McGrath Peaker Temporary and Permanent Impacts

EDISON

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider Refinements to and Further Development of the Commission's Resource Adequacy Requirements Program.	Rulemaking 05-12-013 (Filed December 15, 2005)
Order Instituting Rulemaking to Integrate Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking 06-02-013 (Filed February 16, 2006)

ASSIGNED COMMISSIONER'S RULING ADDRESSING ELECTRIC RELIABILITY NEEDS IN SOUTHERN CALIFORNIA FOR SUMMER 2007

1. Summary

In the captioned dockets and in other pending proceedings, this Commission is working with partners including the California Independent System Operator (CAISO), the California Energy Commission (CEC), regulated entities, and other stakeholders to develop and enhance the electric infrastructure so that it meets California's growing need for reliable, cost-effective, and environmentally sound electric service. Significant progress has been achieved since the electric market disruptions of 2000-2001, and the procedural steps needed to maintain this progress are well under way.

In light of recent events, I find it is necessary to take additional action. The heat storm that hit California in July 2006, and the surprising growth in electricity demand throughout the state that had become evident even before the heat storm, have exposed certain vulnerabilities in the electric generation and

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transmission infrastructure that require immediate attention to assure reliability in 2007, particularly in parts of southern California. Accordingly, as set forth in more detail below, I direct Southern California Edison Company (SCE) to expand its Air Conditioning Cycling Program (ACCP, also referred to as Summer Discount Plans) to target an additional 300 megawatts (MW) of program capacity for the summer 2007 season. In addition, SCE should pursue the development and installation of up to 250 MW of black-start, dispatchable generation capacity within its service territory for summer 2007 operation. In connection with this added generation capacity, I invite SCE to file an advice letter to establish a memorandum account in which it would record the acquisition and installation costs.

2. Background

In the captioned rulemaking dockets and in predecessor proceedings initiated in the wake of the energy crisis of 2000-2001, this Commission has established policies for procurement of electric generation by investor-owned utilities (IOUs) and by other load-serving entities (LSEs) subject to the Commission's jurisdiction.[1] Throughout these proceedings, a fundamental goal of the Commission has been assuring that Californians served by these LSEs receive reliable electric service through cost-effective, environmentally sound, sustainable, and competitive procurement of electric generation capacity. Key elements of this procurement regime include the following:

[1] The Commission has found that the service territories of the three largest electric IOUs in California account for approximately 80% of California's electricity usage.

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- The California Energy Action Plan (EAP II), which establishes a preferred loading order of resources, beginning with energy efficiency and demand response.
- Review and approval of the IOUs' Long Term Procurement Plans (LTPPs) in conjunction with the CEC's demand forecast.
- Establishment of Resource Adequacy (RA) procurement obligations whereby each jurisdictional LSE must acquire the resources needed to serve its own customer load plus a 15%-17% planning reserve margin.

3. Discussion

I am confident that the adopted procurement regime, described above, is successfully meeting California's electric system needs and will continue to do so. I recognize, however, that the LTPP and RA programs are still under development and that the adopted program elements have not been in place for sufficient time to bear full fruit. Despite the Commission's ongoing efforts to assure that adequate operating resources are made available to the CAISO at the times and places the CAISO needs those resources for electric grid operations, it is critical that we continually monitor system developments and be prepared to act as necessary.

Last month's heat storm, and the evident and surprising growth in demand that had occurred even before the heat storm, give rise to the need for further action. The CAISO's assessment for the summer of 2006 indicated that it could handle a demand in excess of 48,000 MW, close to what demand was forecasted to be under extreme temperatures that materialize once every

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10 years, with limited to no impact on firm load customers.[2] However, the CAISO reports, the peak demand during that heat wave was 51,000 MW, well above any of the scenarios it had assumed in its assessment.[3] As the CAISO notes, that was over 12% higher than last year's record, 6% higher than the worst case scenario the CAISO analyzed in its assessment, and 38% higher than the peak demand of the crisis year 2001; it represents the demand forecasted not to appear until five years from now.[4] Across the CAISO's service area, weighted average temperatures ranged between 106 and 110 degrees Fahrenheit on various days, something California and the West have not experienced in recent history; these temperatures were higher than anything recorded in the 30-year history of the temperature models used by the CAISO.[5] Also, staff informs me, the demand forecasts used to plan for resource needs in California may not have fully incorporated the impacts of recent population growth in the warmer inland areas of California.

The good news for California is that the right policies were put in place in recent years, and all parties pulled together during the recent heat storm with the result that the CAISO was able to meet the resulting reliability challenge. Looking ahead to next summer, however, I am persuaded that additional steps should be taken now to assure reliability. While there is no way at this time to determine whether the unusually high temperatures experienced this summer in

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[2] *See* Prepared Statement of Yakout Mansour, President and Chief Executive Officer of CAISO, before the California State Senate Committee Governmental Organizations, dated August 9, 2006. The statement is available at the CAISO's website.

[3] *Id.*

[4] *Id.*

[5] *Id.*

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California and much of the nation are the product of global climate change trends, it is prudent to go forward with the expectation that a repeat of this summer's experience, and/or a continuation of the unexpectedly high growth in overall demand, are possible in 2007. The CAISO advises that the situation is particularly severe in southern California.[6] Recognizing that time does not allow for development of large new projects between now and next summer, the CAISO recommends that the Commission take steps to direct IOUs to develop

> ... a combination of quick-start generation and demand response opportunities that can be developed over the next six to twelve months to increase available supply at the peak hours and enhance grid reliability.[7]

Accordingly, in response to critical near-term needs in southern California that have been recently identified by the CAISO, I take the following actions.

First, consistent with the preference to be accorded to demand response programs under EAP II, I direct SCE to target an additional 300 MW of ACCP program capacity for the summer 2007 season. SCE is directed to determine if shifting existing demand response funds can cover the costs of the additional 300 MWs or if additional funds (incremental to those previously approved in D.06-03-024) are necessary. SCE is directed to provide this information to the Commission via the process outlined in A.05-06-006, *et al.*[8]

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[6] *See* letter from Yakout Mansour, President and Chief Executive Officer of CAISO, dated August 9, 2006. A copy of the letter is attached to this ruling.

[7] *Id.*

[8] On August 9, 2006 I issued an Assigned Commissioner Ruling in A.05-06-006, *et al.*, directing the IOUs to submit proposals August 30, 2006 to expand their existing demand response programs.

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Second, I direct SCE to pursue new utility-owned generation that can be online in time for summer 2007. I take this action out of concern that SCE's current, ongoing Request for Offer (RFO) process may not be completed in time for summer 2007 needs. As I noted earlier, competitive IOU procurement processes are key elements of the Commission's procurement regime. As it goes forward with its RFO, SCE should not reduce the amount of capacity it contracts for through the RFO due to development of generation specified in this ruling. Additionally, SCE should promptly evaluate any offers of resources similar to those covered in this ruling that may be online by August 1, 2007. Should SCE consider any such offers potentially viable, it should make best efforts to reach agreement with the bidders and file a request for contract approval with the Commission by November 15, 2006. The Commission will target action on any such requests not later than January, 2007. Offers considered by SCE but not deemed August 1-capable, and offers SCE is unable to reach agreement on before November 15, 2006, should continue to follow the schedules and procedures laid out in the RFO. I would expect contracts filed by SCE pursuant to this section to contain financial guarantees of operation on or before August 1, 2007.

To avoid undue impacts on the ongoing RFO process, SCE should pursue development of not more than five non-RFO generation units. Such units should be black-start capable and dispatchable, and should bring collateral benefits to SCE's transmission and distribution system as well as the CAISO grid.

It does not appear possible for SCE to develop and for the Commission to consider proposals for ratemaking treatment of the costs of developing and installing the utility-owned generation described above prior to the time such generation would be installed. Accordingly, I invite SCE to file an advice letter to establish a memorandum account to record the acquisition and installation

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costs of such generation facilities. Because of the urgent need for capacity for summer 2007 and the unusual steps being taken in this ruling, SCE may choose in its later rate application to request, and the Commission may wish to consider, for resources built pursuant to this ruling, different ratemaking treatment than that established in D.06-07-029 for utility-owned resources.

In this ruling I have focused on actions that are to be undertaken by SCE in light of the CAISO's stated concern about reliability in southern California. As a precaution to assure reliability throughout the service territories of all of the IOUs, I will direct Pacific Gas and Electric Company and San Diego Gas & Electric Company to submit reports in the LTPP proceeding addressing the need for similar actions in their territories, particularly with respect to air conditioning cycling.

This ruling is being issued in R.05-12-013 and R.06-02-013 because of the related subject matter; however, these proceedings are not consolidated.

IT IS RULED that:

1. In order to address and resolve potential resource inadequacies that could affect reliability in southern California in the summer of 2007, Southern California Edison Company (SCE) is directed to take necessary steps to expand its demand response programs and to develop black-start, dispatchable resources in accordance with the foregoing discussion.

2. Not later than 15 days from the date of this ruling, Pacific Gas and Electric Company and San Diego Gas & Electric Company shall file reports in Rulemaking 06-02-013 addressing the need for actions in their territories similar to those addressed in this ruling with respect to SCE, particularly with respect to air conditioning cycling.

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3. In addition to the service lists in the captioned dockets, a copy of this ruling shall also be served on the service list in Application (A.) 05-06-006, A.05-06-008, and A.05-06-017.

Dated August 15, 2006, at San Francisco, California.

/s/ MICHAEL R. PEEVEY
Michael R. Peevey
Assigned Commissioner

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View Point 1 Before

View Point 1 After

FILENAME:

View Point 2 Before

View Point 2 After

FILENAME:

View Point 3 Before

View Point 3 After

FILENAME:

VP-18
VP-17
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VP-4
VP-3
VP-2
VP-1
Image NASA
© 2008 Tele Atlas
Google
lat 34.211014° lon -119.251407°
elev 23 ft
Nov 2004
Eye alt 15088 ft

VP-01 - before

VP-01 - after

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VP-05 - before

VP-05 - after

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VP-06 - before

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VP-07 - before

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VP-09 - before

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VP-13 - before

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SOUTHERN CALIFORNIA EDISON
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February 17, 2009

Mr. Cassidy Teufel
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA
94105-2219

Re: Appeal No. A-4-OXN-07-096 (Southern California Edison Company, McGrath Beach "Peaker" Power Plant)

Dear Mr. Teufel:

Enclosed is a revised landscaping plan with narrative for the proposed project and updated visual simulations from Harbor Boulevard to replace those previously sent to you dated February 4, 2009. The revised plan incorporates native trees approved by U.S. Fish and Wildlife Service staff, which more effectively screens the facility from the east while dissuading corvids and other predatory birds from perching. We believe this change responds to the Commission's stated desire to reduce the visual impact of the facility to the maximum extent possible, while still protecting endangered bird species. All simulations and the landscape plan are also provided as digital files on the enclosed CD.

Please call or e-mail me if you should have any questions.

Sincerely,

David W. Kay
Manager of Environmental Projects

Enclosures

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McGRATH BEACH PEAKER
LANDSCAPING AND RESTORATION PLAN
February 20, 2009

LANDSCAPING GOALS

The goals of the site landscaping plan are to: (1) create a visual barrier to screen the peaker development from motorists traveling on Harbor Boulevard east of the project site and from residents in the Northshore housing development; (2) restore vegetation in areas temporarily disturbed during construction; (3) plant new vegetation to offset any permanently removed during construction, (4) prevent non-native vegetation from reestablishing in restored/planted areas, and (5) remove invasive iceplant from the 37 acres of SCE owned land east of Harbor Blvd. All will be achieved through the use of California native plant species that are compatible with and presently occur in local plant communities.

Peaker Site

The proposed peaker site landscape plan is included as Attachment A. It has been reviewed by the biologist that conducted the restoration activities for the adjacent Mandalay Beach property to ensure its compatibility. It also employs a plant palette approved by U.S. Fish and Wildlife Service (USFWS) staff through verbal consultation.

The landscape plan calls for removing the existing chain link fence along Harbor Blvd. and replacing it with a shorter decorative fence to prevent public access. A new chain link fence will be installed behind the landscaped area to limit access to the peaker equipment site. In order to provide maximum screening of the project, a six foot high berm will be constructed and densely planted with a selection of locally-occurring California native ground covers, shrubs, and trees.

Tree species were selected in consultation with USFWS and possess dense foliage that does not provide nesting or roosting habitat for bird species that might prey on locally occurring nesting colonies of rare birds, such as California least tern and western snowy plover. Both of these species nest on the coastal strand on the west side of the dune field that parallels the coast, to the west of the project site. There was concern that planting trees that could provide additional habitat for corvids (ravens and crows) and raptors (i.e., hawks, falcons, etc.) could result in a negative impact on the nesting success of the species of concern. This plan was developed to address this concern.

The existing plantings on the southern edge of the SCE site consist of invasive exotic species that will be eradicated to prevent their spread into natural habitats within the adjacent Mandalay State Beach property. Current plantings include approximately 5,200 square feet (40 ft. by 130 ft.) of Hottentot fig (*Carpobrotus edulis*), myoporum (*Myoporum laetum*) and blue gum trees (Eucalyptus species) on the southeast corner of the property, which continues to the west along the southern property line.

Gas and Transmission Line Temporary Impact Sites

In addition to the peaker site landscaped area, in areas east of Harbor Boulevard where temporary construction disturbance occurs, a non-irrigated native hydroseed mix shall be developed and applied

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just prior to the rainy season to re-establish native vegetation and decrease the spread of non-native exotics. The total area temporarily impacted by construction will be less than 0.83 acre.

The areas disturbed by pipeline and transmission line activities will also be treated to remove existing invasive species and prevent their reestablishment. Areas dominated by weed species that have been graded or trenched will have the vegetation removed and properly disposed of to eliminate seeds, roots, and stems present in the soil. If the plants to be removed are in seed, care will be taken to prevent the seeds from being distributed.

Permanent impact areas are limited to the new manhole/vault cover for the gas pipeline tie-in valve, the footprints of three (3) new wood poles, and the expanded footprint of one (1) existing pole to be replaced with a steel pole employing a larger concrete footing. The total permanent impact area is only about 93 square feet. Since the areas of temporary impact are presently either bare ground or vegetation is substantially non-native or invasive, the reseeding and revegetation of temporary impact areas (<0.83 acres, or approximately 36,000 square feet) will significantly exceed this small permanent impact area. Therefore, no additional areas are proposed be restored to offset the permanent impacts.

Removal of Iceplant on SCE-Owned Land East of Harbor Boulevard

The remaining undeveloped areas of the two SCE-owned parcels east of Harbor Blvd. will be voluntarily enhanced by removal of all invasive iceplant. This will be accomplished by a combination of solarization for large, contiguous areas of iceplant and targeted herbicide spot-treatment of small patches of iceplant mixed with natives. Dead iceplant will be left in place to decompose to prevent wind and water soil erosion while native vegetation naturally re-establishes in these areas. Experience with these methods on other dune restorations demonstrates that slowly decomposing iceplant does not inhibit the establishment of native vegetation compared to manually removing the dead iceplant.

Annual monitoring will ensure that iceplant does not reestablish in any previously cleared areas.

IRRIGATION SYSTEM (PEAKER SITE ONLY)

The irrigation system will be designed to minimize water use while encouraging the establishment of the selected California native species. The best irrigation system for native plants is an overhead sprinkler system that can deliver water droplets that simulates rainfall to the plant root zone and the surrounding soil area to encourage root development. This method also provides the best strategy for keeping the plants leaf surface clean to allow healthy plant respiration and transpiration as well as establishing seeded grasses and small shrubs.

The landscape plan will incorporate a zoned overhead sprinkler system with an ET ("Evapotranspiration") controller to minimize water use until the plants have been established. The ET controller will ensure climate based irrigation scheduling, so that watering only occurs when needed. It is anticipated that only a small amount of supplemental watering will occur during the dry season to keep the young native shrubs and seedlings alive until they can develop a mature root system capable of retrieving moisture directly from the soil profile. The zoned system will ensure that the proper amount of water is delivered to each species without over watering. The system will deliver more water to the larger root balls of the shrubs and less to the smaller seedlings.

The system will remain in place for 3 to 4 years with the frequency of operation decreasing every year until it can be abandoned. The exact length of installation will depend on the speed at which the plants establish themselves based on the natural precipitation levels.

FERTILIZERS, PESTICIDES AND HERBICIDES

The use of fertilizers, pesticides, and herbicides shall be minimized. Soil test shall be conducted prior to planting to determine the existing soil properties. Organic soil amendment and mulch shall be used in the initial planting procedure to supplement the existing soil to enhance the success of the planting. Mulch shall be guaranteed to be weed-free and shall not contain growth-inhibiting substances. Until the plants are established it may be necessary to apply low rates of natural organic fertilizer. Fertilizer will only be used when authorized by the Landscape Architect based on actual plant condition and soil tests. Only organic fertilizer will be used. Once the native plants have been well established, it is expected that the use of fertilizer will be discontinued.

A broadcast spray of Rodeo or other herbicide(s) suitable for use near wetlands may be used on the proposed Peaker Site landscape area as part of an initial "grow and kill" treatment to control invasive weeds contained in the imported soil. Existing habitats shall be protected against herbicide spray. Non-target plants shall be protected against contamination by spray drift. No herbicide applications shall be allowed when wind speed exceeds 5 MPH.

