once-through cooling system for Unit 3.

3.2 PROJECT LOCATION AND SURROUNDING USES

SGS is located at 12700 Vista Del Mar in the City of Los Angeles. Primary access to the station is provided from Vista Del Mar, a four-lane north-south coastal road classified by the city as a major highway, that runs along the western boundary of the SGS property. Secondary access to the station for large deliveries is provided from Grand Avenue, an east-west public thoroughfare classified by the city as a local street, that divides the SGS property into northern and southern parcels.

Dockweiler State Beach is located to the west of SGS and Vista Del Mar. SGS is bounded on the north by the approximately 130-acre Hyperion Treatment Plant (HTP), which is the primary wastewater treatment facility for the City of Los Angeles and located entirely within the City of Los Angeles. Bordering the station on the northeast and east are residential neighborhoods located within the City of El Segundo. SGS is bordered on the south by a 1.5-square-mile Chevron Corporation oil refinery, which is also located within the City of El Segundo.

In addition to the areas that are immediately adjacent to the SGS property, uses within one-half mile of the property include additional residential neighborhoods; commercial establishments; an elementary, middle, and high school; two public parks; and the El Segundo civic center. All these uses are located within the City of El Segundo. The NRG El Segundo Generating Station is located approximately 0.4 mile south of SGS along the west side of Vista Del Mar. Los Angeles International Airport (LAX) is located approximately 0.75 mile north of SGS. Figure 3.2-1 illustrates the location of SGS in relation to the region, and Figure 3.2-2 shows the surrounding vicinity.

FIGURE 3.2-1. REGIONAL MAP

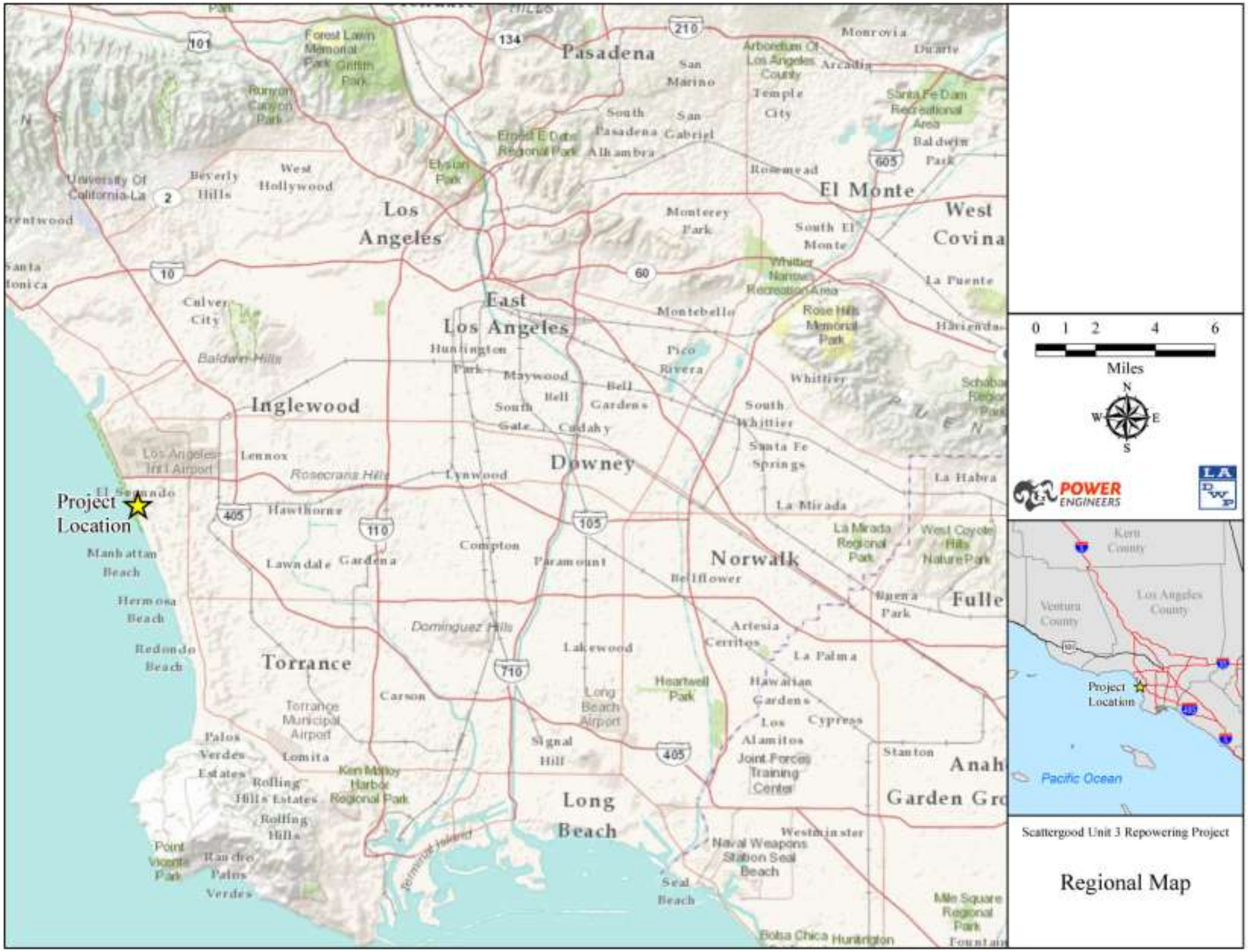
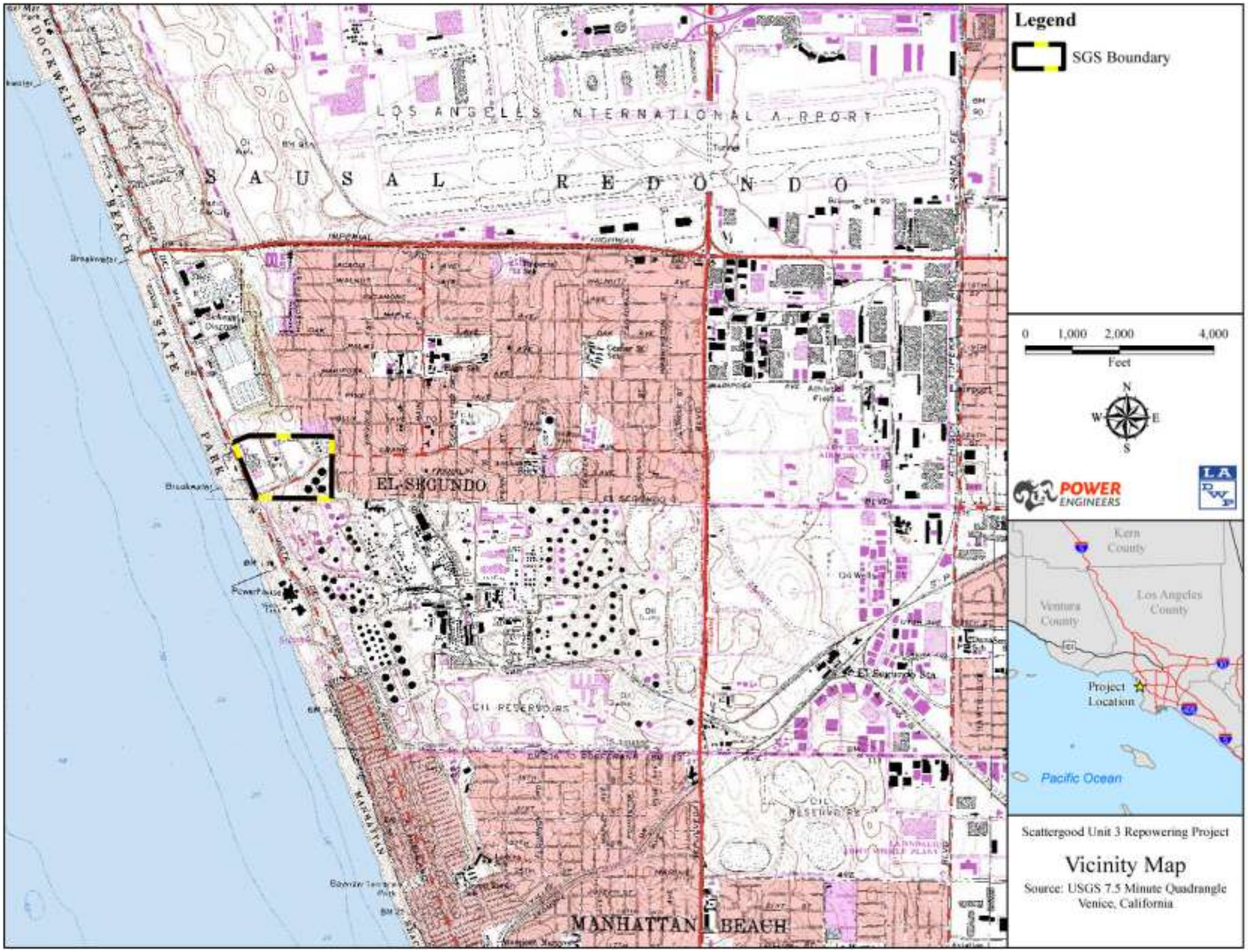


FIGURE 3.2-2. VICINITY MAP



3.3 EXISTING SITE CONDITIONS AND OPERATIONS AT SGS

SGS is a developed industrial property consisting of approximately 55 acres (see Figure 3.3-1). Grand Avenue divides the SGS property into northern and southern parcels. The northern parcel is approximately 40 acres in size, and the southern parcel is approximately 15 acres. Most existing facilities, including all the active electrical generation and generation support elements, are located in the northern parcel (north of Grand Avenue). The northern parcel rises in elevation from west to east and contains three essentially level terraces that are separated by landscaped embankments. All the existing generation units are located on the lower terrace, along the west side of the property (see Figure 3.3-2).

SGS includes three operating generation units that supply power to the LADWP in-basin electrical transmission grid. Generation Units 1 and 2 were placed into operation in 1958 and 1959, respectively, and Unit 3 was placed into operation in 1974. Units 1 and 2 each have a gross electrical generating capacity of 185 MW, and Unit 3 has a gross generating capacity of 460 MW, making the total gross generating capacity of the station 830 MW. (Note: Due to an administrative error, the SCAQMD operating permit for SGS indicates that the gross generating capacity of Units 1 and 2 is 179 MW each. The actual gross capacity is 185 MW; the net capacity is 179 MW.) All three existing units are conventional steam turbine generators (STGs) that burn predominantly natural gas in boiler units to produce steam, which drives a turbine that in turn drives a generator to create electricity.

Units 1 and 2 are also capable of burning a mixture of natural gas and digester gas, which is generated as a byproduct of the waste treatment process at the adjacent HTP and supplied to SGS via pipelines. Unit 3 is not equipped to burn the digester gas from HTP. An agreement between LADWP and City of Los Angeles Department of Public Works (DPW) provides for the consumption of a large portion of the digester gas byproduct through combustion at SGS. The digester gas must be mixed with at least 50 percent natural gas to allow for proper combustion within the generation units. SGS also provides steam via a pipeline to HTP that is used in the plant’s waste treatment process.

Generation Units 1 and 2 utilize a common exhaust stack, whereas Unit 3 has its own stack. Each stack is approximately 300 feet in height. The existing generation units are housed in buildings that are approximately 125 feet in height (see Figure 3.3-3). Selective catalytic reduction (SCR) systems, a post-combustion control technology for reducing oxides of nitrogen (NO_X) air pollutant emissions, are installed on all three units at SGS. The SCR systems reduce NO_X emissions by injecting aqueous ammonia (a solution of ammonia and water) and oxygen into the flue gas in the presence of a catalyst, creating a chemical reaction that produces nitrogen and water vapor. Aqueous ammonia used in this process is stored in existing tanks at the SGS property.

The existing STGs at SGS currently provide energy primarily to help meet base load requirements within the LADWP electrical power service system. Base load is energy that must be provided at a relatively constant rate to help meet the minimum demand for power in a given service area. The existing steam boiler units at SGS are best suited for base load generation because they operate most efficiently over continuous periods of time, and because the equipment is not designed to handle the thermal stresses caused by repeatedly cycling on and off or ramping up and down in response to short-term daily peaks and valleys in the demand for power. Several days may be required to completely start the existing steam generation units at SGS, depending on how long the units have been idle.

The SGS generation units employ a once-through ocean water cooling system to condense steam after the steam exits the turbine. Ocean water is drawn into the cooling system through a single 12-foot-diameter submerged intake pipe located offshore. Water is discharged from the cooling system through a single submerged outfall also located offshore. The intake pipe has a velocity cap to reduce fish impingement and exclusionary bars to keep large marine mammals from entering the intake. The intake pipe leads to an intake structure located on the beach west of SGS, adjacent to Vista Del Mar. The intake structure includes water screens and trash racks to further limit the intake of marine organisms and debris into the cooling water circulation system. Eight circulating water pumps, located downstream of the screens, supply ocean water to the steam turbine condensers. Once the water passes through the condensers, it enters the discharge pipe and is discharged into the ocean at the outfall structure. Industrial process water generated from facility operations is stored and treated at various wastewater facilities on site and discharged through the once-through ocean water cooling stream at low concentrations. Raw water and condensate feed water are stored in three tanks on the upper terrace at the eastern end of the SGS property (see Figure 3.3-4).

The natural gas used at the facility is supplied by continuous feed from a dedicated pipeline that enters the SGS property from the south via Grand Avenue. A pressure-reducing station located near the Grand Avenue entrance on the middle terrace regulates the natural gas pressure prior to combustion in the existing units. The electrical energy generated at Units 1, 2, and 3 is sent to a switchyard located on the middle terrace (see Figure 3.3-4). At the switchyard, the electrical energy is stepped up to either 138 or 230 kilovolts (kV) prior to transmission. A connection to existing transmission lines allows the energy to be delivered throughout the west side of the City of Los Angeles.

The southern parcel of SGS (south of Grand Avenue) contains four large fuel oil storage tanks that are no longer used in station operations and are now empty. These tanks were formerly used to store fuel oil prior to the conversion of SGS generators to natural gas fuel. The tanks are approximately 175 feet in diameter and 55 feet in height. There is a single smaller fuel oil storage tank, which is also unused and empty, located in the center of the middle terrace of the northern parcel of SGS. This tank is approximately 100 feet in diameter and 50 feet tall. An oil well operation, including an aboveground pumpjack, storage tanks, and other equipment, is located in an easement in the southern parcel of SGS; the well is not owned or operated by LADWP (see Figure 3.3-4).

Numerous maintenance buildings, storage buildings, and storage yards are located in various areas of the northern parcel of SGS. Most administrative functions are housed in a building adjacent to Generation Units 1 and 2, near the western end of the property. Employee vehicle parking is accommodated primarily in a paved lot along the western edge of the northern parcel.

3.4 PROPOSED GENERATION UNIT DEVELOPMENT SCENARIOS

Because the exact type and configuration of the proposed generation units cannot be established until the actual award of contract for the SGS Unit 3 repowering project, two basic development scenarios are under consideration to meet the proposed project objectives and serve as the basis for the environmental analysis in this EIR. Generation Scenario 1 would include a single combined cycle generating system (CCGS) that would consist of a natural gas-fired combustion turbine generator (CTG) paired with a heat recovery steam generator (HRSG) that would provide steam to drive an STG, and a simple cycle generating system (SCGS) consisting of two high-efficiency natural gas-fired CTGs. Generation Scenario 2 would consist of two separate and operationally distinct CCGSs.

FIGURE 3.3-1. EXISTING SITE MAP

FIGURE 3.3-2. SITE FACILITIES – UNITS 1, 2, AND 3 ON LOWER TERRACE

FIGURE 3.3-3. SITE FACILITIES – FROM LEFT, UNIT 3 WITH STACK, AND UNITS 1 AND 2 WITH SHARED STACK

FIGURE 3.3-4. SITE FACILITIES – SWITCHING YARD, WATER CONDITIONING TANKS, AND ABANDONED FUEL OIL STORAGE TANKS

3.4.1 Generation Scenario 1: CCGS and SCGS (525 gross MW)

Under this scenario, generation for base load would be provided by a CCGS (a General Electric [GE] 7FA one-on-one combined cycle block or similar unit), and generation to respond to short-term peaks in demand for power would be provided by an SCGS (two GE LMS100 CTGs or similar units). The CCGS would consist of one CTG and one STG operating in combination to provide about 319 MW of gross generation capacity. The CTG component of the CCGS would operate on a mixture of compressed natural gas and air to provide a gross capacity of about 210 MW. Exhaust heat from the CTG would be captured in an HRSG, where it would be used to produce steam to drive the STG component of the CCGS. The STG would have a gross capacity of about 109 MW. Steam exiting the STG would be condensed using a dry cooling system with electric powered fans. The condensate from the cooling system would be pumped back to the HRSG to be converted back into steam in a closed-loop cycle.

To help meet peak load requirements, an SCGS consisting of two individual CTGs operating independently would be provided. The SCGS would offer substantial flexibility to react quickly (in terms of fast starts, rapid ramp rates, and frequent on and off cycling) to changes in the demand for energy, which would increase overall system efficiency and fuel conservation. These types of units are often referred to as peaking units. The CTGs would use a mixture of compressed natural gas and air to provide a gross capacity of about 103 MW each. The CTGs would incorporate an inter-stage cooler to increase the output and efficiency of the units. Each CTG would require a dry cooling system to dissipate the heat from the inter-stage cooler system.

The total gross generating capacity of the proposed units under this scenario would be about 525 MW. This would exceed the gross generating capacity of existing SGS Unit 3 by approximately 65 MW. Therefore, under this scenario, the generating capacity of existing SGS Unit 1 would be permanently derated (i.e., reduced in generation capacity) by 65 MW to maintain a total gross generating capacity of 830 MW at SGS.

3.4.2 Generation Scenario 2: Two CCGSs (590 gross MW)

Under this scenario, base load would be provided by a new CCGS similar to that described for Generation Scenario 1, although it would operate at a slightly lower total gross capacity of about 314 MW (a Siemens Flex-Plant 30 one-on-one combined cycle block or similar unit). The CTG component of the CCGS would provide about 206 MW gross capacity, and the STG component would provide about 108 MW gross capacity. Peak load capability would be provided by an additional CCGS unit (a Siemens Flex-Plant 10 one-on-one combined cycle block or similar unit). The peak-load CCGS would operate in a similar manner as the base-load CCGS, with a natural gas-fired CTG providing a gross capacity of about 206 MW and an HRSG that would capture exhaust heat to produce steam that would power an STG, which would provide an additional 70 MW of gross capacity, for a total gross capacity of about 276 MW. Unlike the base-load CCGS, the peak-load CCGS would be capable of fast starts, rapid ramp rates, and frequent on and off cycling. Steam from the STG would be cooled using a cooling system similar to that for the base-load CCGS but smaller in scale. The condensate would be pumped back to the HRSG to be converted back into steam in a closed-loop cycle.

The total gross generating capacity of the proposed units under this scenario would be 590 MW. This would exceed the gross generating capacity of existing SGS Unit 3 by approximately 130 MW. Therefore, under this scenario, the generating capacity of existing SGS Unit 1 would be permanently derated by a total of 130 MW gross to maintain a total gross generating capacity of 830 MW at SGS.

3.5 PROJECT OBJECTIVES

The goal of the proposed project is to improve the LADWP generation system's efficiency, reliability, and flexibility. Specific objectives related to this goal include:

- Achieving a net reduction in air pollutant emissions at SGS by repowering pursuant to the May 2003 Settlement Agreement between LADWP and SCAQMD, as amended (September 2011)
- Reducing the consumption of natural gas relative to the amount of energy produced and, as a result, also reducing the production of greenhouse gases (GHGs)
- Providing for the energy demands of the City of Los Angeles
- Providing for base load generation requirements to help meet the basic demand for energy in the service area
- Facilitating the integration of intermittent renewable power resources into the LADWP generation system
- Increasing the reliability of the electrical power generation system
- Eliminating the need to use ocean water for cooling the proposed generation units and thereby reducing the use of ocean water for generator cooling at SGS

All of the above objectives not only apply specifically to the SGS Unit 3 Repowering Project, but each is also consistent with the broader aims of LADWP in regards to future energy planning, development, and operations as is reflected in the *Power Integrated Resources Plan* (IRP), which is the 20-year plan to provide for the future energy needs of the City of Los Angeles.

3.5.1 Reduction in Air Pollutant Emissions

As mentioned above, the proposed project is being implemented in part pursuant to a formal Settlement Agreement (May 28, 2003) between LADWP and the SCAQMD to reduce air pollutant emissions from stationary sources in the South Coast Air Basin under the provisions of the RECLAIM program. This Settlement Agreement superseded an earlier Stipulated Order of Abatement issued by the SCAQMD to LADWP in August 2000 (and subsequently modified in February 2001 and July 2001). Among other terms included in the original abatement order, LADWP was required to comply with the following schedule for repowering several of its in-basin generating stations:

Generating Station	Units	Date
Valley (VGS)	1, 2, 3, 4	June 1, 2003
Haynes (HnGS)	3, 4	December 1, 2004
SGS	1, 2	June 1, 2006
HnGS	1, 2	December 1, 2008

Under the abatement order, the repowering of the VGS generation units and HnGS Units 3 and 4 was completed. In accordance with the May 2003 Settlement Agreement, the schedule for repowering other units in the LADWP system was revised as follows:

Generating Station	Units	Date
HnGS	5, 6	December 13, 2013
SGS	1, 2	December 13, 2013

The repowering of HnGS Units 5 and 6, which replaced HnGS Units 1 and 2 as generators requiring repowering under the Settlement Agreement, is scheduled for completion by December 2013. Under an amendment to the Settlement Agreement (September 1, 2011), the repowering of SGS Unit 3, which has a gross generating capacity of 460 MW, has been substituted for the repowering of SGS Units 1 and 2, which have a combined gross generating capacity of 370 MW. A primary reason for this substitution is that Units 1 and 2, as discussed above, currently burn digester gas from HTP under an agreement between LADWP and DPW that is effective through January 2015. Unit 3 does not possess the capability to burn digester gas nor would the new generation units that would be constructed under the proposed repowering project. Without this capability currently provided by Units 1 and 2, the digester gas would otherwise need to be disposed of by burning it off through flaring, which would result in no beneficial use of the gas for energy production. The City of Los Angeles Bureau of Sanitation (a bureau under DPW) is proposing to construct a small power generation unit within the HTP property to provide power and/or steam by combusting the digester gas produced at the treatment plant. While the proposed HTP generator would ultimately eliminate the need for the digester gas combustion capability provided by SGS Units 1 and 2, the repowering of Unit 3 (in lieu of Units 1 and 2) would ensure there is no interruption in the beneficial consumption of the digester gas for energy production. In addition, the proposed substitution of Unit 3 would also represent a greater long-term benefit from repowering (in terms of efficiency, reliability, air quality, and other factors) because of the significantly higher generating capacity of Unit 3 compared to Units 1 and 2 and the fact that the generating capacity of Unit 1 would also be reduced under the proposed project. The implementation schedule for the SGS Unit 3 repowering now requires that the replacement units be on line by the end of 2015.

The repowering of Unit 3 at SGS would reduce air pollutant emissions in relation to the energy produced by removing from service an aging and inefficient STG unit that is nearly 40 years old and replacing its generating capacity with modern high-efficiency units. The CTGs would use an approved low NO_X combustor to control NO_X emissions, and the CTG exhaust (from either the CCGS or the SCGS) would pass through an oxidation catalyst to control emissions of carbon monoxide (CO) and then pass through an SCR catalyst to further control NO_X.

In addition to incorporating the best available control technology to limit air pollutant emissions, the proposed project generators would also possess several characteristics that would increase generation efficiency to further reduce emissions. The base-load CCGS would consist of a high-efficiency CTG and an STG operating in tandem. The CTG component of the CCGS would produce energy directly from the combustion of natural gas. However, the exhaust heat from the CTG that would otherwise be wasted would be captured in an HRSG, where it would be used to produce steam to drive an STG, creating additional energy. This contrasts with existing Unit 3, which combusts natural gas to create steam in a less efficient process that wastes more heat in relation to the energy produced. Therefore, relative to the amount of energy provided, the CCGS would reduce air pollutant emissions that result from the combustion of natural gas because it would utilize more of the heat created from the combustion process to actually produce energy.

The peak-load CCGS or SCGS would also possess characteristics that would increase efficiency and thereby reduce emissions. This includes fast start capability that allows the individual CTGs to reach full generation load and total air emissions compliance in a relatively short time (one to three hours) compared to existing Unit 3, which can require more than a day to achieve full startup and emissions compliance. The fast start capability of the units would also allow for the generators to be entirely shut down when not required because they could be restarted relatively rapidly when necessary to meet an increased need for power generation. This cycling capability would further reduce air pollutant emissions by reducing combustion. This contrasts with the typical operational characteristics of Unit 3, which must often be left on line at minimal levels even when not needed for power generation because its relatively long start time precludes rapid response to an increased demand for energy. In addition to fast start capability, the peak-load units would be able to ramp up or down rapidly in response to increased or decreased power generation demands. This capability to efficiently and precisely track demand would result in decreased air pollution emissions by producing only the power that is required based on demand.

Based on these design features, the proposed project would result in net reductions in relation to the amount of energy produced at SGS in several criteria air pollutants, including NO_X, CO, sulfur oxides (SO_X), volatile organic compounds (VOCs), and particulate matter (PM). The reduction in NO_X and VOCs would also result in a reduction of ozone (O_3), since these emissions are the primary precursors for the production of ground-level O_3 in the atmosphere. Because Unit 3 must be repowered in accordance with the Settlement Agreement, as amended, between LADWP and the SCAQMD in order to reduce air pollutant emissions, this objective is an essential aspect of the proposed project.

3.5.2 Reduction in Natural Gas Consumption and Greenhouse Gas Production

California is one of the world's largest producers of carbon dioxide (CO_2), the primary heat-trapping GHG that contributes to global warming, and the State has recognized its responsibility to decrease CO_2 as well as other GHG emissions. The California Global Warming Solutions Act of 2006 (Assembly Bill 32) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2013. A primary source of GHGs, particularly CO_2, is the combustion of fossil fuels for the generation of electrical energy. Therefore, an important means for LADWP to achieve a reduction in GHGs, while still ensuring that the demand for electrical energy is met, is reducing fossil fuel consumption through increasing the efficiency of its existing natural gas-fired generation system.

The operational characteristics of the proposed project base-load CCGS, including the capture of the CTG exhaust heat in the HRSG to drive the STG, would increase output by approximately 50 percent from the combustion of the same amount of natural gas required to operate the CTG component of the unit alone. Because GHG emissions from power plants (particularly CO_2) are primarily a function of the amount of fossil fuel combusted, the substantial increase in fuel efficiency that would be realized from the base-load CCGS would reduce such emissions by over 30 percent for an equivalent level of energy produced from a traditional CTG alone.

The operational characteristics of the proposed project peak-load generation units (including high-efficiency gas turbines and fast start, rapid ramping, and on-off cycling capabilities that enable the units to quickly and precisely track demand) would also greatly increase system generation efficiency and reduce the combustion of natural gas.

Based on an equivalent level of energy production, the proposed project generators would significantly decrease GHG emissions compared with existing Unit 3, which, because of its age and design, is considerably less fuel-efficient. Unit 3 also takes significantly greater time to reach full generation load at startup, and it must often remain on line at minimum load, even when the power is not needed, in order to be available to generate increased power when necessary.

The combustion of natural gas itself releases relatively little methane (CH_4), the primary constituent of natural gas, into the atmosphere. However, the substantially greater fuel efficiency that would be achieved by the proposed project generation units, when compared to existing Unit 3, would nonetheless result in some reduction in combustion emissions of methane, which is a far less common but considerably more potent GHG by volume than CO_2. The anticipated reduction in fuel use from the proposed project in relation to the energy produced would also lessen the requirement for the extraction, refinement, and transmission of natural gas, a process that in itself contributes to the release of CH_4 and CO_2 into the atmosphere. Because of State mandates and LADWP and City of Los Angeles policy commitments to substantially decrease the production of GHGs related to energy generation, this objective is an essential aspect of the proposed project.

3.5.3 Meeting Energy Demand

Despite considerable progress in energy conservation in the City of Los Angeles through both energy efficiency and load management programs, the overall demand for electricity in the City has continued to grow at a moderate pace since the early 1990s, driven by increases in population and the use of more energy-consumptive consumer products. According to the State of California Department of Finance, the population in the Los Angeles region is expected to increase by about 13.5 percent between 2010 and 2030. As a result, the growth in peak demand for electricity in the City of Los Angeles is expected to increase at an average annual rate of about 1.3 percent over the next 20 years, regardless of increasingly aggressive conservation efforts. It is estimated that between the years 2010 and 2030, the peak demand will increase approximately 100 MW per year (LADWP IRP 2010). This would represent an approximately 1,670-MW increase in peak demand (from approximately 5,900 MW in 2010 to 7,570 MW in 2030).

To avoid blackouts or brownouts during critical periods, providing for peak demand is the key factor in determining LADWP's generating capacity requirement. The total generating capacity requirement for the system as a whole is based on the projected peak demand plus a reserve margin intended to satisfy the peak demand in the event of an unforeseen loss of a crucial component of the generation or transmission system. The reserve requirement is determined by the Western Electricity Coordinating Council Reliability Standard, to which LADWP adheres in accordance with the Energy Policy Act of 2005. By maintaining an equivalent total generating capacity at SGS, the proposed project would continue to provide for the energy demands of the City. Because, in accordance with the Los Angeles City Charter, LADWP is obligated to provide a reliable supply of electricity to meet this demand, this objective is an essential aspect of the proposed project.

3.5.4 Providing Base Load Generation

As discussed above, base load generation provides energy at a generally continuous rate to help meet the minimum demand for power, which is relatively predictable and constant. Coal-fired generation has traditionally represented the largest single power resource in the LADWP system because it is a stable, dependable, and low cost source of energy that is subject to relatively few interruptions. In addition, coal-fired generation facilities are better suited for continuous operations because they require relatively longer periods of time to reach full operating loads and are less capable of frequently ramping up or down in response to changing power demand. However, in 2007, the California Energy Commission (CEC), under regulatory authority provided through Senate Bill 1368 (the California Greenhouse Gas Emissions Performance Standard Act, 2006), imposed rules that effectively prohibit all public and municipal utilities in California from signing new contracts for energy generated by coal-fired power plants, which are major sources of GHGs. Approximately 40 percent of all energy provided to the LADWP service area and the majority of base load is currently derived from the combustion of coal, all of which originates at out-of-state generation plants in Utah and Arizona. Under the new CEC rules, LADWP will not renew the contracts for coal generation unless the coal plant operators significantly reduce CO_2 emissions in accordance with CEC guidelines. Most of LADWP's coal generation plant contracts will be up for renewal in the next 10 to 15 years. Proposed technology to achieve the required reduction in CO_2 emissions is unproven and may not be available in the timeframe required to renew the contracts. The elimination of this coal based power removes the primary source of base load generation in the LADWP system. Senate Bill 1368 also establishes a GHG emissions limit for base-load generation by California utilities at 1,100 pounds per megawatt-hour, which is roughly comparable to the emissions rate of a natural gas-fired CCGS.

Large natural gas-fired power plants represent the most viable replacement for coal-fired generation because they provide a stable and dependable source of power that can fulfill the requirement for base load that most other types of generation cannot. The proposed project base-load CCGS possesses significant advantages in this regard over the existing Unit 3 gas-fired STG. While relatively constant and predictable, base-load demand is nonetheless generally higher during the day than at night. In addition, base-load demand may decrease considerably on weekends, when many businesses are closed. Although it is not capable of cycling on and off several times a day or rapidly ramping to respond to short-term peaks in demand (as are the proposed project peak-load generation units), the proposed base-load CCGS has relatively fast start characteristics (about 2.5 to 5 hours) when compared to existing Unit 3, which may take many more hours or even days to reach full operational loads, depending how long it has been idle. As discussed above, Unit 3 must often be left on line at minimal levels even when not needed for power generation because its long start time precludes rapid response to even a predicted increase in demand for energy. The faster start capability of the proposed CCGS would allow the unit to be entirely shut down when not required (e.g., overnight or on weekends), which would reduce fuel consumption, air pollutant emissions, and GHG production. However, the CCGS would still be readily available to help meet base-load demand when necessary.

3.5.5 Integration of Intermittent Renewable Power Resources

In 2002, the California Legislature passed Senate Bill 1078, which implemented a Renewable Portfolio Standard (RPS) program for the state. The target of the RPS included increasing total annual retail power sales from eligible renewable resources by at least 1 percent per year and attaining 20 percent aggregate annual retail sales by 2010. In April 2011, Senate Bill X1 2 was signed into law, increasing the California RPS to 33 percent renewable power generation by 2020 for the state as a whole. In addition, LADWP's long-term RPS goal set by its Board of Commissioners is 35 percent renewable energy by 2020, including energy generated from wind, solar, geothermal, biomass, and small hydroelectric power sources.

LADWP has a broad commitment to renewable energy development as an important component of its power generation mix. LADWP brought a 120-MW wind power facility on line in 2009 to provide electrical energy directly to its system and expanded the facility by 15 MW in 2010. Based on the 2010 IRP, LADWP has committed to provide 680 MW of additional net wind power capacity to its generation system by 2030, including both department-owned and operated facilities and agreements to purchase power from independent wind energy developers. LADWP has also committed to provide 970 MW of additional net capacity to its generation system by 2030 through the development of solar energy, including approximately half through in-basin local solar projects (via customer solar incentive programs, feed-in tariffs, and installations on City-owned property) and half through larger-scale solar installations outside the basin. Several medium-scale solar projects on City property both inside and outside the basin are currently under construction or have been approved for construction.

However, while wind and solar power are important components of a comprehensive and diversified approach to electrical energy generation, their use is limited by the intermittent and variable nature of the resources themselves. Since electricity cannot currently be feasibly stored on a large-scale basis, the availability of electricity generated by wind turbines or solar power facilities can fluctuate widely and unpredictably. The intermittent and uncontrollable nature of wind and solar power means that it may not be available, at least in sufficient quantities, during peak periods of demand in the LADWP service area. While the combined net maximum capacity of the future planned wind and solar projects is approximately 1650 MW, the dependable capacity (i.e., the average generation capacity that can be reliably predicted to be available over an extended period) is about 20 percent of the maximum. In addition, if demand at a given moment is already being met by large but relatively unresponsive fossil fuel generation units (such as the existing Unit 3 at SGS), wind and solar power that may become available may not be efficiently utilized to its fullest extent.

In order to effectively integrate these intermittent renewable energy sources into the generation system and take full advantage of the resources when they are available, the LADWP system must include other generation types that can respond rapidly and in a controlled manner to help meet fluctuations in supply and demand. Such dispatchable resources, so called because they are predictably available on short notice to generate and transmit electricity, are necessary to complement intermittent wind and solar power generation, serving as a balance for the highs and lows in the energy produced by these renewable resources.

The proposed project peak-load generation unit (whether the SCGS or CCGS) would be an effective complement to intermittent renewable power resources based on its ability to quickly achieve full generating capacity and ramp up or down rapidly in response to unpredictable and uncontrollable fluctuations in wind and solar energy resources. The peak-load unit would provide flexibility and range to respond to such fluctuations, effectively facilitating the integration of large blocks of renewable power into the LADWP generation system. Existing Unit 3, which takes significantly greater time to reach full generation load at start up, must be run at much higher minimum loads, and is considerably slower to increase or decrease load than the proposed project peak-load unit, is not responsive enough to effectively complement wind and solar energy generation. The benefits of effectively integrating renewable power include reducing GHG emissions, improving air quality, increasing the utilization of sustainable energy resources, providing protection against market fluctuations of fuel costs, and reducing dependence on volatile sources of fuel. Because of State mandates and LADWP policy commitments to substantially increase the proportion of annual retail power sales from renewable energy resources, this objective is an essential aspect of the proposed project.

3.5.6 Increasing Reliability of Electrical Power System

SGS Unit 3 is nearly 40 years old, having first been placed in service in 1974. Required maintenance procedures on the unit and the associated downtime have increased over time. The potential for unforeseen failures of the unit's mechanical and electrical systems rise as the unit continues to wear with age. This reduces the reliability of not only Unit 3 itself but the entire generation system, which is based on the predictability and stability of the available power supply. Decreased reliability could also influence the need to maintain higher operating reserve margins to guarantee a stable supply of electrical power for the City of Los Angeles, effectively increasing the requirement for additional generating capacity within the system. The repowering of Unit 3 would reduce the requirement for maintenance and the associated downtime and lessen the potential for unanticipated failures, thereby increasing the reliability of the electrical generation system and the power transmission and distribution grid that it supplies.

The in-basin location of the proposed units at SGS would also increase system reliability by placing electrical generation near the center of demand, limiting the potential for power outages due to a loss or overload in the regional transmission system that transports energy from more distant generation sources.

3.5.7 Reduction in Use of Ocean Water Cooling

In a once-through cooling (OTC) system, cooling water is drawn into the generator equipment from an external water body, passed through the equipment once, and discharged back to the external water body. Because of water's high thermal conductivity, the use of an OTC system is a very efficient means to condense steam after the steam exits a turbine. However, an OTC system for large steam generation units, such as those at SGS, requires a constant flow of significant volumes of relatively cool water. The location of SGS along the coast was established based on the availability of ocean water for generator cooling and the ability to discharge the cooling water to the ocean once it had been used to condense steam. OTC systems were a prevalent means of providing cooling for thermal generation plants, as evidenced by not only SGS but numerous other power plants in California and across the nation located along coastal and inland water bodies.

However, since SGS was first commissioned over 50 years ago, evolving State and federal regulations have established stricter limitations on the operation of once-through systems related to environmental impacts potentially created by the use of large volumes of ocean water for generator cooling. These regulations primarily address two concerns: potential impacts associated with the discharge into the aquatic environment of cooling process water, the temperature of which is elevated above the ambient temperature of the receiving water; and potential impacts related to the impingement and entrainment of marine organisms drawn in through the cooling water intake apparatus. In response to the later concern, the SWRCB has established a *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* (adopted May 2010 and amended July 2011) that makes compliance with newly defined impingement and entrainment limits extremely difficult at power plants continuing to operate with once-through ocean water cooling systems. In light of this new regulatory environment, LADWP has committed to eliminating OTC systems on all generation units identified for repowering. While the OTC water system associated with Unit 3 would be removed from service under the proposed project, the remaining SGS steam generators (Units 1 and 2) would continue to utilize OTC until the future repowering of these units. However, the retirement of the Unit 3 OTC system (along with the reduced operating capacity of Unit 1 related to its derating under the proposed project) would decrease the maximum potential intake and discharge volumes of ocean water at the station by approximately 55 percent based on the generation capacities of the existing units. Because, in accordance with the deadline established by the SWRCB, LADWP must comply with the OTC policy in relation to SGS Unit 3 by the end of 2015 and because alternative technologies to achieve the impingement and entrainment reductions required under the policy while still utilizing OTC are generally ineffective, the use of a cooling system that avoids the intake and discharge of ocean water is an essential aspect of the proposed project.

3.6 DESCRIPTION OF THE PROPOSED PROJECT

3.6.1 Proposed Facilities

As discussed above, the proposed project would consist of two primary generation systems: a CCGS that would provide base-load generation and either a CCGS or an SCGS that would provide peak-load generation capability. The primary components of the CCGS (whether a base-load or peak-load unit) would be a natural gas-fired CTG, an HRSG, and an STG. The primary components of the SCGS would be two separate natural gas-fired CTGs. In addition to these primary components, numerous other facilities would be necessary to support the operation of the proposed generation units. These would include cooling systems; electrical breakers, transformers, and switchyard equipment; natural gas compressors; and wastewater settling tanks. Figure 3.6-1 provides the general location of the various elements of the proposed project at SGS.

The proposed base-load CCGS, including the associated dry cooling facility, electrical breakers, transformers, air intake filter, exhaust stack, and other ancillary elements, would encompass approximately four acres in the northwest corner of the SGS property, immediately north of existing generation Units 1 and 2 and adjacent to the main SGS gate. This area is currently occupied by several lower-intensity functions, including maintenance and storage sheds, materials and equipment storage areas, a wastewater settlement basin, and employee and maintenance vehicle parking, all of which would be removed. The proposed CCGS site is also the location of a road that provides a link between the lower terrace and the middle terrace as well as the pipeline interconnections between SGS and HTP.

Although the CCGS and supporting elements would be located entirely on the lower terrace of SGS, they could not be accommodated within the existing flat areas of the proposed site even when all the present functions in this area were removed. In order to provide sufficient level area to accommodate the CCGS, the embankment that separates the lower terrace from the middle terrace of SGS would need to be cut back, and a retaining wall would be required to support the portion of the embankment that would remain.

The removal of the existing road that connects the lower terrace with the middle terrace along the northwest perimeter of SGS would also be required.

The HRSG exhaust stack would be approximately 213 feet in height. The HRSG itself, excluding the stack, would be approximately 95 feet tall. The element with the single largest footprint would be the dry cooling unit, which would be approximately 220 feet long, 130 wide, and 100 feet tall. The cooling unit would be an open lattice steel structure where water circulated in closed-loop pipelines would be cooled by means of an induced mechanical draft created by a series of fans. Figure 3.6-2 provides a conceptual plan for the base-load CCGS and associated elements.

The proposed peak-load generation system would be located on the middle terrace of SGS. If the peak-load system were an SCGS (Generation Scenario 1), it would include two separate CTG units, each consisting of several primary components, including an air inlet filter structure, the CTG itself, an intercooler system, an exhaust structure and stack, electrical breakers, a transformer, and an air-cooled heat exchanger. If the peak-load system were a CCGS (Generation Scenario 2), it would include similar elements as the base-load CCGS, but smaller in scale, especially the dry cooling unit. In either case, the peak-load units would encompass an area of approximately three acres. This area is currently occupied by several lower-intensity functions, including an abandoned and empty fuel oil tank, a metal storage/maintenance building, and an outdoor storage yard, all of which would be removed either as part of ongoing site maintenance or as part of the project prior to the actual construction of the proposed facilities. The middle terrace is also the location of two cooling tower facilities associated with the existing SGS generation units. These cooling facilities would remain in place, since the existing power generation units would need to remain functional during and, depending on the unit, after project completion.

The abandoned fuel oil tank, which is located in the southern half of the proposed peak-load generation unit site, is situated in a recessed spill containment area that is approximately 16 feet below the surrounding grade. This area, which is approximately 1.75 acres in size, would need to be filled to provide an adequate area for the proposed units and make the finish grade closer in elevation with the northern half of the peak-load generation system site.

Excluding the exhaust stack, the CTG structure of the SCGS would be approximately 40 feet in height. The exhaust stacks for each CTG would be approximately 100 feet in height. The air-cooled heat exchanger units associated with each CTG of the SCGS would be approximately 90 feet long, 50 feet wide, and 25 feet tall. Figure 3.6-3 provides a conceptual plan for the SCGS peak-load unit and associated elements.

Excluding the exhaust stack, the HRSG would be the tallest element of the peak-load CCGS, at approximately 95 feet tall. The HRSG exhaust stack would be approximately 170 feet in height. The dry cooling unit for the STG would be approximately 120 feet long, 80 feet wide, and 25 feet tall. Figure 3.6-4 provides a conceptual plan for the CCGS peak-load unit and associated elements.

The proposed switchyard improvements provide a means of connecting the new units to the existing LADWP transmission system that runs north from SGS to the areas of the City of Los Angeles. The switchyard improvements would consist of circuit breakers, disconnect switches, and H-frame structures for stringing conductors. The improvements would be located directly south of the existing SGS switchyard facility on the middle terrace. It would require a total additional footprint of approximately one acre.

Each CTG unit would be connected via underground pipelines to natural gas compressor units required to provide the necessary pressures for combustion in the high-efficiency combustion turbines. The individual gas compressors would be relatively small units, but the entire block, located near the Grand Avenue gate, would require a total footprint of approximately 0.5 acre.

The wastewater treatment facilities for the proposed project would include two aboveground cylindrical storage tanks for the detention and settlement of wastewater. The tanks would be approximately 50 feet in diameter. They would be located in the southwest corner of the northern parcel of SGS, on the site of an existing open wastewater settlement basin, which would be removed.

3.6.2 Project Construction

Construction of the proposed project electrical generation units, as described below, would take approximately 3.25 years to complete. Construction would begin in late 2012 and continue to completion at the end of 2015. The demolition of Unit 3, including necessary pre-demolition activities, would require an additional five years to accomplish. For the purposes of estimating the calendar duration of the project and the monthly levels of activity related to personnel, truck deliveries, equipment operations, and earthwork, it has been assumed that, on average, 20 workdays would be available each month. This would generally account for holidays and rain days that would fall on weekdays and during which no construction activity would occur. Construction activities would normally occur Monday through Friday from about 7:00 a.m. to 3:30 p.m. However, construction activities by reduced work crews may also be conducted until 7:00 p.m., Monday through Friday. To ensure that the project stays on schedule, two shifts per day may be necessary at times during construction, and occasional Saturday shifts may also be required. Some construction activities must be conducted continuously until complete (e.g., welding activities that cannot be interrupted). Most construction activities that might be conducted after normal weekday working hours (3:30 p.m.) or on Saturdays would be the types that would create less noise.

Other than the delivery of materials and supplies to the site and the hauling of debris from the site, construction activities, including supplies laydown, soil excavation and stockpiling, and equipment storage, would be confined within the SGS boundaries. The general truck route for construction would be from the westbound Interstate 105 (I-105), including transitions to the I-105 from the north and southbound I-405, west on Imperial highway, and south along Vista Del Mar to either the Vista Del Mar gate or east along Grand Avenue to the Grand Avenue gate.

It is anticipated that approximately 440 parking spaces to support construction activity would be available on site. Assuming an average vehicle occupancy of 1.2 (i.e., that one out of every six workers would either carpool or use an alternate means of transportation to reach the project site), these spaces would accommodate all worker vehicles, even during the peak of construction activity.

Although the construction for the proposed project would be continuous, for descriptive purposes, tasks can be grouped together in phases based on their general purpose, schedule, and similarities in the type of work conducted. While the tasks and phases would generally be sequential in that some must precede others at a given location, a certain amount of overlap between tasks would occur as construction proceeds in different locations within the project site. However, in order to analyze potential environmental impacts related to the construction phase of the project, the following description generally considers the tasks and phases separately as a means of relating the overall sequence of construction and establishing the general level of activity related to functions such as equipment operations, truck deliveries, worker commute trips, and earthwork.