After the initial planting, herbicides will be used only as needed to eradicate weeds and non-natives if alternate methods are not effective. Herbicides will be applied only as spot treatments, and only directly on the areas where needed. Pesticides will not be used.

PERFORMANCE MONITORING

Monitoring Method: Quantitative monitoring of the peaker landscaped area, restored temporary impact areas and iceplant removal areas will be conducted using the line-intercept method to determine relative cover. Permanent transects will be established once construction is complete and all landscaping and irrigation has been installed. Monitoring will focus on the success of installed plants as well as general qualitative conditions, such as proper functioning of irrigation systems, herbivore, insect or disease problems, plant mortality and reduced vigor, vandalism, erosion, etc. Observations will be made to identify significant factors affecting plant survival and success of weed control. Photographs will be taken from at least one end of each transect to document changes during the monitoring period.

This method will document and quantify the relative abundance and dominance of:

- Planted or hydroseeded native species (except for iceplant removal areas);
- Natural recruitment of other native species; and,
- Weed growth or return of invasives.

Monitoring Schedule: Monitoring will commence following completion of planting. Four monitoring visits will be conducted during the first year after planting, with additional field checks after any large storm events. For years 2 through 5, two visits per year will be conducted, one each in spring and fall. This monitoring frequency provides sufficient oversight to correct minor problems before they become large problems, such as issues with individual plants (insects, herbivores, irrigation, etc), spot erosion, and weed infestations.

PERFORMANCE CRITERIA

The goal of the Peaker Site landscape plan is to create native vegetative cover as described in Table 1 below. Corrective actions may include replanting, weed control, and similar actions.

Table 1 – Landscape Performance Criteria

Monitoring Measure	Year 1	Year 2	Year 3	Years 4-5
Relative Native Cover (including natural recruits)	50%	60%	70%	80%
<10% non-native cover	<10%	<10%	<10%	<10%

The goal of the invasive plant removal program along the disturbed areas of the pipeline and transmission line corridors is to remove the existing non-native vegetation and discourage its re-establishment as described in Table 2.

Table 2 – Pipeline/Transmission Corridor Performance Criteria

Monitoring Measure	Year 1	Year 2	Year 3	Years 4-5
<10% non-native cover	<10%	<10%	<10%	<10%

The goal of the iceplant removal program on the undeveloped SCE land east of Harbor Blvd. is to remove the existing non-native iceplant and discourage its re-establishment as described in Table 3.

Table 3 – Iceplant Removal Performance Criteria

Monitoring Measure	Year 1	Year 2	Year 3	Years 4-5
<10% non-native cover	<10%	<10%	<10%	<10%

MAINTENANCE

Landscape Area Maintenance: The landscaped area will be maintained to assure proper care of the installed plants, including irrigation and on-going removal of invasive non-native plants. Exotic non-native plant species will be controlled for five years. Weeds will be removed by hand to minimize disturbance to the establishing vegetation. Herbicides and mechanical removal will be used only as needed, with spot treatment of herbicides only. The use of chemicals shall be minimized. Weed removal will occur as needed each year, generally most intensively in the early and late spring to eradicate small weed plants before they set seed and develop large roots.

If invasive species have not been reduced to a less than 10 percent cover after the first six to twelve months of exotic plant removal, the frequency and/or intensity of the eradication effort will be increased.

Pipeline and Transmission Line Construction Area Maintenance: The reintroduction of exotic non-native plant species into the areas disturbed by pipeline and transmission line construction activities will be controlled for five years.

If invasive species have not been reduced to a less than 10 percent cover after the first six to twelve months of exotic plant removal, the frequency and/or intensity of the eradication effort will be increased.

REPORTING

As-builts: An "as-built" of the completed work, including photographs, will be submitted to the Executive Director within 30-days of completion of the initial landscaping work.

Annual Reporting: Annual reports will be submitted to the Executive Director beginning the first year after construction of the permitted project. The reports will include an overview of project status, copies of field monitoring forms and photographs, and a Performance Evaluation that compares the status of the landscaping to the performance criteria. Reports will describe any corrective actions recommended by the monitor and conducted by the applicant. If appropriate (e.g., a "one-time" repair), the reports will describe the corrective action taken by the applicant otherwise (e.g., in the case of an on-going modification or repair best undertaken at a different season) the report will present a schedule for taking corrective action.

The first annual report will be submitted within one year of completion of planting at the site. Subsequent annual reports will be submitted by the end of December each year.

Final Report: A final report will be submitted by the end of December of the final monitoring year

PLANT LEGEND
TREES
LARGE SHRUBS
MID-SIZED SHRUBS
SMALL SHRUBS
BIOSWALE PLANT MIX
CHANNEL
HARBOR BLVD.
PROPERTY LINE
NATIVE GRASS BIOSWALE
PEAKER SITE
SUBSTATION
GAS METER
GATE
MAIN ENTRY
TEMPORARY CONSTRUCTION YARD
DECORATIVE METAL FENCE
EXISTING FENCE
NEW FENCE
EXIST. RAILROAD TRACKS
EXIST. WATER LINE
NEW WATER LINE
NEW 75 FT. POLE
EXISTING 75 FT. POLE
EXIST. BRIDGE
EXIST. PLANTING
EXIST. EUCALYPTUS
EXIST. MYOPORUM
EXIST. ICEPLANT
EXIST. JUNIPER
EXIST. TUAR
EXIST. MELALEUCA
EXIST. SCHINUS
EXIST. MYOPORUM
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EXIST. MELALEUCA
EXIST. ICEPLANT

RESOLUTION NO. 2007-19

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF OXNARD DENYING COASTAL DEVELOPMENT PERMIT (PZ 07-400-5) FOR A 45-MW ELECTRICAL GENERATING FACILITY LOCATED AT 251 NORTH HARBOR BOULEVARD, WITHIN THE COASTAL ZONE. FILED BY SOUTHERN CALIFORNIA EDISON, 2244 WALNUT GROVE AVENUE, ROSEMEAD, CA, 91770.

WHEREAS, the Planning Commission of the City of Oxnard considered the above-described application for a Southern California Edison 45-MW electrical power-generating facility and related equipment ("the project"); and

WHEREAS, the California Coastal Act defines a "Coastal-dependent development or use" as "...any development or use which requires a site on, or adjacent to, the sea to be able to function at all" (PRC §30101), and

WHEREAS, the project location is located in the Coastal Zone of the City Of Oxnard and subject to the Oxnard Coastal Land Use Plan and Chapter 17 (Coastal Zoning Ordinance) of the City Code; and

WHEREAS, the purpose of the Coastal Zoning Ordinance is stated in Section 17-2(2), "To assure priority for coastal-dependent and coastal-related development over other development on the coast"; and

WHEREAS, the coastal zone designation for the project site is Coastal Energy Facility Sub-Zone (EC); and

WHEREAS, Coastal Zoning Ordinance Section 17-20(B)(2) includes "Electrical power generating plant and accessory uses normally associated with said power generating facility" as a conditionally allowed use in the EC zone, requiring a coastal development permit; and

WHEREAS, there are no uses allowed in the EC zone other than by coastal development permit and the electrical power generating plant and accessory uses normally associated with said power generating facility use should be considered in the context of coastal-dependent; and

WHEREAS, a non-coastal dependent energy-generating facility would not be allowable based on Section 17-5(I) of the City Code which states, "If a proposed use is not listed as permitted or conditionally permitted, such use shall be assumed to be prohibited unless the city council determines, following recommendations from the commission and a public hearing, that the proposed use is substantially the same as a listed use."; and

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WHEREAS, the project was characterized by the applicant in letters dated April 19, 2007 and June 15, 2007 as "non-coastal dependent" and four identical projects are being developed in non-coastal locations.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Oxnard finds that the proposed project is not an allowed use in the EC zone and denies the application for coastal development permit No. PZ 07-400-5.

PASSED AND ADOPTED by the Planning Commission of the City of Oxnard on the 28th day of June, 2007, by the following vote:

AYES: Commissioners: Medina, Sanchez, Elliott, Frank, Okada

NOES: Commissioners: Dean, Pinkard

ABSENT: Commissioners: None

_____
Dr. Sonny Okada, Chairperson

ATTEST: _____
Susan L. Martin, Secretary

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

M E M O R A N D U M

FROM: Jonna D. Engel, Ph.D.
Ecologist

TO: Cassidy Teufel
Coastal Analyst, Energy and Oceans

SUBJECT: Southern Dune Scrub Community at the Proposed Southern California Edison Peaker Plant, 251 Harbor Boulevard, Oxnard, California

DATE: October 9, 2008

On Friday May 16, 2008, I visited the site of Southern California Edison's (SCE) proposed Peaker Plant with Jim Harvey from SCE and Tony Bomkamp of Glenn Lukos and Associates, SCE's contract biologist. We surveyed the project area consisting of the proposed gas pipeline and associated trenching areas that run parallel to Harbor Boulevard east and west of the canal that bisects Harbor Boulevard and the disturbance footprint associated with equipment access, construction staging, and construction and removal of transmission poles along the transmission line corridor. The portion of the transmission line corridor where the work would occur starts north of Harbor Boulevard behind the existing transmission substation and runs east across the canal to the point where transmission lines pass over Harbor Boulevard. Subsequent to this site visit, I visited the site three additional times, on June 12, July 18, and October 2, 2008.

The bulk of SCE's property east of Harbor Boulevard and the habitat within the project area (pipeline and transmission line corridor) is southern dune scrub. However, chronic disturbance in the project area, from public utility infrastructure installation and maintenance activities over the years has been substantial – an electricity transmission substation, gravel staging and storage area, several dirt roads, two underground natural gas pipelines and several dozen transmission poles and overhead power lines exist on the site and transmission line cleaning and maintenance activities involving the use of high clearance trucks along each of the seven transmission line corridors occur once every four weeks. Additionally, the proximity of the site to Harbor Boulevard contributes to the chronic disturbances listed above, in altering the topography, availability and movement of sand, as well as to reduce the abundance of native species from the area and facilitate the introduction and spread of non-native vegetation, especially the non-native invasive iceplant, *Carpobrotus edulis*. Within 20 within feet of Harbor Boulevard, the percent cover of iceplant is upwards of 40%. Iceplant cover is nearly as high along the transmission line corridor.

In spite of the degraded and disturbed nature of the project area, most of the vegetation is comprised of native southern dune scrub species including mock heather or

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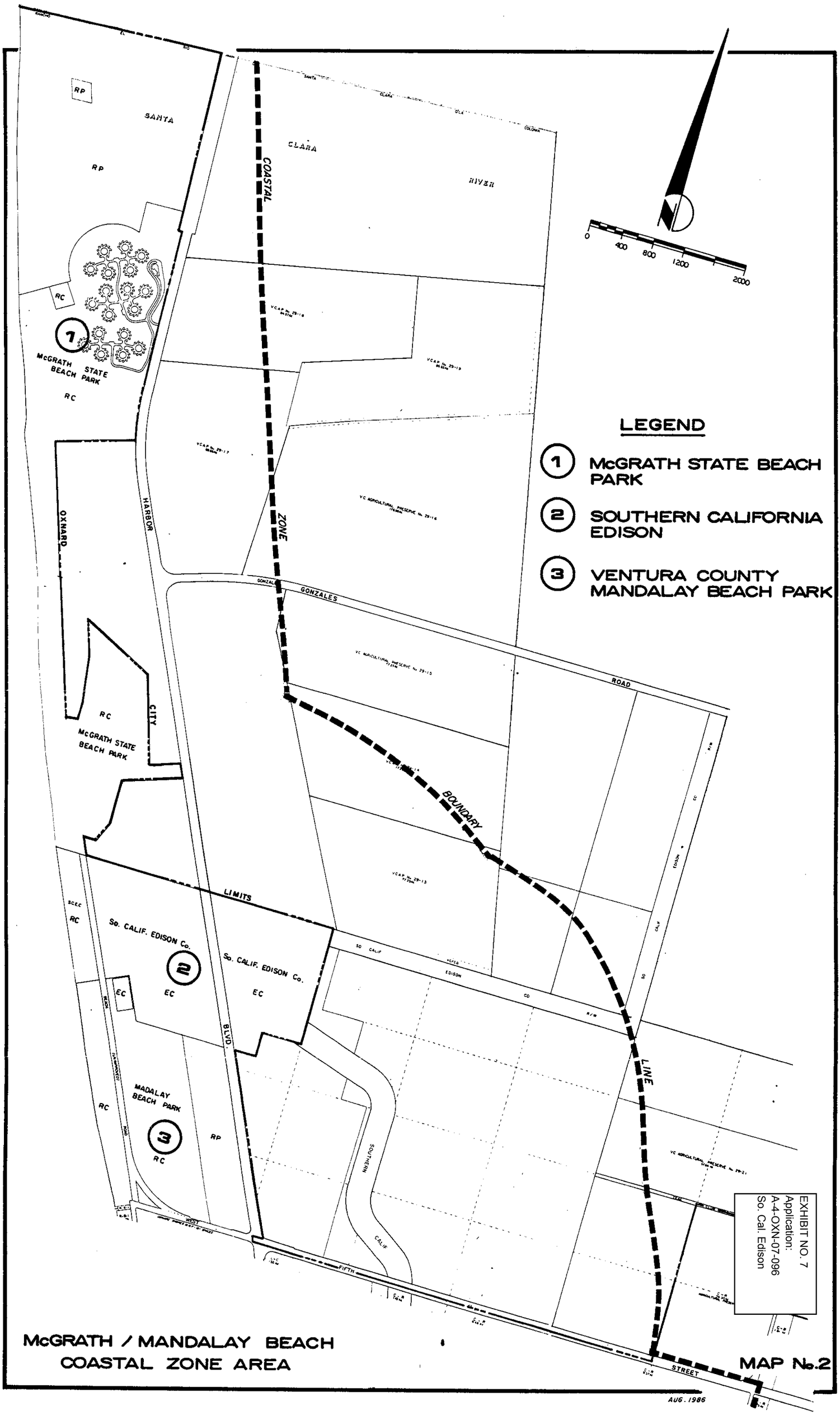
California goldenbush, *Ericameria ericoides;* California buckwheat (*Eriogonum fasiculatum ssp. fasiculatum*), hairy false goldenaster (*Heterotheca villosa*), California encelia (*Encelia californica*), lemonade berry (*Rhus integrifolia*), California sagebrush (*Artemisia californica*), California croton (*Croton californicus*), deerweed (*Lotus salsuginosus),* lance-leaved dudleya (*Dudleya lanceolata*), prickly-pear cactus (*Opuntia littoralis*), and California cudweed aster (*Lessingia filaginifolia filaginifolia*). A number of southern foredune species occur among the southern dune scrub species including beach primrose, *Camissonia cherianthifolia;* beach bur, *Ambrosia chamissonis;* sand verbena, *Abronia umbellate spp. umbellata*, beach saltbush, *Atriplex leucophylla*, and the non-native sea rocket, *Cakile maritima*. The most abundant native species is mock heather and the substrate throughout the project area is sand.

Holland (1986) states that southern dune scrub is a dense coastal scrub community restricted to the coast on stabilized back dune slopes, ridges, and flats and integrating toward the coast with southern foredunes. He describes southern dune scrub as a community composed of scattered shrubs, subshrubs, and herbs, generally less than 1m tall and often developing considerable cover. He states that southern dune scrub is similar to northern and central dune scrub but that it is exposed to a climate that is drier, warmer and less windy. He characterizes southern dune scrub as dominated by *Atriplex leucophylla, Croton californicus, Ephedra californica, Ericameria ericoides, Haplopappus venetus vernoniodes, Lupinus chamissonis, Lycium brevipes, Opuntia littoralis, Rhus integrifolia,*and *Simmondsia chinensis*

The California Department of Fish and Game's Natural Diversity Data Base (CNDDB) plant community descriptions are based on Holland (1986). Holland found that southern dune scrub "has been virtually eliminated from mainland southern California." The CNDDB identifies southern dune scrub as a rare habitat type and assigns it the highest rarity rankings; a state rating of S1.1 - very threatened, less than 2000 acres; global ranking of G1, less than 2000 acres. The southern dune scrub on the SCE property is part of a very small area of remnant southern dune scrub that still exists in the Oxnard area.

Most of the SCE property east of Harbor Boulevard, including the pipeline and transmission line corridor areas currently being considered for development, clearly meet the definition of southern dune scrub. When considered cumulatively, the many sources of habitat disturbance within the proposed project area have had a noticeable adverse affect on the southern dune scrub habitat and have diminished the biological and ecological value of this plant community throughout the site such that it is appropriate to characterize the project area as significantly degraded southern dune scrub habitat.