FIGURE 3.6-1. LOCATION OF PROPOSED REPOWERING FACILITIES

FIGURE 3.6-2. BASELOAD CCGS AND RELATED ELEMENTS (GENERATION SCENARIO 1 OR 2)

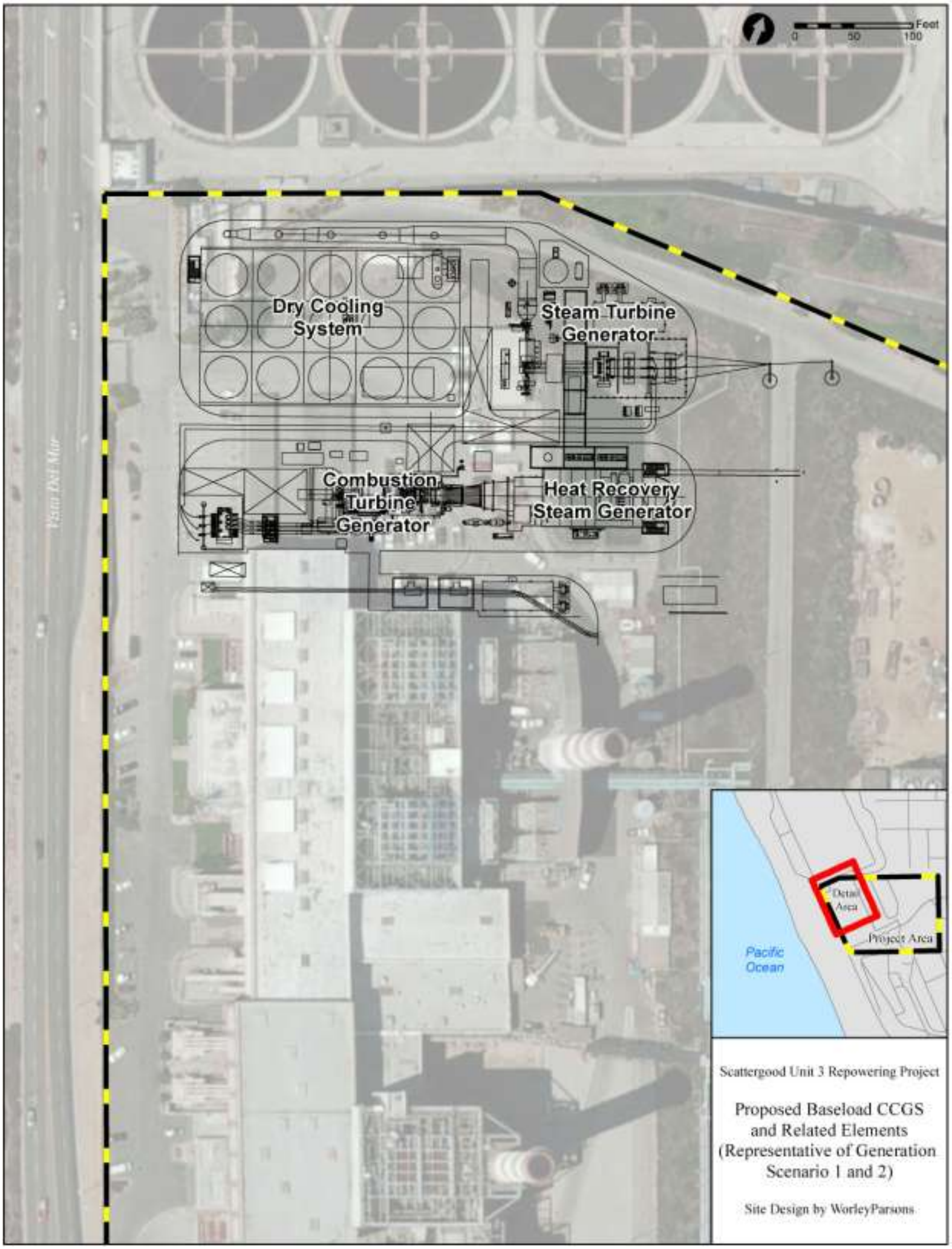


FIGURE 3.6-3. PEAK LOAD SCGS UNITS (GENERATION SCENARIO 1)

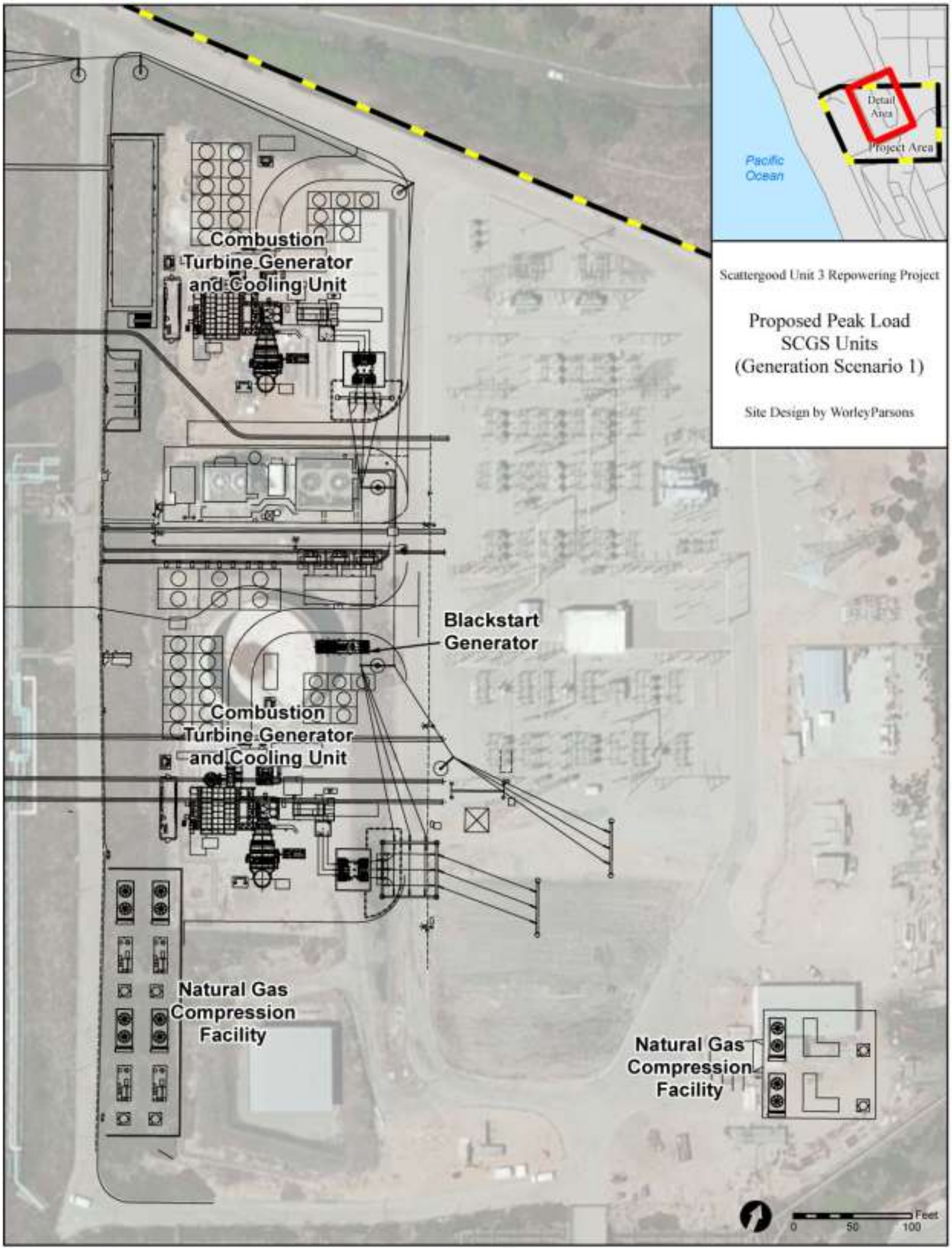
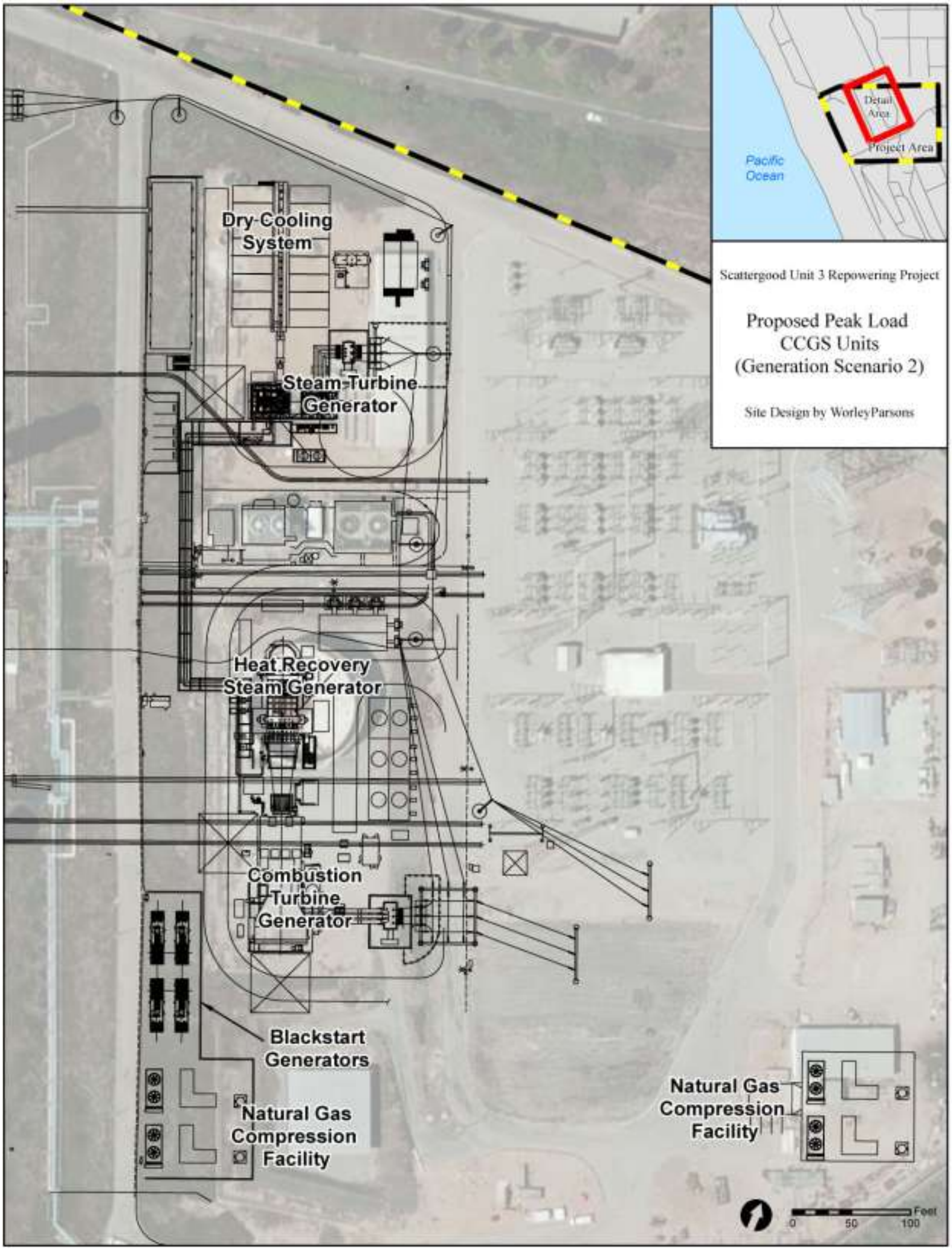


FIGURE 3.6-4. PEAK LOAD CCGS UNIT (GENERATION SCENARIO 2)



Construction of the proposed project would consist of three primary phases of work: site preparation, generation unit construction and commissioning, and Unit 3 decommissioning and demolition. Each phase of work would require truck deliveries and/or haul trips and the operation of heavy equipment, including cranes, excavators, loaders, graders, dozers, backhoes, and various types of trucks. Spreadsheets that reflect the type, duration, and level of activities for the various construction tasks in terms of personnel, off-site truck trips, and on-site equipment operations are included in Appendix H of this EIR. The proposed project site is located within a City of Los Angeles designated methane zone. The maximum methane concentration detected at SGS is 440 parts per million volume. In accordance with the City of Los Angeles Municipal Code (Ordinance 175790), methane site design Level II and design methane pressure of less than or equal to two inches of water pressure would be required for activities throughout construction based on concentrations of methane and pressures detected at the site. These requirements would be incorporated in construction plans and specifications.

Phase 1: Site Preparation

The site preparation phase would consist of those construction tasks that are required to facilitate the actual installation of the generation units and ancillary facilities within SGS. The tasks in this phase include mobilization; modifications to public streets and the SGS gates; demolition and relocation of existing SGS systems and facilities; the construction of new on-site roads, laydown areas, and construction worker parking areas; earthwork and retaining wall construction; and the installation of new wastewater settling tanks. This work would establish the conditions that would allow for the continuation of existing operations at SGS during construction, prepare sites for the proposed project facilities, and provide the areas necessary to support project construction. Many of the construction tasks during this phase would overlap in time because they would take place in different locations, but the overall phase would require approximately 12 months to complete. The final three months of Phase 1 would occur concurrently with the first three months of Phase 2 (generation unit construction and commissioning). The Phase 1 work would be the same regardless of which generation scenario (i.e., a CCGS and SCGS or two CCGSs) was implemented. During Phase 1, the number of on-site workers per day based on a monthly average would range from a low of 38 to a peak of 76, including those workers associated with the initial Phase 2 work. The number of truck deliveries or haul roundtrips per day based on a monthly average would range from a low of 3 to a peak of 32, including those truck trips associated with the initial Phase 2 work. The number of full-time operating equipment per day based on a monthly average would range from a low of 2 during mobilization to a peak of 40, including the equipment associated with the initial Phase 2 work.

Because the construction of the lower terrace CCGS would prohibit the use of the existing main gate located along Vista Del Mar in the northwest corner of SGS, the main gate function would be relocated to Grand Avenue, at the site of the existing SGS secondary gate. The existing gate and/or an adjacent gate on Vista Del Mar would be used for deliveries/hauling related to the construction of the CCGS on the lower terrace. The Grand Avenue gate would be used by SGS personnel, for most normal deliveries, for deliveries related to portions of the work on the lower terrace CCGS, and for deliveries/hauling related to the middle terrace construction. In order to accommodate these uses, the gate, including an on-site bridge, would need to be modified. In addition, Grand Avenue, which currently consists of two westbound lanes and one eastbound lane in the area of the gate, would require widening and modifications to provide turning lanes to accommodate the level and type of traffic anticipated during construction of the proposed project. The new lane configuration would include an eastbound left-turn lane into the Grand Avenue gate and a westbound left-turn lane into a gate opposite the Grand Avenue entrance that would provide access to the southern parcel of SGS, where laydown and parking for project construction support would be provided. While no right-turn lanes are provided, the existing sidewalks and curbs at the entrances to both the north and south parcels of SGS would be modified with a larger radius to facilitate vehicle turning movements. The east- and west-bound (outside) lanes would also be widened to facilitate turns into and out of SGS on both sides of the street. Maintaining the existing bike lanes on Grand Avenue is included in the concept design for the street widening and lane reconfiguration.

Limited areas are currently available within SGS to accommodate construction support functions, such as materials laydown, worker vehicle parking, and supervision offices. In order to partially accommodate these functions, the large existing fuel tanks located in the southern parcel of SGS (south of Grand Avenue) would be entirely demolished along with any infrastructure associated with the tanks. This would provide approximately five acres for parking and laydown area. Prior to demolition, barriers to reduce dust would be constructed along the eastern perimeter of the fuel tanks site to buffer residential areas during project construction.

As discussed above, the locations of the proposed generation units are currently occupied by several lower-intensity functions, including storage, parking, and a wastewater settlement basin. These functions would be demolished and, if necessary, relocated during Phase 1 prior to the construction of the actual generation units. Portions of the lower terrace CCGS site would be used in a staged manner for laydown as construction proceeds on the site. The middle terrace would also be used as laydown to support the lower terrace CCGS construction until construction begins on the peak-load units located on the middle terrace. In addition to these areas, the paved area located west of the three existing water storage tanks on the uppermost terrace of the northern parcel of SGS would be used for construction worker vehicle parking and for storing lightweight materials that would not require the operation of heavy equipment to transfer. The paved area to the east of the water storage tanks would be used for worker parking and temporary offices.

As discussed above, in order to provide sufficient space for the base-load CCGS on the lower terrace, the embankment that separates the lower terrace from the middle terrace would need to be cut back, and a retaining wall would be required to support the portion of the embankment that would remain. The removal of the existing road that connects the lower terrace with the middle terrace along the northwest perimeter of SGS would also be required, and several gas, water, and steam lines would need to be relocated. In addition, the middle terrace would be filled and graded as required to provide a level pad for the construction of the peak-load generation units. This work would occur during Phase 1.

Because an existing wastewater settlement basin would be removed in the area of the proposed base-load CCGS on the lower terrace, its function must be relocated elsewhere within SGS. The only available area within the station located at the appropriate elevation and not occupied by existing generation facilities would be in the southwest corner of the property, where an existing wastewater settlement basin and settlement tank are currently located. As part of the proposed project, the existing settlement basin would be replaced with two new tanks that would be sized to accommodate the wastewater storage function required to support both current operations during project construction and future operations after completion of the repowering project.

Phase 2: Generation Unit Construction and Commissioning

The actual construction of the proposed generation units would consist of several major tasks, including finish grading and installation of the equipment foundations; installation of the primary generation unit systems, including underground utilities, the CTGs, HRSG(s), STG(s), the cooling systems, control rooms, and auxiliary equipment; installation of the aboveground piping systems; installation of the generation unit electrical equipment; and testing and commissioning of the units. The expansion of the existing switchyard would also occur during Phase 2 of construction. While these major tasks would generally occur sequentially in that some must precede others at a given location, significant overlap between the tasks would occur as construction proceeds in different locations within the project sites. This overall phase would require approximately 30 months to complete. As discussed above, the initial three months of Phase 2 would occur concurrently with the final three months of Phase 1, and they are not, therefore, included in the determination of numbers of personnel, equipment, and truck trips for Phase 2 presented below. Based on Generation Scenario 2 (two CCGSs), which would require the greatest amount of construction activity, during Phase 2, the number of on-site workers per day based on a monthly average would range from a low of 49 to a peak of 524, when the maximum overlap between the various construction tasks would occur. The number of truck delivery or haul roundtrips per day based on a monthly average would range from a low of one to a peak of eight. This would include approximately 16 individual oversize loads during the entire phase. The number of full-time operating equipment per day based on a monthly average would range from a low of one to a peak of 101.

The foundation work would occur preceding the construction of each major component of the generation system. Foundations would generally be supported by continuous spread footings, but for heavier facilities, deeper foundations may be required, including grade beams supported by concrete caissons, which would be poured in place. Depending on which generation scenario was implemented, all the foundation work for the repowering project would continue for approximately 23 consecutive months, including the initial three months of overlap with Phase 1. As individual foundations are completed, the primary generation units and associated elements would be installed in a staged manner at each location. Overall, this work would lag behind the foundation construction by approximately three months, and continue for about three months after the final foundation construction was completed. The aboveground piping and electrical equipment installation would begin approximately one year after the first foundation work was initiated and would continue for about 18 months.

Since some generation units would be completed earlier than others, commissioning of the systems would also occur in a staged manner, beginning approximately 15 months after the beginning of Phase 2 and continuing until all units were commissioned at completion of Phase 2 at the end of 2015. The commissioning for the CCGS would include steam blows to thoroughly clean lines, synchronization of the CTGs and STGs, testing and adjusting the thermal and chemical characteristics of the HRSG, and comprehensive trial runs. The commissioning of the SCGS would include testing and synchronizing the CTG electrical and mechanical systems and completing trial runs.

Phase 3: Decommissioning and Demolition of Unit 3

Within six months of completion of the commissioning of the proposed project generators, LADWP would remove existing Unit 3 from service and surrender the operating permits pursuant to SCAQMD Rule 2012. This six-month period of continued availability for operation after project commissioning would allow for a verification of the reliability of, and any necessary adjustments to, the new generation units. Prior to initiating the actual demolition of Unit 3, several tasks would need to be completed. Existing Units 1, 2, and 3 share many common electrical, plumbing, and mechanical systems that must be appropriately identified, isolated, reconfigured as necessary, and severed so as to not compromise the continued safe and reliable operation of Units 1 and 2. Based on its age and its function, Unit 3 contains several types of hazardous materials, including asbestos, lead paint, petroleum products, and potentially toxic fluids. These materials must be thoroughly identified and removed prior to the demolition of the primary structure of Unit 3. In addition, some of the equipment in Unit 3 may have salvage or reutilization value, and this equipment would be identified and removed prior to demolition. These tasks generally could not begin prior to the decommissioning of Unit 3 (six months after final commissioning of the proposed project generation units), and they would take approximately 2 to 2.5 years to complete, including site investigations, engineering plans, awards of contracts, and execution. During this portion of Phase 3, the number of on-site personnel and equipment would remain less than five, and no more than one truck roundtrip for delivery or hauling per week would be anticipated.

After completion of the above pre-demolition tasks, the actual demolition of Unit 3 would commence. It would take approximately two years to complete this task, including the removal of the structure itself and backfilling the area in which Unit 3 is located, which is approximately 15 feet lower in elevation than the surrounding areas. During this task, the number of on-site workers per day based on a monthly average would range from a low of 16 to a peak of 47. The number of truck delivery or haul roundtrips would range from a low of about 1 per week to a peak of 15 per day. The number of full-time operating equipment per day based on a monthly average would range from a low of 1 to a peak of 21.

3.6.3 Project Operations

Power Generating Equipment

The proposed CCGS (whether the base-load or peak-load unit) would include one CTG paired with one STG. The excess heat from the CTG would be exhausted through the HRSG to produce steam, which would drive the STG. The SCGS would include two CTG units. The new generation units would be designed to provide a gross capacity between 525 and 590 MW, depending which Generation Scenario was implemented. The CTGs would be fired by natural gas to produce thermal energy, and the thermal energy would be converted into mechanical energy required to drive the turbines and generators, which would produce electricity. Air would be supplied to the CTGs through an inlet air filter and evaporative coolers via an air inlet duct. Natural gas would be obtained through the site's existing gas supply lines. This mixture of fuel and air would be ignited and burned, producing high-temperature pressurized gas to drive the turbines and electric generators.

Air Pollution Controls

The new CTGs would use a combination of processes to control air pollutant emissions. The combustor in the CCGS CTG would use dry low NO_X burners to reduce emissions of NO_X. The combustors in the SCGS CTGs would use water injection to reduce emissions of NO_X. The CTG exhaust would be routed to an oxidation catalyst to control carbon monoxide and then pass through an SCR catalyst to facilitate a reaction between NO_X and aqueous ammonia to reduce NO_X emissions and produce nitrogen and water. Aqueous ammonia would be atomized with air and vaporized with an electric heater. The ammonia/air mixture would be blended within a static mixer and injected into the flue gas ahead of the catalyst bed via an injection grid.

Power Transmission

Power generated by the proposed generation units would be stepped up in voltage from 13.8 kV to either 138 kV or 230 kV using generator step-up transformers. The transformers would be connected to a switch rack, and the power would be delivered to the switchyard and the Scattergood-Olympic or Airport transmission lines.

Blackstart Diesel Generator

If Generation Scenario 1 were implemented, a single 2,500 kilowatt diesel generator would be installed to provide power to the proposed SCGS for emergency starts. If Generation Scenario 2 were implemented four 2,500 kilowatt diesel generators would be installed to provide power to the proposed peak-load CCGS for emergency starts. Each diesel generator would be skid-mounted with a 2,800 gallon diesel fuel tank.

Auxiliary Steam Boiler

An independent source of steam would be provided for the base-load CCGS to help seal the STG in order to allow shorter startup times. The steam would be produced by an electrically heated boiler that can produce 20,000 pounds per hour of steam.

Ammonia Handling and Storage

As with current operations, aqueous ammonia would be used in the SCR air pollution control systems of the proposed CTGs. Ammonia for the new equipment would be obtained from the existing ammonia storage system at SGS. Ammonia would be routed from the storage tanks to CTGs via new piping. It is anticipated that no new ammonia storage facilities would be required and no increase in the number or rate of deliveries of ammonia would be required, since ammonia used for the new generators would be generally offset by the reduction in ammonia use associated with removal from service of existing Unit 3.

Wastewater Treatment and Disposal

Water that is used in the CCGS and SCGS must be treated to remove undesirable constituents that could foul the cooling or pollution control equipment. This water purification process generates wastewater that would be collected and treated in an upgraded SGS wastewater treatment system. The upgrade would include replacement of existing wastewater settling basins with aboveground settling tanks. Two 500-gallon per minute oil-water separators would collect potentially oily wastewater from equipment area washdowns. Oil would collect in the oil-water separators and would be removed by vacuum trucks prior to the oil collection section reaching capacity. Wastewater would be treated and discharged at a high rate of dilution in the SGS ocean water cooling outfall.

Cooling System Components

The proposed generation units would be cooled utilizing a closed-loop water circulation system to transfer heat from the STGs of the CCGS or the CTGs of the SCGS to the cooling system. For the CCGS, this system would condense steam exiting the STG using fans that would draw air over tubes containing the steam, and the condensate would be pumped back to the HRSG to be converted back into steam in a closed-loop cycle. For the SCGS, each CTG would have an inter-stage cooler in the compression section of the turbine. This inter-stage cooling provides cooler flow to the high-pressure compressor and increases overall efficiency and power output. The warm water in the closed-loop would be sent from the heat exchanger to the cooling system, where the water would be cooled by fans that would draw air over tubes containing the water, and the cooled water would then be pumped back to the heat exchangers. The excess heat from the closed-loop dry cooling systems would be managed by installing a wet surface air cooler (WSAC) to control lubricating oil temperature. The WSAC would consist of a three-cell unit with six fans.

By employing a closed-loop dry cooling system for the proposed generation units rather than ocean water cooling, the project would substantially reduce the amount of once-through cooling water utilized at SGS. The reduction in use of ocean waters for power plant cooling is consistent with the *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* adopted by the SWRCB. It is anticipated that replacement of Unit 3 with dry-cooled generation units would reduce the maximum once-through ocean water cooling flow by about 55 percent. The proposed repowering project would not require any modifications of the cooling water intake or outfall structures, and the plant’s existing once-through cooling water circulation system would continue to serve Units 1 and 2 at a substantially reduced flow.

Natural Gas System

Natural gas would be the primary fuel for the CTGs of the CCGS and SCGS. New natural gas lines would be teed-off of the existing Southern California Gas Company metering station located within the SGS property near the Grand Avenue entrance. Natural gas would be supplied from the Southern California Gas Company system and routed to an on-site compressor area, where it would be compressed for use in the generator systems. The compressor area would include a minimum of three screw-type compressors connected to a common header to supply each CTG.

Operating Personnel Requirements

Once constructed, the proposed project would not require additional personnel beyond the number currently employed at SGS to support site operations. Currently, the station employs about 120 personnel. After construction, the main gate for SGS personnel would remain along Grand Avenue. The new generation units could be operated 24 hours per day, 7 days per week.

Project Termination and Decommissioning

The estimated life of the new generation units is expected to be more than 25 years. Equipment that is no longer effective may then be shut down and/or decommissioned, replaced, or modified in accordance with applicable regulations, market conditions, and technology prevailing at the time of termination. Decommissioning of the new units in the future may involve a combination of salvage or disposal in accordance with applicable federal, State, and local regulations.

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CHAPTER 4: ENVIRONMENTAL IMPACT ANALYSIS

4.1 APPROACH TO THE ENVIRONMENTAL ANALYSIS

This section of the Environmental Impact Report (EIR) analyzes the potentially significant environmental impacts of the proposed project. Based on the Initial Study analysis (see Appendix A) and issues raised during the Notice of Preparation (NOP) review period, the following environmental issues were analyzed:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Wastes
- Noise
- Traffic and Transportation
- Water and Wastewater

4.1.1 Methods of Analysis

The impact analysis for each of the resource areas mentioned above is structured as follows:

Environmental Setting

The *Environmental Setting* section describes the existing environmental conditions or "baseline conditions" in the area affected by construction and operation of the proposed project. The baseline conditions reflect the conditions at the time of the issuance of the NOP (2011) and are used for comparison to establish the type and extent of the potential environmental impacts. The environmental setting is described within the defined project area and a regional vicinity context, with a focus on the particular environmental impacts being discussed.

Regulatory Framework

The *Regulatory Framework* section presents applicable regulations, plans, goals, policies, and standards associated with the proposed project.

Thresholds Used to Determine Significance of Impact

The *Thresholds Used to Determine Significance of Impact* section describes the criteria used to determine whether impacts should be considered significant. Significance thresholds are based on criteria identified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Other federal, State, or local standards that have been established relative to particular environmental resource areas are also taken into account when defining significance thresholds.

Environmental Impacts and Mitigation

The *Environmental Impacts* section evaluates how construction and operation of the proposed project would change existing conditions, potentially resulting in significant impacts on the environment, including direct or reasonably foreseeable indirect effects.

Cumulative Impacts

The *Cumulative Impacts* section describes effects that may be individually limited but cumulatively considerable when measured along with other approved, proposed, or reasonably foreseeable future projects.

Mitigation Measures

The *Mitigation Measures* section identifies actions to reduce or eliminate significant impacts of the proposed project. Existing regulations and other public agency requirements, best management practices, and procedures that apply to similar projects are considered in determining what additional project-specific mitigation may be required to reduce or eliminate impacts.

Significance of Impact After Mitigation

The *Significance of Impact After Mitigation* section indicates whether impacts would remain significant even after application of the proposed mitigation measures. Any impacts that cannot be eliminated or reduced to a level of less than significant are considered unavoidable significant impacts of the proposed project.

4.1.2 Effects Not Found to Be Significant

Based on the Initial Study analysis for the proposed project and comments received during the NOP review period, several environmental impacts were determined not to be significant. Environmental issues that were determined to have no impact or a less than significant impact during the project's scoping period do not require further analysis under CEQA (Section 15128 of the CEQA Guidelines). Reasoning for why these impacts were found not to be significant is provided below. More detailed discussions may be found in the Initial Study included in Appendix A of this document.

Aesthetics

The proposed project would be located entirely within an industrial area on the existing Scattergood Generating Station (SGS) site. There are no officially designated or eligible State scenic highways or local scenic routes (as designated by either the City of Los Angeles or the City of El Segundo) within the vicinity of SGS. Surrounding and nearby uses include the Hyperion Treatment Plant (HTP), the Chevron oil refinery and storage facility, and the NRG El Segundo Generating Station, all of which further reinforce the industrial character of the area. The proposed project facilities would be sited adjacent to existing SGS generation or generation support facilities, and they would generally be visually similar in character and scale to and be located largely within the visual profile of the existing facilities.

Given the nature and context of the proposed project facilities, they would not substantially degrade the existing visual character or quality of the site or its surroundings, other than the potential to affect scenic vistas, which is further addressed in Section 4.2.1 of this EIR. Based on the existing level of lighting at the station and the scale of the proposed project facilities compared with the existing facilities, new lighting associated with the project would not be expected to adversely affect nighttime views in the area. The materials used in the construction of the new generator units would not be expected to add a new source of glare at the facility.

Agricultural and Forestry Resources

The proposed project would be located entirely within an industrial area on the existing SGS site. The site does not contain Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation (DOC). The site is not subject to the provisions of a Williamson Act contract. Consequently, the proposed project would not require the conversion of DOC Farmland to non-agricultural use and would not conflict with a Williamson Act contract. The proposed project would also not require changes in the existing environment that would result in the direct or indirect conversion of off-site Farmland to non-agricultural use.

The project site does not support native tree cover or timber resources, and is not considered forest land, timberland, or a timberland production zone as defined in the California Public Resources Code or Government Code section 51104(g)). Therefore, the project would not convert forest land to non-forest use, nor would it conflict with existing zoning for, or cause rezoning of, forest land.

Air Quality

Effects to air quality are addressed in Section 4.2.2 of this EIR.

Biological Resources

The existing SGS site is fully developed for power generation and contains very little vegetation. The majority of the site is paved over with either concrete or asphalt or consists of dirt surfaces cleared of vegetation. There are no streams, watercourses, or other waters on the site that are subject to regulation by State or federal agencies with jurisdiction. SGS does not act as a wildlife corridor or wildlife nursery and does not connect to larger adjacent habitat areas. The proposed project site is not included in any established federal, State, or local Habitat Conservation Plan or Natural Community Conservation Plan, and it would not conflict with the City of Los Angeles Tree Protection Ordinance.

The decrease in once-through cooling water volume from the decommissioning of Unit 3 and the switch to air cooling for the new generation units would substantially decrease the amount of ocean water used for cooling existing Units 1 and 2. The substantial reduction in ocean water used for cooling at SGS is a positive aspect of the proposed project by virtue of the reduction in entrainment and impingement impacts to marine organisms and the reduced discharge into the ocean of water with an elevated temperature resulting from the cooling process. In addition, these effects are regulated by the facility’s waste discharge permit, which is being reviewed as a separate action. These effects are not addressed in this EIR.

There are two sensitive plant species of interest that have occurred in the project area in the past, but the California Natural Diversity Database (CNDDB) indicates that both species are believed extirpated in the project area.

A number of sensitive bird species have been observed and/or are known to exist adjacent to SGS, based on the facility’s near-shore location, but no construction activities related to the proposed project would occur at the intake penstocks, which are on the beach side of Vista Del Mar, or would otherwise affect the beach area where these species would occur.

Several sensitive insect and beetle species have been observed in the vicinity of SGS, but other than the El Segundo blue butterfly (ESB), none of these species is expected to occur on the SGS site because suitable habitats are not present. Potential impacts to the ESB are addressed in Section 4.2.3 of this EIR.

Cultural Resources

There are no recorded archaeological sites on the project site or within 0.5 mile of the proposed project site. Though there were a few sites within one mile of the project site, none of the recorded sites are currently listed in the National Register of Historic Places, the California Register of Historical Resources, or any local register of historical resources. Given the large amount of past site disturbance and the lack of resources found in areas adjacent to the site, there is very low probability that prehistoric archaeological resources would be encountered during construction of facilities for the proposed project.

During the history of construction and operations at SGS, including extensive grading during construction, no human remains have been discovered, and no human internment sites are expected to be discovered during the construction of the proposed project.

Potential impacts to historic and paleontological resources are discussed in Section 4.2.4 of this EIR.

Geology / Soils

While two major active earthquake fault zones and several smaller earthquake faults are located within the general vicinity of SGS, no fault is known to pass through the station property, and fault rupture at the station is not anticipated. SGS is located within the seismically active Southern California area, and, like all locations within the region, is potentially subject to strong seismic ground shaking. The design of the proposed project facilities would be based on a comprehensive pre-construction geotechnical analysis and would conform to the latest version of the California Building Code, the Uniform Building Code, and other applicable federal, State, and local codes relative to seismic design criteria. The SGS property is not located on mapped soils susceptible to liquefaction nor would it encounter expansive soils.

Portions of the SGS property possess the potential for seismically induced slope failure, but slope modifications would be engineered consistent with established practice and according to applicable codes, and the proposed project would not increase the exposure of people or structures to potential substantial adverse effects related to landslides.

Construction of the proposed project would result in ground surface disturbance during excavation and grading that could create the potential for erosion to occur. However, under the provisions of the California State Water Resources Control Board (SWRCB) Storm Water Program, Storm Water General Construction Permit Best Management Practices, including the preparation of erosion control plans and a Storm Water Pollution Prevention Plan (SWPPP), would be employed to control any potential erosion or sedimentation impacts related to the proposed project construction and operation. No septic tanks or alternative wastewater disposal system would be required.

Hazards and Hazardous Materials

During construction of the proposed project, activities involving some hazardous materials would occur, including on-site fueling and minor servicing of construction equipment. However, construction activities would be short-term in nature, and the types of materials that would be routinely involved are not considered acutely hazardous. Furthermore, the routine handling, transport, and storage of these materials are subject to federal, State, and local health and safety requirements. While the SGS facility is located within a City of Los Angeles methane zone, potential impacts of methane hazard would be avoided by the inclusion of appropriate design criteria in the project plan of development. Project construction would not create a significant hazard from the routine transport, use, or disposal of hazardous materials, such as vehicle fluids, or due to reasonably foreseeable upset or accident. However, demolition wastes that could require special handling and disposal include materials coated with lead-based paint and asbestos-containing materials. Section 4.2.6 of this EIR evaluates the potential for impacts due to hazardous materials removal and disposal related to demolition of Unit 3.

The operation of the proposed project would involve the use of potentially hazardous materials, including natural gas and aqueous ammonia and catalysts. They would be handled and contained in accordance with government regulations and industry standards, which would be similar to existing operations at SGS, and no significant impacts would occur.

The proposed project would be located in the interior of the existing SGS site. It would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan for any area outside the station. The proposed project site is located in an urbanized area, surrounded primarily by existing industrial and residential development, and is not subject to risk from wildland fires.

The proposed project is not located within the vicinity of a private use airport, general aviation airport, or airstrip. The SGS is located within about one mile of Los Angeles International Airport's (LAX) southwestern-most boundary. The City of Los Angeles zoning code established land use restrictions within specified distances from the airport runways. Section 4.2.6 of this EIR evaluates the potential for impacts due to the exhaust stacks of the proposed units potentially exceeding the LAX height restriction and requiring a Federal Aviation Administration hazard evaluation.

Hydrology and Water Quality

Construction activities would comply with applicable requirements of the SWRCB and Los Angeles Regional Water Quality Control Board (RWQCB). The proposed project would not use local groundwater supplies or substantially interfere with local groundwater recharge operations. There are no drainage courses, streams, or rivers that cross the project site or are adjacent to the project site. The storm water drainage and control system for the site would be redesigned to accommodate the additional facilities to be constructed; however, no significant change in runoff or drainage patterns would occur, as the site is presently in a developed condition. The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, and the proposed project would not otherwise substantially degrade water quality. SGS is not located within a 100-year flood hazard area, and it would not provide any new housing, nor would it increase the risk related to flood hazard for existing housing in the vicinity currently located outside the 100-year flood hazard area. The proposed project would not increase the risk associated with seiche, tsunami, or mudflow at the site. Section 4.2.9 of this EIR evaluates impacts of the project associated with water use and wastewater generation.

Land Use / Planning

The proposed project is located entirely within the industrial setting of the 55-acre SGS property and would not physically divide an established community.

The site is within the City of Los Angeles and is zoned PF (Public Facilities) and designated as a Public Facilities land use in the City's general plan. The proposed project is consistent with the zoning and general plan designations at the SGS site, and no conflicts with general plan policies or zoning regulations would occur.

SGS's existing ocean cooling water intake and discharge structures are in the coastal zone boundary as defined by the California Coastal Act (CCA); however, the remainder of the SGS facility is not in the coastal zone boundary. Further, since the proposed repowered units would utilize a new dry cooling system in lieu of the facility's existing cooling system, no physical modifications to the existing once-through ocean water cooling structures would occur under the proposed project. Therefore, the policies of the CCA and Local Coastal Plan do not apply to the proposed project.

The project property is not located within an area covered by a habitat conservation plan or a natural community conservation plan; thus, the project would not conflict with any such plans.

Mineral Resources

The proposed project is not located on a regionally significant mineral resource or aggregate production area as mapped by the California Geological Survey through the Mineral Resources Project. Further, the site is not identified as a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Project implementation would not include the extraction of minerals, and would not result in the loss of mineral resources of local, regional, or statewide importance.

Population and Housing

The proposed project would require up to approximately 500 workers during a temporary brief period during construction; however, this number of construction personnel would not constitute substantial population growth in the urban environment of the greater Los Angeles metropolitan area.

The proposed project would not involve the construction of new homes or businesses in the area. The project would result in no net increase in power generating capacity at SGS, and, therefore, would not indirectly induce population growth in the area in the context of total power generation and electrical demand by customers in the Los Angeles Department of Water and Power's (LADWP's) service area.

The proposed project is located entirely within the industrial setting of the existing SGS site and would not permanently displace any existing residences or people, thereby necessitating the construction of replacement housing.

Public Services

The proposed project involves the removal from service of one existing electrical generator unit and the construction of new generator units within the current SGS site.

Permanent increases in the demand for public services are typically associated with a substantial increase in the size of the local population. The proposed project would not induce substantial population growth in the area, either directly or indirectly. The City of Los Angeles Fire and Police Departments would continue to serve the fire and police protection needs of SGS. The construction of new or physical alteration of other existing governmental facilities (i.e., schools, parks, libraries) would not be required to serve the project; therefore, impacts associated with the construction of such facilities would not occur.

Recreation

The proposed project does not include the construction of new or the expansion of existing recreational facilities. It would not increase the use of local or regional recreational facilities (i.e., parks, trails) such that substantial physical deterioration of these facilities would occur.

Traffic and Transportation

The proposed project would not result in inadequate emergency access. Construction activities would take place within the existing SGS property boundaries, and would not impact existing emergency access to the station or to locations outside the station. During project operation, no changes would occur at SGS that would significantly affect emergency access to the site. The proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation. Construction activities would take place entirely within the boundaries of the SGS property and would not require the removal or relocation of public transportation stops or facilities.

The proposed project would not contribute to an increase in air traffic levels. Due to the proximity of SGS to LAX, height restrictions are in effect to avoid potential obstructions to aircraft operations; this issue is discussed further in EIR Section 4.2.6, Hazards and Hazardous Wastes.

Other potential impacts regarding traffic and transportation are discussed in detail in Section 4.2.8 of this EIR.

Utilities / Service Systems

SGS is currently connected to the City of Los Angeles sewer system for sanitary wastewater disposal. The proposed project would not require an alteration of the existing wastewater disposal system for sanitary waste purposes. Sanitary waste related to the increased on-site workforce during project construction would be handled through the use of portable chemical toilets.

The handling of all other wastewater generated during operations at SGS is governed by the facility's existing National Pollutant Discharge Elimination System (NPDES) permit issued by the RWQCB. The renewal of the SGS facility NPDES permit is an action that is a separate regulatory process and has a timeline that is different from the proposed repowering project. The SGS discharges governed by the permit include treated industrial process wastewater, treated storm water, and once-through ocean cooling water. The proposed project would result in a substantial reduction in the use of once-through ocean water for generator cooling. The substantial reduction in ocean water used for cooling at SGS is a positive aspect of the proposed project by virtue of the reduction in entrainment and impingement impacts to marine organisms and the reduced discharge into the ocean of water with an elevated temperature resulting from the cooling process.

The decommissioning of existing generation Unit 3 under the proposed project would eliminate the wastewater production associated with its operation; however, the proposed new generator units and associated cooling systems would also generate wastewater from similar industrial processes. This issue is addressed in Section 4.2.9 of this EIR.

In order to accommodate the industrial wastewater related to proposed project operations, the existing wastewater settling basins at SGS (which must be removed to accommodate proposed project facilities) would be replaced with new aboveground holding tanks. No new or expanded off-site wastewater treatment facilities would be required to accommodate project operations.

The construction phase of the project would require the use of water for various purposes, such as a dust suppressant or a constituent of concrete. However, the quantity of water associated with project construction would be minimal in the context of the capacity of existing water treatment and distribution system.

Under current operations at SGS, water is utilized for several functions in the power generation process. The decommissioning of existing generation Unit 3 under the proposed project would eliminate water consumption associated with its operation. However, the proposed new generation units and associated cooling systems would also require water for their operation. The net consumption of water after project implementation is analyzed in Section 4.2.9 of this EIR to determine if sufficient water supplies are available to serve the project from existing entitlements and resources or if new or expanded entitlements are needed.

The proposed project would modify surface drainage at SGS including through the alteration of site topography necessary to accommodate the new generator facilities and through an increase in impermeable pavement and other structures. Based on the surface area that would be affected by the proposed project in the context of the existing generating station, the additional contribution of storm water runoff associated with the project would be negligible relative to the existing local and regional storm water collection system and would not result in the construction of new storm water drainage facilities or expansion of existing facilities.

The proposed project would be located within the existing SGS property boundaries. Solid wastes at the station are currently accumulated, handled, and disposed in accordance with federal, State, and local regulations. Operations of the proposed project would not significantly change the solid waste disposal requirements for SGS such that the landfill that serves the site would exceed its permitted capacity. The construction of the proposed project would temporarily generate increased solid waste at the site. Construction debris would be recycled or transported to a landfill site and disposed of appropriately. The amount of debris generated during project construction is not expected to significantly impact landfill capacities.

4.1.3 CEQA Requirements for Analysis of Cumulative Impacts

According to Section 15355 of the CEQA Guidelines, cumulative impacts refer to:

> "two or more individual effects which, when considered together are considerable or which compound or increase other environmental effects. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

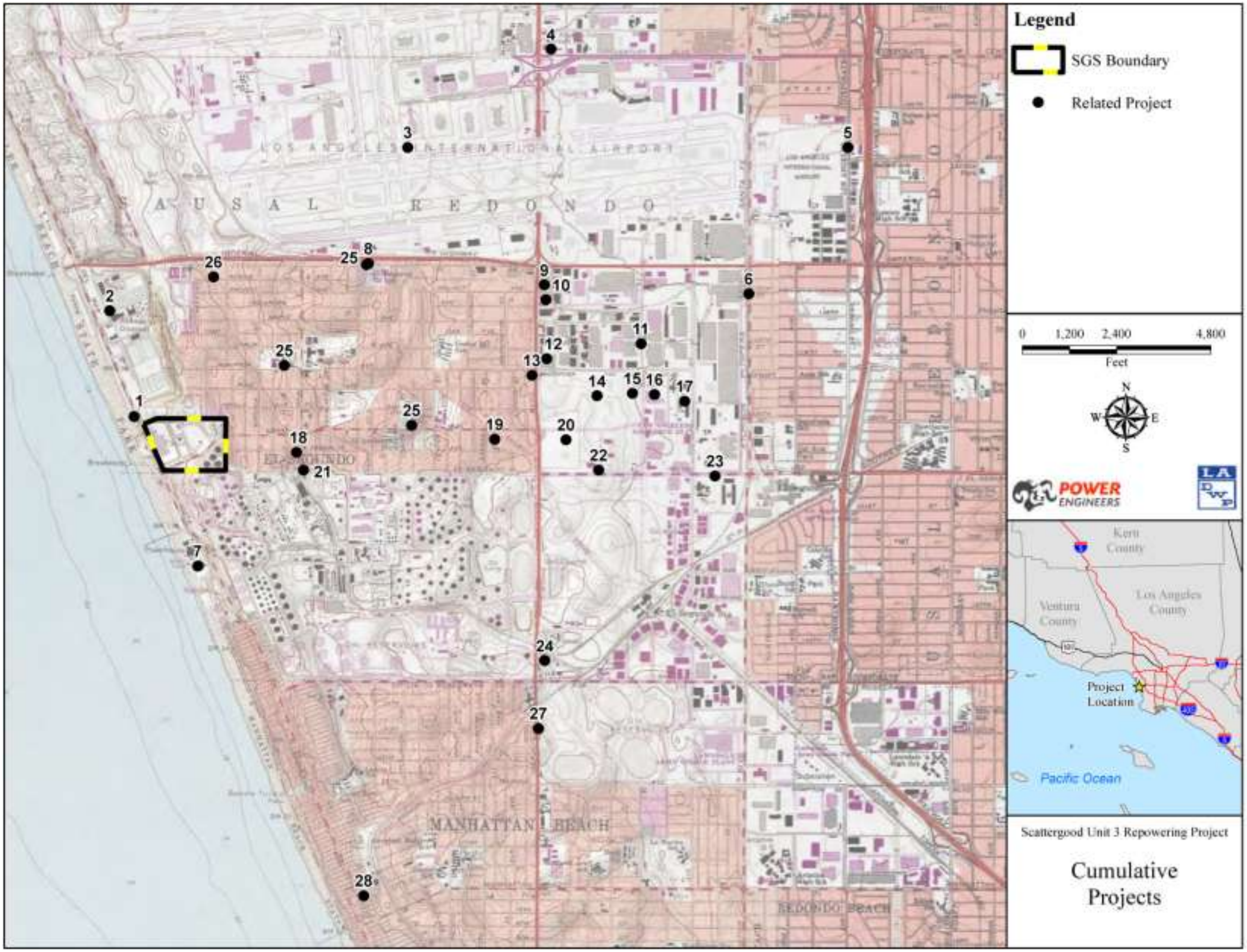
Cumulative Projects

Table 4.1-1 provides a list of potential future projects that would produce related impacts by creating construction and/or operational impacts and by being located in the same geographic area as SGS. Figure 4.1-1 illustrates the project locations. Past projects are considered in the cumulative analysis as part of the existing environmental setting. Present and reasonably foreseeable future projects considered for this analysis are those projects that are not yet fully implemented but are currently under construction or whose future implementation can be realistically predicted. It should be noted that not all the projects listed may be constructed for various reasons, such as permitting issues or lack of funding. Also, not all projects would result in cumulatively considerable impacts for all technical issues addressed in detail.