LEGEND
1 McGRATH STATE BEACH PARK
2 SOUTHERN CALIFORNIA EDISON
3 VENTURA COUNTY MANDALAY BEACH PARK
0 400 800 1200 2000
COASTAL ZONE BOUNDARY LINE
SANTA CLARA RIVER
RP
RC
McGRATH STATE BEACH PARK
OXNARD
HARBOR
CITY LIMITS
GONZALES ROAD
So. CALIF. EDISON Co.
EC
MADALAY BEACH PARK
SOUTHERN CALIF EDISON
FIFTH STREET
BLVD.
VC AGRICULTURAL PRESERVE No. 29-13
VC AGRICULTURAL PRESERVE No. 29-21
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McGRATH / MANDALAY BEACH
COASTAL ZONE AREA
MAP No.2
AUG. 1986

PLANNING DIVISION
305 WEST THIRD STREET
OXNARD, CALIFORNIA 93030

MITIGATED NEGATIVE DECLARATION NO. 07-02

On the basis of an initial study, and in accordance with Section 15070 of the California Code of Regulations, the Planning Division has determined that there is no substantial evidence that the proposed project may have a significant effect on the environment:

> Coastal Development Permit PZ 06-400-5, a request to develop a 45-Megawatt (MW) "peaker" generator located at 251 N. Harbor Boulevard, Oxnard, California. The project facilities will include one natural gas-fired General Electric (GE) LM6000 gas turbine generator, pollution control equipment including a selective catalytic reduction (SCR) system and an oxidation catalyst, an 80-foot tall exhaust stack, a 10,500-gallon 19-percent aqueous ammonia storage tank, fuel gas supply line, fuel gas compressor, water supply line, water demineralizer, two water storage tanks, transformers, 66 kilovolt (kV) transmission tap line, a natural gas-fired "black-start" generator that can be independently started, a power control module, a 65- by 75-foot customer substation, and a 40- by 75-foot gas metering station. Filed by Southern California Edison, 2244 Walnut Grove Avenue, Rosemead, CA 91770

Attached is a copy of the initial study documenting the reasons to support the finding of no significant effect on the environment. Mitigation measures are included in the initial study to reduce the identified potential effects to a less than significant level:

• Aesthetics • Air Quality • Biological Resources • Cultural Resources • Geology and Soils • Hazards and Hazardous Materials • Hydrology and Water Quality	• Land Use and Planning • Mineral Resources • Noise • Population/housing • Recreation • Transportation/Traffic • Utilities/Service Systems

Mitigations are summarized on the following pages.

Attachments: Initial Study/MND 07-02
Appendices A to G

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SUMMARY OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT

Topic Area	Mitigation Measures	
Aesthetics		None
Agricultural Resources		None
Air Quality	**AQ-1**	The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
	AQ-2	Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
	AQ-3	Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities: a) If soil is hauled off site, all haul trucks shall be required to cover their loads as required by California Vehicle Code §23114. b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.
	AQ-4	Graded and/or excavated inactive areas of the construction site shall be monitored by SCE's construction contractor at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
	AQ-5	Signs shall be posted on-site limiting traffic to 15 miles per hour or less.

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SUMMARY OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT

Topic Area	Mitigation Measures	
	AQ-6	During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.
	AQ-7	Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
	AQ-8	Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.
	AQ-9	Equipment idling time shall be minimized.
	AQ-10	Equipment engines shall be maintained in good condition and in proper tune as per manufacturers' specifications.
	AQ-11	Alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), electric, or equipment meeting Tier 2 standards, shall be used if feasible.
Biological Resources	- Not Applicable -	

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SUMMARY OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT

Topic Area	Mitigation Measures	
	- Not Applicable -	
	BIO-3	A qualified biologist will conduct a pre-construction survey of each construction area to identify occupied nests of native birds prior to grubbing or grading activity. If occupied nests of native birds are observed within the construction zone, a minimum buffer of 100 feet will be established between the nest and limits of construction. Additionally, the construction crew will avoid activities within the buffer zone until the bird nest(s) is/are no longer occupied, per a subsequent survey by the qualified biologist. If work within the established 100 foot buffer cannot be avoided, consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Game will be conducted to determine if there are appropriate measures that may be taken to continue work in these areas.
Cultural Resources	**CUL - 1**	Developer shall contract with a Native American monitor to be present during all subsurface grading, trenching or construction activities on the project site. The monitor shall provide a final report to the Planning Division summarizing the activities during the reporting period. A copy of the contract for these services shall be submitted to the Planning Division Manager for review and approval prior to issuance of any grading permits. The monitoring report(s) shall be provided to the Planning Division prior to approval of final building permit signature.
Geology and Soils		None
Hazards & Hazardous Materials	**HM - 1**	During construction, hazardous materials stored on-site will be limited to small quantities of paint, coatings and adhesive materials, and emergency refueling containers. These materials will be stored in their original containers inside a flammable materials cabinet. Fuels, lubricants, and various other liquids needed for operation of construction equipment will be transported to the construction [illegible] an as-needed basis by equipment service trucks.

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SUMMARY OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT

Topic Area	Mitigation Measures	
Hydrology/Water Quality	None	
Land Use/Planning	- Not Applicable -	
Mineral Resources	None	
Noise		
Population/Housing	None	
Public Services	None	
Recreation	None	
Transportation/Traffic	**TT-1**	Should a temporary road and/or lane closure be necessary during construction the contractor will provide traffic control activities and personnel, as necessary, to minimize traffic impacts. This may include scheduling deliveries for off-peak hours and providing escorts for oversized loads, detour signage, cones, construction area signage, flagmen and other measures, as required, for safe traffic handling in the construction zone.

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SUMMARY OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT

Topic Area	Mitigation Measures
	TT-2 Traffic Control Plan. A traffic control plan for the natural gas pipeline construction will be prepared by a registered traffic control engineer. The details of the traffic control plan will be prepared and approved by the affected jurisdictions. The Traffic Control Plan will generally follow the standard set forth by Caltrans. The Traffic Control Plan shall be submitted to the City for approval and will contain the following elements: • Designate required traffic patterns or temporary road closures for construction; • Provide construction work zone signs; • Provide safety measures to separate motorists from the construction workers and the work zone; In addition to the traffic control plan, the construction methodology along the roadways will: • Ensure access for emergency vehicles at all times; • Open lanes as soon as possible to restore normal traffic patterns; • Notify the public during construction, using methods such as large electronic notification and arrow signs, notification to impacted residents, appropriate detour signs, and notifications to schools and emergency providers; • Provide a designated traffic control coordinator to ensure compliance with the Traffic Control Plan; • During construction, cover open trenches within 15 feet of the edge of the pavement with metal plates at the end of the work day; and • After construction, restore the road to its pre-construction condition.
Utilities/Service Systems	None

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SECTION 2 BURROWING OWL MITIGATION GUIDELINES

The objective of these mitigation guidelines is to minimize impacts to burrowing owls and the resources that support viable owl populations. These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or their resources. The process begins with a four-step survey protocol (see *Burrowing Owl Survey Protocol)* to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures described below are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Mitigation actions should be carried out prior to the burrowing owl breeding season, generally from February 1 through August 31 (Thomsen 1971, Zarn 1974). The timing of nesting activity may vary with latitude and climatic conditions. Project sites and buffer zones with suitable habitat should be resurveyed to ensure no burrowing owls have occupied them in the interim period between the initial surveys and ground disturbing activity. Repeat surveys should be conducted not more than 30 days prior to initial ground disturbing activity.

DEFINITION OF IMPACTS

1. Disturbance or harassment within 50 meters (approx. 160 ft.) of occupied burrows.

2. Destruction of burrows and burrow entrances. Burrows include structures such as culverts, concrete slabs and debris piles that provide shelter to burrowing owls.

3. Degradation of foraging habitat adjacent to occupied burrows.

GENERAL CONSIDERATIONS

1. Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31, unless the Department of Fish and Game verifies that the birds have not begun egg-laying and incubation or that the juveniles from those burrows are foraging independently and capable of independent survival at an earlier date.

2. A minimum of 6.5 acres of foraging habitat, calculated on a 100-m (approx. 300 ft.) foraging radius around the natal burrow, should be maintained per pair (or unpaired resident single bird) contiguous with burrows occupied within the last three years (Rich 1984, Feeney 1992). Ideally, foraging habitat should be retained in a long-term conservation easement.

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3. When destruction of occupied burrows is unavoidable, burrows should be enhanced (enlarged or cleared of debris) or created (by installing artificial burrows) in a ratio of 1:1 in adjacent suitable habitat that is contiguous with the foraging habitat of the affected owls.

4. If owls must be moved away from the disturbance area, passive relocation (see below) is preferable to trapping. A time period of at least one week is recommended to allow the owls to move and acclimate to alternate burrows.

5. The mitigation committee recommends monitoring the success of mitigation programs as required in Assembly Bill 3180. A monitoring plan should include mitigation success criteria and an annual report should be submitted to the California Department of Fish and Game.

AVOIDANCE

Avoid Occupied Burrows

No disturbance should occur within 50 m (approx. 160 ft.) of occupied burrows during the non-breeding Season of September 1 through January 31 or within 75 m (approx. 250 ft.) during the breeding Season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird (Figure 2).

MITIGATION FOR UNAVOIDABLE IMPACTS

On-site Mitigation

On-site passive relocation should be implemented if the above avoidance requirements cannot be met. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls (Figure 3). Relocation of owls should only be implemented during the non-breeding season. On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site.

Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances: One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels

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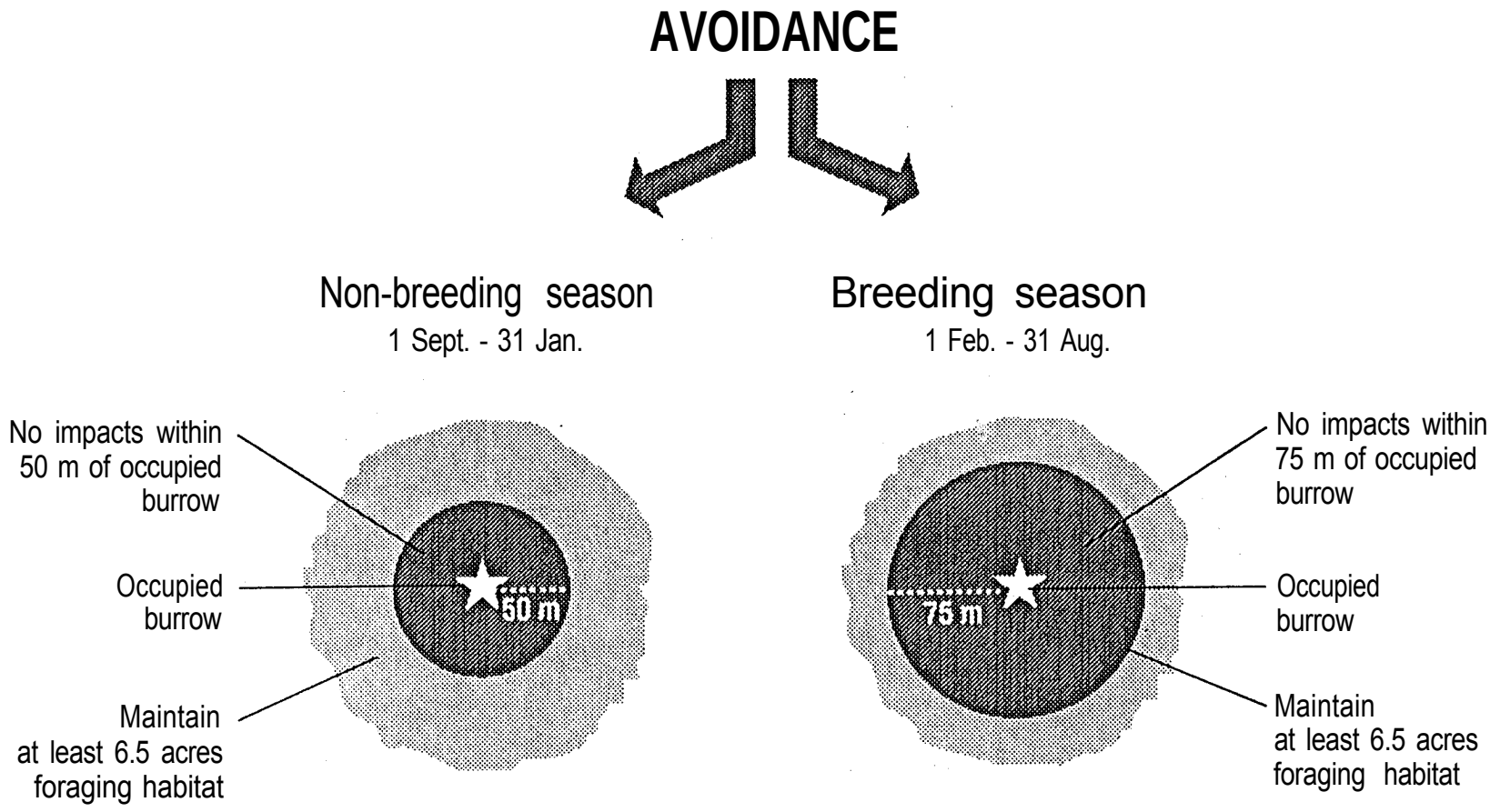

Figure 2. Burrowing owl mitigation guidelines.

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ON-SITE MITIGATION
IF AVOIDANCE NOT MET

(More than 6.5 acres suitable habitat available)

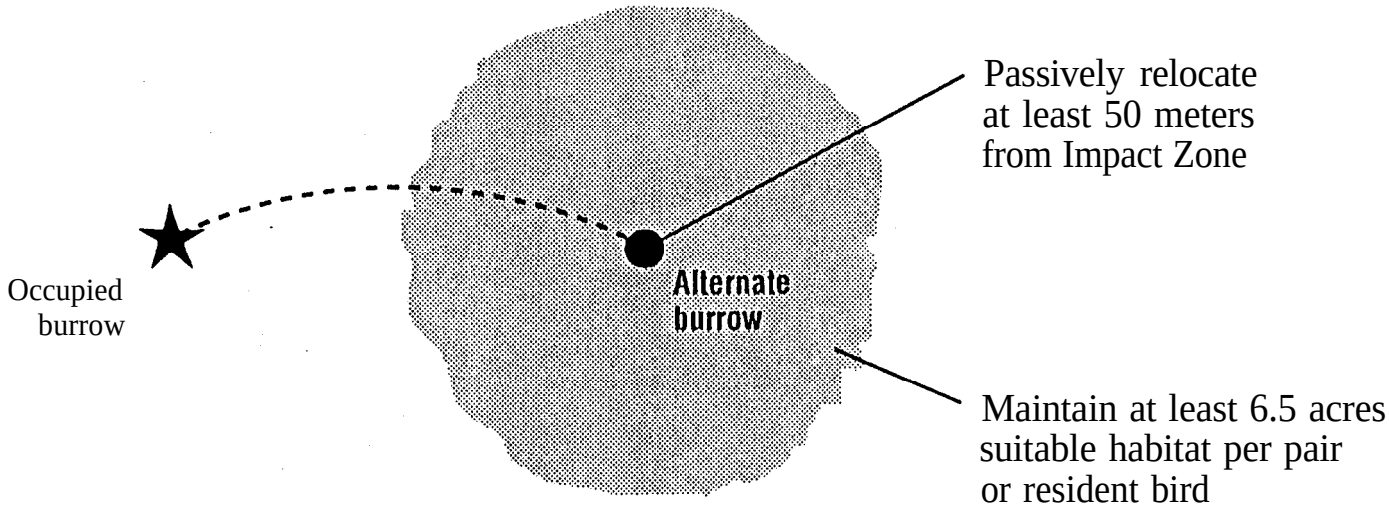

Figure 3. Burrowing owl mitigation guidelines.

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during excavation to maintain an escape route for any animals inside the burrow.

Off-site Mitigation

If the project will reduce suitable habitat on-site below the threshold level of 6.5 acres per relocated pair or single bird, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat, as defined in the *Burrowing Owl Survey Protocol*, and the site approved by CDFG. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios:

1. Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.

2. Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.

3. Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.

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McGrath Beach Peaker Project
Greenhouse Gas Emission Discussion

During the environmental review of the McGrath Beach peaker project, members of the public requested additional information on how the project might impact global climate change and what steps Southern California Edison (SCE) intended to take to mitigate those impacts. This white paper discusses the McGrath Beach peaker's greenhouse gas (GHG) emissions in the context of the overall regulatory structure governing SCE's GHG emissions and their planned reduction to meet California's GHG emission targets.

1. Scientific Background

SCE considers global warming to be an important issue and is committed to ensuring that the potential GHG emission impacts from its generation portfolio, including existing generation, new utility generation, new third-party generation built to satisfy SCE power procurement solicitations, and purchased generation from long- and short-term power contracts, are adequately addressed.

Global warming is particularly important to the coastal zone because California possesses significant habitat, marine life, and development assets within this zone that would be adversely affected if temperatures were to increase significantly or sea levels were to rise. The proposed McGrath Beach project is itself located at 10 feet above sea level and could be adversely impacted if global warming were to result in a rise in sea level.

Scientific research attributes global warming primarily to GHG emissions that remain in the atmosphere for many decades and trap heat, thereby resulting in warming of the global atmosphere. GHG emissions that contribute to global warming include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6).