Table 4.1-1. Cumulative Projects List

PROJECT DESCRIPTION	LOCATION	Map ID #
City of Los Angeles		
Scattergood-Olympic Transmission Line Project	From the Scattergood Generating Station to the Olympic Receiving Station in Culver City	1
Hyperion Co-Generation Project	Hyperion Wastewater Treatment Plant	2
LAX Master Plan Projects	Los Angeles International Airport	3
Hotel, Airport Parking	6225 W Century Bl.	4
Bus Facility (Metro)	10701 S La Cienega Bl.	5
Shopping Center and Residential	11604 Aviation Bl.	6
City of El Segundo		
El Segundo Power Redevelopment Project	301 Vista Del Mar	7
Senior Assisted Living	540 E Imperial Ave.	8
Warehouse, Office and Manufacturing	900 N Sepulveda Bl.	9
Hotel	888 N Sepulveda Bl.	10
Office, Hotel, R&D, Retail, Park	700 N Nash St.	11
Fast Food with Drive Through	600 N Sepulveda Bl.	12
Parking Structure	525 N Sepulveda Bl.	13
Office, R&D	445 Continental Bl.	14
Indoor Ice Rink	555 N Nash St.	15
Office	444 N Nash St.	16
Office	445 N Douglas St.	17
Office, Retail	141 Main St.	18
Residential	222 Kansas St.	19
Hotel	1960 E Grand Ave.	20
Office	116 W El Segundo Ave.	21
Hotel	101 Continental Bl.	22
Office	2350 E El Segundo Bl.	23
Shopping Center	850 S Sepulveda Bl.	24
Aquatics Facility	301 Maryland St. or 530 E Imperial Ave. or 219 W Mariposa Ave.	25
Acacia Park Improvements and Expansion	629 W Acacia Ave.	26
City of Manhattan Beach		
Shopping Center	3200 N Sepulveda Blvd.	27
Library	1320 Highland Ave	28

FIGURE 4.1-1 CUMULATIVE PROJECTS MAP



4.2 IMPACT ANALYSIS

4.2.1 Aesthetics/Visual Resources

Environmental Setting

The proposed project facilities would be located entirely within the existing SGS, which was first put into operation in 1958 and consists of approximately 55 acres that are divided into two separate parcels by Grand Avenue. The northern parcel is approximately 40 acres in size, and the southern parcel is approximately 15 acres. The property rises in elevation from a low of approximately 34 feet above mean sea level (AMSL) along the western boundary to approximately 160 feet AMSL in the northeastern part of the station. Both the northern and southern parcels are almost entirely devoted to facilities related to the generation and transmission of electrical energy to support the City of Los Angeles demand for electricity. The northern parcel contains three essentially level terraces separated by embankments. Other than landscaping on these embankments and other sloped areas in SGS, established for the purposes of erosion control, the ground surface of the station consists of either paved, graveled, or dirt surfaces that are kept clear of vegetation (see Figure 4.2.1-1).

The primary existing facilities related to the energy generation function at SGS are three large steam-boiler electrical generation units located on the lowest (westernmost) terrace of the northern parcel. Combined, these units are housed in buildings that are approximately 600 feet in length, 250 feet in width, and, at their highest point, 125 feet tall. Generation Units 1 and 2 utilize a common exhaust stack, whereas Unit 3 has its own stack. Each stack is approximately 300 feet in height. The areas on the lower terrace surrounding the generation units contain support functions, including storage and maintenance buildings and yards, wastewater settlement basins and tanks, vehicle parking areas, and administrative buildings (see Figure 4.2.1-2). The middle terrace contains an approximately 3.5-acre switchyard containing large latticework towers, transformers, and switching gear. The middle terrace also includes high-voltage transmission towers, a fuel-oil storage tank (no longer used in station operations), natural gas pressure reducing equipment, aqueous ammonia storage tanks, generator cooling units, and various storage and maintenance buildings and yards. The upper (easternmost) terrace at SGS contains three large aboveground water storage tanks, fuel unloading facilities, and a vehicle repair shop. Most of the upper terrace is paved with asphalt (see Figure 4.2.1-3).

The southern parcel of SGS (south of Grand Avenue) contains four large fuel oil storage tanks that are no longer used in station operations. The tanks are approximately 175 feet in diameter and 55 feet in height. An oil well operation, including an aboveground pumpjack, storage tanks, and other equipment, is also located in an easement in the southern parcel (see Figure 4.2.1-3). These various facilities located in both the northern and southern parcels of SGS impart an entirely industrial character to the property. Surrounding and nearby uses include the approximately 130-acre HTP, which is located immediately north of SGS. The HTP is an entirely developed industrial site devoted to the treatment of sanitary waste for the City of Los Angeles. An approximately 1,000-acre Chevron Corporation facility is located immediately south of SGS. This facility is an entirely developed industrial site devoted to oil refining and storage. The NRG El Segundo Generating Station is located about 0.5 mile south of SGS along Vista Del Mar (see Figure 4.2.1-4). These uses further reinforce the industrial character of the SGS site and its surroundings.

However, SGS is also bounded by non-industrial uses, including residential neighborhoods along its eastern and northeastern edge and Dockweiler State Beach along its western edge (across Vista Del Mar from the station). Depending on the observation point, SGS is visible from these areas (see Figure 4.2.1-5). In addition, once again depending on the observation point, the beach is visible in the foreground, middleground, and/or background. From some observation points, vistas of Santa Monica Bay, including the encompassing coastline, are also available.

Key Observation Points

Key observation points that possess a view that includes both the proposed project site and a vista of the beach, Santa Monica Bay, and/or the coastline are located in several places surrounding SGS (see Figure 4.2-6). The proposed project site is not visible from most residential properties located to the east of SGS because it is obscured by terrain or existing facilities. However, some residential properties located south of Grand Avenue, along the eastern perimeter of SGS, have partial views of the project site and of the ocean beyond, but they possess no view of the beach itself. From these properties, the ocean view is largely obscured or interrupted by terrain, power distribution poles, and various facilities within SGS, including the fuel storage tanks and surrounding dike located in the southern parcel and the generation units, switchyard, and transmissions lines located in the northern parcel (see Figure 4.2.1-7). Given the location of the proposed project facilities and the general visual character of the view, these properties do not represent a key observation point relative to potential aesthetic impacts from the proposed project.

Residential properties located northeast of SGS, on the bluff above HTP, possess a view that includes SGS in the foreground to the southwest and HTP in the foreground to the west. These properties also have partial views of Dockweiler Beach in the middleground to the west and vistas of Santa Monica Bay and the surrounding coastline in the background to the west and northwest. The existing SGS facilities tend to obscure the scenic vista from this observation point to the southwest. Nonetheless, because of the nature of the existing views, these residential properties represent a key observation point relative to potential aesthetic impacts from the proposed project (see Figure 4.2.1-8).

From Dockweiler Beach, there are open vistas that include the beach itself in the foreground, Santa Monica Bay in the middleground and background, and the coastline in the background, from Palos Verdes on the south to Point Dume on the north. If the direction of view is southward from an observation point on the beach located north of SGS or northward from an observation point on the beach located south of SGS, the generating station is also seen in the middleground or background, depending on the distance of the observation point from the station (see Figures 4.2.1-9 and 4.2.1-10). Although the station does not obstruct the vista up or down the coastline from such observation points, because of the nature of the existing views, Dockweiler Beach would also represent a key observation point relative to potential aesthetic impacts from the proposed project.

FIGURE 4.2.1-1. SGS OVERVIEW

FIGURE 4.2.1-2. SGS LOWER TERRACE

FIGURE 4.2.1-3. SGS MIDDLE AND UPPER TERRACES

FIGURE 4.2.1-4. SURROUNDING USES

FIGURE 4.2.1-5. RESIDENTIAL NEIGHBORHOODS TO EAST AND NORTHEAST

FIGURE 4.2.1-6. KEY OBSERVATION POINT LOCATIONS

FIGURE 4.2.1-7. VIEW FROM EASTERN PERIMETER OF SGS SOUTH OF GRAND AVENUE

FIGURE 4.2.1-8. VIEW FROM BLUFF NORTHEAST OF SGS (KEY OBSERVATION POINT 1)

FIGURE 4.2.1-9. VIEW SOUTHWARD FROM DOCKWEILER BEACH (KEY OBSERVATION POINT 2)

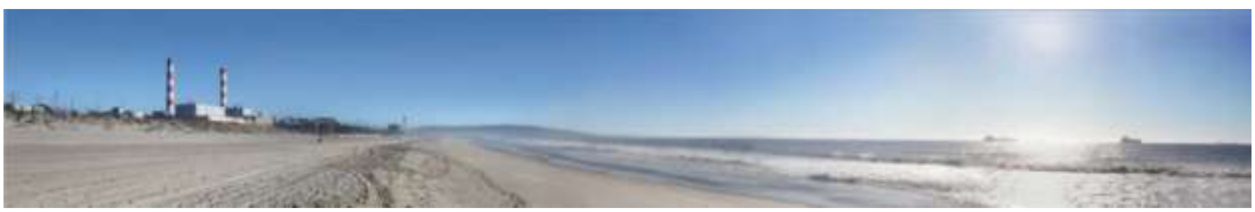


FIGURE 4.2.1-10. VIEW NORTHWARD FROM DOCKWEILER BEACH (KEY OBSERVATION POINT 3)

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not substantially damage scenic resources within a State scenic highway; substantially degrade the existing visual character or quality of the site and its surroundings; or create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Accordingly, these issues are not further analyzed in the EIR. However, pursuant to the CEQA Guidelines, the proposed project would have a significant impact on aesthetic resources if it would have a substantial adverse effect on a scenic vista.

Environmental Impacts

Methodology for Assessing Visual Impact

A sequence of steps was followed to assess the proposed project's potential to create significant adverse aesthetic impacts. First, key observation points were established based on the availability of views of the project site and the availability and quality of the scenic vista from the observation point. Second, computer generated photo-simulations of the proposed project development were prepared to depict the appearance of the proposed project from the selected observation points. Third, based on the simulations, the level of impact to existing scenic vistas was determined.

Impact Assessment

VIS-1 ***The proposed project would not have a substantial adverse effect on a scenic vista.***

Scenic vistas generally refer to views of expansive open space areas or other natural features, such as mountains, undeveloped hillsides, large natural water bodies, or coastlines. Less commonly, certain urban settings or features, such as a striking or renowned skyline, may also represent a scenic vista. Under CEQA, scenic vistas also generally, although not exclusively, refer to views that are accessible to broader segments of the public, rather than those available to a limited number of private entities.

The proposed project facilities would be located entirely within the boundaries of the existing SGS and sited adjacent to existing generation and generation support facilities. They would generally be visually similar in character and scale to and be located essentially within the visual profile of the existing facilities. In addition, some existing facilities, such as the existing generation Unit 3, including its exhaust stack, and the large fuel storage tanks located in the southern parcel of SGS, would be demolished as a component of the proposed project.

The view from the bluffs northeast of SGS was simulated to represent the scenic vista from the rear of residences in this area after the implementation of the proposed project, including the demolition of existing generation Unit 3 (see Figure 4.2.1-11). While the proposed project (including the removal of existing Unit 3) would change the appearance of SGS from this observation point, it would not significantly alter the overall mass, character, or visual profile of SGS. In addition, as discussed above, the existing SGS facilities tend to obscure the vista to the southwest. Instead, the vista from this observation point is directed generally to the west and northwest, and it would remain substantially unaffected by the implementation of the proposed project. As such, there would be a less than significant adverse effect to a scenic vista from this key observation point northeast of SGS.

The views from Dockweiler State Beach looking toward the south and north were simulated to represent a scenic vista from the beach after implementation of the proposed project, including the demolition of existing Unit 3 (see Figures 4.2.1-12 and 4.2.1-13). While the proposed project (including the removal of existing Unit 3) would change the appearance of SGS from these observation points, it would not significantly alter the overall mass, character, or visual profile of SGS. In addition, as discussed above, because it is located east of the beach, SGS does not currently obstruct the vista up or down the coastline from observation points on the beach. This would be unchanged by the implementation of the proposed project. As such, there would be less than significant adverse effect to a scenic vista from these key observation points on Dockweiler Beach.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts and Mitigation Measures

Cumulative impacts to aesthetic resources would occur if the proposed project, in combination with other known future projects, created a significant impact that might otherwise be considered individually less than significant. However, because the proposed project would not alter the basic visual character of SGS or significantly affect existing scenic vistas, it would not contribute to a cumulative impact to aesthetic resources in the vicinity.

Level of Significance After Mitigation

Not applicable. The proposed project would result in a less than significant impact to scenic vistas without the application of mitigation measures.

FIGURE 4.2.1-11. SIMULATED VIEW WEST FROM THE BLUFF NORTHEAST OF SGS (KEY OBSERVATION POINT 1)

Photo simulations are for demonstration purposes only. Final designs may change pending review.

DATE: 03/02/2012
TIME: 10:22 AM
DIRECTION: West

Scattergood Unit 3 Repowering Project

Key Observation Point 1

POWER ENGINEERS

FIGURE 4.2.1-12. SIMULATED VIEW SOUTH FROM DOCKWEILER STATE BEACH (KEY OBSERVATION POINT 2)

Photo simulations are for demonstration purposes only. Final designs may change pending review.

DATE: 01/26/2012
TIME: 6:21 PM
DIRECTION: South

Scattergood Unit 3 Repowering Project

Key Observation Point 2

POWER ENGINEERS

L.A. D.W.P.

FIGURE 4.2.1-13. SIMULATED VIEW NORTH FROM DOCKWEILER STATE BEACH (KEY OBSERVATION POINT 3)

Photo simulations are for demonstration purposes only. Final designs may change pending review.

DATE: 01/26/2012
TIME: 6:01 PM
DIRECTION: North

Scattergood Unit 3 Repowering Project

Key Observation Point 3

POWER ENGINEERS

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4.2.2 Air Quality

This section focuses on the potential air quality impacts from the construction and operation of the proposed project. Emissions of criteria pollutants and air toxics would occur during both construction and operation of the proposed project. Potential air quality impacts associated with the short-term construction and long-term operation are described, and, as applicable, potential mitigation measures designed to lessen and/or avoid significant adverse project-related air quality impacts are recommended.

Environmental Setting

Regional Climate

Air quality in a region is primarily affected by the type and amount of contaminants emitted into the atmosphere. However, topographical and meteorological conditions such as temperature, wind, humidity, precipitation, cloud cover, and influx of solar radiation significantly impact the dispersion or trapping of the emitted pollutants. Within the South Coast Air Basin (SCAB) where the proposed project is located, frequent formation of inversion layers traps air pollutants in the basin, leading to increased pollution episodes.

Temperature has a significant impact on wind flow, pollutant dispersion, vertical mixing, and photochemistry within the region. The nearest meteorological station to the proposed project site is at LAX, which recorded annual average high and low temperatures of 69.9°F and 56.2°F, respectively, from 1996 to 2008. The average annual rainfall measured during the same period was 13 inches (WRCC 2008).

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of air pollutants. During the late autumn to early spring rainy season, the SCAB is subject to wind flows associated with traveling storms moving through the region from the northwest. This period also brings five to ten days each year of strong, dry offshore winds, locally termed "Santa Anas." During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind.

The vertical dispersion of air pollutants in the SCAB is frequently restricted by the presence of a persistent temperature inversion in the atmospheric layers near the earth's surface. Normally, the temperature of the atmosphere decreases with altitude; however, when the temperature of the atmosphere increases with altitude, the phenomenon is termed an "inversion". An inversion condition can exist at the surface or at any height above the ground. The mixing height is the height of the base of the inversion. The SCAB generally has low mixing heights and light winds, which are conducive to the accumulation of air pollutants.

In general, inversions in the SCAB are lower before sunrise than during the daylight hours. As the day progresses, the mixing height normally increases as the warming of the ground heats the surface air layer. As this heating continues, the temperature of the surface layer approaches the temperature of the base of the inversion layer. When these temperatures become equal, the inversion layer's lower edge begins to erode, and, if enough warming occurs, the layer breaks up. The surface layers are gradually mixed upward, diluting the previously trapped pollutants. The breakup of inversion layers frequently occurs during mid- to late-afternoon on hot summer days. Winter inversions usually break up by mid-morning.

Existing Conditions - Background

Attainment of Criteria Pollutant Standards

The South Coast Air Quality Management District (SCAQMD) monitors levels of various pollutants at a network of monitoring stations throughout the SCAB. The closest ambient air monitoring station to the proposed project is the Southwest Coastal Los Angeles County monitoring station located at 7201 West Westchester Parkway, in Los Angeles, approximately 2.5 miles to the northeast of SGS. This station monitors ambient concentrations of carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), particles smaller than 10 microns in diameter (PM_{10}), lead, and sulfates. Ambient concentrations of particles smaller than 2.5 microns in diameter ($PM_{2.5}$) were not monitored at this location; therefore, $PM_{2.5}$ concentrations were obtained from the next-closest monitoring station, located at 3648 North Long Beach Boulevard, in Long Beach, approximately 14.5 miles southeast of the SGS.

All air basins within the state have been formally designated as attainment or non-attainment for each standard based on monitoring data for the most recent three years of data, as presented in Table 4.2.2-1.

The following are descriptions of the California attainment classifications:

Unclassified: A pollutant is designated as unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the California Ambient Air Quality Standards (CAAQS) for that pollutant was not violated at any site in the area.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a CAAQS for that pollutant in the area.

Non-attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the CAAQS for that pollutant.

Table 4.2.2-1. SCAB Pollutant Attainment Status

Pollutant	State Designation	Federal Designation
CO	Attainment	Maintenance
O_3[1]	Non-attainment (1-hour), Non-attainment (8-hour)	Extreme Non-attainment (1-hour) Severe Non-attainment (8-hour)
PM_{10}	Non-attainment	Serious Non-attainment
$PM_{2.5}$	Non-attainment	Non-attainment
NO_2	Non-attainment	Maintenance
SO_2	Attainment	Attainment
Lead	Non-attainment (Los Angeles County)	Non-attainment (Los Angeles County)

SO_2 = sulfur dioxide
Notes:
1) Federal non-attainment designations for O_3 are categorized into four levels of severity: moderate, serious, severe or extreme.

Toxic Air Pollutants

On a regional level, the SCAQMD has conducted urban air toxics studies within the SCAB, the most comprehensive of which is the Multiple Air Toxics Exposure Study (MATES). The MATES III (2004-2006) is a monitoring and evaluation study conducted in the SCAB as a follow-up to previous air toxics studies (MATES II [1998-1999] and MATES I [1987]) and is part of the SCAQMD Governing Board Environmental Justice Initiative. Monitoring data collected during the MATES III program was used to update a basin-wide emissions inventory of toxic air contaminants (TACs), and subsequently a modeling effort to characterize carcinogenic risk from exposure to air toxics across the SCAB.

According to the SCAQMD, using the MATES III methodology, about 94 percent of cancer risk from TACs in the SCAB is attributed to emissions associated with mobile sources, and about six percent of the risk is attributed to toxics emitted from stationary sources, which include industries and businesses such as dry cleaners and chrome plating operations. The MATES III study found that carcinogenic risk from exposure to air toxics across the SCAB is about 1,200 excess cancer cases per million, with diesel particulate matter emissions contributing more than 70 percent of the risk. For comparison purposes, the SCAQMD considers the risk of a project to be significant if the incremental carcinogenic risk exceeds 10 excess cancer cases per million.

The MATES III study estimated the "background" carcinogenic risk in the vicinity of the proposed project is approximately 841 cases per million (as shown on the MATES III Model Estimated Carcinogenic Risk Interactive Map). The risk unit of "per million" refers to the expected number of additional cancer cases in a population of one million individuals that are exposed to pollutants over a 70-year period, representative of a lifetime exposure.

Odors

The ability to detect odors varies considerably among the population and is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person may be perfectly acceptable to another. Unfamiliar odors are more easily detected than familiar odors and are more likely to cause complaints.

Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the intensity of the odor weakens and eventually becomes so low that detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of an odorant reaches a detection threshold; an odorant concentration below the detection threshold indicates the concentration in the air is not detectable by the average human.

Existing Conditions - Units 1 and 3

Criteria Pollutant Emissions

Existing conditions have been evaluated based on Units 1 and 3 historical actual emissions to analyze project-related incremental impacts. Historical peak daily criteria pollutant emissions from existing Units 1 and 3 were quantified using historical continuous emissions monitoring system (CEMS) data for nitrogen oxides (NOx) and emission factors and historical fuel use data for the other criteria pollutants. Unit 1 is capable of burning a mixture of natural gas and digester gas, which is generated as a byproduct of the waste treatment process at the adjacent HTP and supplied to SGS via pipelines.

Baseline emissions for Units 1 and 3 were based on daily CEMS data (peak NOx) from the last three years of operation for each unit. Fuel use for each unit for that same peak day of NOx emissions registered by the CEMS data was used to estimate emissions for the other criteria pollutants. Baseline emissions from Units 1 and 3 are presented in Table 4.2.2-2.

Table4.2.2-2. Existing (Baseline) Conditions, Peak Daily Emissions[1]

Source	Criteria Pollutant, lb/day					
	VOC	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Unit 1	1,337.3	184.6	508.1	154.9	247.5	247.5
Unit 3	93.7	8,587.6	896.6	23.8	565.0	565.0
Total Daily Emissions	1,431.0	8,772.2	1,404.6	178.7	812.5	812.5

Notes:
1) Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report for the Scattergood Generating Station Unit 3 Repowering Project*, Appendix B, Tables B-1a, B-1b, and B-2.
VOC = volatile organic compound; SOx = sulfur oxides

Air Toxics

Existing operational emissions of air toxic pollutants from SGS are evaluated on a facility-wide basis pursuant to California's Assembly Bill (AB) 2588 Air Toxics "Hotspots" Program. The last approved Human Health Risk Assessment (HRA) for SGS was in the year 2000. It showed reported cancer risk of 0.03 in one million (non-cancer impacts were negligible). The SCAQMD evaluates facilities annually for air toxic emissions for fee assessment, and every four years for detailed toxics reporting, to monitoring compliance with AB 2588. Any significant change in air toxics emissions since the last approved HRA would have resulted in a requirement for SGS to update its HRA. Therefore, existing baseline health risks for SGS may be considered similar to what they were reported in the last approved HRA.

Odors

The proposed project site is not odor-producing and to date has not resulted in any odor complaints or public nuisance issues.

Regulatory Setting

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) has identified and established National Ambient Air Quality Standards (NAAQS) for ground-level concentrations for seven common air pollutants known to have deleterious human health impacts. These "criteria pollutants" include CO, O_3, NO_2, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). The NAAQS are intended to be concentrations required to protect public health and welfare. In addition, the California Air Resources Board (CARB) has implemented generally more stringent air quality standards, known as CAAQS, that aid in effectively reducing harmful emissions in areas with poor air quality or non-attainment designations. Current standards set for the seven criteria pollutants are presented in Table 4.2.2-3, along with relevant health effects.

Table 4.2.2-3. Pollutant Ambient Air Quality Standards and Health Effects

Air Pollutant	Concentration/Averaging Time (parts per million [ppm])		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Ozone	0.09 ppm, 1-hour average, 0.070 ppm, 8-hour average	-- 0.075 ppm, 8-hour average.	(a) Short-term exposures includes decreased pulmonary function and localized lung edema (abnormal build up of fluid in the lungs) in humans and animals, and risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures includes risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans
Carbon Monoxide	9 ppm, 8-hour average 20 ppm, 1-hour average	9 ppm, 8-hour average 35 ppm, 1-hour average	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in

Air Pollutant	Concentration/Averaging Time (parts per million [ppm])		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
			persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.030 ppm, annual arithmetic mean 0.18 ppm 1-hour average	0.053 ppm, annual arithmetic mean; 0.100 ppm 1-hour average	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes
Sulfur Dioxide	0.04 ppm, 24-hour average 0.25 ppm, 1-hour average	-- 0.075 ppm, 1-hour average	Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM_{10})	50 μg/m^3, 24-hour average 20 μg/m^3, annual arithmetic mean	150 μg/m^3, 24-hour average	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Fine Particulate Matter ($PM_{2.5}$)	12 μg/m^3, annual arithmetic mean	35 μg/m^3, 24-hour average 15 μg/ m^3, annual arithmetic mean	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Lead	1.5 μg/ m^3, 30-day average	1.5 μg/ m^3, calendar quarter 0.15 μg/m^3, rolling 3-month average	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction

ppm = parts per million; μg/m^3 = micrograms per cubic meter
"—" indicates that there is no applicable standard in place.
Source: California Air Resources Board, 2010. Ambient Air Quality Standards. Available at: http://www.arb.ca.gov/research.aaqs/aaqs2.pdf

Federal Authority

The federal government first adopted the CAA (U.S. Code Section 7401), which required implementation of the NAAQS, in 1963 to improve air quality and protect citizens' health and welfare. The NAAQS are reviewed, revised, and changed when scientific evidence indicates a need. The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP).

Pursuant to the CAA, state and local agencies are responsible for planning for attainment and maintenance of the NAAQS. The EPA classifies air basins as either "attainment" or "non-attainment" for each criteria pollutant, based on whether or not the NAAQS have been achieved. Some air basins have not received sufficient analysis for certain criteria air pollutants and are designated as "unclassified" for those pollutants. The CARB and SCAQMD are the responsible State and local agencies for providing attainment plans and for demonstrating attainment of these standards within the proposed project area.

There are various federal programs that are applicable to major sources of emissions, such as the proposed project's combined cycle generating system (CCGS) and the simple cycle generating system (SCGS). The EPA has promulgated New Source Performance Standards (NSPS) for regulations controlling primarily criteria pollutant emissions. Most of these federal programs have been delegated to the SCAQMD for implementation within the SCAB. Applicable federal requirements include:

- 40 Code of Federal Regulations (CFR) 52: Non-attainment New Source Review requires Best Available Control Technology and offsets;
- 40 CFR 60 Subpart KKKK, NSPS for Stationary Combustion Turbines; and
- 40 CFR Subpart IIII, NSPS for Stationary Compression Ignition Internal Combustion Engines.

The EPA also administers several programs that regulate emissions of hazardous air pollutants (HAPs) from stationary and mobile sources. The EPA identified 189 HAPs that may present a threat to human health or the environment and are regulated under control technology programs. The EPA regulates HAP emissions primarily by setting emissions standards for vehicles and technology standards for industrial source categories.

There are various federal programs that are applicable to major sources of emissions, such as the proposed project CCGS and the SCGS. For regulations controlling HAP emissions, the EPA has promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP), which are codified in Title 40 CFR Part 61 and Part 63.

State Authority

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas to achieve and maintain attainment with the CAAQS by the earliest possible date. The CCAA, enforced by CARB, requires that each area exceeding the CAAQS develop a plan aimed at achieving those standards. The California Health and Safety Code, Section 40914, requires air districts to design a plan that achieves an annual reduction in district-wide emissions of five percent or more, averaged every consecutive three-year period. To satisfy this requirement, the local Air Quality Management Districts (AQMDs) are required to develop and implement air pollution reduction measures, which are described in their Air Quality Management Plans (AQMPs), and outline strategies for achieving the State ambient air quality standards for criteria pollutants for which the region is classified as non-attainment.

Similar to the federal HAPs, TACs are defined in California as air pollutants that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health (CARB 2010b). A primary health concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is of particular public health concern because it is currently believed by many scientists that there is no “safe” level of exposure to carcinogens; that is, any exposure to a carcinogen poses some risk of causing cancer.

Unlike carcinogens, most non-carcinogens have a threshold level of exposure below which the compound will not pose a health risk. The California Environmental Protection Agency (CalEPA) and California Office of Environmental Health Hazard Assessment (OEHHA) have developed reference exposure levels for non-carcinogenic TACs that are health-conservative estimates of the levels of exposure at or below which health effects are not expected.

CARB reviews scientific research on exposure and health effects to identify the TACs that pose the greatest threat to public health. CARB maintains a 20-station toxic monitoring network within major urban areas. Data from these monitoring stations are used to determine the average annual concentrations of TACs and to assess the effectiveness of controls.

The California Air Toxics Program, developed by CARB, established the process for identification and control of TAC emissions and includes provisions to make the public aware of significant toxic exposures and to reduce risk. CalEPA and the OEHHA have developed guidelines for evaluating risk. In addition, the State has adopted Airborne Toxics Control Measures for Stationary Compression Ignition Engines, which limit the types of fuel allowed, establish maximum allowable emission rates, and establish recordkeeping requirements for equipment operators.

Local Authority

The SCAQMD is the regional agency responsible for regulation and enforcement of federal, State, and local air pollution control regulations in the SCAB. The SCAQMD operates monitoring stations in the SCAB, develops and enforces rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD AQMP includes control measures and strategies to attain the NAAQS and

CAAQS in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment (SCAQMD 2007).

Periodically, the SCAQMD prepares an overall AQMP to be submitted for inclusion in the SIP. The Final 2007 AQMP was adopted by the AQMD Governing Board on June 1, 2007, and includes control measures and strategies to be implemented as regulations to control or reduce criteria pollutant emissions from stationary and mobile sources (SCAQMD 2007). The SCAQMD is currently in the process of developing the 2012 AQMP, which will include current regional planning information as well as scientific and technical information.

Combustion sources proposed for Generation Scenarios 1 and 2 will be required to obtain permits to construct and permits to operate, in accordance with SCAQMD Rules 201 and 203. Permitted equipment is required to operate in compliance with numerous regulatory requirements, including but not limited to emission limits, emission monitoring, and breakdown provisions. In addition, construction activities must demonstrate compliance with several rules limiting fugitive dust and volatile organic compound (VOC) emissions.

SCAQMD Construction Rules that would apply to the proposed project include:

- Rule 402 – Nuisance
- Rule 403 – Fugitive Dust, SCAQMD Rules for Operating Permits
- Rule 409 – Combustion Contaminants
- Rule 431.1 – Sulfur Content in Gaseous Fuels
- Rule 475 – Electric Power Generating Equipment, Regulation X – National Emission Standards for Hazardous Air Pollutants, Regulation XI – National Standards of Performance for New Stationary Sources
- Rule 1401 – New Source Review of Toxic Air Contaminants
- Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines
- Rule 1701 – Prevention of Significant Deterioration
- Regulation XX – Regional Clean Air Incentives Market program
- Regulation XXX – Title V Permits

Thresholds Used to Determine Significance of Impact

The thresholds for determining the significance of air quality impacts for this analysis are based on the environmental checklist in Appendix G of the CEQA Guidelines. Per the CEQA Guidelines, the proposed project would result in a significant air quality impact if the project would do any of the following as a result of implementation:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under any applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Result in exposure of sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable AQMD or air pollution control district may be relied upon to make the above determinations. Thus, the appropriate district-recommended significance thresholds, as published in their respective CEQA guidance documents, also apply to individual projects under their jurisdiction. The SCAQMD has established air quality significance thresholds for construction and operation to evaluate localized and regional impacts, as presented in Table 4.2.2-4.

Table 4.2.2-4. Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lb/day	55 lb/day
VOC	75 lb/day	55 lb/day
PM_{10}	150 lb/day	150 lb/day
$PM_{2.5}$	55 lb/day	55 lb/day
SO_x	150 lb/day	150 lb/day
CO	550 lb/day	550 lb/day
Lead	3 lb/day	3 lb/day
Toxic Air Contaminants (TAC) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants		
NO_2 1-hr average Annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards; 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
PM_{10} 24-hour average Annual average	 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour average	 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	 0.25 ppm (State) & 0.075 ppm (federal – 99th percentile) 0.04 (State)	
Sulfate 24-hour average	 25 µg/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards; 20 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	
Lead 30-day Average Rolling 3-month average Quarterly average	 1.5 µg/m3 (State) 0.15 µg/m3 (federal) 1.5 µg/m3 (federal)	

Acronyms: µg/m^3 = micrograms per cubic meter; lb/day = pounds per day; ppm = parts per million; > greater than; MT/yr = metric tons per year; GHG = greenhouse gas; SOx = sulfur oxides
Notes:
Based on SCAQMD 2006 "Final Methodology to Calculate Particulate Matter (PM) 2.5 and $PM_{2.5}$ Significance Thresholds," regional thresholds, October 2006.
Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
Source: SCAQMD, 2011. SCAQMD Air Quality Significance thresholds. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

Environmental Impacts

AQ-1 ***The proposed project would conflict with or obstruct implementation of the applicable air quality plan; would violate any air quality standard or contribute substantially to an existing or***

projected air quality violation; or would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under any applicable federal or State ambient air quality standard.

To determine if the proposed project would conflict with or obstruct implementation of the applicable air quality plan; would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under any applicable federal or State ambient air quality standard, the SCAQMD air quality significance thresholds for construction and operations presented in Table 4.2.2-4 were to used to evaluate modeled emissions from the construction, commissioning, and operations for both Generation Scenario 1 and Generation Scenario 2. Detailed information on the modeling, methodology, and assumptions is provided in the *Air Quality and Climate Change Technical Report* in Appendix B.

Construction Emissions

Regional Construction Emissions

Regional air quality impacts were evaluated by modeling the peak daily emissions generated from diesel- and gasoline-fueled construction equipment, haul/delivery trucks, and worker commute trips, as well as fugitive dust generated during demolition and earthmoving activities. The peak daily emissions were modeled for each construction phase and activity, and the results for each pollutant were compared to the SCAQMD regional mass daily significance thresholds for construction contained in Table 4.2.2-4.

Generation Scenario 1

Peak daily emissions generated as a result of construction for Generation Scenario 1 would occur during plant construction activities, as presented in Table 4-2.2-5. Emissions during the construction phase are not expected to exceed the significance thresholds for CO, VOC, sulfur oxides (SOx), PM_{10}, and $PM_{2.5}$, but peak daily construction emissions are anticipated to exceed the significance threshold for NOx. Therefore, the regional air quality impacts associated with construction activities of Generation Scenario 1 are considered significant.

Table 4.2.2-5. Regional Impact Analysis: Peak Daily Criteria Pollutant Emissions Summary for Generation Scenario 1

Construction Phase	Activity Description	Criteria Pollutant					
		VOC	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
1	Storage Tank Demolition	8.7	44.0	89.3	0.1	4.4	3.6
	Site Preparation	39.0	154.3	**317.2**	0.4	29.5	16.3
2	Plant Construction	57.3	255.5	**372.6**	0.6	30.9	18.7
	Switchyard Expansion	37.0	206.2	**180.2**	0.4	12.9	9.9
3	Unit 3 Pre-Demolition	0.2	1.7	1.1	0.0	0.1	0.1
	Unit 3 Demolition	15.0	65.1	**122.6**	0.2	6.5	5.8
	Unit 3 Basin Retaining Wall	7.7	32.2	52.2	0.1	3.1	2.8
	Unit 3 Basin Backfill, Compact and Grade	3.1	14.7	22.0	0.0	3.5	1.5
Peak Daily Emissions, lb/day =		57.3	255.5	**372.6**	0.6	52.9	30.9
SCAQMD Mass-Daily Threshold (Construction)[1]		75	550	100	150	150	55
Exceed SCAQMD Mass-Daily Threshold (Y/N)?		No	No	**Yes**	No	No	No
Values in **bold** exceed the SCAQMD's mass-daily threshold Source: SCAQMD CEQA Thresholds, March 2011. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf							

Generation Scenario 2

Peak daily emissions generated as a result of construction for Generation Scenario 2 would also occur during plant construction activities, as presented in Table 4.2.2-6. Emissions during the construction phase are not expected to exceed the significance thresholds for CO, VOC, SOx, $PM_{10,}$ and $PM_{2.5}$, but peak daily construction emissions are anticipated to exceed the significance threshold for NOx. Therefore, the regional air quality impacts associated with construction of Generation Scenario 2 are considered significant.

Table 4.2.2-6. Regional Impact Analysis: Peak Daily Criteria Pollutant Emissions Summary for Generation Scenario 2

Phase	Activity Description	Criteria Pollutant					
		VOC	CO	NOX	SOX	PM_{10}	$PM_{2.5}$
1	Storage Tank Demolition	8.7	44.0	89.3	0.1	4.4	3.6
	Site Preparation	39.0	154.3	**317.2**	0.4	29.5	16.3
2	Plant Construction	64.4	289.5	**397.1**	0.6	31.2	19.4
	Switchyard Expansion	38.0	214.9	**181.9**	0.4	13.1	10.0
3	Unit 3 Pre-Demolition	0.2	1.7	1.1	0.0	0.1	0.1
	Unit 3 Demolition	15.0	65.1	**122.6**	0.2	6.5	5.8
	Unit 3 Basin Retaining Wall	7.7	32.2	52.2	0.1	3.1	2.8
	Unit 3 Basin Backfill, Compact and Grade	3.1	14.7	22.0	0.0	3.5	1.5
Peak Daily Emissions, lb/day =		64.4	289.5	**397.1**	0.6	53.2	31.2
SCAQMD Mass-Daily Threshold (Construction)		75	550	100	150	150	55
Exceed SCAQMD Mass-Daily Threshold (Y/N)?		No	No	**Yes**	No	No	No

Values in **bold** exceed the SCAQMD's mass-daily threshold
Source:
SCAQMD CEQA Thresholds, March 2011. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

Localized Construction Emissions

The SCAQMD has developed a Localized Significance Threshold (LST) Methodology to evaluate the potential localized impacts of criteria pollutants from on-site emissions sources during construction and operation, as applicable (SCAQMD 2008b). An LST analysis is not required for SOx and VOC emissions because these pollutants do not contribute to localized criteria pollutant air quality impacts, although VOC may be analyzed as an air toxic.

The LST Methodology consists of performing dispersion modeling for CO, NOx, PM_{10}, and $PM_{2.5}$ from on-site equipment to determine whether or not the project may cause exceedances of the applicable LSTs at the nearest sensitive receptors. For this analysis, four separate construction sites within the project footprint were evaluated based on schedule and site size.

Generation Scenario 1

Maximum daily on-site emissions for Generation Scenario 1 construction and the applicable LSTs are summarized in Table 4.2.2-7. The CO, PM_{10} and $PM_{2.5}$ emission limits would not be exceeded, but the NO_2 emission limits would be exceeded. Therefore, emissions during construction of the proposed Generation Scenario 1 are not expected to cause significant adverse localized CO, PM_{10}, or $PM_{2.5}$ air quality impacts at the nearest sensitive receptors, but they may cause significant adverse localized NO_2 air quality impacts to the nearest sensitive receptors.

Table 4.2.2-7. Localized Construction Impact Summary: Generation Scenario 1

Description	CO	NO_2	PM_{10}	$PM_{2.5}$
Area 1 - Tank Demolition	11.7	30.2	1.4	1.2
LST - 5 acres, 25 meters	1531	221	13	6
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 2 - Switchyard Expansion	83.5	**167.4**	12.1	8.8
LST - 1 acre, 200 meters	2367	156	57	18
Exceed SCAQMD LST (Y/N)?	No	**Yes**	No	No
Area 3 - Unit 3 Demolition/Basin Backfill	46.9	94.5	6.9	4.6
LST - 1 acre, 200 meters	2367	156	57	18
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 4 - New SCGS/CCGS, Cooling Units, Compressor, and WW Tanks	168.9	**357.4**	51.7	17.7
LST - 2 acres, 200 meters	2961	186	64	21
Exceed SCAQMD LST (Y/N)?	No	**Yes**	No	No
Values in **bold** exceed the SCAQMD LST.				

Generation Scenario 2

Maximum daily on-site emissions for Generation Scenario 2 construction and the applicable LSTs are summarized in Table 4.2.2-8. Similar to Generation Scenario 1, the CO, PM_{10}, and $PM_{2.5}$ emission limits would not be exceeded, but the NO_2 emission limits would be exceeded. Therefore, emissions during construction of the proposed Generation Scenario 2 are not expected to cause significant adverse localized CO, PM_{10}, or $PM_{2.5}$ air quality impacts at the nearest sensitive receptors, but they may cause significant adverse localized NO_2 air quality impacts to the nearest sensitive receptors.

Table 4.2.2-8. Localized Construction Impact Summary: Generation Scenario 2

Description	CO	NO_2	PM_{10}	$PM_{2.5}$
Area 1 - Tank Demolition	14.9	41.9	2.0	1.7
LST - 5 acres, 25 meters	1531	221	13	6
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 2 - Switchyard Expansion	83.9	**168.4**	10.5	8.8
LST - 1 acre, 200 meters	2367	156	57	18
Exceed SCAQMD LST (Y/N)?	No	**Yes**	No	No
Area 3 - Unit 3 Demolition/Basin Backfill	46.9	94.5	5.1	4.6
1 acre, 200 meters	2367	156	57	18
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 4 - New SCGS/CCGS, Cooling Units, Compressor, and WW Tanks	153.3	**377.8**	29.9	18.2
2 acres, 200 meters	2961	186	64	21
Exceed SCAQMD LST (Y/N)?	No	**Yes**	No	No
Values in **bold** exceed the SCAQMD LST.				

Commissioning Emissions

Regional Commissioning Emissions Impacts

The commissioning emissions for CO, NOx, VOC, PM_{10}, $PM_{2.5}$, and SOx were estimated by LADWP for the Permit to Construct/Permit to Operate application using the emission data provided by the equipment manufacturer. Emissions of NOx would be higher during commissioning than during normal operations due to the need to test and tune the natural gas-fired combustion turbine generators (CTGs) prior to installation of the selective catalytic reduction (SCR) system to control NOx. Emissions of CO would also be higher than during normal operations because combustor performance would not be optimized and the CO catalyst would not be installed.

Generation Scenario 1

Peak daily emissions during commissioning for Generation Scenario 1 were compared to the SCAQMD's regional mass daily significance threshold for construction, as presented in Table 4.2.2-9. Emissions during the commissioning phase of the proposed project are anticipated to exceed the significance thresholds for VOC, CO, NOx, PM_{10}, and $PM_{2.5}$. Therefore, regional air quality impacts associated with commissioning activities are considered significant.

Table 4.2.2-9. Generation Scenario 1: Commissioning Emission Rate and Emissions Summary

Source	Emission Rate, lb/hr					
	VOC	**CO**	**NOx**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
CCGS (CTG & STG)	86.7	4,000.0	250.0	1.6	10.1	10.1
SCGS (One CTG)	12.0	197.3	80.3	0.5	6.6	6.6
Source	**Peak Daily Emissions, lb/day**					
	VOC	**CO**	**NOX**	**SOX**	**PM_{10}**	**$PM_{2.5}$**
CCGS (CTG & STG)	2,080.8	96,000.0	6,000.0	38.4	242.4	242.4
SCGS (Two CTGs)	552.0	9,075.8	3,693.8	23.0	303.6	303.6
Peak Daily =	**2,080.8**	**96,000.0**	**6,000.0**	38.4	**303.6**	**303.6**
SCAQMD Thresholds	75	550	100	150	150	55
Exceed Threshold (Y/N)?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Values in **bold** exceed the SCAQMD's mass-daily threshold
Detailed emission calculations and operating parameters are presented in the *Air Quality and Climate Change Technical Report for the Scattergood Generating Station Unit 3 Repowering Project* Appendix A, Table A-1c.
STG = steam turbine generator

Generation Scenario 2

Peak daily emissions during commissioning for Generation Scenario 2 were compared to the SCAQMD's regional mass daily significance threshold for construction, as presented in Table 4.2.2-10. Emissions during the commissioning phase of the proposed project are anticipated to exceed the regional significance thresholds for VOC, CO, NOx, PM_{10}, and $PM_{2.5}$. Therefore, regional air quality impacts associated with commissioning activities are considered significant and unavoidable.

Table 4.2.2-10. Generation Scenario 2: Commissioning Emission Rate and Emissions Summary

Source	Emission Rate, lb/hr					
	VOC	**CO**	**NOX**	**SOX**	**PM_{10}**	**$PM_{2.5}$**
Flex Plant 30 (SCGS)	552.0	4817.3	220.8	1.6	9.1	9.1
Flex Plant 10 (SCGS)	552.0	4817.3	222.6	1.6	9.3	9.3
Source	**Peak Daily Emissions, lb/day**					
	VOC	**CO**	**NOX**	**SOX**	**PM_{10}**	**$PM_{2.5}$**
Flex Plant 30 (SCGS)	13,248.0	115,615.2	5,299.2	38.4	218.4	218.4
Flex Plant 10 (SCGS)	12,696.0	110,797.9	5,119.8	36.8	213.9	213.9
Peak Daily	**13,248.0**	**115,615.2**	**5,299.2**	38.4	**218.4**	**218.4**
SCAQMD Thresholds	75	550	100	150	150	55
Exceed Threshold (Y/N)?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Values in **bold** exceed the SCAQMD's mass-daily threshold
Detailed emission calculations and operating parameters are presented in the *Air Quality and Climate Change Technical Report for the Scattergood Generating Station Unit 3 Repowering Project* Appendix A, Table A-1c.

Turbine Commissioning Localized Air Quality Impacts

Local air quality impacts for 8-hour CO and 1-hour NO_2 CAAQS were evaluated using refined dispersion modeling. Emissions of PM_{10} and $PM_{2.5}$ were not included in the evaluation of local air quality impacts during commissioning because peak daily PM_{10} and $PM_{2.5}$ emissions would be as high or higher during normal operations than during commissioning. As discussed below, modeled PM_{10} and $PM_{2.5}$ impacts during normal operation would be below the significance thresholds for both Generation Scenarios. Therefore, local PM_{10} and $PM_{2.5}$ impacts during commissioning would also be below the significance thresholds.

Generation Scenario 1

The results of the 1-hour and 8-hour CO and 1-hour NO_2 CAAQS for the GE combustion turbine under Generation Scenario 1 are shown in Table 4.2.2-11. The modeled impacts from project sources, when added to the appropriate ambient background concentration, would be below their respective CAAQS in all cases. Therefore, the modeled impacts for the Generation Scenario 1 GE combustion turbine commissioning would be below the significance thresholds; impacts would be less than significant.

Generation Scenario 2

The results of the 1-hour and 8-hour CO and 1-hour NO_2 CAAQS analysis for the Siemens combustion turbine commissioning scenario under Generation Scenario 2 are shown in Table 4.2.2-12. The modeled impacts from project sources, when added to the appropriate ambient background concentration, would be below their respective CAAQS in all cases. Therefore, the modeled impacts for the Generation Scenario 2 Siemens combustion turbine commissioning would be below the significance thresholds; impacts would be less than significant.

Operational Criteria Pollutant Emissions

Regional Operational Emissions

To determine the level of significance related to operational regional air quality impacts, peak daily emissions resulting from project operation were compared to existing emissions from Generation Units 1 and 3 (which would be replaced or derated under the proposed project), and the incremental change in emissions was then compared to the mass-daily thresholds for operations presented in Table 4.2.2-4.

Generation Scenario 1

Sources of emissions during operation of the proposed Generation Scenario 1 include a CCGS (GE 7FA turbine), an SCGS comprising two GE LMS100 turbines, an blackstart generator, one diesel fuel storage tank, and a wet surface air cooler (WSAC). As presented in Table 4.2.2-13, the proposed Generation Scenario 1 would result in criteria pollutant emission reductions for VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$. Because the proposed project would result in a regional air quality benefit, operational regional air quality impacts for Generation Scenario 1 would be less than significant.

Generation Scenario 2

Sources of emissions during operation of the proposed Generation Scenario 2 include a Siemens Flex-Plant 30 turbine, a Flex-Plant 10 turbine, four blackstart generators, four diesel fuel storage tanks, and a WSAC. As presented in Table 4.2.2-14, the proposed Generation Scenario 2 would result in regional criteria pollutant emission reductions for VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$; therefore, the proposed project would result in a regional air quality benefit. Therefore, operational regional air quality impacts for Generation Scenario 2 would be less than significant.

Table 4.2.2-11. Generation Scenario 1 Combustion Turbine Commissioning: CAAQS

Pollutant	Averaging Period	Commissioning AERMOD Predicted Concentrations (µg/m³)						Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)
		2005	2006	2007	2008	2009	Max. Design Value			
CO	1-hour	1264.50	1326.48	1309.71	1064.99	1337.22	1337.22	4,597.70	5,934.92	23,000
	8-hour	783.46	780.74	712.75	670.33	802.10	802.10	2,873.56	3,675.67	10,000
NO_2	1-hour	85.33	85.37	85.45	75.48	86.49	86.49	169.20	255.69	339

Table 4.2.2-12. Generation Scenario 2 Combustion Turbine Commissioning: CAAQS

Pollutant	Averaging Period	Commissioning AERMOD Predicted Concentrations (µg/m³)						Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)
		2005	2006	2007	2008	2009	Max Design Value			
CO	1-hour	1330.22	1367.77	1358.05	1358.97	1488.75	1488.75	4,597.70	6,086.46	23,000
	8-hour	1093.83	1032.39	1044.91	964.56	1077.24	1093.83	2,873.56	3,967.39	10,000
NO_2*	1-hour	48.94	50.35	49.98	50.01	54.73	54.73	169.20	223.93	339

* Modeled 1-hr NO_x concentration was multiplied by 0.80. Assumed 80 percent of 1-hr NOx converts to NO_2.

Table 4.2.2-13. Generation Scenario 1 (GE Option), Peak Daily Emissions (lb/day)[1]

Source	Criteria Pollutant					
	VOC	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Existing Emissions (Unit 1 and 3)	1,431.0	8,772.2	1,404.6	178.7	812.5	812.5
Proposed Generation Scenario 1						
CCGS (CTG & STG)	153.1	998.1	508.7	29.4	230.3	230.3
SCGS (2 CTGs)	104.7	420.3	525.8	23.6	266.0	266.0
Other Sources	2.1	5.4	29.5	0.0	1.7	0.1
Unit 1 - Derated	867.4	119.7	329.5	100.5	160.5	160.5
Total =	1,127.3	1,543.5	1,393.6	153.5	658.6	656.9
Incremental Change in Emissions	(303.7)	(7,228.6)	(11.0)	(25.1)	(153.9)	(155.6)
SCAQMD Mass-Daily Emissions Threshold	55	550	55	150	150	55
Exceed SCAQMD Threshold (Y/N)?	No	No	No	No	No	No

Notes:
1) Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report for the Scattergood Generating Station Unit 3 Repowering Project* Appendix B.

Table 4.2.2-14. Generation Scenario 2 (Siemens Option), Peak Daily Operational Emissions (lb/day)[1]

Source	Criteria Pollutant					
	VOC	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Existing Emissions (Unit 1 and 3)	1,431.0	8,772.2	1,404.6	178.7	812.5	812.5
Proposed Generation Scenario 2						
Flex Plant 30	369.8	855.2	597.8	28.2	208.9	208.9
Flex Plant 10	275.8	811.4	604.4	29.2	213.3	213.3
Other Sources	2.1	5.4	29.5	0.0	1.7	0.1
Unit 1 - Derated	394.7	54.5	149.9	45.7	73.0	73.0
Proposed Project Total	1,042.4	1,726.5	1,381.7	103.1	497.0	495.3
Incremental Change in Emissions	(388.6)	(7,045.7)	(22.9)	(75.6)	(315.6)	(317.2)
SCAQMD Mass-Daily Emissions Threshold	55	550	55	150	150	55
Exceed SCAQMD Threshold (Y/N)?	No	No	No	No	No	No

Notes:
1) Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report for the Scattergood Generating Station Unit 3 Repowering Project* Appendix B.

Localized Operational Emissions Impacts

Criteria pollutant atmospheric dispersion modeling was performed to analyze potential localized ambient air quality impacts associated with the operation of the proposed project. The results were then compared to the localized significance thresholds presented in Table 4.2.2-4.

Generation Scenario 1

The results of the dispersion modeling analysis for the CTGs for Generation Scenario 1 are shown in Table 4.2.2-15 for the normal operation load cases and in Table 4.2.2-16 for the startup / shutdown cases. None of the localized significance thresholds would be exceeded. Therefore, no significant adverse localized air quality impacts are expected during the operation of Generation Scenario 1.

Table 4.2.2-15. Generation Scenario 1 Normal Operation Maximum Project Impacts

Pollutant	Averaging Period	Normal Operations AERMOD Predicted Concentrations (µg/m³)				Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)	Significance Thresholds[2]
		50% Load	75% Load	100% Load	Maximum				
SO_2	1-hour	0.34	0.34	0.34	0.34	52.40	52.74	655	-
	24-hour	0.07	0.07	0.07	0.07	23.58	23.65	105	-
CO	1-hour	45.36	45.36	45.36	45.36	4,597.70	4,643.06	23,000	-
	8-hour	2.70	2.71	2.72	2.72	2,873.56	2,876.28	10,000	-
NO_2[(1)]	1-hour	114.49	114.49	114.49	114.49	169.20	283.70	339	-
	Annual	NA	NA	NA	0.41	29.89	30.30	57	-
PM_{10}	24-hour	0.93	0.81	0.67	0.93	96.00	96.93	-	2.5
	Annual	NA	NA	NA	0.22	27.70	27.92	-	1.0
$PM_{2.5}$	24-hour	0.93	0.81	0.67	0.93	78.30	79.23	-	2.5
	Annual	NA	NA	NA	0.22	16.80	17.02	-	-

Notes:
NA = Not applicable
1) Annual impacts from NO_2, PM_{10} and $PM_{2.5}$ emissions were modeled separately from the 50%, 75% and 100% Load Cases; therefore, there is only one value corresponding to the annual averaging period.
2) To apply the Tier II method for converting modeled NO_x concentrations to NO_2 concentrations, the modeled 1-hr NO_x concentration was multiplied by 0.80 and the modeled annual NO_x concentration was multiplied by 0.75.
3) Significance thresholds represent the "allowable change" in criteria pollutant concentration, due to proposed operations, when compared to existing or background ambient conditions.

Table 4.2.2-16. Generation Scenario 1 Startup/Shutdown Maximum Project Impacts - CAAQS

Pollutant	Averaging Period	Startup/Shutdown AERMOD Predicted Concentrations (µg/m³)				Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)
		Cold Start	Non-Cold Start	Shutdown	Maximum			
SO_2	1-hour	0.34	0.34	0.34	0.34	52.40	52.74	655
CO	1-hour	45.38	45.38	45.36	45.38	4,597.70	4,643.09	23,000
NO_2[(1)]	1-hour	114.50	114.50	114.50	114.50	169.20	283.70	339

Notes:
1) To apply the Tier II method for converting modeled NO_x concentrations to NO_2 concentrations, the modeled 1-hr NO_x concentration was multiplied by 0.80.

Table 4.2.2-17. Generation Scenario 2 Normal Operation Maximum Project Impacts

Pollutant	Averaging Period	Normal Operations AERMOD Predicted Concentrations (µg/m³)				Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)	Significance Thresholds²
		50% Load	75% Load	100% Load	Maximum				
SO_2	1-hour	0.25	0.28	0.29	0.29	52.40	52.69	655	-
	24-hour	0.06	0.07	0.08	0.08	23.58	23.66	105	-
CO	1-hour	27.26	27.26	27.26	27.26	4,597.70	4,624.96	23,000	-
	8-hour	2.08	2.23	2.25	2.25	2,873.56	2,875.82	10,000	-
NO_2(1)	1-hour	120.47	120.47	120.47	120.47	169.20	289.67	339	-
	Annual	NA	NA	NA	0.49	29.89	30.38	57	-
PM_{10}	24-hour	0.74	0.65	0.57	0.74	96.00	96.74	-	2.5
	Annual	NA	NA	NA	0.23	27.70	27.93	-	1.0
$PM_{2.5}$	24-hour	0.74	0.65	0.57	0.74	78.30	79.04	-	2.5
	Annual	NA	NA	NA	0.23	16.80	17.03	-	-

NA = Not applicable

Notes:

1) Annual impacts from NO_2, PM_{10} and $PM_{2.5}$ emissions were modeled separately from the 50%, 75% and 100% Load Cases; therefore, there is only one value corresponding to the annual averaging period.
2) To apply the Tier II method for converting modeled NOx concentrations to NO2 concentrations, the modeled 1-hr NOx concentration was multiplied by 0.80 and modeled annual NOx concentration was multiplied by 0.75.
3) Significance thresholds represent the “allowable change” in criteria pollutant concentration, due to proposed operations, when compared to existing or background ambient conditions.

Table 4.2.2-18. Generation Scenario 2 Startup/Shutdown Maximum Project Impacts

Pollutant	Averaging Period	Startup/Shutdown AERMOD Predicted Concentrations (µg/m³)				Background (µg/m³)	Cumulative Concentration (µg/m³)	CAAQS (µg/m³)
		Cold Start	Non-Cold Start	Shutdown	Maximum			
SO_2	1-hour	0.25	0.25	0.25	0.25	52.40	52.65	655
CO	1-hour	27.26	27.26	27.26	27.26	4,597.70	4,624.96	23,000
NO_2(1)	1-hour	120.47	120.47	120.47	120.47	169.20	289.67	339

Notes:

1) To apply the Tier II method for converting modeled NOx concentrations to NO_2 concentrations, the modeled 1-hr NOx concentration was multiplied by 0.80 and modeled annual NOx concentration was multiplied by 0.75.

Generation Scenario 2

The results of the dispersion modeling analysis for the CTGs for Generation Scenario 2 are shown in Table 4.2.2-17 for the normal operation load cases and in Table 4.2.2-18 for the startup / shutdown cases. None of the localized significance thresholds would be exceeded. Therefore, no significant adverse localized air quality impacts are expected during the operation of Generation Scenario 2.

AQ-2 ***The proposed project would not result in exposure of sensitive receptors to substantial pollutant concentrations.***

To model health risks from exposure to air pollutants, an HRA was conducted to evaluate TAC-related cancer risk health hazards from short-term, on-site, construction-related emissions and to evaluate TAC-related cancer and non-cancer health hazards for long-term operational emissions. These models estimated construction-related cancer risks to nearby residents by modeling a Maximum Exposed Individual at an existing residential receptor (MEIR) and operation-related cancer risks and hazard indexes (HI) to facility workers by modeling a Maximum Exposed Individual at an existing occupational worker receptor (MEIW). The HRA results were then compared to the SCAQMD TAC thresholds to determine significance. Details of the HRA, including the location of the MEIRs and MEIWs, are presented in the *Air Quality and Climate Change Technical Report*.

HRA Results for ConstructionTAC emissions related to construction activities would cease following the completion of construction. The main contaminant of concern associated with construction activities is diesel particulate matter. Based on draft updated OEHHA guidance released in February 2012, cancer health risk impacts should be evaluated for construction activities occurring over a period greater than six months. Project construction would occur over an 8.25 year period; therefore, the most applicable scenario and exposure duration would be nine years. (A nine-year period is the shortest exposure duration currently defined by OEHHA for evaluating cancer health risk.)

Generation Scenario 1

The maximum cancer risk due to construction emissions from Generation Scenario 1 was determined to be 5.98-in-a-million, as shown in Table 4.2.2-19. The incremental increase in health risk impacts during short-term construction would not exceed the SCAQMD's TAC threshold of 10-in-a-million described in Table 4.2.2-4. Therefore, construction-related pollutant impacts to sensitive receptors would be less than significant for Generation Scenario 1, and this scenario would not result in construction-related exposure of sensitive receptors to substantial pollutant concentrations.

Table 4.2.2-19. Summary of Maximum Impacts for Construction: Generation Scenario 1

Receptor Type		9-year Maximum Cancer Risk (per million)
MEIR	Adult	4.05
	Child	5.98
Significance Threshold		10
Exceed Threshold (Y/N)?		N
MEIR = Maximum exposed individual at an existing residential receptor; 9-year child exposure scenario for cancer risk.		

Generation Scenario 2

The maximum cancer risk due to construction emissions from Generation Scenario 2 was determined to be 6.39-in-a-million, as shown in Table 4.2.2-20. The incremental increase in health risk impacts during short-term construction would not exceed the SCAQMD's TAC threshold of 10-in-a-million described in Table 4.2.2-4. Therefore, construction-related pollutant impacts to sensitive receptors would be less than significant for Generation Scenario 2, and this scenario would not result in construction-related exposure of sensitive receptors to substantial pollutant concentrations.

Table 4.2.2-20. Summary of Maximum Impacts for Construction: Generation Scenario 2

Receptor Type		9-year Maximum Cancer Risk (per million)
MEIR	Adult	4.32
	Child	6.39
Significance Threshold		10
Exceed Threshold (Y/N)?		N
MEIR = Maximum exposed individual at an existing residential receptor 9-year child exposure scenario for cancer risk.		

HRA Results for Operation

Generation Scenario 1

Results of the HRA for operational emissions from Generation Scenario 1 are shown in Table 4.2.2-21. The cancer risk at the MEIR was estimated to be 0.33-in-one-million; the non-cancer acute and chronic HI at the MEIR were estimated to be 0.01. The cancer risk at the MEIW, based on worker exposure, was estimated to be 0.06-in-one million. The non-cancer chronic and acute HI at the MEIW were the same as those estimated at the MEIR.

These health impacts would be higher than those reported in the AB 2588-approved HRA because this analysis evaluates potential emission increases consistent with permitting requirements, whereas the AB 2588 HRA was based on actual emissions. This analysis did not reduce potential impacts from baseline conditions but rather evaluated them as new emission increases. Even so, the HRA results are below the significance thresholds presented in Table 4.2.2-4. Therefore, health risks to sensitive receptors from exposure to TACs during operation for Generation Scenario 1 would be less than significant, and this scenario would not result in operations-related exposure of sensitive receptors to substantial pollutant concentrations.

Table 4.2.2-21. Summary of Maximum Impacts for the Generation Scenario 1

Receptor Type[1]		Maximum Cancer Risk (per million)	Maximum Acute Hazard Index	Maximum Chronic Hazard Index
MEIR	Adult	0.33	0.01	0.01
	Child	0.08	--	--
MEIW		0.06	0.01	0.01
Significance Threshold		10	1	1
Exceed Threshold (Y/N)?		No	No	No
MEIR = Maximum exposed individual at an existing residential receptor; 70-year adult exposure scenario and 9-year child exposure scenario for cancer risk. MEIW = Maximum exposed individual at an existing occupational worker receptor; 40-year adult worker exposure scenario. Notes: 1) All impacts based on point of maximum impact (PMI) on the Cartesian receptor grid.				

Generation Scenario 2

Results of the HRA for operational emissions from Generation Scenario 2 are shown in Table 4.2.2-22. The cancer risk at the MEIR was estimated to be 0.39 in-a-million; the non-cancer chronic and acute HI at the MEIR were estimated to be 0.01. The cancer risk at the MEIW, based on worker exposure, was estimated to be 0.08-in-a-million. The non-cancer chronic and acute HI at the MEIW were estimated to be 0.01.

Similar to Generation Scenario 1, these health impacts would be higher than those reported in the AB 2588-approved HRA because the analysis did not reduce potential impacts from baseline conditions but rather evaluated them as new emission increases. Even so, the HRA results are below the significance thresholds presented in Table 4.2.2-4. Therefore, health risks to sensitive receptors from exposure to TACs during operation for Generation Scenario 2 would be less than significant, and this scenario would not result in operations-related exposure of sensitive receptors to substantial pollutant concentrations.

Table 4.2.2-22. Summary of Maximum Impacts for Generation Scenario 2

Receptor Type[1]		Maximum Cancer Risk (per million)	Maximum Acute Hazard Index	Maximum Chronic Hazard Index
MEIR	Adult	0.39	0.01	0.01
	Child	0.09	--	--
MEIW		0.08	0.01	0.01
Significance Threshold		10	1	1
Exceed Threshold (Y/N)?		N	N	N

MEIR = Maximum exposed individual at an existing residential receptor; 70-year adult exposure scenario and 9-year child exposure scenario for cancer risk.
MEIW = Maximum exposed individual at an existing occupational worker receptor; 40-year adult worker exposure scenario.
Notes:
1) All impacts based on point of maximum impact on the Cartesian receptor grid.

AQ-3 ***The proposed project would not create objectionable odors affecting a substantial number of people.***

The proposed project has the potential to result in objectionable odors during construction, with some odors associated with the operation of diesel engines during construction. However, these odors are typical of urbanized environments and would be subject to construction and air quality regulations, including proper maintenance of machinery to minimize engine emissions. These emissions are also of short duration, and they are quickly dispersed into the atmosphere. Therefore, the project would not create significant objectionable odor impacts during construction. The proposed project is not expected to cause any objectionable odors during operation. Neither Generation Scenario 1 nor Generation Scenario 2 would create objectionable odors affecting a substantial number of people.

Mitigation Measures

Mitigation measures are required, if feasible, to minimize the significant air quality impacts associated with the construction and turbine commissioning phases of the proposed project since the quantity of NOx emissions would be considered significant during the construction phase and the quantities of VOC, CO, NOx, PM_{10}, and $PM_{2.5}$ would be considered significant during the commissioning phase.

Construction Mitigation Measures

The proposed project is expected to have significant adverse air quality impacts due to NOx emissions during construction. NOx emissions are anticipated to be primarily from construction equipment exhaust and on-road motor vehicle exhaust. The following mitigation measures will be imposed on the proposed project to reduce NOx emissions associated with construction activities.

Construction Equipment

AIR-A During project construction, all internal combustion engines/construction equipment operating on the project site shall meet EPA-Certified Tier 3 emissions standards, or higher, according to the following:

- Prior to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
- On or after January 1, 2015: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with control technologies certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

AIR-B In the event a Tier 3 or Tier 4 engine is not available for any off-road engine larger than 50 horsepower, that engine shall be equipped with a diesel particulate filter (soot filter), unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" if, among other reasons:

1. There is no available soot filter that has been certified by either CARB or the EPA for the engine in question; or
2. The construction equipment is intended to be on site for 10 days or less.

The use of a soot filter may be terminated immediately if one of the following conditions exists:

1. The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure;
2. The soot filter is causing or is reasonably expected to cause significant engine damage; or
3. The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

AIR-C All construction equipment shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

AIR-D Prohibit construction equipment from idling longer than five minutes and post signs prohibiting idling longer than five minutes at the facility entrance and near areas where construction equipment is operating.

AIR-E The engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.

AIR-F Use electric welders instead of gas or diesel welders in portions of the facility where electricity is available.

AIR-G Use on-site electricity rather than temporary power generators in portions of the facility where electricity is available.

AIR-H Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.

AIR-I Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

On-Road Mobile Sources

No additional feasible mitigation measures have been identified for the emissions from on-road vehicle trips. CEQA Guidelines Section 15364 defines feasible as "capable of being accomplished in a successful manner." Health and Safety Code Section 40717.9 prohibits the AQMDs and other public agencies from requiring an employee trip reduction program, making such mitigation infeasible.

Other mitigation measures were considered but were rejected because they would not further mitigate the potential significant impacts. These mitigation measures included: 1) implement a shuttle service to and from retail services during lunch hours (most workers eat lunch on site and lunch trucks will visit the construction site); and 2) use methanol, natural gas, propane, or butane-powered construction equipment (equipment is not CARB-certified or commercially available).

Commissioning Mitigation Measures

Emissions of VOC, CO, NOx, PM_{10} and $PM_{2.5}$ during turbine commissioning will be from fuel combustion in the combustion turbines. No feasible mitigation measures for these emissions have been identified. The commissioning activities are required to ensure safe, reliable operation of the CTGs and the associated emission control systems. Therefore, they cannot feasibly be altered to reduce emissions. Additionally, existing Unit 3 cannot be decommissioned and existing Unit 1 cannot be de-rated to offset emissions during the commissioning activities because operation of these units at their current capacities is needed to provide reliable electrical power to LADWP's customers prior to full operation of the proposed project.

Cumulative Impacts and Mitigation Measures

The evaluation of air quality cumulative impacts addresses the potential cumulative effect of potentially concurrent projects within a specified proximity. Potential concurrent projects that have been approved in local planning documents (i.e. Specific Plan) or certified CEQA projects were evaluated to determine the potential cumulative air quality impacts. Planned or proposed projects that have not received approval or authorization have not been included in this evaluation based on the uncertainty of implementation.

Construction Impacts

Criteria pollutant emissions generated during construction and operation have been evaluated related to the potential for project-level emissions to result in a cumulatively considerable incremental impact. Construction activities for proposed Generation Scenario 1 and Generation Scenario 2 are proposed to occur between 2012 and 2015. In addition, demolition activity for Unit 3 would occur between 2015 and 2020 under either scenario. Due to the uncertainly of concurrent construction activities as well as the recognized level of significance (from short-term, temporary construction activities) in forecasted projects presented in Section 4.1.3, it has been assumed that construction activities associated with proposed Generation Scenario 1 or Generation Scenario 2 would have the potential to result in a cumulatively considerable incremental increase in criteria pollutant emissions. Therefore, the cumulative impacts due to construction would be significant.

Operational Impacts

As presented in Section 4.1.3, approved CEQA projects within the area of evaluation are predominantly commercial and residential development projects, with no proposed industrial projects. As discussed previously, operation of either proposed generation scenario would result in a reduction in regional criteria pollutant emissions. Therefore, the proposed project would not result in or contribute to a potentially cumulatively considerable incremental increase in criteria pollutant emissions. The cumulative impact would be less than significant.

Level of Significance After Mitigation

Construction emissions for the proposed project and cumulative projects for NOx are expected to remain significant following mitigation. Emissions of CO, VOC, SOx, PM_{10} and $PM_{2.5}$ generated during construction would be less than significant and, therefore, mitigation is not required. Construction emissions are expected to be short-term, and they would be eliminated following completion of the construction phase.

The mitigation measures are expected to result in additional emission reductions and reduce the potentially significant adverse impacts associated with NOx emissions; however, sufficient emission reductions are not expected to reduce the significant NOx emissions to less than significant. VOC, CO, SOx, PM_{10}, and $PM_{2.5}$ emissions would remain less than significant.

Localized significant impacts from construction activities were analyzed for NO_2, CO, PM_{10}, and $PM_{2.5}$. The construction activities associated with the proposed project are not expected to cause a significant adverse localized air quality impact to nearby sensitive receptors for CO, PM_{10}, and $PM_{2.5}$, and no mitigation would be required. However, the analysis concluded that construction emissions of NOx may cause the NO_2 LST to be exceeded. The mitigation measures are expected to result in additional NOx emission reductions and reduce the potentially significant adverse localized NO_2 impacts associated with NOx emissions; however, the impacts are expected to remain significant.

The commissioning phase impacts of the proposed project would exceed the applicable VOC, CO, NOx, PM_{10}, and $PM_{2.5}$ significance thresholds and, therefore, generate significant VOC, CO, NOx, PM_{10}, and $PM_{2.5}$ impacts both individually and cumulatively. No feasible mitigation measures to reduce VOC, CO, NOx, PM_{10}, or $PM_{2.5}$ emissions during commissioning have been identified. Therefore, impacts from VOC, CO, NOx, PM_{10} and $PM_{2.5}$ emissions during commissioning are expected to remain significant.

An LST analysis was conducted to evaluate impacts to ambient CO, NO_2, PM_{10}, and $PM_{2.5}$ air quality during operation of the proposed project. The modeling analysis indicated that impacts to ambient CO, NO_2, PM_{10}, and $PM_{2.5}$ air quality would be below the corresponding significance criteria. Therefore, localized ambient air quality impacts during operation of the proposed project are expected to be less than significant.

The proposed project was analyzed for cancer and non-cancer human health impacts and determined to be less than significant. The estimated cancer risks due to the construction and operation of the proposed project are expected to be less than the significance criterion of 10 in one million. The chronic non-cancer hazard index and the acute hazard index are both below the significance criterion of 1.0. Therefore, the proposed project is not expected to cause a potentially significant adverse impact associated with exposure to toxic air contaminants.

4.2.3 Biological Resources

This section evaluates the impacts the implementation of the proposed project would have on biological resources during project construction and operation, focusing on potential impacts to the ESB (El Segundo blue butterfly). The memorandum *Results of an El Segundo Blue Butterfly Habitat Assessment for the Scattergood Generating Station Unit 3 Repowering Project* is included as Appendix C of this EIR.

Environmental Setting

The existing SGS site is fully developed for power generation and contains very little vegetation. The vast majority of the site is paved over with either concrete or asphalt. Small patches of ruderal vegetation and non-native grasses exist on the fringes of the site, including the northeastern corner of the site adjacent to the Scattergood-Olympic transmission line alignment, which is outside the property limits of SGS. Many of the small existing patches of vegetation are dominated by iceplant. Maintenance activities on the property include vegetation control. There are no streams, watercourses, or other waters on the site that are subject to regulation by State or federal agencies with jurisdiction.

SGS is bordered to the east by the large Chevron El Segundo refinery. Approximately two acres of the Chevron El Segundo refinery is designated as a habitat preserve for the federally listed as endangered ESB. There is an additional 302-acre ESB habitat preserve, 200 acres of which are considered occupied by the ESB, within the dune habitat owned by LAX located between Vista Del Mar and Pershing Drive, approximately 0.75 mile north of SGS.

El Segundo Blue Butterfly Life History and Habitat

The ESB spends virtually its entire life cycle in intimate association with the flower heads of one particular native plant found along coastal dunes, the seacliff or coast buckwheat (*Eriogonum parviflorum*). The ESB emerges during early summer when the flowers of its host plant open. The adult life of these butterflies is relatively short, lasting only a few days during which they feed, mate and lay eggs on the coast buckwheat. The eggs hatch within a week or so of their deposition. The larvae feed on the flower heads of the coast buckwheat for approximately one month. They then crawl to the sand at the base of the buckwheat plant and molt to their pupal stage. Approximately ten months later, a new generation of adult butterflies emerges.

El Segundo Blue Butterfly Habitat Assessment

Due to the close proximity of two known ESB populations, a habitat assessment was conducted on the site to determine if the proposed project would impact any ESB or their habitat. Due to the close association of the ESB lifecycle with one specific plant, coast buckwheat, the findings of the habitat assessment were based on the presence or absence of the coast buckwheat on the project site.

The survey area within SGS consisted of three distinct areas (see Appendix C, *Results of an El Segundo Blue Butterfly Habitat Assessment for the Scattergood Generating Station Unit 3 Repowering Project*). The first survey area, survey area 1, is the open space area surrounding the four storage tanks located south of Grand Avenue, which will be demolished. This survey area is closest to the Chevron Refinery ESB habitat preserve.

The second survey area, survey area 2, is located within the open space located near the intersection of Grand Avenue and Vista Del Mar and west of the four storage tanks. No proposed project facilities would be located in this area, and the area would not be directly affected by project construction activities.

The final survey area, survey area 3, is located in the easement east of the HTP, west of the residential neighborhood along Hillcrest Street, and north of SGS. No proposed project facilities would be located in this area, and the area would not be directly affected by project construction activities.

The habitat assessment for the three survey areas was conducted on March 3, 2011, beginning at approximately 8:30 a.m. with overcast skies and an average temperature of 62 degrees Fahrenheit. No observations of ESB were expected to occur, since the habitat assessment was conducted outside the ESB’s flight season.

Survey area 1 consists of a non-native grassland plant community located on a downhill slope to the storage tanks. Non-native species include ripgut brome (*Bromus rigidus*), slender oats (*Avena barbata*), red-stemmed filaree (*Erodium cicutarium*), and other non-native grasses. A few commonly occurring native plants were found in this plant community and include telegraph weed (*Heterotheca grandiflora*) and deerweed (*Lotus scoparius*). The downhill slope to the paved access road consists of non-native hottentot fig (*Carpobrotus edulis*). Many non-native trees occur on the east site of the storage tanks, including acacia (*Acacia* sp.), pittosporum (*Pittosporum* sp.), magnolia (*Magnolia* sp.), and eucalyptus (*Eucalyptus* sp.).

The Chevron Refinery ESB habitat preserve borders survey area 1 at the southeast corner and is separated from the survey area by a chain-link fence. Much of the view into the preserve from SGS is obstructed by the presence of large acacia trees. However, approximately three coast buckwheat plants in the preserve were observed within 50 feet of the chain-link fence. These plants were in senescence, and flower production was relatively low. No newly established coast buckwheat plants were observed either within the preserve or on the SGS side of the fence. Hottentot fig surrounds the acacia trees, providing very little open space on the soil surface for new establishment of coast buckwheat.

Survey area 2 is also dominated by non-native species interspersed with a few native plants. Hottentot fig is the dominant species adjacent to the paved access road. Additional non-native plant species include red-stemmed filaree, ripgut brome, slender oats, and Bermuda buttercup (*Oxalis pes-caprae*). Brazilian peppertree (*Schinus terebinthifolius*) borders the chain-link fence. A few native species were observed within survey area 2 and include deerweed, California croton (*Croton californica*), and cudweed (*Gnaphalium canescens*). A few additional native species are typically found in dune plant communities and were observed in low densities within survey area 2, including beach primrose (*Camissonia cheiranthifolia*), dunes wallflower (*Erysimum suffrutescens*), and bush lupine (*Lupinus chamissonis*). No coast buckwheat plants were observed in survey area 2.

Survey area 3 also consists of a non-native grassland plant community. The plant community was moderately vegetated with non-native species, including slender oats, ripgut brome, wild radish (*Raphanus sativus*), western ragweed (*Ambrosia psilostachya*), and hottentot fig. Scattered acacia trees were found throughout the site. Only two native plant species were observed, deerweed and cudweed. Although very sandy soils were present on the site, no coast buckwheat plants were observed within the survey area.

Regulatory Setting

The following provides a general description of the applicable regulatory requirements for the project. Regulatory requirements related to impacts to Sections 404 and 401 of the Clean Water Act and Sections 1600-1707 of the California Fish and Game Code are not included because there are no wetlands or riparian habitat within the project site.

Endangered Species Act of 1973, 16 USC § 1531 et seq.; 50 CFR Parts 17 and 222

This act includes provisions for the protection and management of species that are federally listed as threatened or endangered or proposed for such listing, and of designated critical habitat for such species. The administering agency for the above authority for non-marine species is the U.S. Fish and Wildlife Service.

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not:

- have a substantial adverse effect on riparian habitat or sensitive natural community identified by local or regional plans, polices, regulations or by the California Department of Fish and Game and U.S. Fish and Wildlife Service;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or within established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (other than, potentially, ESB habitat);
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or State habitat conservation plan; nor
- have a substantial adverse effect, either directly or through habitat modifications, on any species (other than, potentially, the ESB) identified as candidate, sensitive, or special-status species in local or regional plans, polices, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Accordingly, these issues are not further analyzed in the EIR.

The CEQA Guidelines establish that the proposed project would have a significant effect on biological resources if it would have a substantial adverse effect, either directly or through habitat modifications, on the ESB, a federally listed endangered species, or impede the use of ESB habitat.

Environmental Impacts

BIO-1 ***The proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on the federally listed as endangered ESB.***

Three distinct survey areas within and adjacent to SGS were surveyed for the presence of suitable habitat for ESB, specifically for coast buckwheat. None of the three survey areas contain any habitat that would be considered suitable for the ESB. Sandy soils were present on-site; however, no coast buckwheat, the ESB host plant, was observed within the survey areas. Although the Chevron Refinery ESB habitat preserve is adjacent to survey area 1, there is no coast buckwheat within the survey area. Additionally, it is not likely that the ESB will fly through the fence into SGS due to the natural barrier that the acacia presents and the lack of host plants in the area. The plant species observed within this community consist mainly of ruderal species that commonly occur in a non-native grassland plant community or disturbed habitat. Therefore, no ESB or suitable habitat would be impacted by the proposed demolition of storage tanks and use of the area for construction staging or by operation of the proposed project, and no further surveys or focused surveys for ESB are recommended.

Mitigation Measures

Because no ESB or suitable habitat would be impacted by the proposed project, no mitigation measures are proposed.

Cumulative Impacts and Mitigation Measures

Because no significant impacts to biological resources, ESB or suitable habitat would occur, the proposed project would not result in cumulative impacts to biological resources.

Levels of Significance After Mitigation

Not applicable. The proposed project would result in no impacts to ESB or habitat without the application of mitigation measures.

4.2.4 Cultural Resources

This section evaluates the impacts the implementation of the proposed project would have on cultural resources during project construction and operation, focusing on potential impacts to historical and paleontological resources. The *Scattergood Generating Station Unit 3 Repowering Project Cultural Resource Survey* is included as Appendix D of this EIR, and the *Paleontological Resource Technical Report for the LADWP Scattergood Generating Station Unit 3 Repowering Project* is included as Appendix E of this EIR.

Environmental Setting

Prehistoric and Historic Setting

Prehistoric Context

Research in the area suggests that, as is typical of most Southern California indigenous populations, the local hunter/gatherer groups adapted to the environment by utilizing the natural resources available on a seasonal basis. Around 2000 BP (before present), the population growth increased, which led to a gradual change toward a more sedentary lifestyle in semi-permanent villages with smaller associated campsites (Moratto 1984). As populations increased, they began to utilize a wider range of environments and natural resources. Their social organization developed to include more complex mortuary practices and social hierarchy, craft specialization, and regional trade (Moratto 1984; Jones and Raab 2004).

The project area is located in the Los Angeles coastal basin. Research indicates prehistoric occupation in the general Southern California region 12,000 years prior to the Spanish expeditions (Bean and Smith 1978a; Kroeber 1925; Moratto 1984). Four general cultural periods, or horizons, are used to describe prehistoric occupation in Southern California: the Early Hunter, Milling Stone, Intermediate, and Late Periods (Wallace 1955).

Early Hunter Period (pre-8000 BP) sites are characterized by large projectile points used by small nomadic groups to hunt large game animals. The absence of grinding tools suggests that the local inhabitants did not utilize plant foods to a large degree, but rather followed the seasonal migration of Pleistocene megafauna (Altschul et al. 2005).

Milling Stone Period (8000 BP to 3500 BP) sites are characterized by ground stone artifacts that represent a shift from primarily hunting large animals towards wider coastal faunal and plant resource exploitation. Tools such as manos and metates and core/cobble tools were used to process seeds and other plant resources. Subsistence strategies still included hunting of migratory game as well as other mammals, sea birds, and fish. Shellfish and freshwater crustaceans were also collected (Altschul et al. 2005, 2007).

The Intermediate Period (3500 BP to 1000 BP) is considered a transitional period during which the mortar and pestle and the projectile point became the dominant tools for obtaining and processing food. Coastal populations increased the emphasis on marine resources, practicing both shoreline and deep sea fishing (Altschul et al. 2005, 2007).

The Late Period (1000 BP to 300 BP) lasts until the Spanish arrived in the area and began the building of the mission system in the late 1770s AD (*Anno Domini*). Tribes increased their regional trading, which resulted in incorporation of ceramics and basketry first developed elsewhere. The local populations increased in size as well as in social complexity. The use of the bow and arrow is indicated by the presence of small projectile points during this period (Altschul et al. 2005, 2007).

Ethnography

The project area is within the ethnographic boundaries of the Gabrieliño tribe. It is believed that this group of Shoshonean-speaking people migrated from the Great Basin and assimilated into the local population (Kroeber 1925).

The Gabrieliño (or Tongva) were among the largest, wealthiest, and most powerful aboriginal groups in Southern California. Of Shoshonean lineage, their tribal territory was centered in the Los Angeles Basin, but their influence extended as far north as the San Joaquin Valley. The territory included the Los Angeles, San Gabriel, and Santa Ana watersheds; several smaller tributary streams in the Santa Monica and Santa Ana mountains; the Los Angeles Basin; and nearby coastal areas as well as the Channel Islands. The Gabrieliño language is derived from the Takic origins (Altschul et al. 2005, 2007).

Primary villages were occupied year-round and smaller secondary gathering camps were occupied seasonally by small family groups. Throughout Gabrieliño territory, there may have been 50 to 100 villages occupied at any one time, with the villages containing 50 to 200 people each (McCawley 1996).

Different groups of Gabrieliño adopted different lifestyles depending on local environmental conditions, although all were based on gathering plant foods, hunting, and fishing. Villages were politically autonomous, each with its own leader. It was not until 1769 that the Spanish attempted to colonize Gabrieliño territory. As a result of disease and forced re-settlement, the population had declined dramatically by 1900 (Bean and Smith 1978). Several Gabrieliño villages (CA-LAN-62, CA-LAN-63, and CA-LAN-64) have been recorded in the Playa Vista area, four miles northeast of the project (Altschul et al. 2005, 2007).

Historical Context

Euro-American occupation began with the establishment of the California missions by the Spanish, continuing with the Spanish and American colonization and settlement, agricultural advances, and urbanization after World War I and World War II. Three historical periods are generally recognized in California: the Spanish exploration and settlement of California during the 18th and 19th centuries (the California Missions), the brief tenure of Mexico (Mexican Independence), and the subsequent American takeover and annexation of California (United States' Control of California).

The colonization of Alta California was tied to the Spanish settlements along the Gulf of California. In the late 18th century, the Spanish mission fathers of San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego) began colonizing the land and gradually used the interior valley (in what is now western Riverside County) for raising grain and cattle. During this period, Spain claimed all of California and Mexico.

The Mission San Gabriel was founded in 1771; the local indigenous population, the Tongva group, was disrupted by the missionization process. This process "converted" the native inhabitants, who were brought into the mission and subjected to its religious and occupational system. Within a short period of time, the native Tongva language and culture all but vanished. The native population was also severely impacted by the introduction of European disease, poor nutrition, and excessive manual labor. The tribal population was decimated (Castillo 1998). The mission lands surrounding what is now the project area were devoted to cattle grazing, ranching, and small-scale farming.

Mexican Independence

In 1821, Mexico gained independence from Spain. From 1821 until the end of the Mexican-American war in 1848, Southern California remained part of Mexico. The missions were secularized in the 1830s and the lands were granted to the loyal Mexican soldiers as part of the Secularization Act. Large portions of

Mission lands were granted between 1831 and 1846; the rancho livestock were drawn from mission herds (Caughey 1961). Cattle were raised primarily for tallow and hides. The Mission Indians were now released from the Missions, but many continued to work on the ranchos and farms.

What is now the SGS Unit 3 project area became part of the "*Rancho Sausal Redondo*" ("Ranch of the Round Clump of Willows") granted to Antonio Ygnacio Avila in 1837. The Rancho Sausal was nearly 25,000 acres that extended from as far west as what is now Playa del Rey, as far north as Marina Del Rey, as far east as Inglewood, and as far south as Redondo Beach. The land consisted of grazing lands, with portions later planted in wheat and barley on which cattle and sheep grazed (City of El Segundo 2011). At Avila's death, the rancho was sold to Robert Burnett, owner of the neighboring Rancho Centinela, who continued to use the land for cattle and sheep grazing and later for dry farming. A sharp decline in cattle prices in the 1860s, along with floods and droughts (particularly the drought of 1875-1876), led to a decline of most of the livestock herds. Looking for other means of income, ranchers in the vicinity turned to dry farming. Over 22,000 acres of the rancho were under cultivation by the end of the 1870s (Keilbasa 2011).

United States' Control of California

In 1849, the Treaty of Guadalupe Hidalgo was signed between Mexico and the United States, and the region that would become the State of California came under the jurisdiction of the United States. With the Americans' arrival, the demand for water and land increased. With the Land Boom of the 1880s, the large ranchos of Los Angeles County were broken up and the parcels were farmed and grazed more intensively. In 1887, the California Central Railway laid tracks to Redondo Beach, and eventually the small parcels became the cities of Inglewood, El Segundo, Redondo, and Playa Del Rey (Faris 1988).

Los Angeles County

The County of Los Angeles was established on February 18, 1850, several months before the state was admitted to the Union. The city and the county were geographically, culturally, and economically interwoven. Los Angeles was the heart of Southern California, beginning as a "large village" at the turn of the 20th century. The mild Mediterranean climate and abundance of recreational areas drew people from around the country. Although the cattle industry had failed by the late 1860s, the rancho lands continued to grow crops and raise dairy cattle. By the mid-20th century, the Los Angeles area was leading the country in agricultural productivity.

Discovered by Edward Doheny in 1892, oil was drilled at a furious rate, and soon Los Angeles became one of the world's major petroleum fields. Industrialization thrived in the first half of the 20th century. In 1911, representatives from the Standard Oil Company surveyed and purchased 840 acres of cheap undeveloped land adjacent to the seashore for an oil refinery. The refinery opened for business on November 27, 1911 (City of El Segundo 2011). The site was dubbed "*El Segundo*" (Spanish for "the second one") because the site was to be Standard Oil's second oil refinery in California. The Point Richmond refinery was already christened as "*El Primero*" (City of El Segundo 2011).

World War II changed the face of the Los Angeles region, as the aircraft and aerospace industry became a major contributor to the economy. The federal government funded plant expansion as well as research and development. Los Angeles became a center of the military-industrial complex. Servicemen and their families became a large element of the post-war population surge, and the construction industry peaked in the decade following the war. Commercial and industrial facilities and the local infrastructure grew rapidly to support the expanding population. At that time, the population density around the metropolitan area varied greatly, as low as one person per square mile in mountainous areas and as high as 50,000 per square mile near downtown Los Angeles.

The addition of the Los Angeles International Airport, which officially opened in 1930, had a major role in turning the El Segundo area into an aerospace center. The likes of Douglas Aircraft, Hughes Aircraft, Northrop, and North American Aviation (Rockwell) all located in El Segundo during the 1940s and 1950s. Most of these aircraft-related companies would eventually transition into the aerospace/defense industry. In 1960, the creation of the Aerospace Corporation and Los Angeles Air Force Base gave El Segundo the esteemed title of "The Aerospace Capital of the World" (City of El Segundo 2011). Today, the city encompasses over five square miles, spanning from the Los Angeles International Airport on the north, to the Chevron Refinery on the south, to the Pacific Ocean on the west, and to Aviation Boulevard on the east (City of El Segundo 2011).

Los Angeles Department of Water and Power

In 1860, the Los Angeles Water company completed the first water system within the city boundary, utilizing the Los Angeles River. By 1870, Los Angeles had grown to a population of just over 5,000. By the turn of the century, the city had grown to over 100,000 residents who relied on the Los Angeles River system for their water needs. In 1902, the City formally took ownership of the first municipal water works system. This water supply was adequate for the population of the city at that time barring a drought or dry season. The development of the public utilities for the growing city was due to two men, William Mulholland and Ezra Scattergood. Mulholland was the first superintendant and chief engineer for the new municipal Water Department; Scattergood was responsible for bringing electrical power to the area. Scattergood developed hydroelectric power for the construction of the Los Angeles Owens River Aqueduct, placing power plants at the end of a tunnel under Elizabeth Lake. The electric revenues from the plants helped pay for the tunnel and reduced construction costs of the aqueduct (LADWP b). This was the first time electric energy had been used in such a construction project (USC 2011).

The first power pole in Los Angeles was built in 1916. After San Francisquito Power Plant 1, north of Los Angeles, was placed in service in 1917, energy was delivered over a new transmission line. This was the beginning of the distribution of municipally generated electricity in Los Angeles. The City Power System, which began in 1917, exists under and by virtue of the Charter of the City of Los Angeles enacted in 1925 (USC 2011). The success of the plants enabled the Bureau of Los Angeles Aqueduct Power to buy out most of the private power companies in the city. The largest acquisition came in 1922, when the Bureau purchased Southern California Edison's distribution system in Los Angeles. By 1939, the City Power System had become the sole general distributor of electric energy in Los Angeles (USC 2011).