In 2004, total worldwide GHG emissions were estimated to be 20,135 Million Metric Tonnes[1] of Carbon Dioxide Equivalents[2] ($MMTCO_2E$).[3] For comparison, in 2004, U.S. GHG emissions were 7,074 $MMTCO_2E$,[4] of which California produced 492 $MMTCO_2E$, making it the state with the second largest GHG emissions contribution in that year.[5] If

[1] 1 million metric tonnes (MMT) = 1 teragram (Tg) = 1.102 million U.S. ("short") tons
[2] When quantifying GHG emissions, the different global warming potentials (GWP) of the various greenhouse gases are usually taken into account by normalizing their rates into an equivalent CO2 emission rate. Carbon dioxide equivalent emissions (CO_2 Eq, CO_2E *or* CO_2e) represents the amount of CO2 emissions that it would take to create a climate impact equivalent to the emissions of the specific gas or source of interest. This standardization is useful for comparison purposes, since the emissions impact of different source types and gases can then be directly compared.
[3] Association of Environmental Professionals. Final - June 29, 2007. M. Hendrix et. al. Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents. This estimate excludes emissions/removals from land use, land use change, & forestry.
[4] Ibid
[5] Ibid

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California were an independent nation, it would have ranked between 12th and 16th in total GHG emissions worldwide in 2004.[6,7]

California's largest source of GHG emissions is from transportation, which contributes 41% of the State's total GHG emissions. Electricity generation (including energy imports) is the second largest source, contributing 22%. Industry is the third largest source, contributing 20%.[8]

Out-of-state electricity generation has a significantly higher GHG emission rate than in-state generation, due to the higher percentage of coal-fired generation that is included in out-of-state imports. Although imported electricity comprises less than one-third of total retail sales, it produces approximately half of total GHG emissions. Since 1990, imported fossil fuel generation produced between 544 and 735 Metric Tonnes of CO_2E per gigawatt-hour (GWh) of electricity use, while in-state electricity generation (including zero emission sources) resulted in less than 280 metric tons of CO_2 per GWh , or only 35-40% of the CO_2 emissions for the same amount of energy production.[9]

Although California's total GHG emissions are large, the State's carbon intensity is comparatively low. In 2001, California ranked the fourth lowest among the 50 states and the District of Columbia in CO_2 emissions from fossil fuel combustion per capita, and fifth lowest in CO_2 emissions from fossil fuel combustion per unit of gross state product. This low intensity is attributable to a variety of factors, including the heavy dependence on natural gas as a generation fuel, the effectiveness of California's energy efficiency measures and the state's mandatory Renewable Portfolio Standards in reducing state greenhouse gas emissions.[10]

2. Regulatory Background

As a regulated utility, SCE has the obligation to provide electric service to all customers within its service territory. This means that SCE must supply a sufficient quantity of electricity each year to meet its customers' demands. This electricity can be provided either from utility-owned generation or from power purchase agreements with third party suppliers. The quantity of GHG emissions that are produced to serve customer demand is directly related to: 1) the number of megawatt hours (MWh) of electricity that SCE must provide; 2) the energy source used to generate the electricity; and 3) the efficiency of the generation unit.

Different types of energy sources emit different amounts of GHG per MWh of electricity generated. Nuclear, hydroelectric, and renewable resources such as wind or solar energy

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[6] California Energy Commission. December 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report. CEC-600-2006-013-SF.

[7] Since 2004, emissions from the expanding economies of the world (e.g., China and India) have outpaced emissions in the U.S. and the developed countries, substantially changing the proportional shares of global GHG emissions.

[8] Ibid

[9] Ibid

[10] Ibid

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produce no direct GHG emissions. Among fossil fuel energy sources, natural gas is the cleanest source, followed by fuel oil, with coal producing the most GHG emissions per MWh of generation. Within each of the three major fossil fuel categories, more efficient sources with lower heat rates (mmbtu/MWh) emit fewer greenhouse gasses than less efficient sources with higher heat rates. A lower heat rate means that less fuel (mmbtu) is combusted to produce the same amount of electricity (MWh). Because GHG emissions are directly proportional to the amount of fuel combusted, a more efficient source will produce less GHG per MWh than a less efficient source.

Consequently, in order to reduce GHG emissions from the electric industry, the near term focus is on influencing the above three variables: energy demand (MWh), energy source, and generation efficiency. Energy efficiency and demand response initiatives are used to reduce energy demand (MWh). Increasing the amount of energy being supplied from renewable and natural gas energy sources reduces the amount of energy that must be supplied from higher GHG emitting energy sources such as coal. Replacing aging, less efficient generating units with newer, more efficient units; siting generation closer to customers; and utilizing efficient combined heat and power resources (CHP) improves generation efficiency.

This focus is clearly reflected in the California Climate Action Team's March 2006 Report to the Governor and California Legislature which suggested that the following initiatives be implemented by the California Public Utilities Commission to reduce GHG emissions from the electric industry.

Public Utilities Commission GHG Emission Reduction Strategies[11]

Strategy	$MMTCO_2E$	
	2010	2020
• Accelerated Renewable Portfolio Std to 33% by 2020 (includes load-serving entities)	5	11
• California Solar Initiative	0.4	3
• Investor-Owned Utility (IOU) Energy Efficiency Programs (including LSEs)	4	8.8
• IOU Additional Energy Efficiency Programs/Demand Response	NA	6.3
• IOU Combined Heat and Power Initiative	1.1	4.4
• IOU Electricity Sector Carbon Policy	1.6	2.7
Total:	12.1	36.2

In addition, the California Energy Commission has been directed to increase building and consumer product efficiency standards that apply to SCE's customers, which will lead to further reductions in energy demand.

[11] State of California, Environmental Protection Agency, Climate Action Team. March 2006. Climate Action Team Report to Governor Schwarzenegger and the California Legislature.

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This focus is also reflected in the key climate change mitigation strategies that have been identified by the Intergovernmental Panel on Climate Change (IPCC) for the electricity industry. Key mitigation strategies for energy supply include the following:[12]

- **Mitigation technologies and practices currently commercially available:** Improved supply and distribution efficiency; fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; early applications of Carbon Dioxide Capture and Storage (CCS) (e.g. storage of removed CO_2 from natural gas).

- **Mitigation technologies and practices projected to be commercialized before 2030:** Carbon capture and storage for gas, biomass and coal-fired electricity generating facilities; advanced nuclear power; advanced renewable energy, including tidal and wave energy, concentrating solar, and solar photovoltaics.

The State of California and the California Public Utility Commission (CPUC) have adopted numerous GHG laws, regulations and policies that apply to the proposed project and to SCE's overall GHG emissions profile, power generation, and power procurement activities in order to address GHG emissions from electricity generation sources. The key requirements affecting SCE are as follows:

Governor's Executive Order S-3-05 – Establishes state GHG emission targets that call for a reduction of GHG emissions to 2000 levels by 2010; to 1990 levels by 2020; and to 80% below 1990 levels by 2050.

AB32 (The California Global Warming Solutions Act of 2006) – Requires the California Air Resources Board (CARB) to promulgate regulations to reach the 2020 goal of reducing total GHG emissions to 1990 levels.

Governor's Executive Order S-20-06 – Directs CARB to develop a program for reducing greenhouse gas emissions through emissions trading.

Western Climate Change Action Initiative – Commits CA, WA, OR, AZ & NM to develop a regional market-based program to reduce GHG emissions.

CPUC R.04-4-003 – Requires SCE to consider the implications of various GHG scenarios in its long term procurement plans (LTPPs) to ensure that state GHG goals are met.

CPUC D.04-12-048 – Requires SCE to employ a GHG adder when evaluating energy bids for contracts over five years in duration in order to ensure a preference for renewable and low GHG energy sources.

[12] Intergovernmental Panel on Climate Change. 2007. Lenny Bernstein, et. al. Fourth Assessment Report Climate Change 2007: Synthesis Report, Summary for Policymakers.

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CPUC R.06-02-013 – Extends the use of the GHG adder to include all contracts of 1 year or longer and requires any PUC Application for new fossil-fired generation to demonstrate how the resource fits into SCE's overall GHG reduction strategy.

SB 1368 – Prevents long term power purchase agreements with or investments in baseload power plants with GHG emissions in excess of those produced by a combined-cycle natural gas power plant. The CPUC has established this emission performance standard (EPS) as 1,100 lbs CO_2E/net MWh.

SB 1078 (CA Renewable Portfolio Standard (RPS) Program) – Requires 20% of all power used by Investor Owned Utility customers in California to be generated from renewable resources by 2010.

CEC Energy Action Plan II (2005) – Establishes a 33% renewable RPS target for 2020. The CPUC requires SCE to report on progress towards meeting the 33% goal.

CPUC D.06-12-033 – Implements the California Solar Initiative with the goal of installing 3,000 MW of new solar photovoltaic systems by 2017. SCE will administer this program within its service territory, with a goal of 805 MW to be installed.

CPUC D.03-06-032 – Requires SCE to pursue the goal of satisfying 5% of it peak load through price responsive demand response programs by 2007 and to expeditiously implement time-of-day pricing for all customers.

CPUC D.04-09-060 – Requires SCE to pursue the goal of achieving cumulative energy savings of 10,608 GWh[13] and 2,228 MW between 2004-2013.

CPUC D.07-10-032 – Reaffirms the energy efficiency goals established in D.04-09-060 and establishes a process to develop goals extending to 2020.

CPUC D.08-03-018 – Recommends that CARB establish a GHG cap-and-trade system for all entities supplying power to the California electricity grid, with at least some portion of the GHG emission allowances being auctioned.

The above requirements have been adopted to ensure that the power generated to meet SCE's customer load is:

- Produced with the lowest GHG emissions rate possible;
- Consistent with the Governor's GHG policy; and
- Supports the state's GHG emission reduction targets.

[13] 1 GWh = 1,000 MWh

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Meeting SCE's load under all circumstances, in particular as customer demand continues to increase over time, requires a mixture of different energy resources in different locations to ensure that the electric system functions smoothly and reliably. SCE's resource portfolio must be constructed carefully to ensure that SCE complies with the above regulations to minimize and continue to reduce its GHG emissions while still efficiently meeting customer energy requirements.

As one example, in order to increase the use of intermittent[14] renewable resources such as wind or solar in its portfolio, SCE must also increase its natural gas fired peaking resources so it is able to backstop and smooth the changing electrical output from these intermittent sources in order to ensure grid stability. Similarly, a certain number of fossil fuel fired "black start" generators of high reliability must be sited in key locations to ensure grid reliability in the event of system upsets. Larger fossil fuel generators must be located at strategic locations to provide grid voltage support and system inertia.

The State has given the California Air Resources Board (CARB) the lead role in implementing California's GHG emission reduction program with regards to CO_2 air emission limits.

> "It is the intent of the Legislature that the State Air Resources Board consult with the Public Utilities Commission in the development of emissions reduction measures, including limits on emissions of greenhouse gases applied to electricity and natural gas providers regulated by the Public Utilities Commission in order to ensure that electricity and natural gas providers are not required to meet duplicative or inconsistent regulatory requirements." *(Cal. Health & Safety Code §38501(g)*)

In order to achieve AB32's stated goal of reducing GHG emissions to 1990 levels by 2020, CARB is in the process of developing regulations for all major contributing source categories, including the electricity industry. The first step in this process, finalizing the 1990 statewide CO_2 emission inventory, was completed in December 2007. CARB will now use this inventory, the 2008 statewide CO_2 emission inventory, and CO_2 emission reports from individual major sources to determine the quantity of emission reductions that will be allocated to each contributing emission segment (transportation, electricity, manufacturing, etc.) and individual emission company or source, as well as setting forth the regulatory mechanisms by which these reductions will be implemented.

SCE has calculated and reported its systemwide CO_2 emissions, including emissions from both generated and purchased power, to the California Climate Action Registry every year since 2002.[15] The AB32 program that CARB is developing for the electricity sector will reduce CO_2 emissions on a systemwide basis in order to ensure that all emissions created to serve California's load are captured and that all generating sources, regardless

[14] Intermittent resources are those whose power output can fluctuate from moment to moment, for example by a change in wind speed or a cloud passing over the sun.
[15] Starting in 2009, CO2 emissions will be reported to CARB.

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of ownership or location, are being treated uniformly and equitably.[16] If generation sources are not treated uniformly, regulating CO_2 emissions in one location, for example natural gas plants located in California, can have the adverse effect of increasing CO_2 emissions from the system as a whole by making it more economic to import out-of-state electricity from higher emitting generation sources.

CARB is in the process of creating a Scoping Plan that contains specific policy scenarios for regulating the different source categories. In a recent decision (D.08-03-018), the CPUC provided input to CARB recommending that a cap-and-trade system be utilized to reduce greenhouse gases from the electricity sector, with sources being required to purchase at least a certain portion of credits. AB32 requires CARB to adopt implementing regulations by January 2012.

The net effect of the above regulations is that the GHG emissions from SCE's generation portfolio will be capped and will be required to be reduced as directed by CARB to meet the State's greenhouse gas reduction goals.

3. Project Emissions

Operational Emissions

Power Plant Emissions

The McGrath Beach peaker will emit greenhouse gases from the combustion of natural gas in its turbine and the emergency ("black start") generator. The principal greenhouse gases emitted from fossil fuel combustion are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (NO). The Ventura County Air Pollution Control District (VCAPCD) air permit for the project will limit combustion turbine operation to 2,121 hours per year, 1,881 operating hours plus 240 hours of start up and shut down periods. The emergency generator will only operate during routine testing and maintenance activities and if there is a system blackout on the local electric grid. Reliability testing activities will require a maximum of 50 operating hours per year. Therefore, the maximum potential to emit from the proposed project is **51,032.7 Metric Tonnes CO_2E** per year. If a 30-year project life is assumed, then the maximum potential to emit over the life of the project is 1,530,981 Metric Tonnes CO2e.

[16] Although the program that is being developed will address generation emissions on a systemwide basis, the responsibility for unit-specific emissions are expected to be assigned to the individual generators and power aggregators ("first sellers") that have direct control over the emissions output from each generation source.

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McGrath Beach Peaker CO_2 Equivalent Emissions

CO2	Annual Usage (hours)	Heat Input (MMBtu/hr)	Emission Factor (kg C / MMBtu)	Oxidation Factor	CO2 Annual Emissions (tonnes/yr)	CO2 Equivalent Annual Emissions (tonnes/yr)	Fuel
Turbine	2121	451.3	14.47	0.995	50532.30	50532.30	Natural Gas
IC Engine	50	6.43	14.47	0.995	16.97	16.97	Natural Gas
CH4	**Annual Usage (hours)**	**Heat Input (MMBtu/hr)**	**Emission Factor (kg / MMBtu)**		**CH4 Annual Emissions (tonnes/yr)**	**CO2 Equivalent Annual Emissions (tonnes/yr)**	**Fuel**
Turbine	2121	451.3	0.003901		3.73	78.42	Natural Gas
IC Engine	50	6.43	0.003901		0.0013	0.026	Natural Gas
N2O	**Annual Usage (hours)**	**Heat Input (MMBtu/hr)**	**Emission Factor (kg / MMBtu)**		**N2O Annual Emissions (tonnes/yr)**	**CO2 Equivalent Annual Emissions (tonnes/yr)**	**Fuel**
Turbine	2121	451.3	0.001361		1.30	403.86	Natural Gas
IC Engine	50	6.43	0.001361		0.00044	0.14	Natural Gas
Total Emissions (Annual CO2 Equivalent Metric Tonnes)						51032.72	

The McGrath Beach peaker plant is expected to operate only during periods of high electricity demand, to stabilize the transmission system when a high voltage transmission line or another source of generation unexpectedly goes off line, or during system emergencies. Consequently, actual emissions are expected to be substantially lower than the maximum potential to emit.

Because the project will require no more than 1-2 employee round trips per day and ammonia deliveries no more than four times per year, other operating emissions from the facility are insignificant.

Transmission Emissions

GHG emissions may also result from the sulfur hexafluoride (SF_6) used to insulate the transmission equipment that will be installed to connect the project to the electric grid. Although small in quantity, SF_6 emissions are important because they have an extremely high global warming potential. One ton of SF_6 emissions is equivalent to approximately

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23,900 tons of CO_2. Fugitive emissions of SF_6 can escape from gas-insulated equipment through the seals or during equipment installation, servicing, and disposal.

The McGrath Beach peaker will require the installation of one new SF_6-insulated circuit breaker at the customer substation that will be constructed just to the south of the generating unit. This circuit breaker will contain 52 pounds of SF_6. The leak rate for this equipment is guaranteed by the manufacturer to not to exceed 1 percent per year. Therefore, the maximum potential to emit of this circuit breaker will be 0.52 pounds of SF_6 per year, which is equivalent to **5.6 Metric Tonnes CO_2E** per year. The calculation spreadsheet is attached.

SCE utilizes industry best practices to manage and minimize its SF_6 emissions. Between 1999 and 2006, SCE reduced sulfur hexafluoride (SF_6) gas emissions from its electrical insulation equipment by 41 percent, while at the same time increasing its overall inventory of SF_6 containing equipment by 27 percent. SCE reports its SF_6 emissions annually to the U.S. Environmental Protection Agency under a voluntary Memorandum of Understanding. SCE also tracks and reports its SF_6 emissions to the State as part of its systemwide CO_2e emission total. These emissions will be addressed as part of CARB's overall AB32 regulatory program.

Construction Emissions

Direct Construction Emissions

GHG emissions from construction activities are primarily due to CO_2 emissions from on-site construction equipment and motor vehicle trips to and from the site. Emissions from construction activities were estimated from the types and operating times of construction equipment that would be used during construction, the number and length of daily on- and off-site motor vehicle truck trips required to deliver materials and supplies to and remove construction debris from the site, and the estimated number and length of worker commute trips. Specific calculation spreadsheets are attached.

Total CO_2 emissions from construction activities were estimated to be **618.0 Metric Tonnes CO_2E**.

CO_2 emissions from construction activities will be minimized to the extent possible by implementing air quality mitigation measures AQ-9 through AQ-12 from the Draft Initial Study prepared as part of the project's California Environmental Quality Act (CEQA) analysis.