During the next few years, Los Angeles exploded into a booming metropolis, and under Scattergood's leadership, the LADWP kept pace with rapid changes by constructing new facilities and seeking new energy supplies. Meanwhile, Scattergood continued to push for low-cost power to support industrial expansion. Low rates became the backbone of Los Angeles' industrial development and spurred even more growth in the city. When Scattergood died in 1947, he left a rich legacy. Under his direction, the Power System grew from an organization with one employee into the largest municipal utility of its kind in the world.

Scattergood Generating Station

Post-war population growth in the Los Angeles area increased rapidly, fostering demand for housing and commercial development. Suburban communities also grew, and the need to provide utilities to the burgeoning population placed demands on the LADWP for increased facilities. Steam technology was cheaper and more abundant than the alternative hydroelectric generation. Throughout California, LADWP and other providers built facilities similar in design that were located on affordable land close to fuel and water supplies and load centers. The architectural design of the facilities, known as " 'outdoors' turbo-generator units," used minimal structural material, allowing the facilities to be economically upgraded and expanded to meet the population and market growth (JPR 2006).

The Scattergood Steam Plant, named in honor of Ezra Scattergood, is situated on about 55-acres facing the Pacific Ocean, just south of Playa Del Rey. The property, which was acquired in 1954, was located between the HTP and the Standard Oil Company's El Segundo refinery. Included in the property was the tideland frontage, which provided access to the large volume of water that was needed for cooling purposes in the operation of a steam generation plant (Intake 1954).

The SGS plant is one of LADWP's largest electrical power generating stations. Two of the station's three generating units were completed in 1958 and 1959 and the third unit was completed in 1974 (LADWP 1977). The Scattergood plant was designed and constructed in a semi-enclosed structure, using the most advanced technology available at the time. The plant was continually updated as new technology became available; the station was recognized in the past for its high efficiency rating. Both overhead and underground sections of the first circuit of transmission lines were constructed to connect the generating plant to Receiving Station "D" at Venice Boulevard to the northeast. Eventually, the Scattergood plant was connected to additional receiving stations to deliver large amounts of energy to help meet the constantly growing need for electricity in Los Angeles (Intake 1959).

Paleontological Setting

SGS is situated on the coastal bluffs that border the Los Angeles coastal plain, which forms the relatively flat Los Angeles basin surface. The site topography has been highly modified to accommodate construction of the existing plant. Most of the flat surfaces are covered by buildings and pavement. Most of the slopes are covered with either impermeable erosion control layers or vegetation, such as ice plant. There are a few exposures of the geologic rock units on the site. Rock exposures on the adjacent properties also provided access to the geologic units underlying the site.

Geologic Units in the Local Area

The relatively thin surface and near-surface geologic units that underlie the Los Angeles coastal plain and the project area are frequently collectively mapped as Quaternary Alluvium (Qal). They range in age up to about a million years before present. Named mapped geologic units included in the Qal in the western Los Angeles basin include the San Pedro Formation, Palos Verdes Sand, and Quaternary Stream deposits. Hydrogeologic units include Old Dune Sand, Manhattan Beach Clay, Gage Sand, El Segundo Clay, and the Silverado Sand.

These units were deposited by a variety of surface environments such as perennial streams, alluvial fans, lakes, lagoons, deltas, marine terrace to near-shore, and wind. Due to shifting of the differing, often local, environments of deposition, these units exhibit complex interfingering relationships with vertical and lateral variability. When combined with poor exposures and urban development, these geologic units are difficult to individually characterize and, thus, without fossil evidence, are difficult to trace and map as separate geologic units. Due to this variability and lack of adequate exposures, most of these units are included in and designated as Qal on geologic maps. Paleontological resources are known to vary in distribution within this generalized geologic unit in areas adjacent to the project.

FIGURE 4.2.4-1. SCATTERGOOD POWER PLANT, 1968

Courtesy Historical Photo Collection of the Department of Water and Power, City of Los Angeles
http://www.lapl.org/resources/en/dwp.html

Fossil Localities in the Local Area

The vertebrate assemblages contained in the Pleistocene sediments of the Los Angeles coastal region provide the best known record of late Pleistocene faunas in California. The near-shore marine as well as continental sedimentary deposits of this coastal plain area have provided conditions favorable for preserving vertebrate fossils that have proven to be of significant scientific value.

A locality search indicated that the vertebrate fossil localities that are closest to the site occur northeast of the proposed project area in or around LAX. These localities include one in the middle of LAX that produced a fossil proboscidean (*Proboscidea*) at a depth of 25 feet below the surface; a locality farther east that produced a fossil baby mammoth (*Mammuthus*) at a depth of 40 feet below street grade; a locality farther north that produced fossil mammoth, rodent (*Rodentia*), and speckled sanddab (*Citharichthys stigmaens*) at a depth of 14 feet below the surface; and two localities on the northeast and southeast sides, respectively, of Airport Boulevard that produced fossil specimens of horse (*Equus*), mammoth, bison (*Bison*) and rabbit (*Lepus*) at depths of 13 to 16 feet below the surface. East-southeast of the proposed project area, a locality produced a fossil specimen of mammoth at an unrecorded depth.

The La Brea Tar Pits in the northwestern portion of the Los Angeles Basin contain a fossil assemblage within the Palos Verdes Sand of upper Pleistocene age that is well known worldwide. This assemblage includes a wide variety of carnivores (canids and felids), small to large ungulate herbivores (cervids, antilocaprids, camelids, equids, suiids), edentates (sloths), and a myriad of small mammals including lagomorphs (rabbits), rodents, insectivores, and a variety of birds and lower vertebrates (frogs, lizards, and snakes). Many of the fossil specimens represent the best preserved specimens of particular taxa found to date.

Fossil assemblages from the San Pedro Sands and Palos Verdes Sands in the San Pedro area contain fossil remains of most of the above-mentioned Rancho La Brea terrestrial vertebrates. Also included at the San Pedro sites are aquatic mammalian taxa including otter, whale, and dolphin as well as shark, teleost fish, and birds.

Site Geology

Sedimentary units of predominantly Pleistocene age underlie the project area. Geologic maps indicate that excavation of the site will encounter sedimentary rocks of the Los Angeles County coastal plain area known to be Pleistocene to Holocene in age. These sediments include deposits that range from non-marine wind and floodplain to near-shore marine deposits. Lithologies include sand, gravel, silt, and clay, all of which are potentially favorable to the preservation of paleontological resources. Previous construction on the site has largely removed the shallow surficial surface Quaternary Older Sands (Qos) unit and exposed the underlying regional geologic units.

The geologic report for the site considers the near-surface geologic unit to be "eolian deposits of sand, sand with silt, and silty sand." The outcrops are not assigned to any particular geologic unit. Geologic mapping of the area has assigned the site surficial rocks to the Old Dune/Gage Sand (Qos) unit, which consists of light brown to brown, fine- to medium-grained sand with lenses of sandy gravel and occasional cobbles (Figure 4.2.4-2). Sparse exposures on- and just off-site consist of beds of well-sorted, fine (wind-blown) sand and poorly sorted silty to gravelly sand. The sediments underlying the site are likely best assigned to the Old Dune/Gage Sand, the Palos Verdes Sand, and/or the San Pedro Sand units. Current paleontological investigations one mile to the south have exposed the Old Dune/Gage Sand and the Palos Verdes Sand lithologies of fine sand, and sandy gravel with thin beds of fore-beach sand containing fossil mollusca.

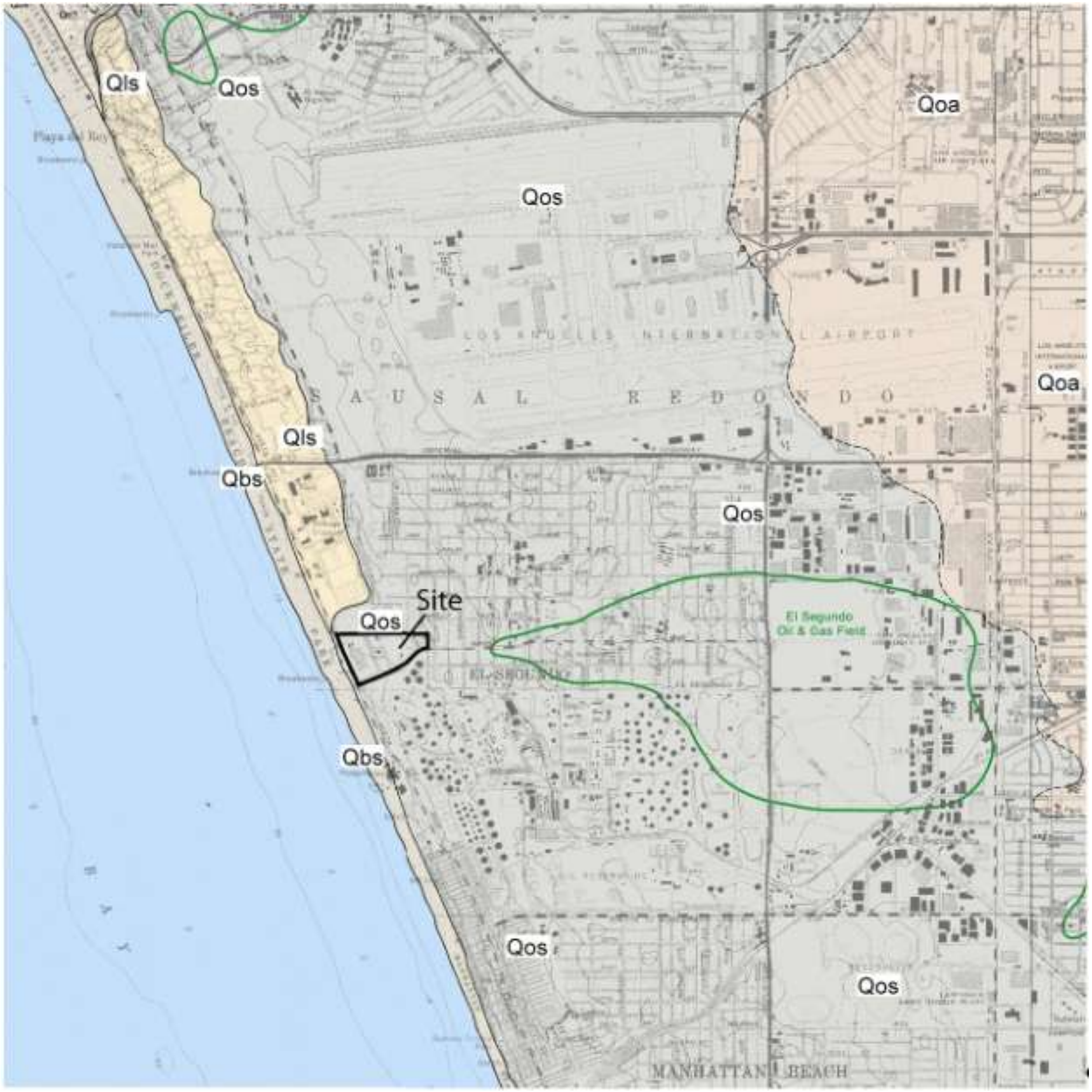
All of the Qal sediments are considered to be highly sensitive. Many of them contain significant paleontological resources in the Los Angeles Basin. Others, due to their environment of deposition, are considered to be potentially fossiliferous.

Regulatory Framework

California Environmental Quality Act (CEQA)

Under CEQA, a project is considered to have a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource or unique archaeological or paleontological resource. *Substantial adverse change* means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired or diminished. Furthermore, it is recommended by CEQA that cultural resources be preserved in-situ whenever possible through avoidance of the resource. Whenever a historical resource or unique archaeological resource (Public Resources Code [PRC] 21083.2) cannot be avoided by project activities, effects shall be addressed and mitigated as outlined in PRC 15126.4 and 15331 of CEQA.

FIGURE 4.2.4-2. GEOLOGIC MAP OF AREA



(Source: Dibblee 2007)
Qbs = Quaternary beach sand (Recent)
Qls = Quaternary loose dune sand (Recent) (wind-blown)
Qos = Quaternary older dune sand (Pleistocene to Recent) (wind-blown)
Qal = Quaternary Older Alluvium (Pleistocene)

Historical Resources

According to CEQA, lead agencies are required to identify historical resources that may be affected by any undertaking involving State or county lands, funds, or permitting. Also, the significance of such resources that may be affected by the undertaking must be evaluated using the criteria for listing in the California Register of Historical Resources (CRHR) (PRC §5024.1, Title 14 CCR, Section 4852). Generally, a resource is considered to be historically significant if the resource has integrity and meets the criteria for listing in the CRHR. Resources already listed or determined eligible for the National Register of Historic Places (NRHP) and California Historic Landmarks (CHL) are by definition eligible for the CRHR. Historical resources included in resource inventories prepared according to California State Office of Historic Preservation (OHP) guidelines or designated under county or city historic landmark ordinances may be eligible if the designation occurred during the previous five years.

For a resource to be eligible for the CRHR, it must satisfy each of the following three standards:

- A property must be significant at the local, State or national level, under one or more of the following criteria:
    1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California and the United States.
    2. It is associated with the lives of persons important to the nation or California's past.
    3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
    4. It has yielded, or may be likely to yield, information important to the prehistory or history of the State or the Nation;
- A resource must retain enough of its historic character or appearance to be recognizable as a historic property, and to convey the reasons for its significance; and
- It must be fifty years old or older (except for rare cases of structures of exceptional significance).

Integrity is defined as the authenticity of a historical resource's physical identity, evidenced by the survival of characteristics that existed during the resource's period of significance. CRHR regulations specify that integrity is a quality that applies to historical resources in seven ways: location, design, setting, materials, workmanship, feeling, and association.

Paleontological Resources

Paleontological resources are considered nonrenewable and consist of the fossilized remains or traces of prehistoric organisms. Such remains are provided protection under the 1906 Federal Antiquities Act and other federal legislation and state laws.

PRC §5097.5 states: "No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this section, 'public lands' means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof."

The Society of Vertebrate Paleontology (SVP) has established its own "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources" (SVP 1994). These guidelines are a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. These guidelines are accepted by most authorizing agencies as the standard for mitigation of impacts to paleontological resources.

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not cause a substantial change in the significance of an archaeological resource, nor would it disturb any human remains, including those interred outside of formal cemeteries. Accordingly, these issues are not further analyzed in the EIR.

The CEQA Guidelines establish that the proposed project would have a significant effect on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource including any of the following:
  - a resource listed in or determined to be eligible for the CRHR,
  - a resource determined to be historically significant based on meeting the criteria for listing on the CRHR, and
  - a resource listed in a local register of historic resources.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Environmental Impacts

CR-1 ***The proposed project would not cause a substantial adverse change in the significance of a historical resource.***

The SGS is not listed in the CRHR or another local register of historic resources. SGS was evaluated for meeting the criteria for and eligibility to listing on the CRHR. As described in the *Scattergood Generating Station Unit 3 Repowering Project Cultural Resource Survey*, it does not meet the criteria for or be eligible to such a listing. The site is not exceptional either in the context of the development of LADWP or as an example of post-war steam power generation.

SGS is a component within the LADWP system of power generation and delivery; this property does not appear to represent a significant property within LADWP or the broader context of settlement in Southern California during the post-WWII years. Many power plants were constructed in response to increased population in the area, and these plants contributed to the local economy. However, within this context, SGS does not exhibit a significant contribution, and therefore does not qualify under the CRHR eligibility standard Criterion 1 for significance at the local, State or national level.

Ezra Scattergood was an important figure in the history of LADWP and the development of power in Southern California; however, this particular property does not appear to embody or resonate any quality that represents Scattergood. Although the facility bears his name, Scattergood did not reside or work at this particular location; Scattergood died before the property was even acquired by LADWP. SGS does not qualify for listing under CRHR eligibility standard Criterion 2.

As previously discussed, the majority of the plants constructed during the post-WWII years were built in a similar style, the outdoor and semi-outdoor design. Many of the plants are nearly identical in characteristics, although the sizes of boilers and generators may vary. Most are located near water and fuel supplies, and all were built to provide power to an expanding population. A study of a facility similar to SGS was conducted in 2006 by JRP. The report evaluated the South Bay Power Plant, located in Chula Vista in San Diego County. JRP states within its report that the outdoor style of power plant design was "essentially 'off the shelf' " (i.e., typical of the technology used during the post-war era). The style was economically effective in controlling the building material and overall cost of the enormously expensive projects (JRP 2006). The construction and design of SGS is similar to the majority of the older steam generation plants in the Southern California region. The site does not exhibit distinctive characteristics of a type, period, region, or method of construction, nor does it represent the work of an important individual or possess high artistic value. The site is not unique or significant and, therefore, does not qualify for listing under CRHR eligibility standard Criterion 3.

The extensive disturbance to the original land surface during construction of the facilities in the 1950s most likely disturbed or destroyed any prehistoric or historic archaeological resources, if any had ever been present. The very low probability of intact archaeological deposits means that the property does not have a potential to yield information important to the prehistory or history of the State or local area, and as such would not qualify for listing under CRHR eligibility standard Criterion 4.

Because the property does not meet any of the criteria for significance at the local, State or national level, the property does not appear eligible for or meet the criteria for listing to the CRHR.

The SGS does not satisfy the definition of a historic resource under CEQA; as such, construction and operation of the proposed project would not cause a substantial change in the significance of a historical resource. No impact would occur, and no mitigation measures are proposed.

CR-2 ***The proposed project would indirectly or directly destroy a unique paleontological resource or site or unique geologic feature.***

Paleontological significance/importance was evaluated based on a review of pertinent geologic maps, applicable paleontological and geological literature pertinent to the local and regional geologic units, archival searches and interviews at appropriate paleontological repositories for information on known fossil localities, and the results of a field survey.

The paleontological importance rating was based on the potential for the unit to produce fossil remains and the scientific importance of their respective taxa. Fossils and fossiliferous deposits are considered important paleontological resources if they represent the remains of vertebrates and/or invertebrates or provide important information as to: (1) the identification of an organism; (2) evolutionary trends of a lineage; (3) the environment in which the organism lived; or (4) biostratigraphic data to help determine the relative age of the geologic unit from which the fossil was derived.

No fossils were noted or recovered from the sediments on the site during the field reconnaissance survey. Published and unpublished literature indicates that sediments of the Los Angeles County coastal plain area contain fossil localities in the site units and their equivalents. Vertebrate fossil remains have been recovered from localities within the site units. The Los Angeles County Museum search indicated that no vertebrate fossil localities lie directly within the proposed project area, but there are localities nearby from the same or similar sedimentary deposits as occur within the proposed project area.

The Los Angeles coastal plain area sediments are considered to be of high paleontological sensitivity and are known to contain significant fossils. Due to the high sensitivity rating of the rock units underlying this site, there is a high potential for significant paleontological resources to occur below surface. The entire site has been determined to have a high potential for significant paleontological resources, and thus a High Sensitivity Rating. Previously unidentified paleontological resources present on the project site could be disturbed or destroyed during construction as the result of excavation activity, resulting in a significant impact to a unique paleontological resource or site or unique geologic feature. To ensure that construction of the project does not destroy unique paleontological resources, implementation of mitigation measure CR-A is required.

Mitigation Measures

CR-A The project owner shall retain a qualified vertebrate paleontologist to design and implement a paleontological resource mitigation monitoring program to mitigate impacts to significant nonrenewable resources. This plan should include a grading observation schedule to be maintained when grading in bedrock units to further evaluate the fossil resources of the site. This monitoring and mitigation plan shall be consistent with the Society of Vertebrate Paleontology (SVP 1995) standard guidelines for the mitigation of construction-related adverse impacts on paleontological resources, as well as the requirements of the designated museum repository for any fossils collected (SVP 1996). Specific components to be included in the monitoring program include the following:

1. A construction worker education program to inform the workforce about the potential for discovery of paleontological resources will include:
   a. procedures to follow if resources are discovered during any construction-related activities, including order of notification of appropriate construction personnel and LADWP officials, and redirection of construction activities while the find is evaluated;
   b. a description of known resources in the area; and
   c. clarification that these resources are protected by law and that there is a strict prohibition against collection or disturbance of any paleontological resource.
2. Excavation into the older Quaternary alluvial deposits, including the stratigraphic equivalents of the Palo Verdes Sand or San Pedro Formation that possess a high paleontological sensitivity rating, shall be monitored by a professional paleontologist. Areas to be monitored during construction shall be determined after review of detailed geologic boring information.
3. Procedures shall be established for identification, salvage, analysis, curation and accession into a museum repository with permanent retrievable storage of any significant fossil specimens and data recovered.
4. A Paleontological Resources Report (PRR) shall be prepared, with an appended itemized inventory of specimens, upon completion of monitoring and evaluation. The report, inventory, and record of accession when submitted to LADWP will signify completion of the program to mitigate impacts to paleontological resources.

Cumulative Impacts and Mitigation Measures

Development projects identified in Table 4.1-1 would be required to determine the potential for the projects to impact archaeological and paleontological resources. As with the proposed project, all projects in the vicinity would be required to comply with CEQA Section 15064.5. These other project sites would be studied for their potential to contain archaeological/historical resources and paleontological resources, and mitigation measures would be required as necessary. Because impacts to archaeological/historical and paleontological resources are site-specific and because other projects in the vicinity of SGS would be required to determine if they would impact such resources and mitigate any identified impacts, the proposed project would not contribute to a significant cumulative impact to cultural resources.

Levels of Significance After Mitigation

The proposed project would result in no impacts to historic resources without the application of mitigation measures. Impacts to paleontological and geological resources would be less than significant with the incorporation of mitigation measure CR-A.

4.2.5 Greenhouse Gas Emissions

This section focuses on the potential climate change impacts of the construction and operation of the proposed project. Greenhouse gas (GHG) emissions produced from the proposed project would occur both during construction and operation. Potential climate change impacts associated with the short-term construction and long-term operation of the project are described.

Environmental Setting

Climate change, often called "global warming," is a global environmental issue that refers to any significant change in measures of climate, including temperature, precipitation, or wind, which extends for a period (decades or longer) of time. Climate change is a result of both natural factors such as volcanic eruptions, and anthropogenic, or man-made, factors including changes in land-use and burning of fossil fuels (EPA 2010). Anthropogenic activities such as deforestation and fossil fuel combustion emit heat-trapping GHGs, which are defined as any gas that absorbs infrared radiation within the atmosphere. The heat absorption potential of a GHG is referred to as the "Global Warming Potential" (GWP). Each GHG has a GWP value based on the heat-absorbing ability of the GHG relative to CO_2, commonly referred to as the CO_2 equivalent (CO_2e).

GHGs, both naturally occurring and anthropogenic, prevent heat from escaping the atmosphere and thereby regulate the Earth's temperature. Anthropogenic sources of GHGs have elevated GHG concentrations within the atmosphere, which has led to an increase in the Earth's average surface temperature. According to National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration data, the Earth's average surface temperature has increased by about 1.2 to 1.4ºF in the last century. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 2005. Based on available data, the rise in temperature is most likely due to anthropogenic sources (EPA 2010).

Eight recognized GHGs are described below.

Carbon dioxide (CO_2) is a colorless, odorless GHG. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic degassing. Anthropogenic sources of CO_2 include burning fuels such as coal, oil, natural gas, and wood. Concentrations are currently around 379 ppm, and they may rise to 1,130 ppm by the year 2100 as a direct result of anthropogenic sources (IPCC 2007).

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere; however, because they destroy stratospheric ozone, their production was halted by the Montreal Protocol.

Hydrofluorocarbons (HFCs) are gases consisting of hydrogen, fluorine, and carbon, and are used for refrigeration, air conditioning, foam blowing, aerosols, and fire extinguishing. HFCs are primarily used to replace ozone depleting CFCs. HFCs do not deplete the ozone layer but some have high GWPs.

Methane (CH_4) is a gas that is the main component of natural gas. CH_4 forms naturally from the decay of organic matter. Natural sources include wetlands, permafrost, oceans and wildfires. Anthropogenic sources include fossil fuel production, rice cultivation, biomass burning, animal husbandry (fermentation during manure management), and landfills.

Nitrous Oxide (N_2O), also known as laughing gas, is a colorless gas. N_2O is produced by microbial processes in soil and water, including those reactions that occur in nitrogen-rich fertilizers. In addition to agricultural sources, some industrial processes (nylon production and nitric acid production) also emit N_2O. It is used in rocket engines, as an aerosol spray propellant, and in race cars. Very small quantities of N_2O may be formed during fuel combustion through the reaction of nitrogen and oxygen.

Ozone (O_3), unlike the other GHGs, is relatively short-lived in the troposphere and, therefore, is not global in nature. According to the CARB, it is difficult to make an accurate determination of the contribution of O_3 precursors (NO_x and VOC) to global warming.

Sulfur Hexafluoride (SF_6) is an inorganic, colorless, odorless, non-toxic and non-flammable gas that is used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF_6 has a long lifespan and high GWP potency.

Water Vapor is the most abundant and variable GHG in the atmosphere. It is not considered a pollutant and maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

The production of electrical energy is a major source of GHG emissions in California. Between 2010 and 2011, the average GHG emission performance for existing SGS Unit 3, calculated as pounds of CO_2 emitted per net megawatt-hour (MWh) of generated electrical power, was 1,315 pounds CO_2 per MWh. These GHG emissions resulted from the exhaust from the combustion of natural gas for energy generation.

Regulatory Setting

Emissions of GHG are being addressed on federal, state, and local levels in different ways. Although the EPA has established mandatory reporting requirements that affect many industry sectors, it has not established a national background level inventory or a reduction target for GHG emissions. California legislation has created GHG performance standards for base-load electricity generation serving California customers. Regional agencies are primarily focused on reducing GHG through requiring best available control technology (BACT) standards be achieved for new power generating facilities.

International Authority

On March 21, 1994, the U.S. joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change, the key international treaty to reduce global warming and cope with the consequences of climate change. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Federal Authority

The federal CAA defines the EPA’s responsibilities for protecting and improving the nation’s air quality and the stratospheric O_3 layer. On September 22, 2009, the EPA released its final GHG Reporting Rule (Reporting Rule). The Reporting Rule required the EPA to develop mandatory reporting in all sectors of the economy of GHG above appropriate thresholds. On September 30, 2011, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule mandates recordkeeping and administrative requirements in order for the EPA to verify annual GHG emissions reports.

On December 7, 2009, the EPA Administrator signed two new findings regarding GHGs under section 202(a) of the CAA, an Endangerment Finding and a Cause or Contribute Finding. As a result of these findings, and the authority of the EPA to act on these findings, regulations have been developed that create federally enforceable permitting requirements on new and modified facilities that are major sources of GHG emissions.

State Authority

In efforts to reduce and mitigate climate change impacts, states are implementing policies and initiatives aimed at reducing GHG emissions. California, one of the largest state contributors to the national GHG emission inventory, has adopted significant reduction targets and strategies. Of particular note and influence on the proposed project is Senate Bill (SB) 1368 (Perata, Chapter 598, Statutes of 2006), which establishes a California utilities standard for base-load generation for new power plants and new or renewed contracts with terms of five years or more. The standard promotes power generation projects designed to achieve GHG reductions and that would meet energy demands of the state.

Also of influence is the California Global Warming Solutions Act (Act) of 2006. Established under AB 32 (Chapter 488, Statutes of 2006) (AB 32), the Act has been the springboard for the Renewable Portfolio Standards (RPS) goals, emissions reduction targets, and a newly adopted cap-and-trade program that establishes a market system for major sources of GHG emissions. The Act caps California's GHG emissions at 1990 levels by 2020. This legislation represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries and include penalties for non-compliance.

The Climate Change Scoping Plan, established December 11, 2008, pursuant to AB 32, outlines emission reduction strategies based on regulations, market mechanisms, and other actions. The CO_2 reduction goals envisioned in the AB 32 Scoping Plan rely heavily on decreased emissions in the electricity sector. Of the anticipated reductions from the electricity sector to be achieved by 2020, nearly half are expected to come from renewable generation.

Local Authority

The SCAQMD Air Quality-Related Energy Policy integrates air quality, energy, and climate change issues in a coordinated and consolidated manner. A central part of the SCAQMD's Air Quality-Related Energy Policy is the promotion of renewable energy generation, and California has identified Los Angeles, Riverside, and San Bernardino counties as locations with substantial renewable generating resource potential in wind and solar power. As indicated by the CEC's Integrated Energy Policy Report, these renewable energy sources will increasingly need to be supported by high-efficiency electrical power generating facilities, such as the proposed project.

The City of Los Angeles has established and adopted the City of Los Angeles's Green LA initiative along with the City General Plan, which includes goals and policies that would indirectly reduce GHG emissions and climate change impacts through improved energy efficiency (City of Los Angeles 1992). Air Quality Element Goal 5 of the General Plan promotes energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting. Objective 5.1 states that the City will increase energy efficiency of City facilities and private developments. Furthermore, Policy 5.1.3 states that the City will have LADWP make improvements at its in-basin power plants in order to reduce air emissions, which is one purpose of the proposed project.

In response to the City of Los Angeles's Green LA initiative, LADWP has implemented various measures and deployed marketing initiatives geared toward reducing GHG emissions and climate change impacts. Measures include the purchase of renewable energy, promotion of energy efficiency, water conservation, improved recycling/reusing, and infrastructure improvements. In 2010, 20 percent of LADWP power was provided by renewable energy sources. In addition, LADWP offers cash rebates for efficient appliances and exchange programs for inefficient appliances. As one of the largest utility providers in California, LADWP will be required to achieve the RPS established under AB 32 as well as emission performance standards for new base-load generation, established per SB 1368.

Thresholds Used to Determine Significance of Impact

Jurisdictional and lead agencies and professional organizations such as the SCAQMD, CARB, and the California Air Pollution Control Officers Association have developed both quantitative and qualitative interim significance thresholds for project-level GHGs. The SCAQMD has adopted an interim numerical GHG significance threshold of 10,000 metric tons per year CO_2e (MT/yr CO_2e) for industrial projects, such as a manufacturing facility or refinery. The interim threshold accounts for emissions generated during both construction and operation of a given project, and recommends that construction emissions be amortized over a 30-year projected project lifetime.

However, electrical generation that serves a distribution grid is part of the California energy system, and a comparison of direct emissions to mass emission standards does not adequately assess the overall impact of GHG emissions or climate change. The mass emission standards do not consider individual or system-wide electrical generating efficiency or recent SCAQMD and California Energy Commission (CEC) energy policies that recognize the need for fossil fuel electricity generation in order to support power reliability in response to increasing demand for renewable energy sources. These policies ensure that clean air goals of California are advanced by permitting agencies by requiring all proposed fossil-fueled plants to meet BACT standards and that project applications take into account energy generation efficiency. The most appropriate threshold for evaluating significance for the operation of the proposed project is the base-load performance standard established pursuant to SB 1368 of 1,100 lbs CO_2 per MWh, which is recommended for impact evaluation for power generation projects.

SB1368 requires that all new base-load power generation (i.e., intended to generate at an annualized plant capacity factor of at least 60 percent) of load-serving entities (utilities) meet an emission performance standard that is no higher than the rate of emissions of GHGs for combined-cycle natural gas base-load generation. Compliance with the performance standard will be determined based on the net emissions resulting from the production of electricity by the base-load generation. GHG emission performance standards have not been established for non-base-load power generation, such as the peaking units included in the proposed project. However, to evaluate the significance of GHG emissions from all of the proposed new electrical generation units, the 1,100 pounds CO_2 per MWh performance standard established pursuant to SB 1368 is applied to the overall GHG emission performance, including the peaking units.

Emissions of GHG due to construction activities and secondary sources during operation (circuit breaker leakage and blackstart generator operation) are not included in the net emissions resulting from the production of electricity by the base-load generation pursuant to SB 1368. It would not be appropriate to include these in the mass emissions used to evaluate GHG significance because it is not how energy projects are evaluated pursuant to SB 1368. In addition, there is no other construction-related efficiency performance standard for determining the significance of GHG impacts that has been adopted by the SCAQMD or the State. However the SCAQMD interim GHG mass emission threshold is intended to cover construction-related activities. Therefore, GHG emissions generated during construction and secondary sources during operation are most appropriately evaluated separately from electrical generation and based on the GHG mass emission threshold established by the SCAQMD of 10,000 MT/yr CO_2e.

Environmental Impacts

GHG-1 ***Annual mass GHG emissions from construction, circuit breaker leakage, and blackstart generator operation would not exceed the GHG mass emission threshold established by the SCAQMD of 10,000 MT/yr CO2e.***

Construction

Construction activities would result in short-term, temporary generation of GHG emissions. GHG emissions from construction activities would primarily result from fuel combustion during the operation of off-road diesel-fueled construction equipment. The duration of activities associated with Phase 1 and 2 of construction would be anticipated to be three years; the duration of activities associated with Phase 3 of construction would be anticipated to be 5.25 years. Detailed information on GHG construction emission analysis is provided in the *Air Quality and Climate Change Technical Report* in Appendix B. Table 4.2.5-1 provides a summary of construction-related GHG emissions.

Table 4.2.5-1. GHG Construction Emissions Summary (CO_2e)

Phase	Activity Description	Generation Scenario 1		Generation Scenario 2	
		MT/activity	Amortized MT/30-yr	MT/activity	Amortized MT/30-yr
1	Storage Tank Demolition	291	9.7	324.6	10.8
	Site Preparation	1,349	45.0	1356.6	45.2
2	Plant Construction	8,634	287.8	9349.3	311.6
	Switchyard Expansion	1,594	53.1	1487.5	49.6
3	Unit 3 Pre-Demolition	33	1.1	32.8	1.1
	Unit 3 Demolition	1,122	37.4	1122.1	37.4
	Unit 3 Basin Retaining Wall	174	5.8	174.4	5.8
	Unit 3 Basin Backfill, Compact and Grade	230	7.7	230.1	7.7
Total Project Construction GHG Emissions =		13,427	447.6	14,077	469.2
Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report* Appendix A, Table A-3a and A-3b.					

Operations

Operational sources of GHG emissions include the CTGs, circuit breaker leakage, and blackstart generators. As discussed in the Thresholds Used to Determine Significance of Impact section above, two approaches have been utilized to evaluate climate change impacts from various emission sources. Emissions from circuit breaker leakage and blackstart generator operations have been evaluated based on annual mass emissions, as presented in Table 4.2.5-2.

Table 4.2.5-2. Potential Annual GHG Emissions Summary from Circuit Breakers and Blackstart Generators

GHG	GWP	Generation Scenario 1			Generation Scenario 2		
		Metric Tons per Year		$MTCO_2e$/Year	Metric Tons per Year		$MTCO_2e$/Year
		Blackstart Generators	Circuit Breakers		Blackstart Generators	Circuit Breakers	
CO_2	1	97	-	97	390	-	390
CH_4	21	0.004	-	0.08	0.015	-	0.36
N_2O	310	0.0008	-	0.25	0.0032	-	0.99
SF_6	23,900	-	2.12E-03	51	-	2.12E-03	51
			Total =	148		Total =	442
Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report* Appendix E.							

To determine significance by the mass emission threshold, annual mass GHG emissions from construction amortized over 30 years, circuit breaker leakage, and blackstart generator operation were combined and compared to the SCAQMD interim threshold of 10,000 MT/yr CO2e, as shown in Table 4.2.5-3. The combined annual emission for either Generation Scenario would not exceed the threshold; annual emissions would be less than significant, and project would not conflict with or obstruct regional and state-wide goals to reduce GHG emissions and climate change impacts.

Table4.2.5-3. Annual GHG Mass Emission Summary

Source Description	Generation Scenario 1	Generation Scenario 2
	$MTCO_2e$/Yr	
Amortized Construction	448	469
Circuit Breaker Leakage	51	51
Blackstart Generators	97	391
Annual GHG Emissions =	596	911
SCAQMD GHG Significance Threshold	10,000	
Exceed Threshold (Y/N)?	No	No

GHG-2 ***Operation of the CTGs would not exceed the base-load performance standard of 1,100 lbs CO_2 per MWh.***

Impacts to GHG emissions from the proposed project were evaluated using GHG emission performance for each Generation Scenario. Impacts associated with the CTGs have been evaluated based on the annual emissions performance standard pursuant to the requirements of SB 1368. Detailed information on GHG emission performance analysis is provided in the *Air Quality and Climate Change Technical Report* in Appendix A.

The estimated annual GHG emissions performance of the CTGs for each Generation Scenario were calculated and compared with the emission performance standard as shown in Table 4.2.5-4. The GHG emissions performances of 1,025 lbs CO_2/MWh for Generation Scenario 1 and 993 lbs CO_2/MWh for Generation Scenario 2 are below the performance standard of 1,100 lbs CO2/MWh. Therefore, impacts from GHG emissions from the proposed project would be consistent with statewide policy intended to reduce GHG emissions from power generation, and this project would not conflict with or obstruct regional and statewide goals to reduce GHG emissions and climate change impacts.

Furthermore, the GHG emission performance values for the proposed project would be below the average GHG emission performance for Unit 3 during 2010 and 2011 of 1,315 lbs CO_2/MWh. Thus, the proposed project would result in a substantial improvement in GHG emission performance.

Table 4.2.5-4. CTG Operational GHG Emissions Performance Summary

	Generation Scenario 1	Generation Scenario 2
Project CO_2 Emissions Performance (lbs CO_2/MWh) =	1,025	993
Project CO_2 Emissions Performance (MTCO_2/MWh) =	0.465	0.450
Emissions Performance Standard, lbs CO_2/MWh	1,100	
Emissions Performance Standard, MTCO2/MWh	0.500	
Exceed the Emissions Performance Standard? (Y/N)	No	No
Detailed emission calculations are presented in the *Air Quality and Climate Change Technical Report* Appendix E.		

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts and Mitigation Measures

Because GHG impacts to global climate change are inherently cumulative, no additional analysis of cumulative impacts is necessary.

Levels of Significance After Mitigation

Not applicable. The proposed project would result in less than significant impacts to GHGs without the application of mitigation measures.

4.2.6 Hazards and Hazardous Wastes

This section of the EIR addresses two specific potential impacts associated with hazards and hazardous wastes. One potential impact is associated with stack heights of new facilities and the effects on LAX airport operations relative to air navigation. The other potential impact is associated with the potential generation of hazardous wastes and their disposal (focusing on lead and asbestos) during demolition of the existing facilities such as the Unit 3 generation equipment, duct work, and structure, and the fuel storage tanks. Other potential impacts relative to hazards and hazardous wastes were evaluated in the Initial Study and found to have no impact.

Environmental Setting

LAX Operations and Navigation

SGS is located approximately 5,000 feet south-southwest of the end of runway 7R at LAX, which is the closest runway to the station. At this distance, tall structures have the potential to create an obstruction to air navigation for aircraft operating at LAX. The tallest existing structures above ground level (AGL) at SGS are the existing generator unit exhaust stacks. Generation Units 1 and 2 utilize a common exhaust stack, whereas Unit 3 has its own stack. Each stack is approximately 300 feet in height AGL and about 337 feet in elevation AMSL. At this elevation, the stacks may present an obstruction to air navigation. Therefore, they are appropriately indicated on aviation charts, and they contain aviation warning lighting and a hazard paint scheme according to Federal Aviation Administration (FAA) regulations. The existing generation units themselves are housed in buildings that are approximately 125 feet in height AGL and about 140 feet in elevation AMSL. The four existing but unused fuel oil storage tanks located in the southern parcel of SGS are each about 55 feet in height AGL and about 190 feet in elevation AMSL. Three existing water storage tanks at the east end of the northern parcel of SGS are each about 30 feet in height AGL and also about 190 feet in elevation AMSL. Three high-voltage transmission towers located in the northwest corner of the middle terrace are each about 120 feet in height AGL and about 220 feet in elevation AMSL.

Hazardous Wastes

Older residential, commercial, industrial, and public works structures were commonly coated with paints that contained lead as an additive. Lead-based paint is a known source of lead poisoning for children and can also affect adults. In children, toxic exposure to lead can cause irreversible brain damage and can impair mental functioning, and in adults can cause irritability and nerve damage. In 1978, the Consumer Product Safety Commission banned the use of lead as an additive in paint. Lead-based paint may be present in buildings older than 1978 and, when present, is a potential health hazard during demolition and disposal.

Asbestos-containing materials may be present in older buildings as well. Asbestos is commonly found in floor tiles, building materials, and insulation. Disruption of these materials during demolition can result in the release of asbestos fibers into the air. The inhalation of asbestos fibers can result in serious diseases (including cancer) of the lungs and other organs.

SGS was constructed initially in the late 1950s, and Unit 3 was added in 1974. LADWP has confirmed the presence of asbestos in Unit 3. The exact quantity, believed by LADWP to be relatively small, would be determined prior to removal. Other facilities to be removed, such as the fuel storage tanks, could contain hazardous materials and would undergo routine testing to determine whether special precautions would be needed during demolition.

Federal, State, and local regulations govern the removal, handling, storage, and disposal of hazardous materials including asbestos to protect workers, nearby receptors, and the environment. Land uses that are sensitive relative to hazardous waste removal include residences and schools in the vicinity of the waste removal site. Residential uses occur adjacent to the eastern SGS site boundary. A number of public and private schools are located within one mile of the site boundaries as follows:

El Segundo Preschool - 0.22 mile
St. Michaels Children’s Center - 0.32 mile

Richmond Street Elementary School - 0.46 mile
El Segundo High School - 0.57 mile
Arena High School - 0.76 mile
St Anthony's Catholic Church School - 0.80 mile
El Segundo Middle School - 1.00 mile

SGS has an EPA Identification Number from the Department of Toxic Substances Control (DTSC) and is identified as a hazardous waste generator. This identification and registration strictly regulates the handling, use, and storage of hazardous materials at the site and establishes procedures for storage and transportation of such wastes. Friable and non-friable asbestos are included on the list of regulated materials.

Hazardous wastes generated at the facility are collected by a licensed hazardous waste hauler and disposed of at a hazardous waste facility. Hazardous wastes are transported off site using a hazardous waste manifest. Copies of manifest reports, waste analysis, exception reports, destruction certifications, etc., are kept on site and accessible for inspection.

When hazardous materials require disposal, they must be taken to a Class I landfill. According to LADWP's Hazardous Waste Field Guide, asbestos-containing wastes would be taken to the Clean Harbors' Buttonwillow Landfill in Kern County, which has a permitted daily capacity of 10,500 tons and a closure date of 2040.

Regulatory Framework

The Project must comply with various federal, State, and local laws. The following is a general discussion of the laws, regulations, and policies relevant to hazards (including aviation hazards) and hazardous waste issues considered in this EIR.

Aviation Hazards

Because of its proximity to LAX, SGS has been designated by the Los Angeles Department of City Planning as an Airport Hazard Area, within which height limitations are imposed on structures that may represent obstructions to aircraft navigation at LAX. At SGS, this designation establishes a height limit for all structures of 150 feet above a baseline elevation of 126 feet AMSL. This would mean that no structure associated with the proposed project could exceed an elevation of 276 feet AMSL without requiring special permit conditions from the Los Angeles Department of City Planning.

The FAA regulates the National Airspace System by reviewing structures that may represent a hazard to air navigation or safe aircraft operations. A project proposing any type of construction or alteration of a structure that may affect the National Airspace System is required under the provisions of Title 14 Code of Federal Regulations (14 CFR part 77) to notify the FAA by completing the Notice of Proposed Construction or Alteration form (FAA Form 7460-1). The FAA then conducts a review of the structure(s) to determine whether there is a hazard to air navigation and formally notifies the applicant of its findings.

Specifically, the FAA requires notice under 14 CFR part 77 for:

(a) Any construction or alteration that is more than 200 feet AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public use or military airport with a runway more than 3,200 feet in actual length.

Both criteria are applicable to the proposed Unit 3 repowering project at SGS.

Federal Hazardous Materials Regulations

The Resource Conservation and Recovery Act (RCRA), 42 United States Code (USC) Section 6901 to 6992, provides the basic framework for federal regulation of solid wastes (nonhazardous and hazardous waste), landfills, underground storage tanks, and certain medical wastes. RCRA's Subtitle C controls the generation, transportation, storage, and disposal of hazardous waste through a comprehensive "cradle to grave" system of hazardous waste management techniques and requirements. Title 40 CFR, Subchapter I, Solid Wastes, was established to implement the provisions of the RCRA. The regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, and hazardous waste generator requirements. The EPA is responsible for implementing the law, and the implementing regulations are set forth in 40 CFR 260, *et seq*. The law allows the EPA to delegate the administration of the RCRA programs to the various states, provided that the state programs meet the federal requirements. California's program was authorized by the EPA on August 1, 1992, and the DTSC is responsible for administering the program.

Title 49 CFR, Parts 172 and 173, addresses the U.S. Department of Transportation (DOT)-established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40 CFR Section 262.20.

State of California Hazardous Materials Regulations

The RCRA allows states to develop their own programs to regulate hazardous waste. California's program is embodied in the California Hazardous Waste Control Law (CHWCL), California Health and Safety Code, Section 25100 *et seq*. This law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes (non-RCRA hazardous wastes) and the development of standards that are equal to or, in some cases, more stringent than federal requirements.

Title 22, California Code of Regulations (CCR) Division 4.5, establishes requirements for the management and disposal of hazardous waste in accordance with the CHWCL and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of hazardous wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting hazardous waste off site; and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for recordkeeping, reporting, packaging, and labeling. Additionally, California requires that hazardous waste is transported by licensed hazardous waste transporters.

California Health & Safety Code, Chapter 6.11, established the Certified Unified Program Agency (CUPA), which consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for hazardous materials and hazardous waste management. The primary authority for the statewide administration and enforcement of California's hazardous waste laws rests with the DTSC.

Local Hazardous Materials Regulations

The SCAQMD regulates potentially toxic air emissions, including those that could occur during removal and disposal of asbestos-containing materials. SCAQMD Rule 1403 specifies the work practices that are required to limit asbestos emissions during the renovation/demolition process and include conducting a facility survey to identify and document the presence of asbestos-containing materials, notifying the SCAQMD prior to removal, establishing the procedures to be used to remove wastes and protect the public health of workers and receptors, establishing transportation requirements such as hazard markings, manifests, and records, and specifying disposal location and requirements.

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not be located on a site which is included on a list of hazardous materials sites pursuant to Government Code Section 65962.5 that would create a significant hazard to the public or the environment, be located within the vicinity of a private airstrip that would result in a safety hazard for people residing or working in the area, impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, or expose people or structures to a significant risk of loss, injury, or death involving wildland fire. Accordingly, these issues are not further analyzed in the EIR.