Transmission Interconnection Emissions

In order to prepare the local distribution system for the installation of the McGrath Beach peaker, 32 existing circuit breakers were replaced during 2007. These included 28 circuit breakers at the Santa Clara substation, 1 circuit breaker at the Charmin substation, and 3 circuit breakers at the Levy substation. These circuit breakers were oil-insulated models that were scheduled to be replaced as part of SCE's planned transmission and distribu

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system expansion activities in the Oxnard area. However, their replacement was accelerated by one year to occur in 2007, so that the system would be ready to accommodate the additional generation from the Mandalay site.

If these emissions are included in the project total, the proposed project resulted in an additional one-time maximum potential emission increase of **180.4 Metric Tonnes CO_2E**.

4. Systemwide Emissions

Systemwide Power Plant Emissions

There is a basic difference between building a power plant and other types of development. New residential, commercial and industrial developments are also new electric customers that increase the MWh of electricity that must be provided by the electric system in order to meet their additional energy demands. New power plants do not change the demand for electricity; they merely respond to the existing system's demand for power. The same MWh of generation must be generated by power plants at some location to supply the amount of electricity SCE requires to serve its customers regardless of whether or not a specific generation project is constructed.

SCE uses the Ventyx Market Analytics and the Ventyx Planning and Risk models to simulate the operation of its electric system. These models calculate the CO_2 emissions from SCE's system as a whole based on its projected annual load profile and are currently used to comply with CPUC directives to evaluate the net CO_2 emissions from new energy projects and for other reporting requirements.

In order to investigate the emission impact of the proposed project on SCE's generation portfolio, SCE used the Ventyx Planning and Risk model to dispatch SCE's portfolio with and without the proposed McGrath Beach peaker to determine the net change in CO_2 emissions that would occur.

To estimate CO_2 emissions from the proposed project, SCE modeled 3 cases: 1) base case (no project); 2) economic dispatch (how the peaker is expected to run); and 3) maximum dispatch (peaker dispatched at the maximum allowable run time in the VCAPCD air permit). Emissions were calculated for each year between 2008-2020[17] and averaged to determine the average annual net change.

Generation resources are economically dispatched to meet demand based on their marginal cost. [18] This is called the loading order. The marginal cost is highly correlated with unit efficiency, which means that power plants almost always dispatch in the order of the most efficient to the least efficient heat rate (mmbtu/MW-hr) within its fuel category. This is because the marginal cost of generating electricity within each fuel

[17] Model inputs are only available through 2020

[18] Certain higher cost resources such as renewable resources are required to be dispatched first, pursuant to existing regulatory requirements.

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category (coal, natural gas, etc.) is almost always lower for units that burn less fuel per MWh of energy produced. Consequently, the peaker would only be expected to operate when it is the most efficient resource available (lowest heat rate/least cost) to produce the next required MWh of electricity.

Because the marginal cost of natural gas fired peakers is high compared to other resources, they dispatch last in the loading order after all other available resources have been brought on line. Therefore, when the proposed peaker project is dispatched, it will almost always replace a higher emitting natural gas fired unit. Because all natural gas peakers are reasonably efficient, the relative difference in CO_2 emissions between the proposed peaker and the less efficient units would be expected to be small. This means that the net decrease in annual CO_2 emissions would also be expected to be small. This is consistent with the results of the model runs.

The economic dispatch scenario operated the peaker only when it would be cost effective to do so, which is the scenario that most closely estimates the actual operation of the unit. This scenario resulted in an average annual hourly operation of 93 hours and produced a net systemwide emissions decrease of **18 Metric Tonnes CO_2E** per year. This result mean that the direct emission increases from the peaker (which would be approximately 2,496 Metric Tonnes CO2e per year for 93 hours of operation) are completely offset by emission decreases at other power plants on the system, and will in fact produce a slight net emissions decrease.

The maximum dispatch scenario required the peaker to run for the full 2,121 hours (1,881 operating hours and 240 hours of startup/shutdown) allowed each year. This required running the unit when it was not economic to do so and when the peaker was not the most efficient available resource. This scenario produced a net systemwide emissions increase of **23 Metric Tonnes CO_2E**. This result means that the direct emission increases from the peaker (i.e., the 51,038 Metric Tonnes CO2e per year increase calculated above) were almost completely offset by emission decreases at other power plants on the system.

The variation in the two runs is less than +/- 0.05% of the gross project emissions of 51,032.7 Metric Tonnes CO_2E. Therefore, considering the uncertainties inherent in the model, neither of the two scenarios produces results significantly different than zero. This indicates that the emission impact of the proposed project is neutral and the addition of the proposed peaker does not increase CO_2 emissions from the SCE system.

Indirect Line Loss Emissions

In addition to its direct impact on the emissions of other generation sources supplying power to the electric grid, the location of a new generation source will also affect systemwide emissions based on how it impacts the path and distance that power must travel to reach the customer.

When electricity travels across the wires of the transmission system it creates friction. This friction in turn creates waste heat that results in a measurable energy loss. This

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energy loss, called line loss, occurs both due to the distance that power must travel from its source to its destination, and due to differences in the materials that are used in different types of electric conductors across which the power must flow. If the path that the electricity must follow has higher friction, then there will be a greater line loss, which means that more generation will be required to serve the same load. The amount of electricity that must be generated to serve the load is equal to the MWh of customer demand plus the MWh that is required to transport the electricity across the system. Lower line losses mean that less electricity must be generated to deliver the same amount of electricity. In general, the farther that a generation source is from the customer that is being served, the more electricity will be lost to line losses and the more generation will be required to serve an identical load.

When a new generation source is added to the SCE electric system, it changes both the path and the distance that electricity must travel to reach the customer. In order to determine the line loss impact of the proposed project on SCE's generation portfolio, SCE used the GE Positive Sequence Load Flow (PSLF) program to simulate transmission line power flows with and without the proposed McGrath Beach Peaker. An adjusted load forecast for the Santa Clara 66kV sub-transmission system was created for the year 2009 for both the expected dispatch scenario (93 operating hours) and the maximum potential dispatch scenario (1881 operating hours) using the Ventyx model load profile output for the peaker. The GE PSLF program was then run using these two load forecasts and the historic load profile for this system, to generate the average system line losses for each scenario (i.e. 93 hours and 1881 hours respectively).

Using 2009 to calculate line loss impact is a conservative approach because line loss benefits increase when more demand is placed on the electric system. Demand on the Santa Clara sub-transmission is growing at the rate of 2-3% per year; therefore the line loss benefits of the proposed peaker will increase every year.

The GE PSLF model calculated that the economic dispatch scenario (93 hours) reduced lines losses in the Santa Clara system by 17.4 MWh per year. The maximum dispatch scenario (1881 hours) reduced line losses by 231.7 MWh per year

To determine the avoided CO_2 emissions from this generation reduction, the following formula is used:

Metric Tonnes CO_2E Reduced = MWh * HR * ER * 4.537E-07 [19]

Where

MWh = Megawatt-hours of avoided generation

HR = Heat rate of the generating unit being displaced in btu/kWh

ER = Emission rate of the generating unit being displaced in lbs CO_2/mmbtu

[19] 4.54 E-07 = 10^3 kW/MW * 10-6 mmbtu/btu ÷ 2204 lbs/metric tonne

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Because the new peaker will displace similar natural gas peakers during the hours that it will operate, a conservative heat rate of 8,500 btu/kW and 119 lbs CO_2/mmbtu emission rate were assumed for the incremental operating unit.

The CO_2 reduction is therefore calculated as follows:

Metric Tonnes of CO_2E Reduced = 17.4 MWh * 8,500 btu/kWh * 119 lbs CO_2/mmbtu * 4.537E-07

= 8.0 Metric Tonnes of CO_2E

Therefore, the economic dispatch scenario reduces systemwide CO_2 emissions by **8.0 Metric Tonnes CO_2E** per year due to the reduction in line losses. Using a similar calculation, the maximum dispatch scenario reduces systemwide CO_2 emissions by **106.3 Metric Tonnes CO_2E** per year. Assuming a project life of 30-years, the total line loss benefit of the peaker is a reduction of 240 Metric Tonnes of CO_2E for the economic dispatch scenario and 3,189 Metric Tonnes of CO_2E for the maximum dispatch scenario.

Additional Systemwide Benefits

One key benefit of the proposed project is its ability to supply power in the event of a system upset that requires "black start" capability. Under a blackout scenario, the peaker would be able to supply 45 MW of emergency power to the local grid almost immediately and would assist the regional electrical grid in coming back on line as quickly as possible, thereby reducing recovery time.

During blackout situations, many sources operate diesel-fired backup emergency generators. These generators have higher CO_2 emission rates than the proposed project. Therefore, the generator emissions that are avoided due to the interim power being supplied by the peaker and the overall faster recovery time of the regional grid will provide additional GHG benefits.

Energy Efficiency Measures Incorporated into Project Design

Energy efficiency measures have been incorporated into the project's design to the extent feasible. The proposed project has been designed to meet California Energy Commission energy efficiency standards for outdoor lighting and incorporates automatic cut off switches and multi level switching as required to allow best practice management of lighting levels. The significant use of California native vegetation in the landscape design also minimizes the amount of water required to irrigate the project, compared to a design consisting primarily of ornamental species. These measures will also reduce the indirect CO_2 emissions from the proposed project.

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5. Net Emissions

To determine the net GHG emissions from the proposed peaker, operational, construction and systemwide emissions impacts (increases and/or decreases) are added together.

Lifetime emissions were calculated assuming a 30-year project life. For the maximum potential generation scenario, the proposed project results in an overall **2,223 Metric Tonnes CO_2E** decrease over the life of the project, primarily due to the line loss benefits created by the project.

McGrath Peaker Net CO_2E Emission Impact
Maximum Potential Dispatch Scenario

Operational Emissions	*Metric Tonnes of CO_2E*
Power Plant	1,530,981
Transmission System	168
Construction Emissions	
Direct Construction	180
Transmission Interconnection	618
Systemwide Emissions	
Power Plant	-1,530,981
Transmission System	-3,189
Total:	**-2,223**

If the project operates for fewer hours, as predicted by the economic dispatch scenario, line loss benefits will be reduced, and the proposed project results in a net increase of **726 Metric Tonnes CO_2E** over the life of the project. Actual dispatch hours and emissions will likely fall somewhere in between the two scenarios.

Either result is less than +/- 0.1% of the proposed project's maximum potential to emit of 1,531,149 Million Metric Tonnes CO_2E and should be considered de minimus for a project of this size.

McGrath Peaker Net CO_2E Emission Impact
Economic Dispatch Scenario

Operational Emissions	*Metric Tonnes of CO_2E*
Power Plant	74,881
Transmission System	168
Construction Emissions	
Direct Construction	180
Transmission Interconnection	618
Systemwide Emissions	
Power Plant	-74,881
Transmission System	-240
Total:	**726**

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6. Summary

SCE's electric system is subject to a significant number of complex requirements that work together to regulate GHG emissions, including AB32 "The California Global Warming Solutions Act of 2006." These regulations are collectively designed to ensure that new sources generate electricity as cleanly as possible and that the SCE system continues to reduce its overall emissions as required to meet California's goal of reducing statewide CO2 emissions to 1990 levels by 2020. It is important that the proposed project is treated consistently with generators in other locations in the way it is required to comply with the above regulations.

The emission analysis for the proposed project shows that the installation of the McGrath Beach peaker will result in a slight net decrease in CO_2E emissions across SCE's generation portfolio due to its operation. Depending on the operating hour assumptions, these emission reductions may or may not fully offset the project's construction emissions. The maximum level of residual construction emissions is calculated to be 726 Metric Tonnes CO_2E which represents less than 0.1% of lifetime project emissions and would typically be considered de minimus.

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CONSTRUCTION EMISSION CALCULATIONS

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Construction Carbon Dioxide Emissions

Carbon dioxide (CO_2) emissions during construction of the Mandalay Peaker Project were estimated. The estimates included CO_2 emissions from construction equipment and from motor vehicles.

CO_2 emissions from construction equipment were calculated by multiplying operating hours for each type of construction equipment by an emission factor, in units of pounds of CO_2 emitted per operating hour. The construction equipment exhaust emission factors used for the calculations are composite horsepower-based off-road emission factors for 2007 developed for the South Coast Air Quality Management District (SCAQMD) by the California Air Resources Board (CARB) from its OFFROAD Model. The composite off-road emission factors were derived based on equipment category (tractor, dozer, scraper, etc.), and average equipment age and horsepower rating within horsepower ranges for the year. Although the proposed project will be constructed in Ventura County, emission factors for construction equipment in the SCAQMD's jurisdiction are expected to be similar to emission factors for equipment in adjacent Ventura County. The CO_2 emission factors developed by CARB for the SCAQMD for 2007 are listed in Table 5 of the attached spreadsheets and can also be downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html.

The types of construction equipment and the maximum daily operating time for each type of equipment during each bi-weekly construction period were estimated by SCE's engineering contractor for the proposed projects. Emission factors for CO_2 were prepared for the specified equipment and are provided in Table 4 of the attachment. The anticipated construction equipment usage and emissions by bi-weekly period are listed in Tables 1, 2 and 3 of the attachment. Total CO_2 emissions from construction equipment are estimated to be 571.4 U.S. Tons (518.5 Metric Tonnes).

CO_2 emissions from motor vehicles were calculated by multiplying miles traveled by each type of motor vehicle by an emission factor, in units of pounds of CO_2 emitted per mile traveled. The emission factors were compiled by the SCAQMD by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model for the South Coast Air Basin for 2007. A weighted average of vehicle types was used to calculate emission factors for passenger vehicles, and emission factors for heavy heavy-duty diesel trucks were used for delivery trucks. The emission factors account for the emissions from start, running and idling exhaust. Emission factors for motor vehicles in the South Coast Air basin are expected to be similar to emission factors for vehicles in adjacent Ventura County. The motor vehicle exhaust CO_2 emission factors are listed in Table 6 of the attachment and can also be downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

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SCE's engineering contractor estimated the number and length of daily on-site and off-site motor vehicle trips by trucks to deliver materials and supplies, remove construction debris, etc., by bi-weekly construction period. The anticipated number of construction workers during each bi-weekly construction period was used to calculate the number of construction worker commute trips, assuming each worker would drive separately to and from the site each day. This assumption overestimates the number of trips, since it is likely that some workers will carpool.

The anticipated number of motor vehicles and the resulting CO_2 emissions by bi-weekly period are listed in Tables 1, 2 and 3 of the attachment. Total CO_2 emissions from motor vehicles are estimated to be 109.6 U.S. Tons (99.5 Metric Tonnes).

Total CO_2 emissions during construction are estimated to be 681.0 U.S. Tons (618.0 Metric Tonnes).

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SF_6 EMISSION CALCULATIONS

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Table 1
Mandalay Construction Equipment and Motor Vehicle Numbers

Equipment/Vehicle Type	Fuel	Hours or Miles/Day	Bi-Weekly Maximum Daily Number											
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12
Power Plant														
Construction Equipment														
Welding rigs	D	10	2	2	2	2	2	2	2	2	2	1	1	0
Backhoe	D	10	1	2	2	2	2	2	1	1	1	1	0	0
Compressor	D	10	1	2	4	4	4	3	2	2	0	0	0	0
Front-end loader	D	10	0	1	1	1	1	1	1	1	0	0	0	0
15 ton crane	D	10	0	1	1	3	3	3	2	2	2	1	1	1
75 ton crane	D	10	0	0	0	1	1	1	1	1	1	0	0	0
Generator	D	10	2	2	2	2	1	1	1	1	0	0	0	0
Scraper	D	10	1	1	1	1	1	1	1	0	0	0	0	0
Forklift	D	10	2	3	3	3	3	2	2	2	2	1	1	1
Manlift	D	10	2	2	2	2	1	1	1	0	0	0	0	0
Dewatering drill rig	D	1.25	1	1	1	0	0	0	0	0	0	0	0	0
Motor Vehicles														
On-Site Pickup Truck	G	25	1	2	2	3	3	2	2	2	1	2	3	4
On-Site Construction Worker Commute	G	0.5	6	22	30	38	36	24	24	16	4	4	4	4
On-Site Water Truck	D	20	1	1	1	1	1	1	1	1	1	1	0	0
Off-Site Dump Truck	D	50	1	2	2	1	1	0	0	0	0	0	0	0
Off-Site Concrete Truck	D	50	0	5	5	0	0	0	0	0	0	0	0	0
Off-Site Delivery Truck	D	50	0	1	1	1	1	1	1	1	0	0	0	0
Off-Site Construction Worker Commute	G	35	6	22	30	38	36	24	24	16	4	4	4	4
Gas Line														
Construction Equipment														
Gas Line Welding rigs	D	6	4	4	4	4	0	0	0	0	0	0	0	0
Gas Line Backhoe	D	6	1	1	1	1	0	0	0	0	0	0	0	0
Gas Line Compressor	D	3	2	2	2	2	0	0	0	0	0	0	0	0
Gas Line Front-end loader	D	5	2	2	2	2	0	0	0	0	0	0	0	0
Gas Line Compactor	D	4	1	1	1	1	0	0	0	0	0	0	0	0
Gas Line Excavator	D	6	1	1	1	1	0	0	0	0	0	0	0	0
Gas Line 15 ton crane	D	4	2	2	2	2	0	0	0	0	0	0	0	0
Gas Line Roller	D	4	1	1	1	1	0	0	0	0	0	0	0	0
Gas Line Reed Screen	D	6	1	1	1	1	0	0	0	0	0	0	0	0
Motor Vehicles														
On-Site Pickup Truck	G	30	2	2	2	2	0	0	0	0	0	0	0	0
Off-Site Dump Truck	D	30	1	1	1	1	0	0	0	0	0	0	0	0
On-Site Water Truck	D	20	1	1	1	1	0	0	0	0	0	0	0	0
Off-Site Concrete Truck	D	80	1	1	1	1	0	0	0	0	0	0	0	0
Off-Site Delivery Truck	D	80	1	1	1	1	0	0	0	0	0	0	0	0
Off-Site Construction Worker Commute	G	80	20	20	20	20	0	0	0	0	0	0	0	0
Transmission Line														
Construction Equipment														
15 ton crane	D	10	2	2	2	2	2	2	2	2	2	2	2	1
Forklift	D	10	2	2	2	2	2	2	2	2	1	1	1	1
Motor Vehicles														
On-Site Pickup Truck	G	10	1	1	1	1	1	1	1	1	1	1	1	0
On-Site Line Truck	D	10	1	1	1	1	1	1	1	1	1	1	1	1
Off-Site Pickup Truck	G	20	1	1	1	1	1	1	1	1	1	1	1	0
Off-Site Line Truck	D	20	1	1	1	1	1	1	1	1	1	1	1	1

Table 2
Mandalay Construction Equipment and Motor Vehicle Use

Equipment/Vehicle Type	Fuel	Bi-Weekly Operating Hours or Miles[a]											
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12
Power Plant													
Construction Equipment													
Welding rigs	D	160	160	160	160	160	160	160	160	160	80	80	0
Backhoe	D	80	160	160	160	160	160	80	80	80	80	0	0
Compressor	D	80	160	320	320	320	240	160	160	0	0	0	0
Front-end loader	D	0	80	80	80	80	80	80	80	0	0	0	0
15 ton crane	D	0	80	80	240	240	240	160	160	160	80	80	80
75 ton crane	D	0	0	0	80	80	80	80	80	80	0	0	0
Generator	D	160	160	160	160	80	80	80	80	0	0	0	0
Scraper	D	80	80	80	80	80	80	80	0	0	0	0	0
Forklift	D	160	240	240	240	240	160	160	160	160	80	80	80
Manlift	D	160	160	160	160	80	80	80	0	0	0	0	0
Dewatering drill rig	D	10	10	10	0	0	0	0	0	0	0	0	0
Motor Vehicles													
On-Site Pickup Truck	G	200	400	400	600	600	400	400	400	200	400	600	800
On-Site Construction Worker Commute	G	24	88	120	152	144	96	96	64	16	16	16	16
On-Site Water Truck	D	160	160	160	160	160	160	160	160	160	160	0	0
Off-Site Dump Truck	D	400	800	800	400	400	0	0	0	0	0	0	0
Off-Site Concrete Truck	D	0	2,000	2,000	0	0	0	0	0	0	0	0	0
Off-Site Delivery Truck	D	0	400	400	400	400	400	400	400	0	0	0	0
Off-Site Construction Worker Commute	G	1,680	6,160	8,400	10,640	10,080	6,720	6,720	4,480	1,120	1,120	1,120	1,120
Gas Line													
Construction Equipment													
Gas Line Welding rigs	D	192	192	192	192	0	0	0	0	0	0	0	0
Gas Line Backhoe	D	48	48	48	48	0	0	0	0	0	0	0	0
Gas Line Compressor	D	48	48	48	48	0	0	0	0	0	0	0	0
Gas Line Front-end loader	D	80	80	80	80	0	0	0	0	0	0	0	0
Gas Line Compactor	D	32	32	32	32	0	0	0	0	0	0	0	0
Gas Line Excavator	D	48	48	48	48	0	0	0	0	0	0	0	0
Gas Line 15 ton crane	D	64	64	64	64	0	0	0	0	0	0	0	0
Gas Line Roller	D	32	32	32	32	0	0	0	0	0	0	0	0
Gas Line Reed Screen	D	48	48	48	48	0	0	0	0	0	0	0	0
Motor Vehicles													
On-Site Pickup Truck	G	480	480	480	480	0	0	0	0	0	0	0	0
Off-Site Dump Truck	D	240	240	240	240	0	0	0	0	0	0	0	0
On-Site Water Truck	D	160	160	160	160	0	0	0	0	0	0	0	0
Off-Site Concrete Truck	D	640	640	640	640	0	0	0	0	0	0	0	0
Off-Site Delivery Truck	D	640	640	640	640	0	0	0	0	0	0	0	0
Off-Site Construction Worker Commute	G	12,800	12,800	12,800	12,800	0	0	0	0	0	0	0	0
Transmission Line													
Construction Equipment													
15 ton crane	D	160	160	160	160	160	160	160	160	160	160	160	80
Forklift	D	160	160	160	160	160	160	160	160	80	80	80	80
Motor Vehicles													
On-Site Pickup Truck	G	80	80	80	80	80	80	80	80	80	80	80	0
On-Site Line Truck	D	80	80	80	80	80	80	80	80	80	80	80	80
Off-Site Pickup Truck	G	160	160	160	160	160	160	160	160	160	160	160	0
Off-Site Line Truck	D	160	160	160	160	160	160	160	160	160	160	160	160

[a] Based on 8 working days per bi-weekly period

Table 3
Mandalay Construction Equipment and Motor Vehicle Exhaust CO2 Emissions

Equipment/Vehicle Type	Emission Factor	Bi-Weekly Emissions (lb)											
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8	Period 9	Period 10	Period 11	Period 12
Power Plant													
Construction Equipment													
Welding rigs	26.0	4,153.3	4,153.3	4,153.3	4,153.3	4,153.3	4,153.3	4,153.3	4,153.3	4,153.3	2,076.6	2,076.6	0.0
Backhoe	101.4	8,111.0	16,221.9	16,221.9	16,221.9	16,221.9	16,221.9	8,111.0	8,111.0	8,111.0	8,111.0	0.0	0.0
Compressor	22.3	1,781.7	3,563.4	7,126.8	7,126.8	7,126.8	5,345.1	3,563.4	3,563.4	0.0	0.0	0.0	0.0
Front-end loader	106.3	0.0	8,505.2	8,505.2	8,505.2	8,505.2	8,505.2	8,505.2	8,505.2	0.0	0.0	0.0	0.0
15 ton crane	80.3	0.0	6,427.6	6,427.6	19,282.7	19,282.7	19,282.7	12,855.1	12,855.1	12,855.1	6,427.6	6,427.6	6,427.6
75 ton crane	112.2	0.0	0.0	0.0	8,972.7	8,972.7	8,972.7	8,972.7	8,972.7	8,972.7	0.0	0.0	0.0
Generator	30.6	4,899.7	4,899.7	4,899.7	4,899.7	2,449.8	2,449.8	2,449.8	2,449.8	0.0	0.0	0.0	0.0
Scraper	262.5	21,000.2	21,000.2	21,000.2	21,000.2	21,000.2	21,000.2	21,000.2	0.0	0.0	0.0	0.0	0.0
Forklift	54.4	8,703.3	13,055.0	13,055.0	13,055.0	13,055.0	8,703.3	8,703.3	8,703.3	8,703.3	4,351.7	4,351.7	4,351.7
Manlift	34.7	5,555.5	5,555.5	5,555.5	5,555.5	2,777.7	2,777.7	2,777.7	0.0	0.0	0.0	0.0	0.0
Dewatering drill rig	141.1	1,410.8	1,410.8	1,410.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Equipment Total		**55,615.4**	**84,792.5**	**88,355.9**	**108,772.9**	**103,545.4**	**97,412.0**	**81,091.8**	**57,313.9**	**42,795.4**	**20,966.8**	**12,855.9**	**10,779.2**
Motor Vehicles													
On-Site Pickup Truck	1.107	221.3	442.7	442.7	664.0	664.0	442.7	442.7	442.7	221.3	442.7	664.0	885.4
On-Site Construction Worker Commute	1.107	26.6	97.4	132.8	168.2	159.4	106.2	106.2	70.8	17.7	17.7	17.7	17.7
On-Site Water Truck	4.222	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	0.0	0.0
Off-Site Dump Truck	4.222	1,688.7	3,377.5	3,377.5	1,688.7	1,688.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Concrete Truck	4.222	0.0	8,443.7	8,443.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Delivery Truck	4.222	0.0	1,688.7	1,688.7	1,688.7	1,688.7	1,688.7	1,688.7	1,688.7	0.0	0.0	0.0	0.0
Off-Site Construction Worker Commute	1.107	1,859.3	6,817.4	9,296.5	11,775.5	11,155.8	7,437.2	7,437.2	4,958.1	1,239.5	1,239.5	1,239.5	1,239.5
Motor Vehicle Total		**4,471.4**	**21,542.9**	**24,057.4**	**16,660.8**	**16,032.1**	**10,350.3**	**10,350.3**	**7,835.9**	**2,154.1**	**2,375.4**	**1,921.3**	**2,142.6**
Gas Line													
Construction Equipment													
Gas Line Welding rigs	26.0	4,983.9	4,983.9	4,983.9	4,983.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Backhoe	51.7	2,482.9	2,482.9	2,482.9	2,482.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Compressor	22.3	1,069.0	1,069.0	1,069.0	1,069.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Front-end loader	106.3	8,505.2	8,505.2	8,505.2	8,505.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Compactor	67.1	2,145.7	2,145.7	2,145.7	2,145.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Excavator	73.6	3,533.9	3,533.9	3,533.9	3,533.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line 15 ton crane	112.2	7,178.2	7,178.2	7,178.2	7,178.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Roller	67.1	2,145.7	2,145.7	2,145.7	2,145.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Line Reed Screen	80.9	3,881.2	3,881.2	3,881.2	3,881.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Equipment Total		**35,925.8**	**35,925.8**	**35,925.8**	**35,925.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Motor Vehicles													
On-Site Pickup Truck	1.107	531.2	531.2	531.2	531.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
On-Site Construction Worker Commute	1.107	265.6	265.6	265.6	265.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Dump Truck	4.222	675.5	675.5	675.5	675.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Concrete Truck	4.222	2,702.0	2,702.0	2,702.0	2,702.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Delivery Truck	4.222	2,702.0	2,702.0	2,702.0	2,702.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-Site Construction Worker Commute	1.107	14,166.0	14,166.0	14,166.0	14,166.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Motor Vehicle Total		**21,042.3**	**21,042.3**	**21,042.3**	**21,042.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Transmission Line													
Construction Equipment													
15 ton crane	80.3	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	12,855.1	6,427.6
Forklift	54.4	8,703.3	8,703.3	8,703.3	8,703.3	8,703.3	8,703.3	8,703.3	8,703.3	4,351.7	4,351.7	4,351.7	4,351.7
Construction Equipment Total		**21,558.5**	**21,558.5**	**21,558.5**	**21,558.5**	**21,558.5**	**21,558.5**	**21,558.5**	**21,558.5**	**17,206.8**	**17,206.8**	**17,206.8**	**10,779.2**
Motor Vehicles													
On-Site Pickup Truck	1.107	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	88.5	0.0
On-Site Line Truck	4.222	337.7	337.7	337.7	337.7	337.7	337.7	337.7	337.7	337.7	337.7	337.7	337.7
Off-Site Pickup Truck	1.107	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	177.1	0.0
Off-Site Line Truck	4.222	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5	675.5
Motor Vehicle Total		**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,278.9**	**1,013.2**

Total During Construction (lb)													
Construction Equipment		1,142,867.5											
Motor Vehicles		219,144.5											
Total		1,362,012.0											
Total During Construction (tons)													
Construction Equipment		571.4											
Motor Vehicles		109.6											
Total		681.0											

Note: Totals may not match sum of individual values because of rounding.

Table 4
Construction Equipment Exhaust CO2 Emission Factors

Equipment Type	Fuel	Horsepower	ARB Off-Road Model Category	CO_2 (lb/hr)[a]
Welding rigs	D	35	Welders	26.0
Backhoe	D	175	Tractors/Loaders/Backhoes	101.4
Compressor	D	37	Air Compressors	22.3
Front-end loader	D	147	Rubber Tired Loaders	106.3
15 ton crane	D	175	Cranes	80.3
75 ton crane	D	250	Cranes	112.2
Generator	D	40	Generator Sets	30.6
Scraper	D	200	Scrapers	262.5
Forklift	D	150	Forklifts	54.4
Manlift	D	150	Aerial Lifts	34.7
Dewatering drill rig	D	125	Bore/Drill Rigs	141.1
Gas Line Welding rigs	D	38	Welders	26.0
Gas Line Backhoe	D	118	Tractors/Loaders/Backhoes	51.7
Gas Line Compressor	D	49	Air Compressors	22.3
Gas Line Front-end loader	D	140	Rubber Tired Loaders	106.3
Gas Line Compactor	D	99	Rollers	67.1
Gas Line Excavator	D	99	Excavators	73.6
Gas Line 15 ton crane	D	230	Cranes	112.2
Gas Line Roller	D	65	Rollers	67.1
Gas Line Reed Screen	D	65	Other Construction Equipment	80.9

[a] From Table 5

Emissions [pounds per day] = Emission factor [pounds per hour] x Number pieces of equipment x Operating time for each piece [hours per day]

SCAB Fleet Average Emission Factors (Diesel)

Air Basin	SC

Table 5
Construction Equipment Emissions Factors for 2007 by Equipment Catgeory and Horsepower Range[a]

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)
Aerial Lifts	15	0.0120	0.0539	0.0784	0.0001	0.0055	8.7
	25	0.0268	0.0678	0.1103	0.0001	0.0083	11.0
	50	0.0867	0.2042	0.2062	0.0003	0.0210	19.6
	120	0.0819	0.2563	0.5110	0.0004	0.0398	38.1
	500	0.1827	0.7381	2.2160	0.0021	0.0703	212.9
	750	0.3397	1.3341	4.1001	0.0039	0.1287	384.8
Aerial Lifts Composite		0.0781	0.2253	0.4026	0.0004	0.0279	34.7
Air Compressors	15	0.0163	0.0539	0.0928	0.0001	0.0071	7.2
	25	0.0376	0.0934	0.1473	0.0002	0.0113	14.4
	50	0.1306	0.2933	0.2468	0.0003	0.0290	22.3
	120	0.1158	0.3415	0.6762	0.0006	0.0591	47.0
	175	0.1434	0.5150	1.1478	0.0010	0.0615	88.5
	250	0.1459	0.4071	1.6003	0.0015	0.0557	131.2
	500	0.2288	0.8865	2.5465	0.0023	0.0889	231.7
	750	0.3607	1.3701	4.0281	0.0036	0.1390	358.1
	1000	0.6027	2.3256	6.5406	0.0049	0.2054	486.4
Air Compressors Composite		0.1285	0.3872	0.8302	0.0007	0.0579	63.6
Bore/Drill Rigs	15	0.0124	0.0632	0.0788	0.0002	0.0057	10.3
	25	0.0222	0.0689	0.1397	0.0002	0.0089	16.0
	50	0.0980	0.2886	0.2959	0.0004	0.0288	31.0
	120	0.1208	0.5011	0.8412	0.0009	0.0680	77.1
	175	0.1383	0.7539	1.2916	0.0016	0.0650	141.1
	250	0.1125	0.3532	1.6315	0.0021	0.0426	188.1
	500	0.1628	0.5678	2.2334	0.0031	0.0659	311.3
	750	0.3368	1.1219	4.6545	0.0062	0.1342	615.1
	1000	0.7011	1.9338	9.8819	0.0093	0.2471	928.3
Bore/Drill Rigs Composite		0.1457	0.5388	1.4734	0.0017	0.0648	164.9
Cement and Mortar M	15	0.0092	0.0399	0.0596	0.0001	0.0042	6.3
	25	0.0428	0.1084	0.1763	0.0002	0.0133	17.6
Cement and Mortar Mixers Compos		0.0120	0.0455	0.0693	0.0001	0.0050	7.2
Concrete/Industrial S	25	0.0215	0.0689	0.1402	0.0002	0.0089	16.5
	50	0.1513	0.3517	0.3238	0.0004	0.0352	30.2
	120	0.1654	0.5152	1.0187	0.0009	0.0830	74.1
	175	0.2336	0.8939	1.9684	0.0018	0.0987	160.2
Concrete/Industrial Saws Composit		0.1561	0.4487	0.7639	0.0007	0.0640	58.5
Cranes	50	0.1555	0.3455	0.2666	0.0003	0.0334	23.2
	120	0.1338	0.3855	0.7667	0.0006	0.0693	50.1
	175	0.1417	0.4975	1.1009	0.0009	0.0615	80.3
	250	0.1478	0.4119	1.4665	0.0013	0.0571	112.2
	500	0.2121	0.8483	2.1049	0.0018	0.0819	180.1
	750	0.3600	1.4213	3.6197	0.0030	0.1389	303.0
	9999	1.2786	5.2276	13.5665	0.0098	0.4345	970.6
Cranes Composite		0.1882	0.6365	1.6948	0.0014	0.0755	128.7
Crawler Tractors	50	0.1727	0.3812	0.2897	0.0003	0.0368	24.9
	120	0.1844	0.5217	1.0539	0.0008	0.0941	65.8
	175	0.2256	0.7814	1.7367	0.0014	0.0979	121.2
	250	0.2386	0.6707	2.2824	0.0019	0.0932	166.1
	500	0.3324	1.5264	3.1976	0.0025	0.1289	259.2
	750	0.5988	2.7192	5.8408	0.0047	0.2324	464.7
	1000	0.9273	4.2839	9.5522	0.0066	0.3239	658.1
Crawler Tractors Composite		0.2180	0.7090	1.6218	0.0013	0.0988	114.0
Crushing/Proc. Equip	50	0.2623	0.5917	0.4879	0.0006	0.0582	44.0