For the purposes of this EIR, a hazards impact is considered significant if the project would:

- create a significant hazard to the public or the environment as a result of the routine transport, use or disposal of hazardous materials
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school
- create a significant hazard to the public or the environment from existing hazardous materials contamination by exposing future occupants or users of the site to contamination
- create an airport safety hazard for people residing or working in the project area, or using airport services

Environmental Impacts

HAZ-1 ***The proposed project is located within two miles of LAX and would result in a safety hazard for people residing or working in the area and using airport services.***

The tallest structures that would be included in the proposed project are the exhaust stacks associated with the CCGSs and the SCGS. For Generation Scenario 1, the exhaust stack associated with the CCGS would be approximately 213 feet in height; based on its location on the lower (westernmost) terrace of SGS, the stack would have an elevation at ground level of approximately 37 feet AMSL. The exhaust stacks associated with each CTG of the SCGS would be approximately 100 in height; based on their location on the middle terrace of SGS, they would have an elevation at ground level of approximately 104 feet AMSL. For Generation Scenario 2, the exhaust stack associated with the base-load CCGS would also be approximately 213 feet tall, and, based on its location on the lower terrace, would also have an elevation at ground level of approximately 37 feet AMSL. The exhaust stack associated with the peak-load CCGS would be approximately 170 feet tall; based on its location on the middle terrace of SGS, it would have an elevation at ground level of approximately 104 feet AMSL.

As shown in Table 4.2.6-1, based on ground-level elevations and total heights, no exhaust stack under either generation scenario would exceed the height limit established for SGS in relation to its Airport Hazard Area designation as defined by the Los Angeles City Planning Department. Therefore, no impact would result relative to this threshold.

As shown in Table 4.2.6-2, all of the exhaust stacks for the base load and peak load units (both generation scenarios) would exceed the 100:1 imaginary surface at LAX and would require FAA notification and hazard evaluation under 14 CFR Part 77. The exhaust stacks of the base load CCGS under both generating scenarios would also exceed the general 200-foot AGL hazard height limit stipulated by FAA. It should be noted that all new structures associated with the proposed project, including the generator exhaust stacks, would be at least 60 feet lower in elevation than the existing Units 1 and 2 exhaust stack, which would remain after project completion. In addition, demolition of the 300-foot tall stack on the existing Unit 3 would also require notification. Based on federal standards, these actions could have a potential impact on air navigation and require FAA review. LADWP will comply with the FAA hazard review process so as to avoid any potential air safety or navigation impacts. Compliance with the hazard evaluation process is a matter of law and is binding on the applicant. A no hazard determination from the FAA may include stipulated markings and lighting to enhance air safety at the site. LADWP will secure FAA hazard determination prior to project construction (per mitigation measure HAZ-A).

HAZ-2 ***The demolition of existing facilities would create a significant hazard to the public through emission and handling of hazardous materials at the site. A preschool is located within one-quarter mile of the SGS site boundary.***

Demolition of the existing generation and support equipment, including buildings, structures, ductwork, piping, and storage tanks, could encounter or generate hazardous materials requiring special handling and disposal. LADWP has confirmed the presence of asbestos contaminants in Unit 3. The assessment has not quantified the approximate quantities of hazardous materials present; however, the amounts are considered significant from the standpoint of requiring separate removal and disposal. Fuel storage tanks have been screened for hazardous materials and will be subject to further testing, including soil testing, during demolition.

Based on the significance thresholds, hazardous waste removal associated with the project, in particular with the Unit 3 demolition, is a potentially significant adverse impact if not mitigated. In order to prevent such significant impacts to nearby residences and schools, measures will be taken during demolition to identify, contain, and safely remove contaminated materials (mitigation measures HAZ-B through HAZ-D).

HAZ-3 ***The demolition of existing facilities would not create a significant hazard to the public and the environment through the routine transport, use, or disposal of hazardous materials.***

Project construction would require transportation of demolition waste containing hazardous materials to appropriate disposal sites. Transportation of hazardous materials represents a potential significant adverse impact of the project that is alleviated by the selection of contractors with previous experience and good safety records and compliance with requirements established to govern transportation (such as LADWP's *Hazardous Waste Field Guide*, 2011). In addition, best management practices would be employed consistent with all California Department of Transportation (Caltrans), EPA, DTSC, California Highway Patrol (CHP), and California State Fire Marshal regulations. No additional mitigation measures are required.

Mitigation Measures

The following mitigation measures are proposed to alleviate the identified significant adverse impacts.

HAZ-A: Prior to construction of the proposed generation units and/or prior to demolition of the Unit 3 stack, LADWP will submit plans for these components to the FAA for hazard determination pursuant to 14 CFR Part 77. LADWP will implement hazard markings or other requirements established through the review process during construction and/or demolition.

HAZ-B: Asbestos surveys will be completed for buildings to be demolished that were constructed prior to 1980 as required under National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines and pursuant to SCAQMD Rule 1403. In addition, NESHAP guidelines require that all potentially friable asbestos-containing materials be removed prior to building demolition.

Table 4.2.6-1. Exhaust Stack Heights in Relation to LAX Airport Hazard Area Criteria (Feet)

	A	B	C	D	E	F	G
Generator unit	Exhaust stack height	Elevation at base of stack (AMSL)	Elevation at top of stack (AMSL) A+B	Airport Hazard Area baseline elevation (AMSL)	Allowable structure height above baseline elevation	Structure elevation limit (AMSL) D+E	Amount below or above structure elevation limit C-F
Generation Scenario 1 CCGS	213	37	250	126	150	276	-26
Generation Scenario 1 SCGS	100	104	204	126	150	276	-72
Generation Scenario 2 base-load CCGS	213	37	250	126	150	276	-26
Generation Scenario 2 peak-load CCGS	170	104	274	126	150	276	-2

Table 4.2.6-2. Exhaust Stack Heights in Relation to FAA 100:1 Imaginary Surface (LAX)

	A	B	C	D	E	F	G
Generator unit	Exhaust stack height	Elevation at base of stack (AMSL)	Elevation at top of stack (AMSL) A+B	Runway 7R elevation (closest to SGS)	Approximate distance from end of runway	Structure elevation limit (AMSL) E/100+D	Amount below or above structure elevation limit C-F
Generation Scenario 1 CCGS	213	37	250	119.3	5710	176.4	73.6
Generation Scenario 1 SCGS	100	104	204	119.3	5615	175.5	28.6
Generation Scenario 2 base-load CCGS	213	37	250	119.3	5710	176.4	73.6
Generation Scenario 2 peak-load CCGS	170	104	274	119.3	5755	176.9	97.2

HAZ-C: A lead survey of painted surfaces and soil around buildings constructed prior to 1978 will be completed prior to demolition. Requirements in the California Code of Regulation will be followed during demolition activities, including employee training, employee air monitoring, and dust control. Any debris or soil containing lead-based paint or coatings will be disposed of at landfills that meet acceptance criteria for the waste being disposed.

HAZ-D: To quantify the amounts of waste to be generated and protect public health during removal, LADWP will prepare a detailed Waste Management Program prior to start of demolition activity. The purpose of the program is to create procedures for proper storage, labeling, packaging, recordkeeping, manifesting, use of waste minimization principles, and disposal of hazardous materials and waste. The following will be included:

- A description of each hazardous waste component present.
- Waste classification procedures, including type and quantity.
- Waste container and label requirements.
- Accumulation, handling, transport, treatment, and disposal procedures for each waste that protects public health.
- Notification procedures in accordance with applicable laws and regulations.
- Waste minimization procedures, including recycling opportunities.
- Preparedness, prevention, contingency, and emergency procedures, including in the event of an unplanned closure or planned temporary facility closure.
- All facility employees will receive awareness training for hazardous waste segregation, accumulation, and labeling; inspection of satellite accumulation areas; spill contingencies; and waste minimization procedures in accordance with Title 22 CCR.
- Procedures to minimize the generation of hazardous waste. Employees will be trained in procedures to reduce the volume of hazardous wastes generated at the project. The procurement of hazardous materials will be controlled to minimize the storage of surplus materials on site and to prevent unused materials from becoming “off-specification.”

Cumulative Impacts and Mitigation Measures

None of the proposed project facilities would exceed the height limit established for SGS in relation to the Airport Hazard Area designation for the site by the Los Angeles Department of City Planning. However, the proposed project would exceed FAA standard height criteria, triggering an obstruction review for up to three proposed exhaust stacks. The demolition of the SGS Unit 3 exhaust stack would remove an existing hazard from the general area. However, the existing Unit 1 and Unit 2 stack would remain in operation. This stack is at least 60 feet higher in elevation AGL than the proposed new stacks. The proposed project, in conjunction with other planned projects, would not contribute to a cumulatively significant impact related to aircraft navigation obstructions or aviation safety and no changes in aircraft operations are needed or would be warranted. Hazard review will be conducted (HAZ-A) and would determine whether exterior markings or lighting are necessary at the proposed facility.

The proposed project would produce incremental amounts of hazardous wastes during demolition. Upon isolation from the demolition wastes, the hazardous waste component would be relatively small and would not add significantly to the cumulative total waste generated annually destined for Class I landfills.

Levels of Significance After Mitigation

The proposed project would comply with FAA regulations regarding hazard evaluation and would implement measures specified by the FAA as to markings and lighting as provided in HAZ-A. Project impacts would be reduced to less than significant with implementation of these measures.

The proposed project would comply with all laws and regulations governing handling and disposal of hazardous materials during demolition. In addition, mitigation measures HAZ-B through HAZ-D require quantification and characterization of wastes prior to demolition. In addition, LADWP has registered the SGS site as a waste generator, and it is a regulated facility. Accordingly, the project-related impacts would be less than significant with implementation of mitigation measures.

4.2.7 Noise

This section evaluates noise and vibration levels associated with the implementation of the proposed project. This analysis assesses existing noise and vibration conditions at the project site and in its vicinity, as well as short-term construction and long-term operational noise and vibration impacts associated with the proposed project. Mitigation measures for potentially significant impacts are recommended when appropriate to reduce noise and vibration levels. The *Scattergood Generating Station Repowering Project Noise Impact Report* is included as Appendix F of this EIR.

Environmental Setting

Noise Environmental Setting

Characteristics of Sound

Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement for sound is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. Figure 4.2.7-1 provides examples of A-weighted noise levels from common sounds.

Noise Definitions

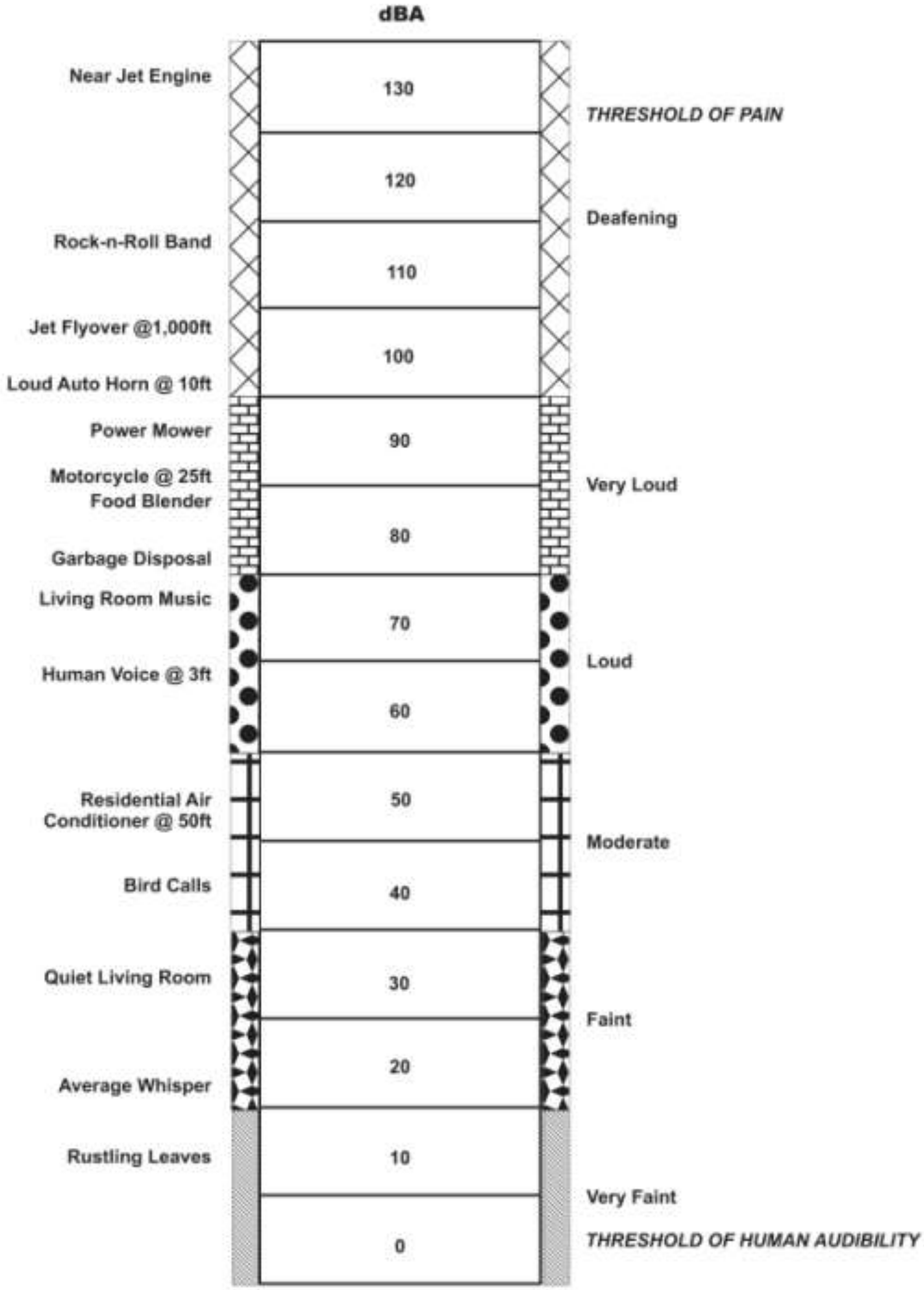
This noise analysis discusses sound levels in terms of Community Noise Equivalent Level (CNEL), Equivalent Noise Level (L_{eq}), and the noise level exceeded X percent of a specific time period (L_X).

Community Noise Equivalent Level. CNEL is an average sound level during a 24-hour period. CNEL is a noise measurement scale that accounts for noise source, distance, single event duration, single event occurrence, frequency, and time of day. Human reaction to sound between 7:00 p.m. and 10:00 p.m. is as if the sound were actually 5 dBA higher than if it occurred from 7:00 a.m. to 7:00 p.m. From 10:00 p.m. to 7:00 a.m., humans perceive sound as if it were 10 dBA higher due to the lower background level. Hence, the CNEL is obtained by adding an additional 5 dBA to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and 10 dBA to sound levels in the night from 10:00 p.m. to 7:00 a.m. Because CNEL accounts for human sensitivity to sound, the CNEL 24-hour figure is always a higher number than the actual 24-hour average.

Equivalent Noise Level. L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise that has the same energy content as the fluctuating noise level. The equivalent noise level is expressed in units of dBA.

L_X. L_X is the noise level exceeded X percent of a specific time period. The value of X is commonly 10 (e.g., L_{10}). Other values, such as 50 and 90, are also commonly used.

FIGURE 4.2.7-1. A-WEIGHTED DECIBEL SCALE



Effects of Noise

Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects). Human response to noise is subjective and can vary greatly from person to person. Factors that influence individual response include the intensity, frequency, and pattern of noise, the amount of background noise present before the intruding noise, and the nature of work or human activity that is exposed to the noise source.

Audible Noise Changes

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and may evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would likely cause a community response.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," will decrease by approximately 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level would be 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on, over hard or reflective surfaces. Noise generated by a mobile source will decrease by approximately 3 dBA over hard surfaces and 4.5 dBA over soft surfaces for each doubling of the distance.

Generally, noise is most audible when traveling by direct line-of-sight, which is an unobstructed visual path between the noise source and the noise receptor. Barriers, such as walls, berms, or buildings, that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source, since sound can only reach the receiver by bending over the top of the barrier (diffraction). Sound barriers can reduce sound levels by up to 20 dBA. However, if a barrier is not high or long enough to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

Existing Noise Environment

The existing noise environment of the project area is characterized by mechanical equipment noise associated with SGS, vehicular traffic along Vista Del Mar and Grand Avenue, and aircraft associated with LAX. Additional sources of noise are typical of dense urban areas and include sirens and helicopters.

Sound measurements surrounding SGS were taken by ATCO Noise Management using Brüel & Kjaer 2250 Real Time Analyzers over a 48-hour period from 10:00 a.m. August 10, 2010 to 10:00 a.m. August 12, 2010. These readings were used to establish existing ambient noise conditions and to provide a baseline for evaluating construction and operational noise impacts. Noise monitoring locations (locations 1 through 4) are shown in Figure 4.2.7-2.

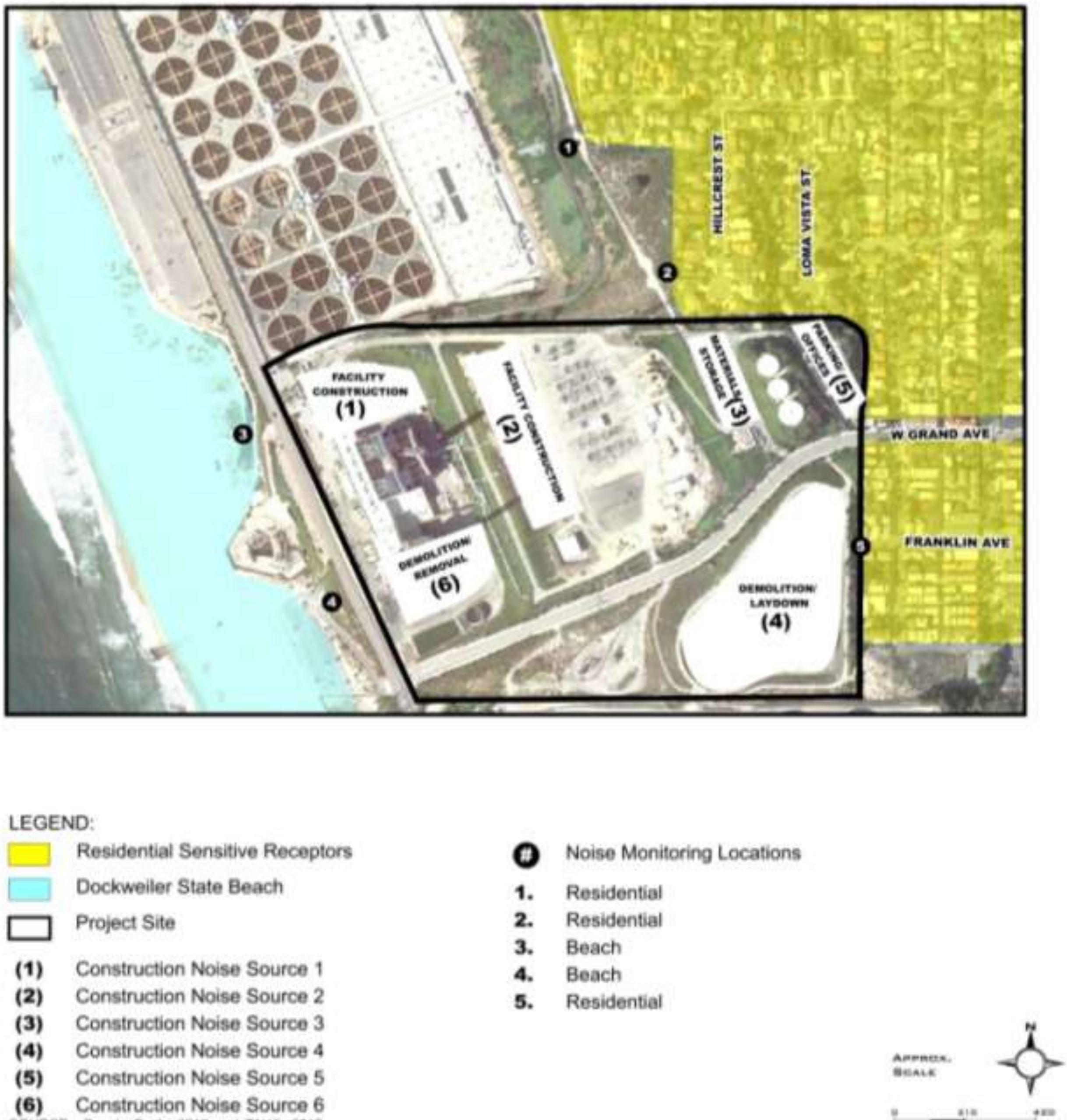
Monitored noise levels are shown in Table 4.2.7-1. Existing ambient sound levels range between 55.0 and 60.0 dBA L_{eq}. A sound measurement was also taken using a SoundPro DL Sound Level Meter between 11:00 a.m. and 11:15 a.m. on July 26, 2011 to determine existing ambient daytime off-peak noise level for single and multi-family residences south of Grand Avenue (location 5). This location is also shown on Figure 4.2.7-2. The existing ambient reading was 55.0 dBA $L_{eq.}$

Table 4.2.7-1. Existing Noise Levels

Key to Figure 4.2.7-2	Noise Monitoring Location	Noise Levels, dBA	
		Lowest Daytime ($L_{eq\ 1\text{-}hr}$)	Lowest Nighttime ($L_{eq\ 1\text{-}hr}$)
1	Residential	60	60
2	Residential	57	57
3	Beach	58	59
4	Beach	55	57

SOURCE: ATCO Noise Management, *Operational Noise Analysis*, September 28, 2011.

FIGURE 4.2.7-2. NOISE MONITORING LOCATIONS



SOURCE: Google Earth, 2012 and TAHA, 2012.

Vibration Environmental Setting

Characteristics of Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as blasting, pile driving, and heavy earth-moving equipment.

Vibration Definitions

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.[1]

Effects of Vibration

High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of vibration may damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes).

Perceptible Vibration Changes

In contrast to noise, vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 RMS or lower, well below the threshold of perception for humans, which is around 65 RMS.[2] Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

Existing Vibration Environment

There are no stationary sources of vibration located near the project site. Heavy-duty trucks can generate vibrations that vary depending on vehicle type and weight, and pavement conditions. However, vibration levels from adjacent roadways are not typically perceptible at the project site. In addition, mechanical equipment associated with the existing SGS facility does not generate perceptible vibration past the property line.

Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would be considered noise- and vibration-sensitive and may warrant measures for protection from intruding noise. Sensitive receptor locations are identified in Figure 4.2.7-2 above and include the following areas in jurisdictions adjacent to SGS:

City of Los Angeles. No sensitive receptors within the City of Los Angeles are located within one-quarter mile of the project site. Noise levels at sensitive receptors outside this range would not be affected by construction or operational activities.

[1] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.
[2] Ibid.

City of El Segundo. Residential land uses are located adjacent and to the east of the project site on the north and south sides of Grand Avenue.

County of Los Angeles. Dockweiler State Beach is located approximately 100 feet west of the project site.

Regulatory Setting

Noise

SGS is located on City of Los Angeles property. Adjacent jurisdictions include the City of El Segundo and the County of Los Angeles.

City of Los Angeles. The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect noise-sensitive land uses. Regarding construction, the Los Angeles Municipal Code (LAMC) indicates that no construction or repair work shall be performed before 7:00 a.m. or after 9:00 p.m., Monday through Friday, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment, or other place of residence. No person, other than an individual homeowner, shall engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind, or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday or on a federal holiday, or at any time on any Sunday. Under certain conditions, the City may grant a waiver to allow limited construction activities to occur outside of the limits described above.

City of El Segundo. The City of El Segundo noise policies are defined in Chapter 2 (Noise and Vibration), Title 7 (Nuisances and Offenses) of the Municipal Code. The Code states that no person should generate noise that causes greater than a 5-dB increase in ambient noise levels at a residential property. The Code does not state what noise metric should be used to determine compliance with the noise ordinance. Therefore, the noise increase per the City standard is measured against the hourly noise level in this analysis.

Regarding construction noise, the City of El Segundo exempts noise sources associated with or vibration created by construction, repair, or remodeling of any real property, provided that activities do not take place between the hours of 6:00 p.m. and 7:00 a.m., Monday through Saturday, or at any time on Sunday or a federal holiday, and provided the noise level created by such activities does not exceed the noise standard of 65 dBA as measured on the receptor residential property line, and provided any vibration created does not endanger the public health, welfare, or safety.

County of Los Angeles. Dockweiler State Beach is operated by the County of Los Angeles. The County has not established noise standards for beach areas.

Vibration

There are no adopted City of Los Angeles standards for vibration.

Regarding the City of El Segundo, Section 7-2-9 of the Municipal Code states that a person shall not create, maintain, or cause any ground vibration that is perceptible, without the use of instruments, to any reasonable person of normal sensitivity at any point on any affected property.

Regarding the County of Los Angeles, Section 12.08.560 of the Code prohibits operating or permitting the operation of any device that creates vibration that is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet from the source if on a public space or public right-of-way. The perception threshold shall be a motion velocity of 0.01 inches per second over the range of 1 to 100 Hertz.

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that though the proposed project would be located within the LAX airport land use plan area, SGS lies outside of the 65-CNEL area. The noise analysis does consider ambient conditions in estimating project noise impacts. The Initial Study also found that the project is not within the vicinity of a private airstrip that would subject people to excessive noise levels. Accordingly, these issues are not further addressed in the EIR.

Construction Noise Significance Criteria

The determination of significance at residential receptors is based on standards listed in the El Segundo Municipal Code. Dockweiler State Beach is a recreational land use where general noise compatibility is important. As such, the determination of significance at the beach is based on the State land use compatibility matrix for water recreation as shown in Table 4.2.7-2. The maximum normally acceptable noise level for water recreation is 75 dBA day/night noise level (L_{dn}), which overlaps with the minimum normally unacceptable noise level of 70 dBA L_{dn}. However, the maximum normally acceptable noise level is used as the threshold for this analysis given that Dockweiler State Beach is located near several substantial sources of noise, including the existing SGS, HTP, the Pacific Coast Highway, and LAX. For a continuously operating stationary sound sources, the L_{dn} is equivalent to the hourly equivalent sound level plus 6.4 dB. Therefore, the maximum hourly equivalent sound level is 68.6 dBA L_{eq}.

The proposed project would result in significant construction noise impacts if:

- Construction noise levels at residences in the City of El Segundo would exceed 65 dBA L_{eq}.
- Construction noise levels at Dockweiler State Beach exceed 68.6 dBA L_{eq}.

Operational Phase Noise Significance Criteria

The determination of significance at residential receptors is based on standards listed in the El Segundo Municipal Code. The determination of significance at Dockweiler Beach is based on the State land use compatibility matrix shown in Table 4.2.7-2.

The proposed project would result in significant operational impacts if:

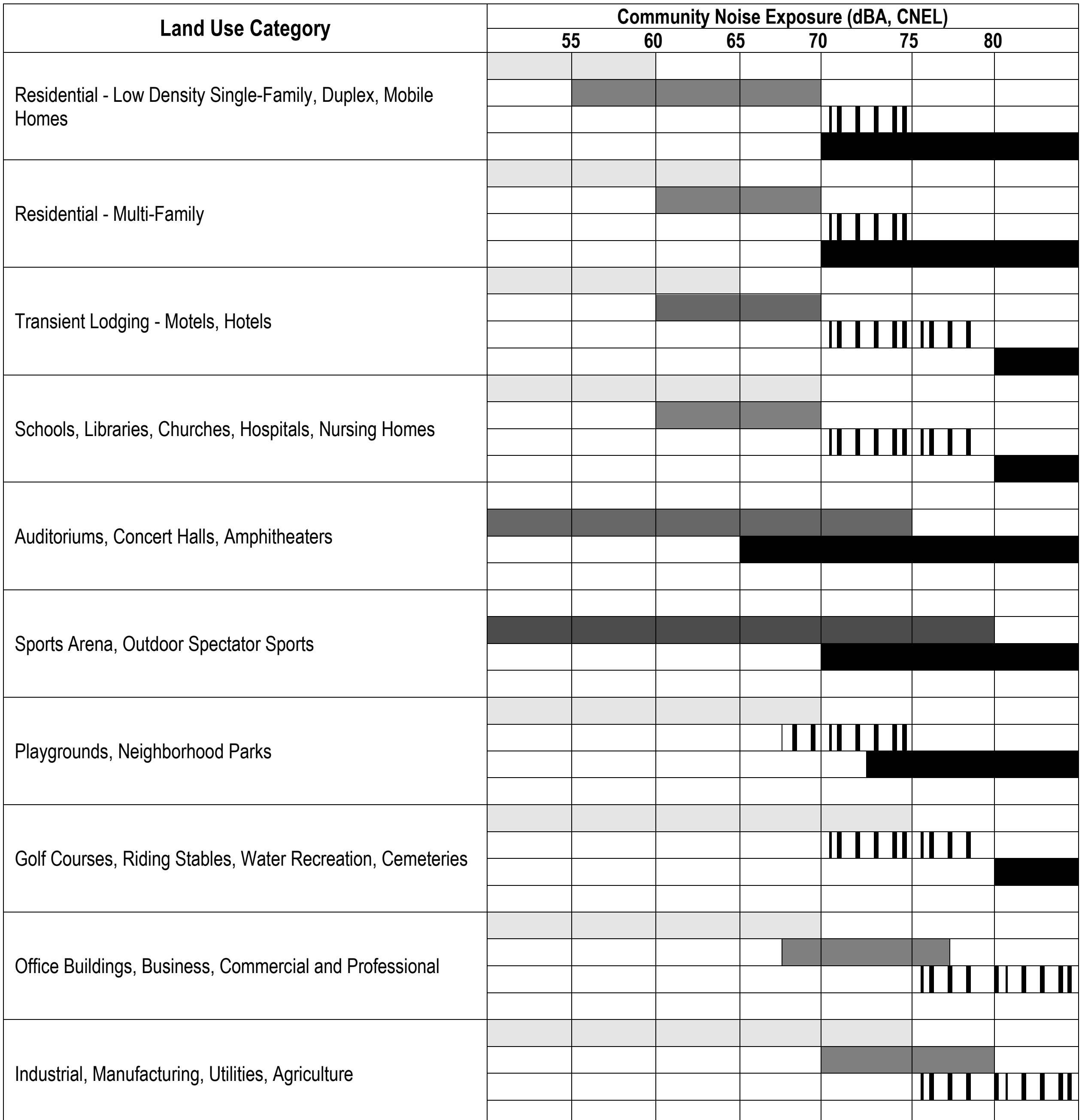
- Operational noise levels at residences in the City of El Segundo would exceed the ambient noise level by 5 dBA; and/or
- Operational noise levels at Dockweiler State Beach exceed 68.6 dBA L_{eq}.

Vibration Significance Criteria

There are no adopted State or local vibration standards. Based on federal guidelines, the proposed project would result in a significant construction or operational vibration impact if:

- The proposed project would expose buildings to the Federal Transit Administration (FTA) building damage threshold for non-engineered timber and masonry buildings of 0.2 inches per second.

Table 4.2.7-2. Land Use Compatibility for Community Noise Environments



Normally Acceptable - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Conditionally Acceptable - New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditioning, will normally suffice.

Normally Unacceptable - New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable - New construction or development should generally not be undertaken.

SOURCE**:** California Office of Noise Control, Department of Health Services.

Environmental Impacts

Construction Phase Analysis

The construction analysis presents three scenarios, representing various phases of construction that can be characterized based on their location and type of activity. There are two power generation system options that are currently under consideration that could be implemented at SGS. It was assumed that these options would result in similar construction noise levels.

The first construction scenario represents the beginning of construction activity when the oil tanks south of Grand Avenue will be demolished. It was assumed that this demolition activity would generate a noise level of 85 dBA L_{eq} at 50 feet, consistent with EPA source equipment operating standards.

The second scenario is a worst-case scenario when activity would be occurring throughout the project site. The project site was divided into five distinct noise sources as shown in Figure 4.2.7-2. Noise Sources 1 and 2 involve the placement of generating systems and associated mechanical equipment. Noise Source 3 is a paved materials storage area. Noise Source 4 is the Oil Tank (OT) Farm Area laydown area. Noise Source 5 is the parking and construction management area. The noise level associated with Noise Sources 1 and 2 was based on a reference level of 89 dBA L_{eq} at 50 feet for high-intensity construction activity with multiple pieces of equipment operating simultaneously.[3] It was assumed that Noise Source 3 would be a laydown area for small pieces of equipment and associated supplies. The noise level in this area would typically not exceed 68 dBA L_{eq} at 50 feet based on a small truck moving at 15 miles per hour. The Noise Source 4 reference level was 78 dBA L_{eq} at 50 feet based on low-intensity construction activity with multiple pieces of equipment operating simultaneously. The noise level in the Noise Source 5 parking area is based on a reference level of 58.1 dBA L_{eq} at 50 feet.

The third construction scenario represents the demolition of Unit 3 (Noise Source 6 as identified on Figure 4.2.7-2) at the southwest corner of the SGS site. This activity would occur at the end of the construction process and would generate a noise level of approximately 89 dBA L_{eq} at 50 feet.

Construction noise levels were assessed for the sensitive receptors nearest to the project site on the north and south sides of Grand Avenue. These would be the receptors most affected by construction noise. Construction noise was also estimated at Dockweiler State Beach. The noise level at each receptor location was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level.

Operational Phase Analysis

The operational noise is based on a report prepared for LADWP by Worley Parsons and ATCO Noise Management (Appendix B).[4] The methodology is described in detail in the ATCO Noise Management technical report. To summarize, the acoustical modeling was completed using the Cadna/A computer software program from DataKustik GmbH. Atmospheric conditions were based on average conditions. Noise-radiating elements were modeled based on their noise emission pattern. Concentrated sources, such as pumps and valves, were included as point sources, which radiate sound hemispherically over ground. The analysis also includes directivity patterns associated with the exhaust stacks. Noise breakout through building walls was entered as area sources, which radiate sound over a much larger area. Pipes were entered as line sources, which radiate sound in a cylindrical pattern. Buildings and other obstacles were modeled as solid barrier elements. Source sound power levels for the SGS generation unit development scenarios were obtained from vendor data or measurement data from similar units compiled from past projects where available. For equipment with no prior vendor or measurement data available, a sound

[3] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.
[4] ATCO Noise Management, *Operational Noise Analysis*, September 28, 2011.

power level for a similar piece of equipment was used with corrections for dimensions and mechanical differences. The following assumptions were used to develop the noise prediction model:

- noise sources with infrequent operation were not included;
- equipment was assumed to be in full load steady state operation;
- Units 1 and 2 were assumed to have nearly identical noise emission based on their mechanical similarity;
- the combustion turbine air inlet filter house would have standard silencing; and
- doors were assumed closed.

NOISE-1 ***Construction of the proposed project would expose persons to or generate noise levels in excess of City (or other applicable) standards and create a substantial temporary increase in ambient noise levels in the vicinity of the project.***

Construction of the proposed project would result in temporary increases in ambient noise levels in the project area on an intermittent basis. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers.

Construction activities typically require the use of numerous pieces of noise-generating equipment. Typical noise levels from various types of equipment that may be used during construction are listed in Table 4.2.7-3. The table shows noise levels at distances of 50 and 100 feet from the construction noise source.

Table 4.2.7-3. Maximum Noise Levels of Common Construction Machines

Noise Source	Noise Level (dBA)	
	50 Feet	100 Feet
Front Loader	80	74
Trucks	89	83
Cranes (derrick)	88	82
Jackhammers	90	84
Generators	77	71
Back Hoe	84	78
Tractor	88	82
Scraper/Grader	87	81
Paver	87	81
Auger Drilling	77	71

SOURCE: City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.

Construction Scenario 1

The first scenario represents the beginning of construction activity when the oil tanks south of Grand Avenue will be demolished. It was assumed that demolition activity would generate a noise level of 85 dBA L_{eq} at 50 feet. Figure 4.2.7-3 shows the distance from each of the noise sources to the analyzed receptors. Table 4.2.7-4 presents the estimated noise levels during construction activity. Noise levels would exceed the significance threshold at receptor location 5. Therefore, without mitigation, construction scenario 1 would result in a significant impact related to construction noise levels.

Table 4.2.7-4. Construction Noise Impact – Scenario 1 Unmitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	54.5	60.0	61.1	65	No
2 – Residence	57.9	57.0	60.5	65	No
3 – Beach	47.9	58.0	58.4	68.6	No
4 – Beach	49.4	55.0	56.1	68.6	No
5 – Residence	66.0	55.0	66.3	65	Yes

SOURCE: TAHA, 2011.

Construction Scenario 2

Construction Scenario 2 represents a worst-case scenario when activity would be occurring throughout the project site. Figure 4.2.7-4 shows the distance from each of the noise sources to the analyzed receptors. Table 4.2.7-5 presents the estimated noise levels at receptors during construction activity. Noise levels would exceed the significance threshold at receptor locations 1, 2, 3, and 5. Therefore, without mitigation, scenario 2 would result in a significant impact related to construction noise levels.

Table 4.2.7-5. Construction Noise Impact – Scenario 2 Unmitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	65.3	60.0	66.4	65	Yes
2 – Residence	67.0	57.0	67.4	65	Yes
3 – Beach	70.4	58.0	70.6	68.6	Yes
4 – Beach	65.9	55.0	66.3	68.6	No
5 – Residence	66.4	55.0	66.7	65	Yes

SOURCE: TAHA, 2011.

Construction Scenario 3

Removal of the existing Unit 3 would occur after the construction of the new generation units is completed. This activity would not be concurrent with any other construction activities. Figure 4.2.7-5 shows the distance from each of the noise sources to the analyzed receptors. Table 4.2.7-6 presents the estimated noise levels at receptors during construction activity. Noise levels would exceed the significance threshold at receptor location 4. Therefore, without mitigation, scenario 3 would result in a significant impact related to construction noise levels.

Table 4.2.7-6. Construction Noise Impact – Scenario 3 Unmitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	48.9	60.0	60.3	65	No
2 – Residence	50.4	57.0	57.9	65	No
3 – Beach	64.8	58.0	65.6	68.6	No
4 – Beach	70.6	55.0	70.7	68.6	Yes
5 – Residence	49.3	55.0	56.0	65	No

SOURCE: TAHA, 2011.

FIGURE 4.2.7-3. CONSTRUCTION SCENARIO 1 NOISE SOURCES AND SENSITIVE RECEPTORS

LEGEND:

Project Site

Construction Noise Source 4

Sensitive Receptor

1. Residential
2. Residential
3. Beach
4. Beach
5. Residential

SOURCE: Google Earth, 2012 and TAHA, 2012.

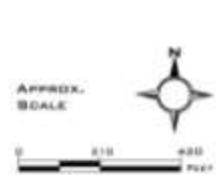


FIGURE 4.2.7-4. CONSTRUCTION SCENARIO 2 NOISE SOURCES AND SENSITIVE RECEPTORS

LEGEND:

- Project Site
- Construction Noise Source 1
- Construction Noise Source 2
- Construction Noise Source 3
- Construction Noise Source 4
- Construction Noise Source 5
- Sensitive Receptor

1. Residential
2. Residential
3. Beach
4. Beach
5. Residential

SOURCE: Google Earth, 2012 and TAHA, 2012.

FIGURE 4.2.7-5. CONSTRUCTION SCENARIO 3 NOISE SOURCES AND SENSITIVE RECEPTORS

NOISE-2 ***Operation of the proposed project would not expose persons to or generate noise levels in excess of City (or other applicable) standards or create a substantial permanent increase in ambient noise levels in the vicinity of the project.***

Operational noise levels were assessed at the receptors closest to the SGS. For example, it was assumed that noise levels at residences located to the south across Grand Avenue (i.e., at Franklin Avenue) and east behind the tanks (i.e., at Loma Vista Street) would be exposed to less noise than the residences on the bluffs facing SGS. In addition, the noise modeling assumed a base case scenario with no noise attenuation beyond that which is inherently included in the generation equipment packages.

Generation Scenario 1

Generation Scenario 1 was modeled for the expected noise emission from the SGS facility under the following operating conditions:

- Units 1 and 2 under full load;
- combined cycle turbine generator system in the north parking lot at full load;
- two new simple cycle turbine generator systems on the east terrace at full load; and
- Unit 3 not operating (removed from service).

Generation Scenario 2

Generation Scenario 2 was modeled for the expected noise emission from the SGS facility under the following operating conditions:

- Units 1 and 2 under full load;
- new combined cycle turbine generator system in the north parking lot at full load;
- new combined cycle turbine generator system on the east terrace at full load; and
- Unit 3 not operating (removed from service).

As shown in Figure 4.2.7-6 and Table 4.2.7-7, noise levels from Generation Scenario 1 would not exceed the established thresholds. Therefore, the proposed project would result in a less-than-significant impact related to GE operational noise levels.

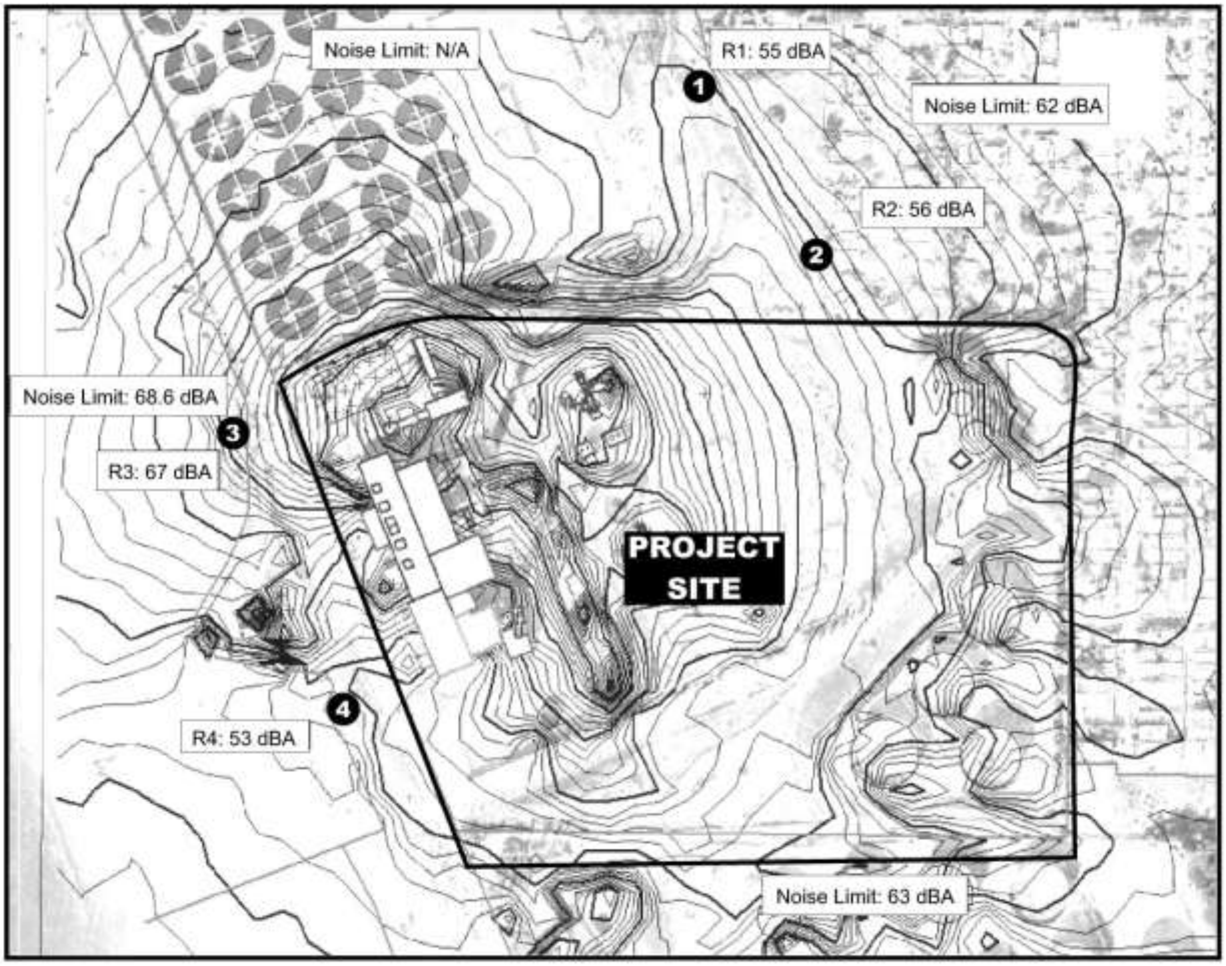
As shown in Figure 4.2.7-7 and Table 4.2.7-7, noise levels from Generation Scenario 2 would not exceed the established thresholds. Therefore, the proposed project would result in a less-than-significant impact related to Siemens operational noise levels.

Table 4.2.7-7. Operational Sound Levels

Location	Threshold (dBA, L_{eq})	SGS Noise (dBA, L_{eq})	Impact?
Generation Scenario 1			
Receptor 1	62	55	No
Receptor 2	62	56	No
Receptor 3	68.6	67	No
Receptor 4	68.6	53	No
Generation Scenario 2			
Receptor 1	62	59	No
Receptor 2	62	59	No
Receptor 3	68.6	62	No
Receptor 4	68.6	56	No

SOURCE: TAHA, 2011.

FIGURE 4.2.7-6. GENERATION SCENARIO 1 NOISE CONTOURS



LEGEND:

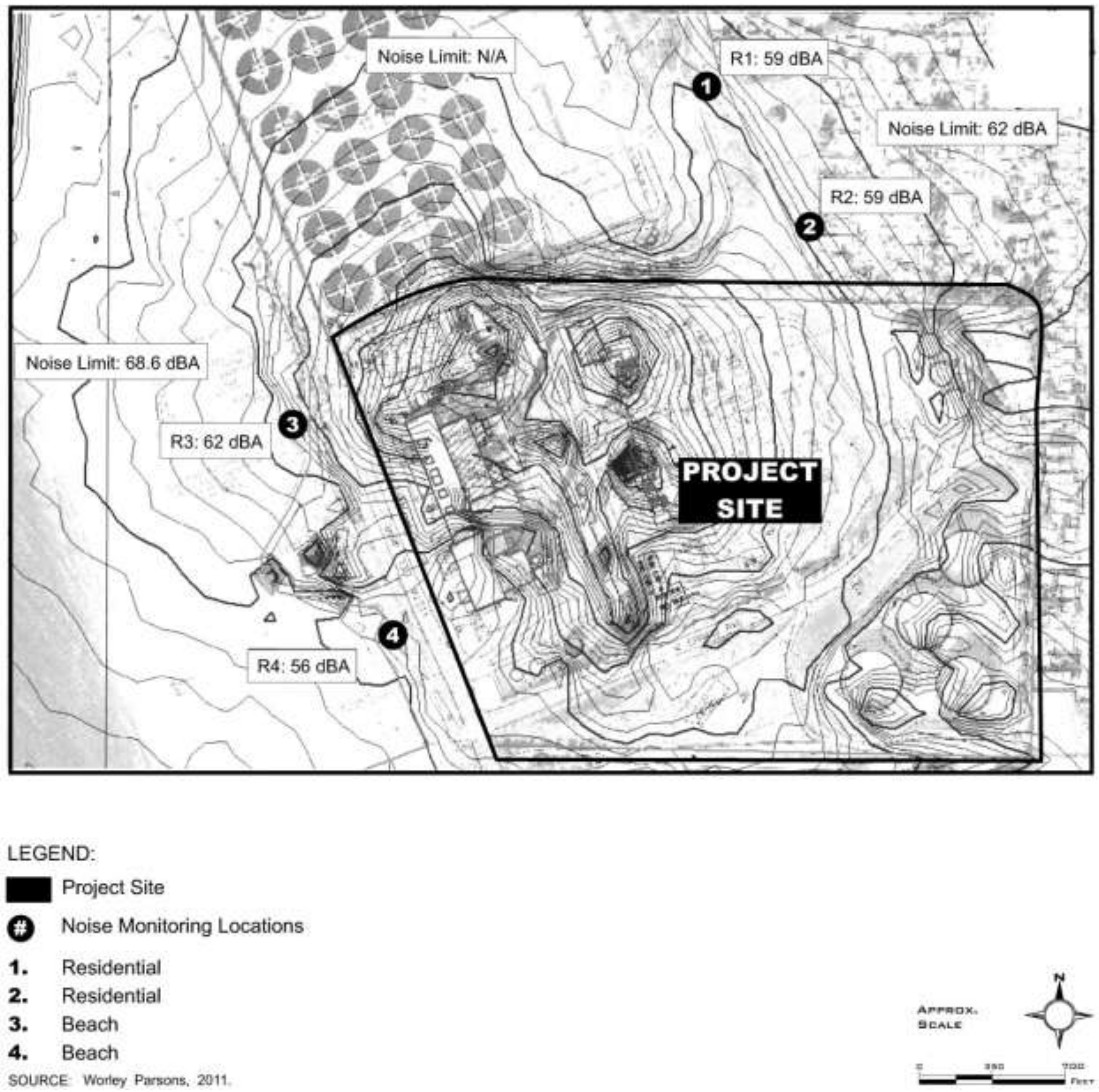
Project Site

Noise Monitoring Locations

1. Residential
2. Residential
3. Beach
4. Beach

SOURCE: Worley Parsons, 2011.

FIGURE 4.2.7-7. GENERATION SCENARIO 2 NOISE CONTOURS



NOISE 3 ***Construction and operation of the proposed project would not expose people to excessive groundborne vibration.***

The FTA has published methodology for estimating vibration levels and potential impacts. According to the FTA, standard construction equipment (e.g., a large bulldozer) generates a vibration level of 0.089 inch per second at a distance of 25 feet. It is not anticipated that heavy construction activity would occur within 50 feet of residential buildings. Even at 50 feet, the typical equipment-generated vibration level would be 0.03 inch per second. Vibration levels at these receptors would not exceed the potential building damage threshold of 0.2 inch per second. Additionally, operations would not exceed potential building damage thresholds. Therefore, the proposed project would result in a less-than-significant impact related to vibration.

Mitigation Measures

The following mitigation measures are proposed to alleviate the identified significant adverse construction noise impacts resulting from construction scenarios 1, 2, and 3.

NOISE-A: All construction equipment shall be properly maintained and equipped with mufflers and other suitable noise attenuation devices.

NOISE-B: Grading and construction contractors shall endeavor to use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment).

NOISE-C: The construction contractor shall ensure that all laydown and vehicle staging areas are located away from noise-sensitive receivers, to the extent feasible.

NOISE-D: The construction contractor shall plan work such that activities that generate high noise levels will not be started outside the hours codified in the Los Angeles and El Segundo Municipal Codes, and all reasonable efforts to conclude work in progress prior to the hours listed in these codes will be taken by the construction contractor.

NOISE-E: A public liaison for project construction shall be identified who shall be responsible for addressing public concerns about construction activities, including excessive noise. The liaison shall determine the cause of the concern (e.g., starting too early, bad muffler) and shall be required to implement reasonable measures to address the concern.

Cumulative Impacts and Mitigation Measures

Cumulative impacts related to noise and vibration would result if the proposed project, in conjunction with other projects in the area, would contribute to a significant increase in ambient noise and vibration levels at nearby sensitive receptors.

Construction Noise Cumulative Impacts

Construction activity generates localized noise levels that are generally audible at a maximum distance of 3,000 feet when there is a direct line-of-sight from the source to the receptors. Topography and intervening structures typically associated with an urban environment quickly reduce the audible distance of construction noise. No projects have been identified within 3,000 feet of the project site with construction schedules that would overlap with the proposed project; therefore, the proposed project’s noise impact would not contribute to a cumulatively considerable construction noise impact.

Operational Phase Noise Cumulative Impacts

In addition to project-only noise, the operational noise analysis accounted for monitored ambient noise levels and operations of Units 1 and 2 under full load. This scenario represents a conservative cumulative condition, especially since the generation capacity of Unit 1 would be permanently reduced as part of the proposed project. As previously discussed, operational SGS noise levels would not exceed the established significance thresholds. In addition, operation of the proposed project would not add any additional trips to the roadway system and, therefore, would not increase mobile noise in the region. Therefore, the proposed project would not contribute to a cumulatively considerable operational noise impact.

Vibration Cumulative Impacts

The predominant vibration source at the project site would be construction activity and operation of generator facilities. As previously discussed, the proposed project would not exceed the significance thresholds for vibration during either the construction or operational phases of the SGS facility. In addition, no project has been identified near the project site that would generate perceptible vibration overlapping with the proposed project. Therefore, the proposed project would not contribute to a cumulatively considerable vibration impact.

Levels of Significance After Mitigation

Mitigation measure NOISE-A would reduce noise levels by approximately 3 dBA. The other mitigation measures (NOISE-B through NOISE-E) would assist in attenuating construction noise levels, but the level of attenuation is non-quantifiable.

Construction Scenario 1

Table 4.2.7-8 shows mitigated construction noise levels for construction scenario 1. Mitigated noise levels would not exceed the significance threshold at receptor location 5. Therefore, construction scenario 1 would result in a less-than-significant impact related to construction noise.

Table 4.2.7-8. Construction Noise Impact – Scenario 1 Mitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	51.5	60.0	60.6	65	No
2 – Residence	54.9	57.0	59.1	65	No
3 – Beach	44.9	58.0	58.2	68.6	No
4 – Beach	46.4	55.0	55.6	68.6	No
5 – Residence	63.0	55.0	63.6	65	No

SOURCE: TAHA, 2011.

Construction Scenario 2

Table 4.2.7-9 shows mitigated construction noise levels for construction scenario 2. Mitigated noise levels would not exceed the significance threshold at identified receptors. Therefore, construction scenario 2 would result in a less-than-significant impact related to construction noise.

Table 4.2.7-9. Construction Noise Impact – Scenario 2 Mitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	62.3	60.0	64.3	65	No
2 – Residence	64.0	57.0	64.9	65	No
3 – Beach	67.4	58.0	67.8	68.6	No
4 – Beach	62.9	55.0	63.6	68.6	No
5 – Residence	63.4	55.0	62.2	65	No

SOURCE: TAHA, 2011.

Construction Scenario 3

Table 4.2.7-10 shows mitigated construction noise levels for construction scenario 3. Mitigated noise levels would not exceed the significance threshold at identified receptors. Therefore, construction scenario 3 would result in a less-than-significant impact related to construction noise.

Table 4.2.7-10. Construction Noise Impact – Scenario 3 Mitigated

Receptor Location and Land Use	Construction Noise Level (dBA)	Existing Ambient (dBA, L_{eq})	New Ambient (dBA, L_{eq})	Threshold	Impact?
1 – Residence	45.9	60.0	60.2	65	No
2 – Residence	47.4	57.0	57.0	65	No
3 – Beach	61.8	58.0	63.3	68.6	No
4 – Beach	67.6	55.0	67.8	68.6	No
5 – Residence	46.3	55.0	55.5	65	No

SOURCE: TAHA, 2011.

Impacts related to operational noise and vibration during construction and operations are less than significant without the implementation of mitigation measures.

4.2.8 Traffic and Transportation

The purpose of this section is to assess the impacts of construction activities related to the proposed project on the surrounding roadway system. The *Scattergood Generating Station Repowering Project Traffic and Transportation Study* is included as Appendix G of this EIR. The study quantitatively assesses project construction impacts on weekday a.m. and p.m. peak-hour operations at seven study intersections and eight study roadway segments near the project site. Major signalized intersections and adjacent roadway segments along employee vehicle and construction truck routes to and from the project site were included in the study area. The study assumes that construction of the project would commence in 2012 and be completed in 2020. Traffic volumes will vary over the construction period; however, peak traffic levels would occur in February of 2015.

Environmental Setting

Traffic Study Area

A traffic study area was defined within which any traffic impacts of the project would be likely to occur. Roadway segments and intersections were then identified for analysis. The following study intersections were identified for evaluation in the traffic analysis:

1. Vista del Mar / Imperial Highway
2. Pershing Drive / Imperial Highway
3. Main Street / Imperial Highway
4. Vista del Mar / Grand Avenue
5. Grand Avenue / Main Street
6. Grand Avenue / Sepulveda Boulevard
7. Highland Avenue / Rosecrans Avenue

The list below defines the study roadway segments that are included in the traffic analysis:

A. Imperial Highway, between Vista del Mar & Pershing Drive
B. Imperial Highway, between Pershing Drive & Main Street
C. Imperial Highway, between Main Street & Sepulveda Boulevard
D. Grand Avenue, between Vista del Mar & Main Street

E. Grand Avenue, between Main Street & Sepulveda Boulevard
F. Vista del Mar, between Imperial Highway & Grand Avenue
G. Vista del Mar, between Grand Avenue & Rosecrans Avenue
H. Sepulveda Boulevard, between Imperial Highway & Grand Avenue

Figure 4.2.8-1 illustrates the locations of the project study intersections and roadway segments.

Jurisdictional Considerations

The traffic study area for the proposed project includes the jurisdictions of the City of Los Angeles, City of Manhattan Beach, and City of El Segundo. The methodologies employed by these jurisdictions to evaluate traffic impacts are described in more detail in the Regulatory Setting subsection of this section. However, the City of Los Angeles Department of Transportation (LADOT) and the City of Manhattan Beach specify that the Transportation Research Board Critical Movement Analysis (CMA), Circular 212 Method, be used to analyze traffic operating conditions at signalized intersections. The City of El Segundo uses the Intersection Capacity Utilization (ICU) methodology as the desired method to evaluate operating conditions at signalized intersections.

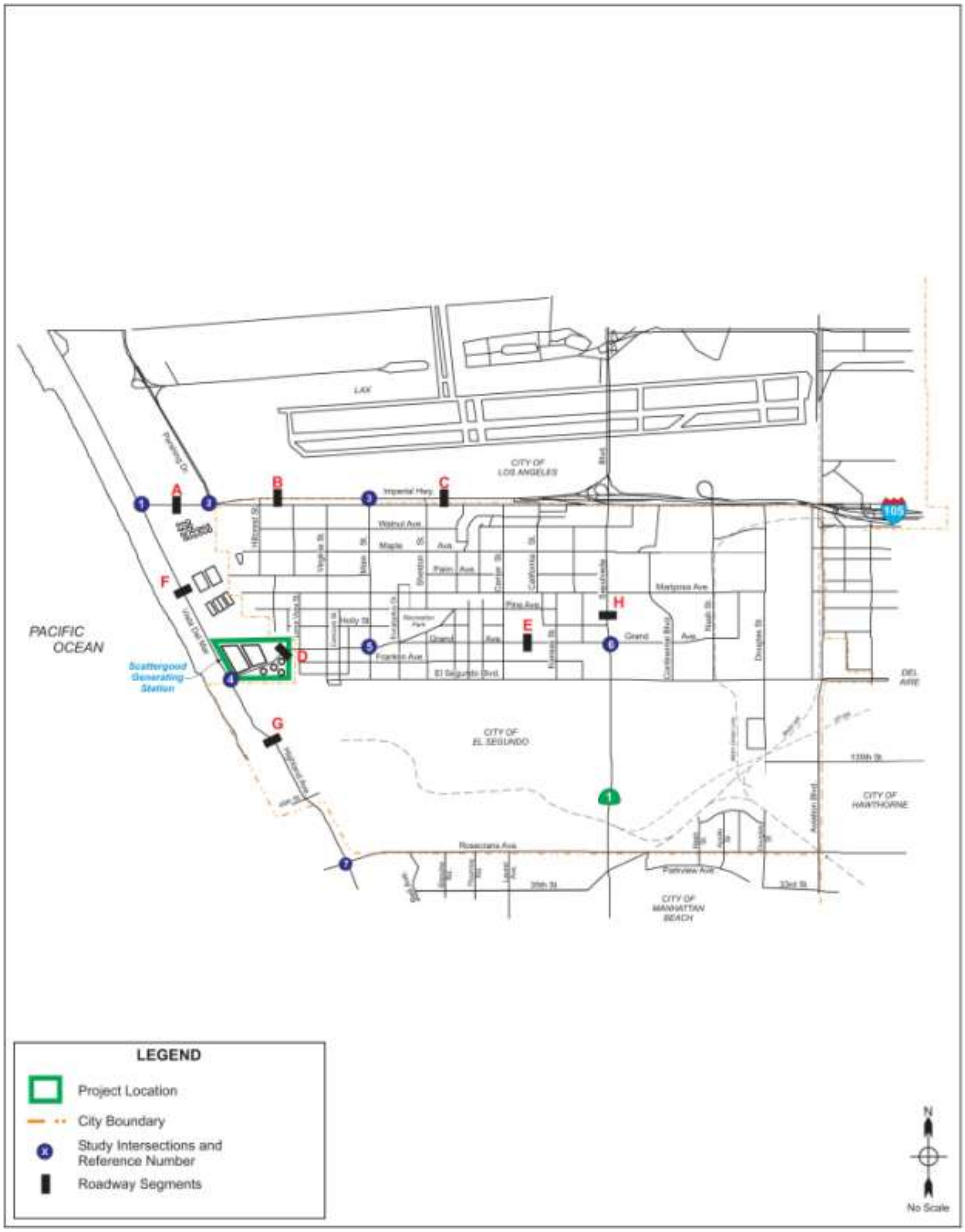
In addition, level of service (LOS) is also used to describe the operating conditions of traffic intersections in conjunction with CMA analysis. LOS values range from LOS A to LOS F. LOS A indicates excellent operating conditions with little delay to motorists, whereas LOS F represents congested conditions with excessive vehicle delay. The upper range of LOS E is typically defined as the operating “capacity” of a roadway.

The following describes the general roadway operations for each LOS value, as defined within the *Highway Capacity Manual* (published by the Transportation Research Board).

Table 4.2.8-1. Definitions of Level of Service for Signalized Intersections

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used
B	0.601 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles
C	0.701 – 0.800	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.900 – 1.00	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than 1.000	FAILURE. Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

FIGURE 4.2.8-1. STUDY INTERSECTIONS AND ROADWAY SEGMENTS



Existing Intersection Level of Service

An LOS analysis was conducted to determine peak-hour conditions at the study intersections. The CMA methodology was used for the analysis of study intersections in the Cities of Los Angeles and Manhattan Beach. The ICU methodology was used to analyze study intersections in the City of El Segundo. Table 4.2.8-2 provides the results of this analysis. One of the study intersections (Grand Avenue / Sepulveda Boulevard) currently operates at LOS E in the p.m. peak hour; none currently operate at a LOS F.

Table 4.2.8-2. Study Intersection Existing Levels of Service

No.	Intersection	Peak Hour	Existing	
			V/C	LOS
1	Imperial Highway & Vista del Mar	AM	0.440	A
		PM	0.456	A
2	Imperial Highway & Pershing Drive	AM	0.772	C
		PM	0.449	A
3	Imperial Highway & Main Street	AM	0.634	B
		PM	0.453	A
4	Grand Avenue & Vista del Mar	AM	0.599	A
		PM	0.416	A
5	Grand Avenue & Main Street	AM	0.320	A
		PM	0.340	A
6	Grand Avenue & Sepulveda Boulevard	AM	0.855	D
		PM	0.937	E
7	Rosecrans Avenue & Highland Avenue	AM	0.825	D
		PM	0.764	C

An existing LOS analysis was also conducted for the study roadway segments. Table 4.2.8-3 summarizes the results of this analysis. As shown, all of the study roadway segments operate at an excellent service level, LOS A.

Table 4.2.8-3. Study Roadway Segment Levels of Service – Existing Conditions

	Street Segments	Existing (2011) Daily Traffic	Existing Peak Hour Traffic	# Lanes	Peak Hour Capacity per Lane	Peak Hour Roadway Capacity	Peak Hour V/C	Peak Hour LOS
A	Imperial Highway- between Vista del Mar & Pershing Drive	12,885	991	4	1,600	6,400	0.155	A
B	Imperial Highway- between Pershing Drive & Main Street	29,304	2,079	4	1,600	6,400	0.325	A
C	Imperial Highway- between Main Street & Sepulveda Boulevard	36,799	2,641	4	1,600	6,400	0.413	A
D	Grand Avenue- between Vista del Mar & Main Street	21,857	2,041	4	1,600	6,400	0.319	A
E	Grand Avenue- between Main Street & Sepulveda Boulevard	22,317	2,067	4	1,600	6,400	0.323	A
F	Vista del Mar- between Imperial Highway & Grand Avenue	6,367	608	4	1,600	6,400	0.095	A

Street Segments		Existing (2011) Daily Traffic	Existing Peak Hour Traffic	# Lanes	Peak Hour Capacity per Lane	Peak Hour Roadway Capacity	Peak Hour V/C	Peak Hour LOS
G	Vista del Mar- between Grand Avenue & Rosecrans Avenue	9,784	774	4	1,600	6,400	0.121	A
H	Sepulveda Boulevard- between Imperial Highway & Grand Avenue	66,696	5,040	8	1,600	12,800	0.394	A

There are no public transit lines that operate in close proximity to the project site. The closest transit access is provided by a Los Angeles County Metropolitan Transportation Authority bus line that has stops located approximately 1.5 miles from the project site.

Regulatory Setting

CMA Methodology For Signalized Intersections

LADOT and the City of Manhattan Beach utilize CMA to analyze traffic operating conditions at signalized intersections. The CMA method for evaluating signalized intersections involves the computation of volume-to-capacity (V/C) ratios for each critical movement. Capacity, or saturation flow rate, is defined as the maximum rate of flow that can pass through a given intersection approach under prevailing traffic and roadway conditions. The sum of all critical movements on a critical lane basis is used to determine the total intersection V/C ratio and corresponding LOS. A facility is "at capacity" (V/C ratio of 1.00 or greater) when extreme congestion occurs.

ICU Methodology For Signalized Intersections

For analysis of LOS at signalized intersections, the City of El Segundo uses ICU methodology as the desired tool. Roadway LOS under the ICU methodology is calculated as the volume of vehicles that pass through the facility divided by the capacity of that facility. A 10% adjustment to the clearance and loss time factor based on the critical phases of the signalized control were included in the traffic analysis. A facility is "at capacity" (ICU value of 1.00 or greater) when extreme congestion occurs. This value is a function of hourly volumes, signal phasing, and approach lane configuration on each leg of the intersection.

Congestion Management Program

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority. The CMP for Los Angeles County requires that the traffic impact of individual development projects of potentially regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. Approximately 160 intersections are identified for monitoring on the system. According to the 1997 CMP for Los Angeles County, Transportation Impact Analysis (TIA) Guidelines, a traffic impact analysis is conducted:

- At CMP arterial monitoring intersections, including freeway on- or off-ramps, where the proposed project will add 50 or more trips during either a.m. or p.m. weekday peak hours.
- At CMP mainline freeway-monitoring locations, where the project will add 150 or more trips, in either direction, during the either the a.m. or p.m. weekday peak hours.

Nearby CMP monitoring locations in the study area include:

- I-105 freeway, east of Sepulveda Boulevard

- I-405 freeway, north of La Tijera Boulevard
- The intersection of Sepulveda Boulevard and El Segundo Boulevard
- The intersection of Sepulveda Boulevard and Rosecrans Avenue

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not result in inadequate emergency access or conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities. In addition, it was noted that the proposed project would not increase permanent employment at SGS, so operations-related traffic would be the same as existing conditions, resulting in less than significant impact. Accordingly, these issues are not further analyzed in the EIR.

The CEQA Guidelines establish that the proposed project would have a significant effect on traffic and transportation if it would:

- Conflict with an applicable plan, ordinance, or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

LADOT has established specific thresholds for project-related increases in the V/C ratio of signalized study intersections. The City of El Segundo and the City of Manhattan Beach use a modified version of the impact standards defined in the County of Los Angeles CMP. The modified impact standards are based on a change in V/C or Intersection Capacity Utilization methodology values of 0.02 or more, causing or worsening LOS E or F.

Project related increases in peak-hour V/C ratios shown in Table 4.9-4 would be considered to conflict with applicable policy and to be significant impacts.

Table 4.2.8-4. Significance Thresholds

Level of Service	Final V/C*	Project Related V/C increase
C	< 0.70 – 0.80	Equal to or greater than 0.040
D	< 0.80 – 0.90	Equal to or greater than 0.020
E and F	0.90 or more	Equal to or greater than 0.010

Note: Final V/C is the V/C ratio at an intersection, considering impacts from the project without proposed traffic impact mitigations.

Environmental Impacts

TRANS-1 ***The proposed project would not conflict with an applicable plan, ordinance, or policy for establishing measures of effectiveness for the performance of the circulation system at study intersections and on study roadway segments during construction.***

Impacts to the study intersections and roadway segments during construction were determined by comparing "future without project" conditions to "future with project" conditions. Project construction is anticipated to be completed by the end of year 2020. However, the future analysis year was defined as year 2015, since the project construction activities would peak in the early months of that year. Traffic projections also incorporate a factor for future growth and include consideration of traffic generated by other projects occurring within the study area. In order to forecast year 2015 baseline traffic volumes, year 2011 peak hour volumes were increased by an ambient growth rate of 0.26% per year (a four-year factor of 1.0104). Pending projects within a one-mile radius line from four perimeter study intersections were used to define the capture area for approved and pending area projects (cumulative projects; see *Traffic Study* in Appendix G for a list of cumulative projects considered for this analysis). The future–without-project LOS at study intersections are provided in Table 4.2.8-5.

Table 4.2.8-5. Study Intersection Levels of Service – Future No-Project Conditions

Study Intersections	Weekday AM Peak		Weekday PM Peak	
	V/C	LOS	V/C	LOS
1. Imperial Hwy & Vista Del Mar	0.516	A	0.485	A
2. Imperial Hwy & Pershing Dr	0.795	C	0.493	A
3. Imperial Hwy & Main St	0.707	C	0.533	A
4. Grand Ave & Vista Del Mar	0.645	B	0.469	A
5. Grand Ave & Main St	0.341	A	0.362	A
6. Grand Ave & Sepulveda Blvd	0.961	E	1.040	F
7. Rosecrans Ave & Highland Ave	0.886	D	0.886	D

Based on this condition, all study intersections would operate at LOS D or better with the exception of Grand Avenue/Sepulveda.

A future year-2015 no-project LOS analysis was conducted for the study roadway segments. Based on the analysis, all of the study roadway segments would operate at an excellent service level (LOS A).

Project Construction Trip Generation

The maximum number of employees on site per day during the peak construction month (February 2015) would be 524 employees and the maximum truck trip activity would be two round-trip truck loads per day (Generation Scenario 2). There are other periods in the project construction schedule where more daily truck trips would be generated, but the total trips analyzed represents the highest combined trips generated by both construction employees and trucks.

The morning arrival by employees is assumed to overlap the a.m. peak hour by 25 percent, with the remaining 75 percent of employees assumed to be at the site before 7:00 a.m., the start of the a.m. peak period. It is also assumed that employees arrive during the a.m. peak hour by vehicles with average vehicle occupancy rates of 1.2 passengers. This is a conservative rate that assumes that approximately one out of every six employees would carpool or use alternative modes of transport to reach the project site.

The evening departure by employees is assumed to overlap the p.m. peak hour by 25 percent, with the remaining 75 percent of employees assumed to leave the site before 4:00 p.m., the start of the p.m. peak period. The same trip generation methodology was used for this peak period as that utilized for the a.m. peak period. It is assumed that each employee departs by car, at a ratio of 1.2 passengers per vehicle.

The weekday peak-hour trip generation calculations for the project construction activities are provided in Table 4.2.8-6. During the peak month of construction, the project would generate a daily total of 885 passenger car equivalent trips within 115 trips occurring during both the a.m. and p.m. peak hours (112 inbound and 3 outbound in the a.m. peak, and 3 inbound and 112 outbound in the p.m. peak).

Table 4.2.8-6. Peak Hour Project Construction Trip Generation

Trip Generation Element	Construction Peak Feb. 2015			AM Peak Hour						PM Peak Hour					
				Truck Trips		Employee Trips		Total Trips		Truck Trips		Employee Trips		Total Trips	
	Trucks	Employee	Total	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Office and Supervision	0	80	80	0	0	10	0	10	0	0	0	0	10	0	10
Field Personnel	0	793	793	0	0	99	0	99	0	0	0	0	99	0	99
Delivery	12	0	12	3	3	0	0	3	3	3	3	0	0	3	3
Total Trips	12	873	885	3	3	109	0	112	3	3	3	0	109	3	112

Project Construction Trip Distribution Assumptions

Based on project characteristics and the best routes between the site access points and the nearby I-105 freeway terminus/interchange at Imperial Highway, project construction worker trip distribution patterns were developed. The overall assignment of the project construction trips to the study area is illustrated on Figure 4.8-2 (a.m. peak) and Figure 4.8-3 (p.m. peak).

Project Intersection Analysis

Project-related construction trips were modeled in combination with existing conditions to determine project impacts. Table 4.2.8-7 summarizes the results of the LOS analysis for this scenario and the significance determinations for each intersection. To determine significance, the existing conditions presented in Table 4.2.8-2 were compared to the modeled conditions with construction. Based on the significant thresholds presented above in Table 4.2.8-4, the proposed project would not create significant impacts at any of the seven study intersections under the existing conditions with–project-construction scenario.

Table 4.2.8-7. Study Intersection Levels of Service Existing with 2015 Project (Construction)

No.	Intersection	Peak Hour	Future With Project Construction (Year 2015)		V/C Increase Between Existing Conditions and Conditions with Project Construction	Exceeds Significance Threshold?
			V/C	LOS		
1	Imperial Highway & Vista del Mar	AM	0.541	A	0.025	No
		PM	0.486	A	0.001	No
2	Imperial Highway & Pershing Drive	AM	0.795	C	0.000	No
		PM	0.493	A	0.000	No
3	Imperial Highway & Main Street	AM	0.732	C	0.025	No
		PM	0.560	A	0.027	No
4	Grand Avenue & Vista del Mar	AM	0.689	B	0.044	No
		PM	0.496	A	0.027	No
5	Grand Avenue & Main Street	AM	0.341	A	0.000	No
		PM	0.363	A	0.001	No
6	Grand Avenue & Sepulveda Boulevard	AM	0.961	E	0.000	No
		PM	1.040	F	0.000	No
7	Rosecrans Avenue & Highland Avenue	AM	0.895	D	0.009	No
		PM	0.890	D	0.004	No

FIGURE 4.2.8-2. PROJECT RELATED CONSTRUCTION TRIP DISTRIBUTION – A.M. PEAK

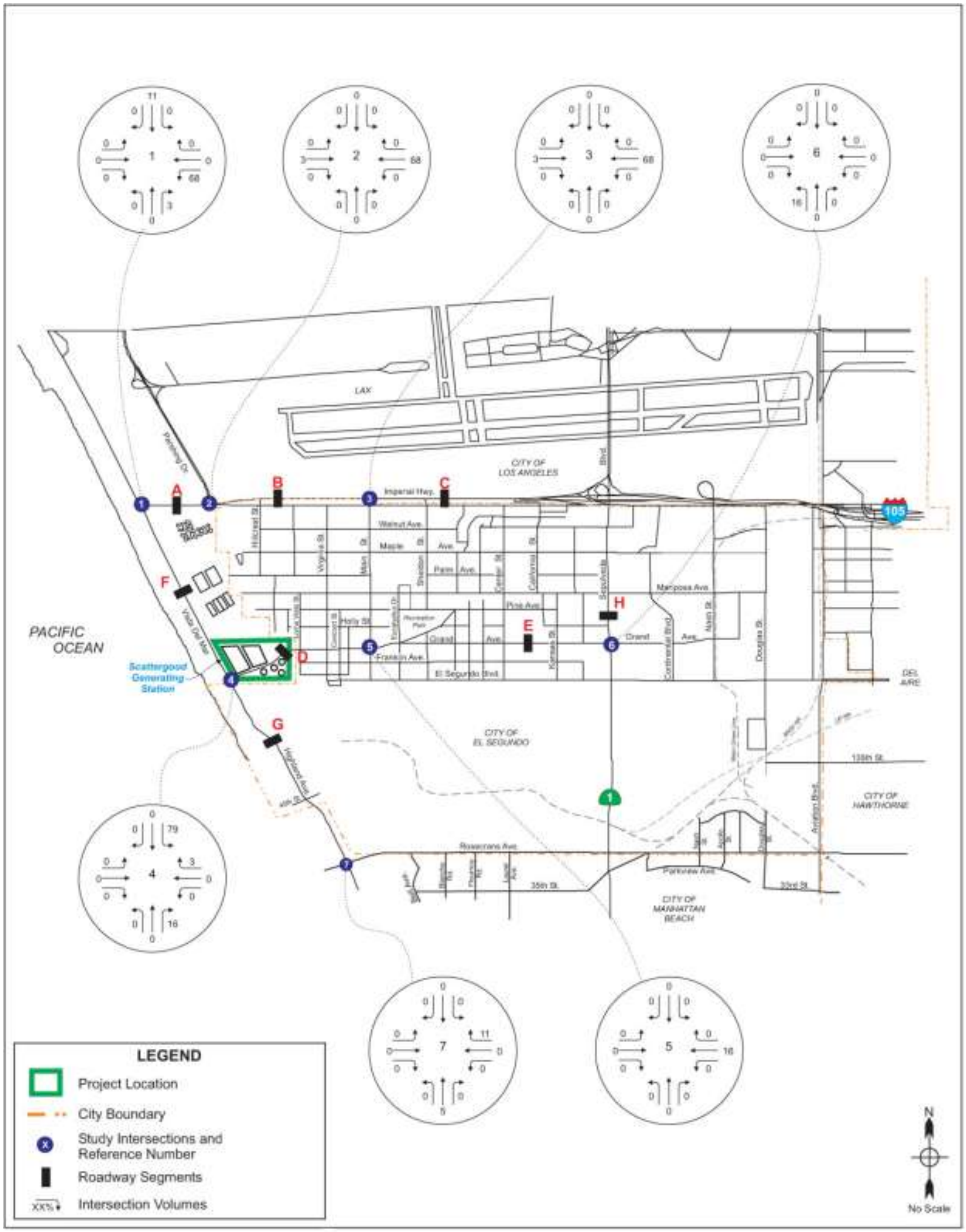
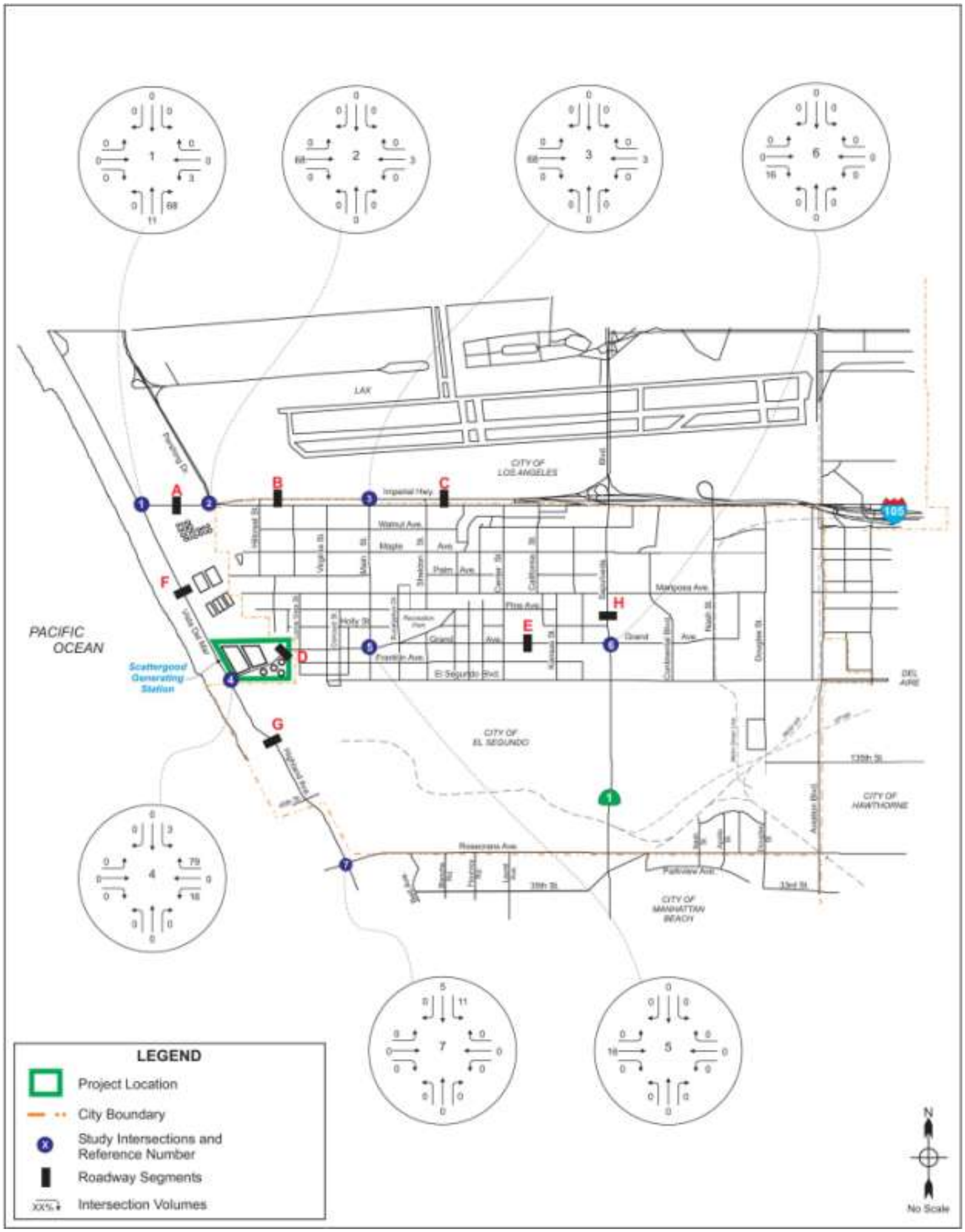


FIGURE 4.2.8-3. PROJECT RELATED CONSTRUCTION TRIP DISTRIBUTION – P.M. PEAK



Because project-related V/C increases would not exceed the significance criteria at any of the study intersections, the project would not conflict with an applicable plan, ordinance, or policy, and no significant impact would occur under this condition. Analysis shows that all study roadway segments would operate at LOS A during the analyzed project construction period. No significant impacts would occur at these locations, and further analysis of the roadway segments is not necessary.

Supplemental Analysis of Existing with Project Conditions

A supplemental analysis was included in this document to comply with recent CEQA case law regarding the definition of baseline conditions. Significant impacts for the proposed project were compared to existing conditions for the determination of impacts, and not project-year or buildout-year conditions. Table 4.2.8-8 summarizes the LOS analysis for this condition.

Table 4.2.8-8. Study Intersection Levels of Service Existing with 2015 Project (Construction)

No.	Intersection	Peak Hour	Existing With Project Construction		V/C Increase Between Existing Conditions and Conditions with Project Construction	Exceeds Significance Threshold?
			V/C	LOS		
1	Imperial Highway & Vista del Mar	AM	0.464	A	0.024	No
		PM	0.458	A	0.002	No
2	Imperial Highway & Pershing Drive	AM	0.772	C	0.000	No
		PM	0.449	A	0.000	No
3	Imperial Highway & Main Street	AM	0.660	B	0.026	No
		PM	0.479	A	0.026	No
4	Grand Avenue & Vista del Mar	AM	0.638	B	0.039	No
		PM	0.459	A	0.043	No
5	Grand Avenue & Main Street	AM	0.320	A	0.000	No
		PM	0.345	A	0.005	No
6	Grand Avenue & Sepulveda Boulevard	AM	0.855	D	0.000	No
		PM	0.937	E	0.000	No
7	Rosecrans Avenue & Highland Avenue	AM	0.834	D	0.009	No
		PM	0.768	C	0.004	No

Because project-related V/C increases would not exceed the significance criteria at any of the study intersections, the project would not conflict with an applicable plan, ordinance, or policy, and no significant impact would occur under this condition. Analysis shows that all study roadway segments would operate at LOS A during the analyzed project construction period. No significant impacts would occur at these locations, and further analysis of the roadway segments is not necessary.

TRANS-2 ***Construction activity would not exceed the level of service standards established by the county congestion management agency for designated roads or highways.***

CMP traffic impact analysis is not required for the project because the nearby CMP monitoring locations in the study area would not exceed the thresholds for regional significance.

- I-105 freeway, east of Sepulveda Boulevard – Would not exceed the threshold of 150 trips.
- I-405 freeway, north of La Tijera Boulevard – Would not exceed the threshold of 150 trips
- Sepulveda Boulevard & El Segundo Boulevard intersection – Would not exceed the threshold of 50 trips
- Sepulveda Boulevard and Rosecrans Avenue intersection – Would not exceed the threshold of 50 trips

Because a CMP traffic analysis would not be required, the project would not conflict with an applicable management program.

TRANS-3 ***The proposed project would not create a safety hazard during construction relative to utilizing a new gate on Grand Avenue for construction.***

As part of the traffic analysis for the project, the analyzed peak-period trip generation totals of the project site were analyzed to determine the general operating conditions that would exist at the site access points on Grand Avenue during construction. Construction access at the SGS site would take place via an existing set of site driveways, with one on the north side of Grand Avenue (with access to the northern parcel of the site) and one on the south side of Grand Avenue (with access to the southern parcel of the site).

An analysis was conducted to estimate how the intersection of the project driveways with Grand Avenue would operate during construction. The analysis considered planned improvements that would take place prior to the start of construction, including the provision of left-turn pockets for inbound movements and widening of the driveway approaches with turning radii that would support truck movements to and from the site. Maintaining the existing bike lanes on Grand Avenue is included in the concept design for the street widening and lane reconfiguration.

With all construction employees parking within the allocated areas of the existing SGS parcels, a.m. peak operations of the driveway intersection with Grand Avenue are estimated to be at LOS A. The outbound movement of employee vehicles, with vehicles needing to cross one or both directions of traffic to proceed to outbound routes, would cause operations to worsen to LOS C. This lower value, representing good operations, would mainly be caused by exiting vehicles. There is adequate room for queuing of exiting vehicles within the SGS site. Consequently, there would be less than significant impact during construction.

Mitigation Measures

Not applicable. The proposed project would not result in significant impacts to traffic and transportation without the application of mitigation measures.

Cumulative Impacts and Mitigation Measures

The effects of increased traffic from ambient growth and construction of related projects has been considered in the traffic study. The year 2015 future without-project traffic volumes were determined by considering the year 2011 existing peak hour volumes and adding a growth factor and cumulative project assumption. The ambient growth rate included in the study is 0.26% per year (a four-year factor of 1.0104) and the related project assumptions are included in the traffic study. It should be noted that the cumulative projects are those approved and pending projects considered to potentially contribute measurable traffic volumes to the study area during the future analysis period. They do not include all projects in the cumulative projects list included in Section 4.1.4. Based on this cumulative analysis approach, the impacts to traffic were determined to be less than significant.

Mitigation measures to address cumulative impacts are not applicable. The proposed project would not result in significant cumulative impacts to traffic and transportation without the application of mitigation measures.

Levels of Significance After Mitigation

Not applicable. The proposed project would result in no impacts to traffic and transportation without the application of mitigation measures.

4.2.9 Water and Wastewater

Environmental Setting

Regional Setting

SGS is situated within the Santa Monica Bay Watershed (Hydrologic Unit Code 18070104), which drains an area of approximately 414 square miles into the Santa Monica Bay. South of Ballona Creek, the watershed consists of the narrow coastal strip between Playa del Rey and Palos Verdes (RWQCB 2010). The project site is located on this coastal strip, known as the Southern California Coastal Plain, which consists of gently to strongly sloping dissected coastal and alluvial plains that are bordered by steep dunes and hills.

Water quality is a measure of the suitability of water for its intended uses. General water quality objectives for water bodies in the region of the project are described in the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), Water Quality Control Plan for Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California, and the Los Angeles Regional Water Quality Control Plan (Basin Plan). Water quality objectives were established to protect the existing and potential beneficial uses of ocean water, surface water, and groundwater.

Beneficial uses are goals or desired uses of a water body as specified in the Basin Plan or as designated by federal, State, or local laws and regulations. Groundwater in the West Coast Subbasin has the designated beneficial uses of municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply (RWQCB 1994). Beneficial uses of the ocean waters of the State include industrial water supply, water contact and non-contact recreation (including aesthetic enjoyment), navigation, commercial and sport fishing, mariculture, preservation and enhancement of designated Areas of Special Biological Significance, rare and endangered species, marine habitat, fish migration, fish spawning, and shellfish harvesting (SWRCB 2009).

The project would be located adjacent to three water bodies that are considered impaired under Section 303(d) of the Clean Water Act (CWA). Dockweiler State Beach, located west and north of the project, and Manhattan State Beach, located south of the project, are listed as impaired for Indicator Bacteria. Santa Monica Bay, both off-shore and near-shore in the area of the project, is listed as impaired for debris, polychlorinated biphenyls (PCBs) in tissue and sediment, and sediment toxicity.

Scattergood Generating Station Water Use

As an operating power generation facility, SGS uses potable water, reclaimed water, and ocean water in its operations. Under current operations, potable water is utilized for several functions in the power generation process; however, the primary uses include condensate makeup for the steam boilers and water used in the SCR and digester gas scrubber systems. Between 2007 and 2012, the facility used an average of about 447,000 gallons per day (gpd) of water. Maximum daily water use for the same period was about 488,000 gpd. SGS currently supplies steam to the adjacent HTP facility, which accounts for about 173,000 gpd of the aforementioned consumptive water use. After 2015, steam may no longer be supplied to the HTP.

SGS has been using recycled water for landscape irrigation since 2005. This reclaimed water is obtained from the West Basin Water District and is delivered to the site through an existing dedicated reclaimed water system that was installed in 2003 - 2004. Use of reclaimed water varies based on irrigation demand and ranges up to 125,000 gpd.

The SGS site currently uses ocean water for steam generator cooling purposes. In accordance with its NPDES permit, the facility may discharge up to approximately 495.4 million gallons per day (mgd) of ocean water through a single outfall located offshore. As noted in the Introduction, Chapter 2, and the Project Description, Chapter 3, the proposed generation units that would replace Unit 3 would not utilize ocean water for cooling, but rather would be cooled by circulating air units. Though Units 1 and 2 would still utilize ocean water for cooling, a 55% reduction in ocean water cooling flow would be associated with proposed decommissioning of Unit 3.

Scattergood Generating Station Surface Water Drainage

The great majority of the project site has been developed with facilities supporting power generation and transmission and is either covered with asphalt or concrete or is disturbed with gravel or dirt surfaces. Small areas of the site contain landscaped slopes or ruderal vegetation. SGS is constructed on three predominant terraces that increase in elevation from west to east. All surface water from the site flows into catch basins located throughout the facility, and most of this flow is discharged through the ocean outfall. Rainwater that falls onto the facility below an elevation of 34 feet AMSL is directed to a settling basin or settling tank before discharge. The current wastewater discharge permit allows this storm water to be discharged to the ocean via the outfall. In addition, rainwater from non-process areas above an elevation of 34 feet AMSL is conveyed without the need for treatment to the outfall for disposal.

Oil extraction operations at SGS (confined to the lease area south of Grand Avenue) are governed by both the Federal Response Plan (FRP) and the Spill Prevention, Control and Countermeasure (SPCC) Plan, which are federal requirements (40 CFR 112). Both of these plans outline notification procedures, best management practices to contain spills, and emergency procedures. The FRP requires regularly scheduled drills at the facility. In addition, for other operations that involve other types of hazardous materials, the Integrated Emergency Response Plan, which includes the facility’s SPCC Plan, outlines emergency procedures, operating procedures, and engineering controls (e.g., secondary containment) necessary to prevent spills, overflows, or other incidents that may result in the discharge of hazardous materials either off site or into the ocean.

Scattergood Wastewater Generation

SGS discharges wastewater to Waters of the United States under Waste Discharge Requirements, which serve as the NPDES permit contained in Order No. 00-083 (NPDES Permit No. CA0000370). This permit was issued in June 2000, and it expired in May 2005. However, the permit remains in effect administratively until the SWRCB renews the permit. The NPDES requirements specifically address effluent and storm water discharges to the Pacific Ocean and Santa Monica Bay receiving waters. As noted above, the proposed project would reduce the amount of ocean water used for cooling through decommissioning of Unit 3 and the use of air cooling on the replacement power units. The EIR does not address the specific effects associated with the reduction in ocean water used for power plant cooling since curtailment of ocean water for this use is a State-mandated program, and the environmental effects of reducing ocean cooling are viewed as beneficial according to the State’s EIR on the once-through cooling program. However, process wastewater would still be discharged through the outfall with the remaining once-through cooling water and would be subject to continued regulation by the EPA and the State until such time as all discharges are eliminated.

In accordance with the discharge permit, LADWP monitors effluent discharges and submits monthly, quarterly, and annual reports documenting the monitoring results to the SWRCB and the Los Angeles

RWQCB. LADWP also monitors and samples water quality of receiving waters at numerous locations up-coast, directly offshore, and down-coast of the SGS facility.

The total volume of wastewater that would be discharged by the in-plant waste sources on a daily basis under existing operations is approximately 240,000 gpd. This amount is discharged and mixed with up to 495.4 mgd of once-through ocean cooling water. SGS wastewater is composed of several individual in-plant wastes streams, including low volume in-plant wastes, cooling water blow down, and storm water runoff from process and non-process areas.

The current process and low-flow wastewater system includes collection and treatment of effluent in settling basins and tanks. The wastes include floor drain water that has passed through an oil/water separator; nonchemical metal cleaning wastes including boiler and preheater wash waters; reverse osmosis brine, boiler, and evaporator blow down; condensate polisher regeneration wastes; and laboratory and equipment drain wastes. Over time, residues build up in the bottom of the basins and tanks, which require infrequent cleaning. Wastes from basin and tank cleanings are periodically hauled away to permitted disposal facilities.