Air Basin	SC

Table 5
Construction Equipment Emissions Factors for 2007 by Equipment Catgeory and Horsepower Range[a]

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)
	120	0.2051	0.6092	1.1923	0.0010	0.1061	83.1
	175	0.2709	0.9819	2.1527	0.0019	0.1174	167.3
	250	0.2682	0.7429	2.9565	0.0028	0.1022	244.5
	500	0.3634	1.3803	4.0348	0.0037	0.1413	373.6
	750	0.5796	2.0915	6.5366	0.0059	0.2229	588.8
	9999	1.6038	5.9800	17.5501	0.0131	0.5443	1,307.8
Crushing/Proc. Equipment Compos		0.2499	0.7817	1.6553	0.0015	0.1048	132.3
Dumpers/Tenders	25	0.0137	0.0383	0.0709	0.0001	0.0049	7.6
Dumpers/Tenders Composite		0.0137	0.0383	0.0709	0.0001	0.0049	7.6
Excavators	25	0.0206	0.0677	0.1353	0.0002	0.0088	16.4
	50	0.1510	0.3526	0.2778	0.0003	0.0341	25.0
	120	0.1786	0.5504	1.0305	0.0009	0.0963	73.6
	175	0.1792	0.6758	1.3897	0.0013	0.0794	112.2
	250	0.1726	0.4642	1.8559	0.0018	0.0641	158.7
	500	0.2295	0.7653	2.3809	0.0023	0.0858	233.7
	750	0.3841	1.2645	4.0758	0.0039	0.1444	387.4
Excavators Composite		0.1816	0.5977	1.4225	0.0013	0.0776	119.6
Forklifts	50	0.0932	0.2119	0.1643	0.0002	0.0206	14.7
	120	0.0786	0.2337	0.4359	0.0004	0.0428	31.2
	175	0.0934	0.3343	0.7024	0.0006	0.0416	56.1
	250	0.0762	0.1920	0.8930	0.0009	0.0273	77.1
	500	0.0988	0.2777	1.1190	0.0011	0.0364	111.0
Forklifts Composite		0.0861	0.2495	0.6430	0.0006	0.0346	54.4
Generator Sets	15	0.0198	0.0761	0.1277	0.0002	0.0081	10.2
	25	0.0349	0.1140	0.1798	0.0002	0.0123	17.6
	50	0.1294	0.3076	0.3197	0.0004	0.0318	30.6
	120	0.1638	0.5185	1.0338	0.0009	0.0791	77.9
	175	0.1944	0.7569	1.6938	0.0016	0.0795	142.0
	250	0.1982	0.5974	2.3843	0.0024	0.0737	212.5
	500	0.2824	1.1211	3.4731	0.0033	0.1084	336.9
	750	0.4695	1.8098	5.7390	0.0055	0.1771	543.8
	9999	1.1949	4.4076	13.2584	0.0105	0.4151	1,048.6
Generator Sets Composite		0.1130	0.3549	0.7249	0.0007	0.0446	61.0
Graders	50	0.1733	0.3929	0.3101	0.0004	0.0381	27.5
	120	0.1902	0.5657	1.1025	0.0009	0.0996	75.0
	175	0.2073	0.7540	1.6258	0.0014	0.0907	123.9
	250	0.2088	0.5808	2.1482	0.0019	0.0803	172.1
	500	0.2487	0.9672	2.5414	0.0023	0.0960	229.5
	750	0.5320	2.0374	5.5148	0.0049	0.2053	485.7
Graders Composite		0.2055	0.6712	1.7198	0.0015	0.0886	132.7
Off-Highway Tractors	120	0.2830	0.7723	1.6142	0.0011	0.1402	93.7
	175	0.2641	0.8840	2.0209	0.0015	0.1135	130.4
	250	0.2149	0.6125	1.9515	0.0015	0.0852	130.4
	750	0.8341	4.3552	7.8223	0.0057	0.3265	568.1
	1000	1.2771	6.7361	12.5734	0.0082	0.4551	814.3
Off-Highway Tractors Composite		0.2692	0.9270	2.2742	0.0017	0.1107	151.5
Off-Highway Trucks	175	0.2093	0.7697	1.5881	0.0014	0.0920	125.1
	250	0.1933	0.5096	1.9993	0.0019	0.0709	166.5
	500	0.2870	0.9451	2.8530	0.0027	0.1051	272.3
	750	0.4689	1.5279	4.7727	0.0044	0.1730	441.7
	1000	0.7528	2.6058	8.3284	0.0063	0.2569	624.7
Off-Highway Trucks Composite		0.2881	0.9133	2.9144	0.0027	0.1056	260.1
Other Construction E	15	0.0121	0.0617	0.0770	0.0002	0.0056	10.1
	25	0.0183	0.0570	0.1155	0.0002	0.0074	13.2
	50	0.1356	0.3262	0.2942	0.0004	0.0324	28.0
	120	0.1711	0.5607	1.0579	0.0009	0.0896	80.9
	175	0.1464	0.5955	1.2310	0.0012	0.0641	106.5

Air Basin	SC

Table 5
Construction Equipment Emissions Factors for 2007 by Equipment Catgeory and Horsepower Range[a]

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)
	500	0.2095	0.7692	2.4473	0.0025	0.0825	254.2
Other Construction Equipment Com		0.1311	0.4749	1.2411	0.0013	0.0539	122.8
Other General Indust	15	0.0067	0.0391	0.0470	0.0001	0.0034	6.4
	25	0.0192	0.0632	0.1266	0.0002	0.0082	15.3
	50	0.1476	0.3260	0.2499	0.0003	0.0317	21.7
	120	0.1671	0.4756	0.9336	0.0007	0.0877	62.0
	175	0.1706	0.5880	1.3014	0.0011	0.0746	95.9
	250	0.1630	0.4366	1.7266	0.0015	0.0614	135.6
	500	0.2851	1.0467	3.0123	0.0026	0.1087	265.4
	750	0.4755	1.7251	5.0871	0.0044	0.1816	437.4
	1000	0.7280	2.7744	7.7949	0.0056	0.2473	559.6
Other General Industrial Equipmen		0.2111	0.6987	1.9012	0.0016	0.0850	152.2
Other Material Handli	50	0.2034	0.4495	0.3473	0.0004	0.0437	30.3
	120	0.1620	0.4626	0.9094	0.0007	0.0848	60.7
	175	0.2152	0.7444	1.6495	0.0014	0.0939	122.1
	250	0.1729	0.4654	1.8395	0.0016	0.0653	145.0
	500	0.2038	0.7541	2.1690	0.0019	0.0781	191.6
	9999	0.9597	3.6689	10.2941	0.0073	0.3256	741.3
Other Material Handling Equipment		0.2038	0.6298	1.8362	0.0015	0.0819	141.2
Pavers	25	0.0368	0.0997	0.1770	0.0002	0.0125	18.7
	50	0.1881	0.4131	0.3234	0.0004	0.0401	28.0
	120	0.1921	0.5429	1.1172	0.0008	0.0958	69.2
	175	0.2363	0.8214	1.8559	0.0014	0.1015	128.3
	250	0.2844	0.8186	2.7050	0.0022	0.1128	194.4
	500	0.3028	1.4943	2.9397	0.0023	0.1194	233.2
Pavers Composite		0.2062	0.6000	1.1291	0.0009	0.0799	77.9
Paving Equipment	25	0.0175	0.0544	0.1103	0.0002	0.0070	12.6
	50	0.1593	0.3498	0.2759	0.0003	0.0340	23.9
	120	0.1501	0.4248	0.8753	0.0006	0.0748	54.5
	175	0.1842	0.6413	1.4542	0.0011	0.0789	101.0
	250	0.1774	0.5124	1.6935	0.0014	0.0704	122.3
Paving Equipment Composite		0.1556	0.4693	1.0333	0.0008	0.0708	69.0
Plate Compactors	15	0.0054	0.0263	0.0351	0.0001	0.0025	4.3
Plate Compactors Composite		0.0054	0.0263	0.0351	0.0001	0.0025	4.3
Pressure Washers	15	0.0095	0.0365	0.0612	0.0001	0.0039	4.9
	25	0.0142	0.0462	0.0729	0.0001	0.0050	7.1
	50	0.0491	0.1223	0.1449	0.0002	0.0131	14.3
	120	0.0463	0.1529	0.3055	0.0003	0.0216	24.1
Pressure Washers Composite		0.0235	0.0705	0.1079	0.0001	0.0081	9.4
Pumps	15	0.0168	0.0554	0.0954	0.0001	0.0073	7.4
	25	0.0507	0.1260	0.1987	0.0002	0.0153	19.5
	50	0.1541	0.3621	0.3619	0.0004	0.0371	34.3
	120	0.1685	0.5265	1.0488	0.0009	0.0822	77.9
	175	0.1977	0.7584	1.6961	0.0016	0.0816	140.1
	250	0.1941	0.5771	2.2926	0.0023	0.0727	201.4
	500	0.2982	1.2024	3.5991	0.0034	0.1149	345.2
	750	0.5068	1.9878	6.0902	0.0057	0.1923	570.7
	9999	1.5682	5.9197	17.3104	0.0136	0.5441	1,354.8
Pumps Composite		0.1090	0.3243	0.6224	0.0006	0.0439	49.6
Rollers	15	0.0076	0.0386	0.0482	0.0001	0.0035	6.3
	25	0.0185	0.0575	0.1165	0.0002	0.0074	13.3
	50	0.1520	0.3436	0.2884	0.0003	0.0338	26.0
	120	0.1450	0.4326	0.8650	0.0007	0.0734	59.0
	175	0.1748	0.6398	1.4194	0.0012	0.0748	108.1
	250	0.1867	0.5391	1.9194	0.0017	0.0729	153.1
	500	0.2375	1.0016	2.4749	0.0022	0.0933	219.1
Rollers Composite		0.1410	0.4419	0.9073	0.0008	0.0629	67.1

Air Basin	SC

Table 5
Construction Equipment Emissions Factors for 2007 by Equipment Catgeory and Horsepower Range[a]

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)
Rough Terrain Forklif	50	0.2019	0.4635	0.3746	0.0004	0.0452	33.9
	120	0.1508	0.4598	0.8819	0.0007	0.0798	62.4
	175	0.1981	0.7390	1.5699	0.0014	0.0871	124.9
	250	0.1880	0.5203	2.0303	0.0019	0.0716	170.8
	500	0.2518	0.8995	2.6920	0.0025	0.0973	256.6
Rough Terrain Forklifts Composite		0.1576	0.4928	0.9631	0.0008	0.0800	70.3
Rubber Tired Dozers	175	0.2712	0.8964	2.0450	0.0015	0.1164	129.5
	250	0.3139	0.8843	2.8004	0.0021	0.1236	183.5
	500	0.4045	2.1197	3.6631	0.0026	0.1563	264.9
	750	0.6094	3.1710	5.5926	0.0040	0.2361	398.8
	1000	0.9543	5.0610	9.2959	0.0060	0.3417	591.9
Rubber Tired Dozers Composite		0.3789	1.6950	3.4143	0.0025	0.1474	239.1
Rubber Tired Loaders	25	0.0221	0.0708	0.1440	0.0002	0.0092	16.9
	50	0.1938	0.4399	0.3495	0.0004	0.0427	31.1
	120	0.1480	0.4419	0.8601	0.0007	0.0775	58.9
	175	0.1759	0.6425	1.3849	0.0012	0.0769	106.3
	250	0.1781	0.4960	1.8452	0.0017	0.0684	149.0
	500	0.2528	0.9706	2.6039	0.0023	0.0977	237.0
	750	0.5240	1.9793	5.4711	0.0049	0.2022	485.5
	1000	0.7317	2.8295	8.0073	0.0060	0.2487	593.9
Rubber Tired Loaders Composite		0.1730	0.5552	1.3821	0.0012	0.0768	108.6
Scrapers	120	0.2643	0.7453	1.5133	0.0011	0.1342	93.9
	175	0.2768	0.9565	2.1368	0.0017	0.1199	148.1
	250	0.3046	0.8606	2.9011	0.0024	0.1195	209.5
	500	0.4168	1.9485	4.0046	0.0032	0.1622	321.4
	750	0.7239	3.3468	7.0442	0.0056	0.2818	555.3
Scrapers Composite		0.3677	1.5249	3.3991	0.0027	0.1465	262.5
Signal Boards	15	0.0072	0.0377	0.0453	0.0001	0.0033	6.2
	50	0.1740	0.4062	0.3843	0.0005	0.0411	36.2
	120	0.1772	0.5523	1.0878	0.0009	0.0884	80.2
	175	0.2227	0.8540	1.8787	0.0017	0.0939	154.5
	250	0.2504	0.7317	2.9189	0.0029	0.0951	255.3
Signal Boards Composite		0.0254	0.0972	0.1806	0.0002	0.0115	16.7
Skid Steer Loaders	25	0.0315	0.0814	0.1358	0.0002	0.0100	13.8
	50	0.1126	0.2842	0.2606	0.0003	0.0282	25.5
	120	0.0840	0.2923	0.5256	0.0005	0.0455	42.8
Skid Steer Loaders Composite		0.0981	0.2735	0.3375	0.0004	0.0326	30.3
Surfacing Equipment	50	0.0708	0.1644	0.1519	0.0002	0.0165	14.1
	120	0.1455	0.4496	0.9017	0.0007	0.0718	63.8
	175	0.1281	0.4896	1.0832	0.0010	0.0539	85.8
	250	0.1521	0.4563	1.6282	0.0015	0.0589	134.9
	500	0.2227	0.9889	2.4265	0.0022	0.0873	221.2
	750	0.3558	1.5437	3.8879	0.0035	0.1379	347.0
Surfacing Equipment Composite		0.1864	0.7654	1.8498	0.0017	0.0712	166.0
Sweepers/Scrubbers	15	0.0125	0.0729	0.0878	0.0002	0.0064	11.9
	25	0.0251	0.0821	0.1673	0.0002	0.0106	19.6
	50	0.1973	0.4427	0.3522	0.0004	0.0434	31.6
	120	0.1885	0.5540	1.0600	0.0009	0.1003	75.0
	175	0.2297	0.8158	1.7675	0.0016	0.1010	139.0
	250	0.1660	0.4343	1.9127	0.0018	0.0611	162.0
Sweepers/Scrubbers Composite		0.1963	0.5672	1.0277	0.0009	0.0819	78.5
Tractors/Loaders/Bac	25	0.0254	0.0741	0.1443	0.0002	0.0095	15.9
	50	0.1684	0.3985	0.3286	0.0004	0.0389	30.3
	120	0.1179	0.3748	0.6979	0.0006	0.0635	51.7
	175	0.1513	0.5918	1.2085	0.0011	0.0672	101.4
	250	0.1714	0.4716	1.9310	0.0019	0.0643	171.7
	500	0.3074	1.0278	3.3772	0.0039	0.1177	344.9

Air Basin	SC

Table 5
Construction Equipment Emissions Factors for 2007 by Equipment Catgeory and Horsepower Range[a]

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)
	750	0.4689	1.5371	5.2373	0.0058	0.1793	517.3
Tractors/Loaders/Backhoes Compo		0.1307	0.4142	0.8303	0.0008	0.0639	66.8
Trenchers	15	0.0099	0.0517	0.0622	0.0001	0.0046	8.5
	25	0.0429	0.1377	0.2800	0.0004	0.0179	32.9
	50	0.2110	0.4651	0.3764	0.0004	0.0454	32.9
	120	0.1767	0.5030	1.0427	0.0008	0.0868	64.9
	175	0.2602	0.9129	2.0726	0.0016	0.1109	143.9
	250	0.3246	0.9471	3.0938	0.0025	0.1293	222.9
	500	0.4018	2.0679	3.9323	0.0031	0.1591	311.3
	750	0.7640	3.8744	7.5254	0.0059	0.3008	586.9
Trenchers Composite		0.1942	0.5171	0.8578	0.0007	0.0714	58.7
Welders	15	0.0140	0.0463	0.0798	0.0001	0.0061	6.2
	25	0.0294	0.0730	0.1151	0.0001	0.0088	11.3
	50	0.1392	0.3169	0.2825	0.0003	0.0317	26.0
	120	0.0931	0.2798	0.5556	0.0005	0.0468	39.5
	175	0.1516	0.5570	1.2432	0.0011	0.0642	98.2
	250	0.1264	0.3603	1.4180	0.0013	0.0481	119.1
	500	0.1582	0.6316	1.8085	0.0016	0.0615	167.6
Welders Composite		0.0917	0.2336	0.3191	0.0003	0.0297	25.6

Emission factors sent by ARB on December 7, 2006 in grams per hour. EF converted by SCAQMD to pounds per hour.