Currently, two settling basins and one holding tank provide for detention and treatment of all liquid wastes at SGS. Settling Basin B has a 500,000-gallon capacity and is used concurrently with Tank C (also 500,000-gallon capacity) to hold boiler water (which makes up most of the wastewater), lab drains for all units, miscellaneous low-volume waste, boiler blow down, boiler and air pre-heater wash waters from all units, and boiler acid rinses. Settling Basin C in the north side of the plant is a 550,000-gallon basin and is discharged once per month; the level of the basin does not change significantly day to day. The water in Basin C is mostly small-volume condensate for the steam supplied to HTP and water from the oil/water separator. After sufficient holding time, all of the basins and tanks discharge at regulated rates directly to the ocean outfall. LADWP estimates that the current maximum volume of wastewater produced from the wastewater treatment system is about 185,000 gpd, made up of the outputs from Settling Basin B, Settling Tank C, and Settling Basin C.

Regulatory Setting

The project must comply with various federal, State, and local laws. The following is a list of laws, regulations, and policies potentially relevant to water and wastewater issues considered in this EIR.

Federal

Federal Water Pollution Control Act

The Federal Water Pollution Control Act (also known as the CWA) was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. The CWA provides protections from "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand, total suspended solids, oil and grease, and pH; and "nonconventional" pollutants, including any pollutant not identified as either conventional or priority. Various sections of the CWA regulate the different pollution sources, as follows:

> **CWA Section 402.** In 1987, the CWA was amended to include a program to address storm water discharges. In response, the EPA promulgated the NPDES storm water permit application regulations. Pursuant to §402(p) of the CWA and 40 CFR Parts 122, 123, and 124, the SWRCB adopted a general NPDES permit to regulate storm water discharges associated with industrial activity in California. Storm water discharges from power plants operating in California are subject to requirements under this general permit.

CWA Section 303(d). Section 303(d) unites the water quality management strategies of the CWA. Section 303(d) requires that states make a list of waters that exceed the specified level of pollutants put in place by the CWA. For waters on this list, the states must develop total maximum daily loads (TMDLs) for all pollutants that caused the water to be listed. The TMDLs must account for contributions from both point sources and nonpoint sources, as defined by Section 402 of the CWA. In California, the SWRCB has interpreted State law (see Porter-Cologne Water Quality Control Act below) to require that implementation of TMDLs be addressed when incorporated into Basin Plans (water quality control plans).

CWA Section 502. The CWA regulates both direct and indirect discharges. The NPDES Program (CWA §502) controls direct discharges into waters of the United States. NPDES permits contain industry-specific, technology-based limits and may also include additional water quality-based limits, and establish pollutant-monitoring requirements. An NPDES permit may also include discharge limits based on federal or State water quality criteria or standards.

EPA Effluent Guidelines for Steam Electric Plants

On November 19, 1982, the EPA promulgated Effluent Guidelines and Standards for the "Steam Electric Power Generating Point Source Category" (40 CFR part 423). These regulations prescribe effluent limitation guidelines for once-through cooling water and various in-plant waste streams. The regulation also provides that effluent limitations either more or less stringent than the EPA standards may be prescribed if factors relating to the equipment or facilities involved, the process applied, or other such factors are found to be fundamentally different from the factors considered in the establishment of the standards.

State of California

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act defines "water quality objectives" as the allowable "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Thus, water quality objectives are intended to protect the public health and welfare and to maintain or enhance water quality in relation to the existing and/or potential beneficial uses of the water. Water quality objectives apply to both Waters of the United States and Waters of the State.

Basin Plans

The SWRCB requires individual RWQCBs to develop Basin Plans (water quality control plans) designed to preserve and enhance water quality and protect the beneficial uses of all Regional waters. Specifically, Basin Plans designate beneficial uses for surface waters and groundwater, set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy, and describe implementation programs to protect all waters in the Regions. In addition, Basin Plans incorporate by reference all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The project is under the jurisdiction of the Basin Plan of the Los Angeles RWQCB.

Ocean Plan

The SWRCB sets forth limits or levels of water quality characteristics for ocean waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The Water Quality Control Plan for Ocean Waters of California applies to point discharges and non-point discharges to the Pacific Ocean within three miles of the coastline.

Once-Through Cooling Water Policy

The statewide policy on the "Use of Coastal and Estuarine Waters for Power Plant Cooling," also known as the Once-through Cooling (OTC) Policy, seeks to reduce the impingement and entrainment of marine and estuarine biota associated with cooling water intake structures by either substantially reducing the quantity of ocean water used for cooling or by implementing other technological measures whose effects would be comparable to flow reduction. SGS has until December 2015 to comply with the policy for existing generation Unit 3 and December 2024 to comply for Units 1 and 2. Under the OTC Policy, both wet and dry cooling are acceptable technological options to once-through cooling.

Construction Storm Water Program

Dischargers whose projects disturb one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-2009-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff. A complete Notice of Intent Package and Notice of Termination must be filed with the SWRCB Storm Water Multiple Application and Report Tracking System (SMARTS) database prior to commencement of ground-disturbing Project activities.

Other State Requirements

On May 18, 1972 (amended on September 18, 1975), the SWRCB adopted a Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). The Thermal Plan contains temperature objectives for the Pacific Ocean.

Thresholds Used to Determine Significance of Impact

As part of the Initial Study (see Appendix A), it was determined that the proposed project would not violate any water quality or waste discharge standard, substantially deplete groundwater supplies or interfere substantially with ground water recharge affecting aquifer volume or groundwater table, substantially alter the existing drainage pattern of the site thereby affecting erosion or volume of runoff, contribute runoff that exceeds the capacity of the storm water drainage system, place housing or structures within a mapped 100-year flood plain or hazard area, be located in a levee or dam inundation area, or be subject to seiche, tsunami, or mudflow. The scope of the EIR with respect to State waste discharge standards and operating permit is also discussed in Section 2.5.1, Renewal of Plant-wide Waste Discharge Permit.

In addition, the Initial Study determined that the proposed project would not require construction of any new off-site storm water facilities, or require approval of a public wastewater treatment provider. Accordingly, these issues are not further analyzed in the EIR.

Water supply, water quality, and wastewater impacts would be considered significant if any of the following conditions occur related to project construction or operation:

- The existing water supply would not have the capacity to meet the demands of the project, or the project would use a substantial amount of potable water (i.e., greater than five million gallons per day).
- The project water demand would exceed water supplies available to serve the project from existing entitlements and resources.

- The project would cause degradation of surface water substantially affecting current or future uses.
- The project would result in a violation of NPDES permit requirements for either storm water or industrial wastewater, or would otherwise exceed wastewater treatment requirements of the applicable RWQCB, and a permit amendment relative to the affected constituents is not proposed or negotiated.
- The capacities of proposed wastewater treatment facilities would not be sufficient to meet the needs of the project or would require construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Environmental Impacts

WATER-1 ***The proposed project would not result in the construction of new or expanded water supply facilities that would cause a significant environmental effect.***

Water Use During Construction

Potable water would be used to support construction activities at SGS. Typical uses for water during construction include dust suppression, irrigation, manufacture of concrete, hydrostatic testing of piping, various wash-down activities, and human consumption. It is estimated that peak water consumption during construction would occur during the site grading and preparation phase, lasting approximately 12 months. Assuming that 10 acres of the site would have ground disturbing activities at one time, approximately 116,000 gpd would be required to support this phase of construction (daily water usage = 0.2 [gal/yd^2-hr] x 48,400 yd^2 x 12 hrs/day = 116,000 gal/site-day). The estimated total quantity of water used for this phase of construction would be about 90 acre feet (AF).

Upon completion of earthmoving and site preparation, construction water use would reduce to about 25% of the peak use, up to a maximum of about 30,000 gpd. Over the remaining approximate two-year period of construction of the new generation units, water use would total about 46 AF. Additional water supply would be used during demolition activities; however, such use would be intermittent and, when needed, would be similar to the daily use for non-grading construction operations (i.e., 30,000 gpd).

Hydrostatic pressure testing of pipelines and storage tanks would require use of water during construction and would occur infrequently. For a project like Scattergood Repowering, hydrostatic testing water could require about 20,000 gallons of water per occurrence.

LADWP would supply the water used during construction of the proposed project. The amount of water that would be required represents a less than significant incremental increase in water demand within the LADWP supply system. Additionally, the water use for construction is short-term, occurring only during the construction phase.

Water Use During Operations

The decommissioning of existing generation Unit 3 under the proposed project would eliminate potable water consumption associated with its operation. However, the proposed project generation units and associated cooling systems would require an increased use of potable water for air inlet evaporative cooling, injection for NO_x control, cooling water system makeup, and heat recovery steam generator (HRSG) steam cycle makeup.

LADWP has estimated the maximum amount of water used by the proposed project, considering both generation operating scenarios under consideration in this EIR. Accordingly, under the maximum use scenario (Generation Scenario 1), the peak daily water use (associated with generation) at SGS would be about 948,000 gpd, compared to the existing peak daily water use of 488,000 gpd. The increase in potable water demand is attributed primarily to the needs of the repowering components such as the demineralized water system, HRSG blow down, CTG inlet air evaporative cooling, and wet surface cooling. Other water uses such as boiler rinse systems, equipment containment drains, and potable uses would remain at about the same level as under existing conditions.

It is noted that the existing and proposed quantities of potable water that is converted to steam and conveyed to HTP for use in the digester process will remain the same. This steam may no longer be needed by the time the new units become operational. Accordingly, projected peak daily potable water use would then decrease to approximately 775,000 gpd when the provision of steam to HTP is eliminated.

The increased potable water supply would be provided by LADWP. Connections to the water mains and backflow prevention devices would not change as a result of the proposed project. As LADWP is capable of providing the additional potable water supply, this incremental increase in demand would not result in significant water supply impacts within the LADWP system.

WATER-2 ***The proposed project would not require the construction of new storm water drainage facilities or expansion of existing facilities, nor would it substantially degrade water quality affecting current or future uses.***

Temporary direct and indirect impacts to water quality could result from storm water runoff during construction of the project. Excavation for construction of either generation scenario under consideration in the EIR would result in ground-disturbing activities that would include clearing of staging areas, demolition of some equipment, and grading for foundations and piping. Soil disturbance would increase the potential for storm water to carry sediments to receiving waters and increase the potential for turbidity and sedimentation. There is also a potential for encountering groundwater during excavation, which could require dewatering and release of collected waters. Additionally, fuel, oil, and other fluids used in construction vehicles, equipment, and heavy machinery have the potential to inadvertently enter drainages and storm drains.

State law requires that an NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Storm Water Construction Permit) be obtained prior to commencing ground-disturbing activities. A SWPPP for construction activities that includes BMPs addressing sediment control and other construction-related pollutants is a requirement of the permit. Appropriate selection and implementation of the BMPs, including sediment and erosion control, would provide for avoidance of the potential water quality impacts.

If contaminated soils or groundwater are identified during construction activities (e.g., through appearance, including stained soils, water with oil sheen), the SWPPP would require their removal and proper disposal in accordance with State and federal requirements. The SWPPP would be designed to minimize or prevent sediment-laden or contaminated storm water from leaving project work areas without treatment and entering the site's storm water system. An additional requirement that would be implemented as a result of this process is the development of a dewatering plan that would be part of the Discharges of Groundwater from Construction Dewatering to Surface Waters permit issued by the Los Angeles RWQCB. This plan would include practices that are consistent with California Title 8, Occupational Safety and Health Administration regulations, as well as appropriate remediation standards that are protective of the planned use.

It is anticipated that for the purposes of the Construction General Permit, the project would be designated as Risk Level 2 (low Sediment Risk Level, high Receiving Waters Risk Level) by the Los Angeles RWQCB. Therefore, the project would implement BMPs appropriate to site conditions and which would comply with all permit requirements and conditions. Storm water leaving the project would be subject to water quality sampling and analysis for visible and non-visible pollutants, as required for Risk Level 2 sites, and would not be discharged from the project site until water quality standards are met.

Given the extensive requirements and permits that would govern the project construction activities, significant impacts to surface water quality during construction would be avoided.

WATER-3 ***The proposed project would not require the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.***

Wastewater Generation During Construction

As noted in the previous section on impacts from surface drainage during construction, near-surface groundwater could be encountered during excavation activities and would require proper disposal. Groundwater from near-surface sources could contain contaminants that would be removed prior to disposal. In addition, wastewater may be generated from certain construction activities, such as pressure-testing of vessels and pipelines to ensure integrity. These sources of construction water may contain contaminants that would cause water quality impacts if discharged. However, wastewater resulting from hydrostatic testing or dewatering would be tested at the site and, if necessary, treated in accordance with NPDES permit requirements prior to disposal. A separate permit for disposal of dewatering wastewater would be required under the NPDES permit program. Given the extensive requirements and permits that would govern any hydrostatic testing or dewatering activities, significant impacts to surface water quality during construction would be avoided.

Wastewater Generation During Operations

The decommissioning of existing SGS Unit 3 under the proposed project would eliminate wastewater generation associated with its operation. However, the proposed replacement units would generate wastewater associated with process operations, such as water conditioning (reverse osmosis brine), HRSG blow down, and waste from a new oil/water separator. In addition, wastes from existing generation Units 1 and 2, consisting of nonchemical metal cleaning wastes, including boiler and preheater wash waters, boiler and evaporator blow down, and laboratory drain wastes, would continue to be treated in the onsite wastewater system.

A primary component of the wastewater treatment system for the proposed project is the oil/water separator. The wastewater from the area around new units would be collected and directed to a sump that would feed runoff into the oil/water separators (one for existing units and one for new units). The oil/water separator mechanically separates oily pollutants from the water and discharges cleaned effluent by gravity into the wastewater system. Oily wastes are sent to a holding sump. When the oily waste holding sump in the separator is full, the contents in the oil chamber are vacuumed out and transported offsite for proper disposal.

LADWP has estimated the amount of wastewater that would be generated by the proposed project under the two generation scenarios; however, the worst case scenario has been used for purposes of the analysis in this EIR. LADWP estimates that the proposed project would increase peak daily wastewater generation (wastewaters requiring treatment prior to discharge) at SGS from about 185,000 gpd currently to about 208,000 gpd ultimately. The proposed modifications to the SGS wastewater handling system would address treatment needs for the anticipated waste flows, and an amended or new waste discharge permit would be required. LADWP has filed for a permit renewal, and this permit is being processed as a separate action. For purposes of the proposed project, wastewater flows would be adequately treated and would not exceed current discharge parameters or limitations. Consequently, there would be no substantial change in wastewater discharge under the proposed project compared to existing conditions.

In addition to the wastewater flows requiring treatment prior to disposal, some waters used in the power production processes (cooling water, for example) are allowed by the existing permit to be discharged to the ocean via the outfall without prior treatment. These waters are uncontaminated and unpolluted flows that achieve discharge standards without treatment. These flows would increase from a maximum of about 412,000 gpd under existing conditions to a maximum of about 538,000 gpd under the proposed project. The volume of these discharges does not significantly increase the flow to the outfall and there are no significant adverse impacts associated with these discharges as long as constituent parameters are met.

WATER-4 ***The project would not result in a violation of NPDES permit requirements for industrial wastewater, or otherwise exceed wastewater treatment requirements of the applicable RWQCB.***

The constituents in wastewater generated by the proposed new units that require treatment would be similar in character to the existing process wastewater stream. The wastes to be generated are expected to include primarily constituents associated with demineralization of potable water, wastes associated with oil/water separation, and slightly elevated suspended solids levels. Other constituents that could be contained in wastewater according to the discharge permit include trace metals including, copper, zinc, and chromium. The existing permit constituent limits are based on providing sufficient treatment and sufficient dilution so that constituent parameters meet general Ocean Plan standards (as well as other specific parameters in the discharge permit). Relative to the treatment system, proposed changes to the on-site wastewater treatment system would be made to accommodate the projected wastewater flow from the proposed generator system and would be designed to meet anticipated waste discharge standards contained in an amended discharge permit. Use of detention and settling as a treatment method is an acceptable means to achieving discharge standards.

Relative to dilution, though the proposed project decreases the amount of ocean water used for once-through cooling, there is still sufficient volume of flow compared to the potential in-plant waste streams to provide target waste dilution ratios. The existing discharge permit provides concentration limits based on a dilution ratio of 9.7 parts sea water to 1 part wastewater effluent. When the plant is using the maximum daily cooling water flows and generating the maximum volume of treated wastewater and non-treated process flow, the proposed repowering project would mix total effluent with once-through volumes at a dilution ratio of about 300 to 1. The Units 1 and 2 circulating water system operates at all times as part of the generating activities and, therefore, LADWP would maintain sufficient flow in the once-through system to dispose of treated wastewater in accordance with discharge requirements. The minimum volume of once-through ocean water that can be produced by the facility is 56.0 mgd, which would achieve a dilution ratio of about 75 to 1 (assuming maximum volume of effluent). Consequently, sufficient minimum once-through cooling flow would remain after repowering to allow adequate dilution of waste constituents.

The waste stream concentrations after treatment would not exceed existing waste discharge permit limits and, therefore, no significant water quality impacts from waste generation would occur. It is recognized that the SGS NPDES discharge permit is in the process of being amended and that new constituent limits may be established in the future. The facility's wastewater discharges would continue to be regulated by the SWRCB and SGS would continue to modify its treatment and discharge system as needed to comply with the NPDES permit.

Mitigation Measures

No significant adverse impacts to water supply and/or wastewater discharge would occur as a result of implementing either generation scenario at SGS. Storm water runoff would be controlled, and surface water resources would not be adversely affected. Therefore, no specific mitigation measures are required.

LADWP would continue to use reclaimed water for irrigation at the site and would update and modify the SWPPP and NPDES permits as required by law.

Cumulative Impacts and Mitigation Measures

Many of the present and reasonably foreseeable projects described as cumulative projects in the EIR involve demand for water resources, generation of wastewater, and grading activities. These projects would have the potential to affect the general impact area by altering drainage patterns, potentially accelerating erosion, and adding sediment to local drainages and storm drains. Compacted or new paved areas would potentially increase the rate or amount of storm water runoff or create additional sources of storm water runoff. Polluted runoff could be introduced to the impact area as oil products collect on new paved surfaces and are washed into the system with storm water runoff.

The proposed project's contribution to these effects would not be cumulatively considerable. Baseline levels of water use for electric generation at the site have been established for many years. The project collects all surface water runoff prior to discharge off-site, and the site operates its own wastewater treatment system in compliance with State discharge regulations. Consequently, the proposed project's impacts would not collectively exacerbate the effects of development of cumulative projects. No significant cumulative impacts would occur.

Levels of Significance After Mitigation

Not applicable. With implementation of construction and industrial BMPs for storm water and non-storm water management, as well as compliance with applicable permit requirements and conditions, individual project-related impacts would be less than significant without the implementation of mitigation measures.

CHAPTER 5: ALTERNATIVES TO THE PROPOSED PROJECT

5.1 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) Guidelines, alternatives to the proposed project have been considered to foster informed decision-making and public participation. According to CEQA Guidelines Section 15126.6(a), "an EIR [Environmental Impact Report] shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." The CEQA Guidelines state that an EIR need not consider every conceivable alternative or consider alternatives that are infeasible. An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote or speculative. The alternatives analysis must also include a comparative evaluation of the No Project Alternative per Section 15126.6(e) of the CEQA Guidelines. Through evaluation of alternatives, the advantages and disadvantages of each alternative compared with the proposed project can be determined.

The proposed project was found to cause a temporary but nonetheless significant and unavoidable impact to air quality during construction activity, including during generator commissioning activity. In addition, the proposed project would result in several potentially significant environmental impacts that would be reduced to a less than significant level with the implementation of the identified mitigation measures. These include temporary impacts associated with construction activity related to noise, paleontological resources, and hazardous materials from the demolition of existing SGS facilities, as well as long term impacts related to hazards to aircraft navigation associated with the proposed generator units' exhaust stacks. The following alternatives were developed to provide a range of reasonable options to the proposed project that might address these impacts. The discussion of each alternative provides:

- A brief description of the alternative and its purpose
- A determination of whether the alternative is feasible
- A determination of whether feasible alternatives would attain most of the basic objectives of the project
- An analysis of feasible alternatives relative to reducing significant impacts that would be created by the proposed project
- An identification of any additional impacts that would be created by feasible alternatives and that would not be created by the proposed project

The objectives of the proposed project, which establish the basis for identifying potential project alternatives, are as follows:

- Achieving a net reduction in air pollutant emissions at Scattergood Generating Station (SGS) by repowering pursuant to the May 2003 Settlement Agreement between the City of Los Angeles Department of Water and Power (LADWP) and the South Coast Air Quality Management District (SCAQMD), as amended (September 2011)
- Reducing the consumption of natural gas relative to the amount of energy produced and, as a result, also reducing the production of greenhouse gases (GHGs)
- Providing for the energy demands of the City of Los Angeles
- Providing for base load generation requirements to help meet the basic demand for energy in the service area

- Facilitating the integration of intermittent renewable power resources into the LADWP generation system
- Increasing the reliability of the electrical power generation system
- Eliminating the need to use ocean water for cooling the proposed generation units and thereby reducing the use of ocean water for generator cooling at SGS

The alternatives to the proposed project discussed below include one that proposes that no project be implemented (Alternative 1); one that proposes modifications to existing SGS facilities rather than new construction (Alternative 2); one that proposes project development at an alternative location (Alternative 3); and two that develop or acquire energy from other sources to replace the generation capacity of SGS Unit 3 (Alternatives 4 and 5).

5.2 ALTERNATIVE 1: NO PROJECT

As discussed above, an evaluation of a No Project Alternative is required under CEQA. Under this alternative, the proposed project would not be implemented. The existing SGS generation Unit 3 would not be removed from operation and its generating capacity would not be replaced with modern high-efficiency generation units constructed within the SGS property boundaries.

The No Project Alternative is a technically feasible alternative to the proposed project since it requires essentially no action. However, because the No Project Alternative would leave the existing Unit 3 in operation with no modifications, it would be in direct violation of the formal Settlement Agreement between LADWP and SCAQMD, which stipulates repowering of Unit 3 at SGS by 2015. The No Project Alternative would also be in violation of the SWRCB *Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling* because the existing once-through cooling system for Unit 3 would continue to operate. In addition, while it would continue to help meet the energy demands of the City of Los Angeles and provide for base load generation requirements (since Unit 3 would remain in operation at its existing generating capacity), this alternative would not meet any of the other objectives identified for the project.

The No Project Alternative would not attain the objective of achieving a net reduction in air pollutant emissions in relation to energy produced because Unit 3 (as opposed to the more efficient units under the project) would remain in operation. The No Project Alternative would not attain the objective of reducing the consumption of natural gas and the production of GHGs since Unit 3 (as opposed to the more efficient units proposed) would remain in service and continue to consume the same amount of fuel per kilowatt-hours of generation as it currently does. Because of the operational characteristics of Unit 3 (as described in Chapter 3 of this EIR), the No Project Alternative would not facilitate the integration of intermittent renewable power resources into the LADWP generation system. The No Project Alternative would not attain the objective of increasing the electrical power system reliability, since Unit 3 is 37 years old and, as it ages further, the rate of forced outages would be expected to increase. In this sense, the No Project Alternative would also decrease the dependable capacity of electrical generation available in the LADWP system. Since no modifications to Unit 3 would occur under the No Project Alternative, there would be no reduction in the use of ocean water for generator cooling at SGS and no progress toward eventual cessation of once-through ocean cooling, consistent with State law, would occur.

Since no construction activities for the proposed project would occur at SGS, the No Project Alternative would avoid the significant temporary and unavoidable impacts to air quality and temporary but mitigable impacts related to noise, paleontological resources, and hazardous materials associated with the proposed project construction activities. The No Project Alternative would also avoid the significant but mitigable long-term impact to aircraft navigation. However, long-term impacts related to higher levels of air pollutant emissions and lower fuel efficiency (and the associated production of GHGs) related to the continued operation of Unit 3 when compared to the proposed project would remain, as would impacts associated with the continued operation of the current once-through ocean water cooling system.

5.3 ALTERNATIVE 2: MODIFY EXISTING UNIT 3

Under Alternative 2, the proposed high-efficiency generation units, as described in the proposed project description (Chapter 3 of this EIR), would not be constructed. Instead, Unit 3 would be left in place but modified to help achieve the reductions in air pollutant emissions, fuel consumption, once-through ocean cooling, and the production of GHGs that would be attained by the project. Unit 3 has been maintained and upgraded since its original construction in 1974 to increase efficiency and reduce air emissions. This includes a conversion from fuel oil to natural gas for combustion in the steam boilers and the installation of a selective catalytic reduction system and other best available control technologies to control air pollutant emissions. However, since Unit 3 relies on outdated steam boiler technology (as opposed to the modern technology of the proposed units), significant additional improvements to generator operations are limited. Given the age of the Unit 3 (over 35 years), further upgrades or modifications that would markedly increase efficiency and reduce emissions are effectively infeasible. A retrofit of the Unit 3 cooling system that would substantially reduce the intake of ocean water is also essentially infeasible because of the space requirements for a land-based wet or dry cooling system capable of condensing the quantity of steam produced in the existing 460 MW gas-fired boiler generation unit.

To implement major improvements, rather than simply replacing Unit 3, would require the demolition of large portions of, if not essentially the entire, unit. The benefits expected from such a retrofit would be minimal in comparison to the environmental and economic benefits that would be attained by the proposed project, and it would also require removing Unit 3 from operation in order to implement the necessary improvements. This removal from service would unacceptably reduce the capacity and reliability of the LADWP in-basin generation system during the construction period, which would last several years longer than the construction for the proposed project due to the complexity of the effort. In addition, because major construction would be required to modify Unit 3 to achieve the objectives of the proposed project, it would likely create similar environmental impacts to those related to the construction of the project.

Because this alternative is effectively infeasible; would not fully achieve the basic project objectives related to efficiency, reliability, air quality improvement, and reduction in ocean water cooling; and would likely result in impacts similar to the proposed project, it has been dismissed from further detailed analysis.

5.4 ALTERNATIVE 3: CONSTRUCT NEW UNITS AT ALTERNATIVE LOCATION OUTSIDE SGS

Under Alternative 3, new high-efficiency generation units, as described in the proposed project, would not be constructed at SGS, but at another location. Alternative locations for the proposed generator units within the boundaries of SGS itself are very limited and, furthermore, would not contribute to a lessening of the significant impacts identified for the proposed project because the same type of construction activities and facility design would be necessary. Analysis of alternative locations is intended to determine if development of the project at a different location could reduce the significant impacts associated with development at the proposed project site. This differs from alternative development scenarios at the proposed project site in that it focuses on issues that may be related to the character of the site and its surroundings rather than the character of the project per se.

The purpose of the proposed project is to remove an existing inefficient and aging electrical generator unit from service and replace its generation capacity with efficient, flexible, and reliable new units. As a possible locational alternative to the proposed project, this general purpose could be achieved by repowering at an LADWP generating station other than SGS, thereby potentially avoiding the impacts associated with construction at SGS. However, the formal Settlement Agreement between LADWP and SCAQMD specifies that Unit 3 at SGS shall be repowered by 2015. In addition, based on a comprehensive program to repower the LADWP in-basin generation system, no locational alternatives to SGS for repowering existing generator units are available. In addition to the SGS, LADWP owns and operates three generating stations in the Los Angeles basin: Harbor Generating Station (HGS), Valley Generating Station (VGS), and Haynes Generating Station (HnGS). HGS was repowered with a single combined cycle turbine generator system in 1994, and VGS was repowered in 2003. HnGS was partially repowered in 2004, and repowering of other units at the station will be completed by the end on 2013.

A locational alternative to the proposed project would therefore need to involve the development of new units on property outside an existing LADWP generating station in conjunction with the removal from service of SGS Unit 3. The acquisition of new property for this purpose, while technically feasible, may be cost-prohibitive in comparison to the proposed project, which is located within the City of Los Angeles on property owned and controlled by LADWP. Furthermore, while the environmental setting at an existing electrical generating station such as SGS (including facilities such as generator units, cooling systems, ammonia storage, and infrastructure for fuel delivery and power transmission) would minimize significant impacts associated with the construction and operation of the proposed project, new generation units constructed at an alternative location not within the boundaries of an existing electrical generating station would involve issues related to the existing setting that would likely result in potentially significant impacts beyond those created by the proposed project. Such impacts would include those related to the visual environment of the surrounding area based on the relative scale and appearance of the new units; noise generated by the operation of the new units; hazards generated by the storage of aqueous ammonia for use in the units; and impacts associated with the provision of infrastructure required for the new units, including cooling systems, fuel delivery systems, and electrical transmission systems to deliver the power generated at the new units, which would likely extend potential impacts beyond the boundaries of the new station.

Such impacts would be particularly evident in urban settings within the Los Angeles basin. In less developed areas outside the basin, additional impacts would also be expected in relation to the construction of new and potentially lengthy high-voltage transmission lines that would be necessary to deliver power to the LADWP service area. The increased distance between the power generation source and centers of demand (as would occur with new out-of-basin units) would also tend to decrease system capacity due to transmission loss and system reliability related to the potential for temporary outages of transmission. There may also be long-term impacts from construction and operation of a new electrical generation unit in a location outside an existing generation station related to other environmental factors (e.g., biological resources, cultural resources, traffic, and localized air quality) that cannot be reasonably ascertained at this time.

Alternative 3 is technically feasible, but may be cost-prohibitive because of the expense associated with property acquisition for the generator site itself as well as right-of-way acquisition for new or expanded transmission facilities. Because it would remove the existing SGS Unit 3 from service and replace its generation capacity with units similar to those in the proposed project, this alternative would attain most of the objectives of the proposed project. While Alternative 3 would eliminate the short-term impacts directly associated with construction at SGS, similar or greater construction-related impacts would be expected at an alternative location. In addition, because of issues inherent with the construction and operation of new generating units outside the boundaries of an existing generating station, Alternative 3 would likely result in significant long-term impacts not caused by the proposed project, including impacts that would extend beyond the boundary of the new generation station itself. Because it would not eliminate or substantially reduce the impacts of the proposed project, this alternative has been dismissed from further consideration.

5.5 ALTERNATIVE 4: DEVELOP ALTERNATIVE ENERGY SOURCES

Under Alternative 4, existing SGS generation Unit 3 would be removed from service, but the high-efficiency generation units, as described in the proposed project, would not be constructed. Instead, the generation capacity of Unit 3 would be replaced through the development of alternative sources of energy that could also achieve reductions in air pollutant emissions, fuel consumption, and the production of GHGs. Alternative energy sources include both conservation of energy and generation methods other than traditional centralized fossil fuel-fired generating plants. LADWP is currently involved in an aggressive alternative energy program, which includes the following programs.

Demand-side resource programs include both energy efficiency, aimed at reducing total energy consumption, and demand response, aimed at reducing peak demand or shifting demand from peak to off-peak periods. Energy efficiency actions aggressively pursued by LADWP over the past decade include programs that provide incentives and rebates for the replacement of older, energy-wasting equipment with new energy-efficient equipment, including air conditioning systems, lighting, and large appliances. LADWP energy efficiency programs also offer incentives and guidelines for new construction and renovations that contribute to Leadership in Energy and Environmental Design (LEED)-certified buildings as well as free energy audits to provide commercial customers recommendations and strategies to reduce energy consumption. Consistent with California State legislation (AB 2021), the Los Angeles Board of Water and Power Commissioners has approved energy efficiency savings goals of 1 percent per year to achieve a 10 percent reduction in energy consumption from 2007 to 2017. Since 2000, LADWP has invested approximately $282 million in energy efficiency programs, which have reduced long-term peak demand by 303 megawatts (MW) and consumption by 1,256 gigawatt hours (GWh). Demand response programs are aimed at reducing the differential in load (i.e., energy demand) experienced during peak and off-peak periods, which would in turn reduce the requirement for generation capacity that is necessary only to meet relatively short-term seasonal and daily peaks in demand. These programs include increasing the efficiency of LADWP system capabilities such that energy is dispatched to more effectively track actual demand, and agreements with commercial and industrial customers to curtail load during peak periods. Through these programs, LADWP expects to reduce system generation capacity by approximately 500 MW by 2026.

Distributed generation (DG) places small electric generators of various types at or near the point of demand. This provides energy to customers with reduced losses when compared to traditional centralized generation station and distribution systems. DG systems include fuel cells, solar photovoltaics, and microturbines and other engines. Currently, DG technology is more expensive than centralized station generation, but it is anticipated that costs will decline in the future. According to the LADWP Power Integrated Resources Plan (2010), it is estimated that the DG programs, both customer-installed and LADWP-installed, will reduce required system capacity by over 300 MW and energy use by over 1,800 GWh annually by 2017. In November 2008, the City initiated a new solar energy plan entitled Solar LA that establishes a goal of developing enough solar energy to serve about 10 percent of Los Angeles' electrical needs. Solar LA consists of several program areas, including customer programs, LADWP in-City solar projects, and large-scale solar projects outside the City boundaries. LADWP manages the country's most successful municipal utility customer incentive program, encouraging customers to install about 20 MW of solar installations in Los Angeles since 2000. To date, LADWP has also installed about 1 MW of solar projects on City-owned facilities. LADWP is also continuing to negotiate contracts for the development of several large-scale solar plants in the desert southwest of the City. LADWP's solar photovoltaic incentive program provides a payment to LADWP customers that purchase and install their own solar power systems. LADWP's solar incentive program includes a goal of encouraging an additional 270 MW of customer-installed solar photovoltaic systems by 2016.

LADWP has also proposed a renewable portfolio standard (RPS) intended to increase the amount of energy it produces from renewable energy sources. The goal of the RPS is to improve air quality, reduce

GHGs, and provide a sustainable energy resource by lessening dependence on fossil fuels to generate power. LADWP has achieved an interim goal of providing 20 percent of its aggregate annual retail sales from renewable energy resources by 2010. The RPS has established a further goal of increasing the amount of energy LADWP generates from renewable power sources to 33 percent of its sales to retail customers by 2020. These objectives meet or exceed the RPS objectives mandated by the legislature for California utilities. This would represent an over two-fold increase in net generation capacity of renewable energy resources currently provided in the LADWP system. Renewable resources under development or consideration by LADWP include small hydroelectric, biomass, digester gas, waste gas, landfill gas, solar thermal, geothermal, solar photovoltaics, fuel cells with renewable fuels, ocean wave technologies, wind, and other sources. These may include both capital improvement projects to develop renewable resources and procurement of renewable energy on the open market.

Although such programs as described above are technically feasible and represent a means of achieving objectives similar to those of the proposed project, they do not represent a feasible alternative to the project because their implementation has already been accounted for in the assessment of the need for the project. Programs such as energy efficiency, demand response, distributed generation, and renewable energy are complementary to the proposed project and will continue as planned whether or not the project is implemented. Partly in response to a future limitation on coal-fired generation resources, a specific objective of the proposed project is to provide dependable base load generation capacity, which would not generally be met by the above-discussed programs. Furthermore, an additional objective of the proposed project is to integrate intermittent renewable energy sources, such as wind and solar sources, into the LADWP generation system to more effectively utilize these resources and reduce overall dependency on fossil fuel resources. Therefore, the proposed repowering project is in fact a component of, not supplemental to, the alternative energy programs discussed above. Because this alternative would only partially meet the proposed project objectives and because it is effectively infeasible (because it has already been accounted for in the need for the proposed project), it has been dismissed from further consideration.

5.6 ALTERNATIVE 5: PURCHASE ADDITIONAL ENERGY

Under Alternative 5, existing SGS generation Unit 3 would be removed from service, but the new units, as described in the proposed project, would not be constructed. Instead, the generation capacity of Unit 3 would be replaced through the purchase of additional energy from outside (non-LADWP) sources. Purchasing additional energy from outside sources is a technically feasible alternative to the proposed project. Because it would replace the generating capacity of SGS Unit 3 with energy produced by outside entities, this alternative would attain the objective of continuing to provide for the energy demands of the City of Los Angeles. However, because the outside market for energy is extremely volatile, the availability and affordability of future energy purchases are considered highly unpredictable. Therefore, Alternative 5 may be cost prohibitive in the long term, and it would not attain the objective of increasing the electrical system reliability. In this sense, this alternative would also decrease the dependable capacity of generation available. In addition, Alternative 5 may not attain the objectives of reducing air pollutant emissions or increasing fuel efficiency, depending on the original source of the energy purchased and may not be consistent with the formal Settlement Agreement between LADWP and SCAQMD, which stipulates repowering of Unit 3 at SGS by 2015.

Alternative 5 would avoid the significant impacts associated with the proposed project. Since no construction activities for the proposed project would occur at SGS, no related impacts would occur. Alternative 5 may result in environmental impacts similar to or in addition to those created by the proposed project because of the effects related to outside sources of energy production and transmission. However, any such impacts cannot be accurately predicted or quantified at this time.

Alternative 5 is technically feasible, but it would only partially attain the proposed project objectives. It would eliminate the significant impacts resulting from the proposed project. However, it may result in other currently unpredictable and non-quantifiable environmental impacts related to the production and transmission of the purchased energy. Because this alternative would only partially meet the proposed project objectives and because it may result in similar or greater impacts that cannot be reasonably ascertained, it has been dismissed from further consideration.

5.7 SUMMARY

Alternative 1 is technically feasible, but it would violate the formal Settlement Agreement between LADWP and SCAQMD, and it would not meet the majority of the proposed project objectives. It would also result in greater long-term impacts related to air quality and ocean water once-through cooling. Alternative 2 is likely infeasible because it would require the removal of SGS Unit 3 from service prior to the replacement of its generation capacity; furthermore, Alternative 2 would not generally meet the objectives of or reduce the impacts related to the proposed project. Alternative 3 is technically feasible and would attain most of the basic objectives of the proposed project; however, it may create similar or greater short-term construction-related impacts at an alternative location, and it would likely result in additional significant long-term impacts not created by the proposed project. Alternative 4 is considered essentially infeasible because its implementation has already been accounted for in the consideration of need for the proposed project. Alternative 5 is technically feasible, but it would only partially attain the project objectives, and it may result in environmental impacts that cannot be reasonably ascertained but may be similar or greater to those related to the proposed project.

In accordance with Section 15126.6(e)(2) of the CEQA Guidelines, an EIR shall identify an environmentally superior alternative among the alternatives, including the proposed project. In comparison to the feasible alternatives that would achieve most of the basic objectives of the proposed project (Alternatives 3 and 5), the proposed project has been determined to be the environmentally superior alternative because it would result in the least impact to the physical environment that can be reasonably ascertained. Table 5.8-1 provides a summary of the alternatives to the proposed project.

Table 5.8-1. Summary of Alternatives

Alternative	Feasibility	Attainment of Objectives of Proposed Project	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts
1 – No Project	Technically feasible, but would violate SCAQMD Settlement Agreement	• Would not achieve a net reduction in air pollutant emissions • Would not reduce the consumption of natural gas or the production of GHGs • Would not facilitate integration of intermittent renewable power resources into LADWP generation system • Would provide for the energy demands of the City of Los Angeles • Would not increase the reliability of the electrical power generation system • Would not reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• Would result in greater long-term impacts to air quality • Would result in greater long-term impacts related to fuel consumption and the production of GHGs • Would result in greater long-term impacts related to ocean water cooling system
2 – Modify Existing Unit 3	Infeasible because it would likely require removal of Unit 3 from service prior to replacement of generation capacity	• Not applicable due to infeasibility	• Not applicable due to infeasibility	• Not applicable due to infeasibility

Alternative	Feasibility	Attainment of Objectives of Proposed Project	Elimination/Substantial Reduction of Proposed Project Impacts	Additional Impacts
3 – Construct New Units at Alternative Location Outside SGS	Technically feasible, but potentially cost prohibitive and may violate SCAQMD Settlement Agreement	• Would achieve a net reduction in air pollutant emissions • Would reduce the consumption of natural gas and the production of GHGs • Would facilitate integration of intermittent renewable power resources into LADWP generation system • Would provide for the energy demands of the City of Los Angeles • May not increase the reliability of the electrical power generation system • Would reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• Would result in similar or greater short-term construction-related impacts at alternative location • Would likely result in significant long-term impacts to aesthetics, noise, safety • May result in other long-term impacts to resources (biological, cultural, traffic, localized air quality) that cannot be reasonably ascertained
4 – Develop Alternative Energy Sources	Infeasible because its implementation has already been accounted for in the proposed project	• Not applicable due to infeasibility	• Not applicable due to infeasibility	• Not applicable due to infeasibility
5 – Purchase Additional Energy from Outside Sources	Technically feasible, but potentially cost prohibitive and may violate SCAQMD Settlement Agreement	• May not achieve a net reduction in air pollutant emissions • May not reduce the consumption of natural gas and the production of GHGs • Would not facilitate integration of intermittent renewable power resources into LADWP generation system • Would partially provide for the energy demands of the City of Los Angeles • Would not increase the reliability of the electrical power generation system • Would reduce the use of ocean water cooling at SGS	• Would eliminate short-term and unavoidable construction impacts to air quality at SGS • Would eliminate short-term but mitigable construction impacts to paleontological resources • Would eliminate short-term but mitigable construction impacts related to hazards • Would eliminate short-term but mitigable construction impacts related to noise • Would avoid long-term but mitigable impacts to aircraft navigation	• May result in additional but currently unpredictable and non-quantifiable impacts not created by the proposed project related to the production and transmission of purchased energy

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CHAPTER 6: OTHER CEQA CONSIDERATIONS

6.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT

Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines requires an identification of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated, but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in Chapter 4 of this Environmental Impact Report (EIR). According to the environmental impact analysis, the proposed project would result in a temporary but significant and unavoidable impact during construction related to air quality.

6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the CEQA Guidelines require that an EIR analyze the extent to which the proposed project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations would not be able to reverse. This section discusses the commitments of resources required by the proposed project in general terms. All of these effects have been discussed in greater detail in previous sections of this EIR.

The proposed project satisfies several objectives that serve to reduce the amount of natural resources committed over the long term. The proposed project would be constructed within the existing Scattergood Generating Station (SGS), so no new land would be required for project implementation. The majority of the infrastructure that would be necessary for operation of the new generation units is already in place.

The new generation units would be much more efficient to operate than the existing unit they would replace. Natural gas would fuel the new units; however, the amount of fuel used per kilowatt-hour (kWh) of energy produced would be less than is currently required by existing SGS generator Unit 3 (which would be removed from service under the proposed project). With reduced fuel use, the amount of greenhouse gas emissions per kWh of energy from the SGS would be reduced as well. The faster startup and shut down capabilities of the proposed generation units would further contribute to reduced fuel consumption and allow for greater integration of energy produced from renewable sources, such as wind and solar, into the Los Angeles Department of Water and Power (LADWP) power generation system.

The proposed project would have various environmental impacts as presented in Chapter 4 of this EIR. The only significant immitigable impact identified is temporary, associated with the construction phase of the project. Specifically, short-term air quality impacts would occur associated with project construction, including commissioning and testing of the proposed units. The impact identified is not significant or irreversible over the long term, nor would it result in permanent substantial changes in the environment.

6.3 GROWTH INDUCING IMPACTS

CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this definition are projects which would remove obstacles to population growth" (CEQA Guidelines Section 15126.2(d)).

The proposed project would aid LADWP in providing reliable, flexible, and efficient electrical power while achieving an annual reduction in air pollutant emissions and greenhouse gases associated with generation of electricity at SGS.

The proposed project involves the construction of new electrical generating equipment utilizing natural gas turbines with a heat recovery steam generator and removal from service of the existing Unit 3 460-megawatt (MW) steam boiler electrical generating unit. The total gross generating capacity of the SGS facility (818 MW) would remain the same after the completion of the proposed project. Therefore, the project would not indirectly induce population growth in the area because it would provide no additional electrical supply to the region. The proposed project would not require the hiring of additional LADWP personnel to operate SGS. The project construction workers would be hired primarily from the existing labor pool in Southern California; therefore, a significant number of new workers, new services, infrastructure, or housing would not occur relative to project construction and operation.

No significant growth-inducing impacts are foreseen from the proposed project, and no mitigation measures are required.

CHAPTER 7: ORGANIZATIONS AND PERSONS CONSULTED

7.1 AGENCIES AND PERSONS CONSULTED

Ian McMillan, Program Supervisor, South Coast Air Quality Management District

Brian L Yeh, Ph.D., Senior AQ Engineering Manager, South Coast Air Quality Management District

Samuel A. McLeod, Ph.D., Natural History Museum of Los Angeles County

Kimberly Christensen, Planning Manager, City of El Segundo

Laurie Jester, Planning Manager, City of Manhattan Beach

Kathline King, Planning Specialist, Los Angeles County Department of Beaches and Harbors

Eva Sun, Director of Systems, Planning Department, City of Los Angeles

Elmer Alvarez, IGR/CEQA Coordinator, Caltrans District 7

Angelique Carreon, Department of Regional Planning- Systems Analysis Section, County of Los Angeles

7.2 LIST OF PREPARERS OF THE EIR

7.2.1 LEAD AGENCY

City of Los Angeles, Department of Water and Power

Mark Sedlacek, Director of Environmental Affairs

Charles Holloway, Manager of Environmental Planning and Assessment

Julie Van Wagner, Project Manager, Environmental Planning and Assessment

Louis Ting, PE, Project Manager, Engineering

Jose Gutierrez, Assistant Project Manager, Engineering

Patrick Macis, Associate Engineer, Engineering

Katherine Rubin, Manager of Wastewater Quality and Compliance

Bob Krivac, Water Quality and Compliance

Bruce Moore, Air Quality Manager

With Technical Assistance from POWER Engineers, Inc.

Thomas C. Ryan, Project Manager

Sarah Easley Perez, Assistant Project Manager/Environmental Planner

Gini Austerman, Cultural Resources Specialist

Johanna Marty, Cultural Resources Specialist

Jim Rudolph, Senior Cultural Resources Specialist

Allison Carver, Biologist, Water Resources Specialist

Sarice Friedman, Environmental Planner

David Barrackman, GIS Analyst

Saadia Byram, Technical Editor

POWER Subconsultants and Other Outside Technical Specialist

Jeff Fenner, Planner, Fenner Associates

Kelly Rios, Biologist, Michael Brandman Associates

Krishna Nand, Ph.D, QEP, Principal, Air Quality, Environmental Management Professionals, LLC

John A. Minch, PG, Paleontology, John Minch and Associates, Inc.

Brian Marchetti, AICP, Transportation Planner, KOA Corporation

Sam Silverman, Project Manager, Noise, Terry A. Hayes & Associates

Aniekan Udobot, Project Manager, Air Quality, AECOM

Karin Fickerson, Engineer, Air Quality, AECOM

Sarah Sullivan, Engineer, Air Quality, AECOM

Greg Wolffe, Engineer, Air Quality, Yorke Engineering

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