[a] These are composite horsepower-based off-road emission factors for 2007 developed for the SCAQMD by CARB from its Off-road Model. The composite off-road emission factors were derived based on the equipment category (tractor, dozer, scraper, etc.), and average equipment age and horsepower rating within horsepower ranges for the year. The emission factors can be downloaded from http://www.aqmd.gov/ceqa/hdbk.html/offroadEF_0620.xls

Table 6
2007 Motor Vehicle Exhaust CO2 Emission Factors

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO2	1.10672	CO2	4.2218

Source: SCAQMD CEQA Analysis Guidance Handbook Web Site,
http://www.aqmd.gov/ceqa/hdbk.html

Note: The emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model. A weighted average of vehicle types was used to calculate emission factors for passenger vehicles, and emission factors for heavy heavy-duty diesel trucks were used for delivery trucks. All the emission factors account for the emissions from start, running and idling exhaust.

Vehicle Type	Exhaust Emission Factors
On-Site Pickup Truck	1.10672
On-Site Construction Worker Commute	1.10672
On-Site Water Truck	4.22184
On-Site Line Truck	4.22184
Off-Site Dump Truck	4.22184
Off-Site Concrete Truck	4.22184
Off-Site Delivery Truck	4.22184
Off-Site Line Truck	4.22184
Off-Site Pickup Truck	1.10672
Off-Site Construction Worker Commute	1.10672

Emissions [pounds/day] = Emission factor [pounds/mile] x Vehicle miles traveled [miles/day]

mrs
Marine • Research • Specialists

July 2, 2008

Ms. Alison Dettmer
Supervisor, Energy and Ocean Resources Unit
California Coastal Commission
45 Fremont
Suite 2000
San Francisco, California
94105-2219

Re: SCE McGrath Beach Peaker Project Greenhouse Gas Emissions

Dear Alison:

Marine Research Specialists (MRS) has reviewed Southern California Edison's (SCE) analysis of greenhouse gas (GHG) emissions associated with their proposed McGrath Beach Peaker Project. While we generally concur with most of their analysis regarding the net change in GHG emissions associated with the proposed project, we believe there would be a net increase in GHG emissions associated with the project. Our review and comments are provided in the following sections.

Operational Emissions

The proposed peaker plant operation emissions would result for normal operations and transmission system upgrades.

Peaker Plant Emissions

The McGrath Beach peaker will emit greenhouse gases from the combustion of natural gas in its turbine and the emergency ("black start") generator. SCE estimated the maximum potential to emit GHG emissions based on the Ventura County Air Pollution Control District (VCAPCD) permit limit of 2,121 hours per year, plus 50 operating hours for reliability testing. The maximum potential to emit from the proposed project is 51,032.7 Metric Tonnes CO_2E[1] per year. Assuming an operational life of 30 years, the maximum potential to emit over the life of the project is 1,530,981 Metric Tonnes CO_2E. Under the economic dispatch scenario, which is how

[1] When quantifying GHG emissions, the different global warming potentials (GWP) of the various greenhouse gases are usually taken into account by normalizing their rates into an equivalent CO_2 emission rate. Carbon dioxide equivalent emissions (CO2 Eq, CO_2E or CO_2e) represents the amount of CO_2 emissions that it would take to create a climate impact equivalent to the emissions of the specific gas or source of interest. This standardization is useful for comparison purposes, since the emissions impact of different source types and gases can then be directly compared.

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So. Cal. Edison

the peaker plant will likely be operated, potential emissions from the proposed project are 2,496 Metric Tonnes CO_2E[2] per year, or 74,881 Metric Tonnes CO_2E over a 30-year operating period.

MRS concurs with SCE's estimate of operational GHG emissions.

Transmission Emissions

The McGrath Beach peaker will require the installation of one new SF_6-insulated circuit breaker, which will contain 52 pounds of sulfur hexafluoride (SF_6). SF_6 has a relatively high global warming potential (approximately 23,900 times that of CO_2), so even small emissions of SF_6 can contribute to climate change. The leak rate for this equipment is guaranteed by the manufacturer to not to exceed one percent per year. Therefore, the maximum potential to emit of this circuit breaker will be 0.52 pounds of SF_6 per year, which is equivalent to 5.6 Metric Tonnes CO_2E per year. Assuming an operational life of 30 years, the maximum potential to emit over the life of the project is 168 Metric Tonnes CO_2E.

MRS concurs with SCE's estimate of transmission system upgrade GHG emissions.

Construction Emissions

SE estimated construction emissions for the proposed peaker plant. Construction emissions would represent a one-time contribution to total project-related GHG emissions of 618.0 Metric Tonnes. In order to prepare the local distribution system for the installation of the McGrath Beach peaker, 32 existing circuit breakers were replaced during 2007. These circuit breakers were oil-insulated models that were scheduled to be replaced as part of SCE's planned transmission and distribution system expansion activities in the Oxnard area. However, their replacement was accelerated by one year to occur in 2007, so that the system would be ready to accommodate the additional generation from the Mandalay site. The installation of the new circuit breakers represents an additional one-time maximum potential emission increase of 180.4 Metric Tonnes CO_2E.

MRS concurs with SCE's estimate of construction GHG emissions.

Statewide System Emissions

The proposed peaker plant would replace emissions from an existing generating facility. The relative changes in systemwide emissions are discussed below.

[2] When quantifying GHG emissions, the different global warming potentials (GWP) of the various greenhouse gases are usually taken into account by normalizing their rates into an equivalent CO_2 emission rate. Carbon dioxide equivalent emissions (CO2 Eq, CO_2E or CO_2e) represents the amount of CO_2 emissions that it would take to create a climate impact equivalent to the emissions of the specific gas or source of interest. This standardization is useful for comparison purposes, since the emissions impact of different source types and gases can then be directly compared.

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Systemwide Power Plant Emissions

Based on the economic dispatch of generation, it is likely that the McGrath Peaker would displace similar generation in terms of operational efficiency and GHG emissions. SCE used the Ventyx Market Analytics and the Ventyx Planning and Risk models to simulate the operation of its electric system and estimate GHG emissions for the units that would be replaced by the McGrath Peaker. In each case evaluated by SCE, emissions associated with the McGrath Peaker would be approximately the same as the generation that is replaced. Therefore, it is unlikely that there would be any appreciable net change in GHG emissions associated with the operation of the proposed peaker and displacement of existing generating units.

Indirect Line Loss Emissions

One of the more difficult aspects of the GHG emission inventory to validate is related to the amount of energy lost during electrical transmission, and the equivalent amount of GHGs that would be emitted to make up for the lost energy. As noted in SCE's analysis:

> *When electricity travels across the wires of the transmission system it creates friction. This friction in turn creates waste heat that results in a measurable energy loss. This energy loss, called line loss, occurs both due to the distance that power must travel from its source to its destination, and due to differences in the materials that are used in different types of electric conductors across which the power must flow.*

The main presumption contained in the SCE GHG analysis is that power generated by the Mandalay Beach Peaker Project would replace more distant generation and be used for local power needs. This assumption appears to be consistent with the CPUC order requiring SCE to develop additional peaking capacity, which states:

> *"Such units should be black-start capable and dispatchable, and should bring collateral benefits to SCE's transmission and distribution system as well as the CAISO grid." (CPUC, 2006)*

In order to estimate potential improvements in system transportation, SCE utilized the General Electric (GE) Positive Sequence Load Flow (PSLF) software to simulate the Santa Clara 66 kV Subsystem. According to GE, the PSLF software is:

> *…designed to provide comprehensive and accurate load flow, dynamic simulation and short circuit analysis. Using this tool, engineers can analyze transfer limits while performing economic dispatch. PSLF is ideal for simulating the transfer of large blocks of power across a transmission grid or for importing or exporting power to neighboring systems.*

Existing power generation in the Oxnard area is transmitted to the Santa Clara substation via the 230 kV transmission system and them back to the area where it is generated via the less efficient 66 kV distribution system, thus resulting in line losses on the lower voltage 66 kV system. The proposed peaker plant would serve the local 66 kV distribution system and result in more

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efficient power transmission. Therefore, while difficult to quantify in the absence of a complete independent model simulation of the SCE Santa Clara 66 kV Subsystem, the proposed peaker plant would clearly lessen potential line losses and associated GHG emissions. However, SCE has conducted the PSLF modeling for the Santa Clara 66 kV Subsystem, and modeling results appear to provide a reasonable estimate of potential improvement in local power distribution and reductions in line losses and GHG emissions.

Net Project GHG Emissions

SCE evaluated two generation scenarios, a maximum potential dispatch scenario and an economic dispatch scenario. Based on the worst-case economic dispatch scenario, which would most likely resemble actual peaker plant operations, the project-related net increase in GHG emissions can be summarized as follows:

McGrath Peaker Net CO_2E Emission Impact
Economic Dispatch Scenario

Operational Emissions	*Metric Tonnes of CO_2E*[1]
Power Plant	74,881
Transmission System	168
Construction Emissions	
Direct Construction	180
Transmission Interconnection	618
Systemwide Emissions	
Existing Power Plant Displacement	-74,881
Transmission System Line Losses	-240
Total:	**726**

[1.] Totals assuming a 30-year project life.

If you have any questions please do not hesitate to give me a call at 805.289.3927.

Best Regards,

Steven R. Radis
Principal

mrs

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APPENDIX D: POWER PLANT SITE MAPS

CCC DESIGNATED AREA FACTORS

Staff-Recommended Designations of Areas
Unsuitable for Power Plant Construction Under
Section 30413(b) of the California Coastal Act of 1976

Adopted September 5, 1978

Designation Boundary

Coastal Zone Boundary

"Partial" Designation

1 - Publicly Owned Parks

2 - Other Recreation Areas

3 - Wetlands and Estuaries

4 - Marine Life Refuges and Reserves, Ecological Reserves, Areas of Special Biological Significance

5 - Marine Resources (kelp beds, rocky intertidal and subtidal areas, mouths of anadromous fish streams)

6 - Marine Mammal and Seabird Breeding and Resting Areas

7 - Environmentally Sensitive Habitat Areas

7-10 - Wildlife Habitat, Cultivated Agricultural Land

8 - California Natural Areas Coordinating Council Areas

9 - Forestry Special Treatment Areas

10 - Cultivated Agriculture - Special Agrarian Communities

11 - View Protection

12 - Inadequate Public Services

13 - Riparian Vegetation

a - After any number indicates an area proposed for acquisition by a State Agency

PP - Existing Power Plant

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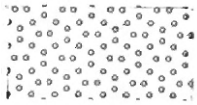
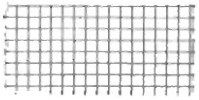
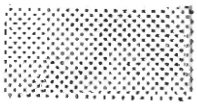
Power Plant Site Maps
CEC Natural Resource Pattern Key

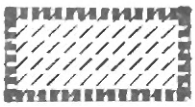
Reserves


Wetlands


Estuary

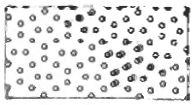

Commercial and Recreational Resources

Endangered Species

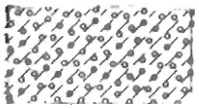

Power Plant Area

* In three cases, power plant boundary patterns overlap the CEC natural resource patterns of wetlands and endangered species, as follows:

Wetlands



Wetlands and Power Plant



Endangered Species

Endangered Species and Power Plant

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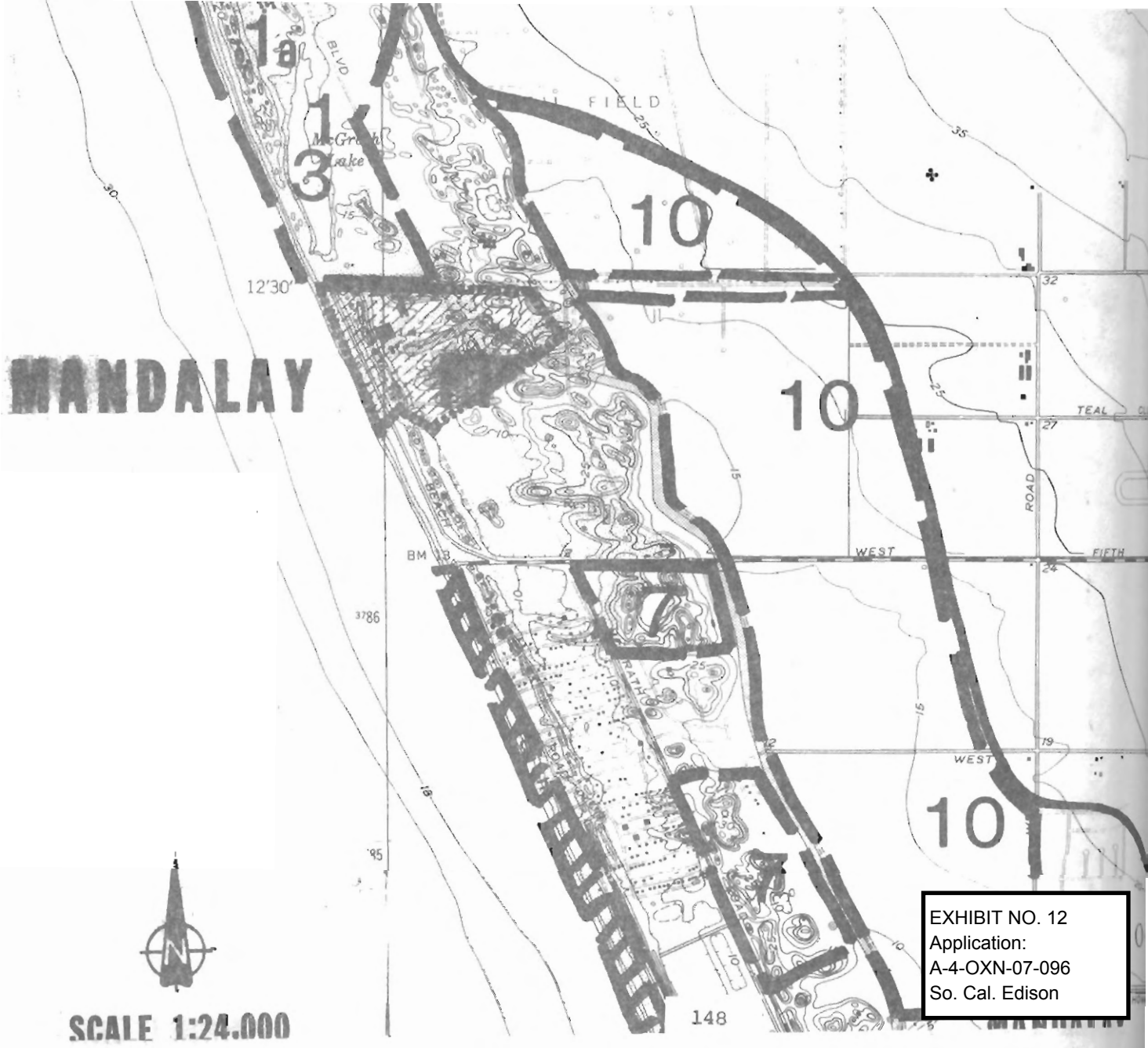
MANDALAY
SCALE 1:24,000
N
1
3
10
10
10
McGrath Lake
FIELD
BLVD
12'30"
TEAL
ROAD
WEST
FIFTH
WEST
BEACH
ROAD
BM
3786
148
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ALTERNATIVES

The California Coastal Commission (the Commission) is a certified regulatory agency under the California Environmental Quality Act (CEQA). As such, it prepares an EIR-equivalent document, in this instance a Staff Report, that either addresses alternatives and mitigation measures or otherwise states that there are no significant or potentially significant effects. The Commission's review of the Proposed Project, SCE's Oxnard peaker unit, has concluded that the Proposed Project will not have any significant or potentially significant effects on the environment. (April 24, 2008 Commission Staff Report at p. 5); see also Mitigated Negative Declaration (MND) at pp. 100-101.) Thus, the Commission does not need to conduct an alternatives analysis under Section 15252 of the CEQA Guidelines.

Nonetheless, in response to public comments received, the Commission requested that Southern California Edison (SCE) provide additional information on: (1) the siting criteria that were used to select the Proposed Project site, and (2) the alternatives that SCE considered, with particular consideration given to replying to the alternatives that were identified in public comments.

The following sections describe the Proposed Project and its objectives and analyze the seven alternatives categories that have been identified by the public:

Alternative 1: No Project Alternative (do not construct a "black start" peaker in the Ventura/Santa Barbara area);

Alternative 2: Renewable/Demand Side Management/Energy Efficiency Alternative;

Alternative 3: Local Cogeneration Alternative;

Alternative 4: EF Oxnard Alternative;

Alternative 5: East of Harbor Boulevard Alternative;

Alternative 6: Mandalay Generating Station Alternative; and

Alternative 7: Non-Coastal Location in the Ventura/Santa Barbara Area Alternative.

The alternatives analysis includes all information that SCE considered from Project inception through the present analysis related to the selection of the Proposed Project site.

I. Project Description

SCE proposes to build a 45-MW, natural gas-fired electrical generation facility – a peaker" plant – to be located on a 16-acre, SCE-owned vacant site adjacent to (and within the same Energy Coastal ("EC") subzone as) Reliant Energy's existing Mandalay Generating Station. The site was formerly occupied by oil storage tanks, and is separated from the ocean by the Mandalay plant to the west and northwest and by the DCOR oil

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processing facilities to the southwest. The peaker would be capable of being started up and fully dispatched on short notice (approximately 10 minutes) and would operate primarily at times of peak electricity demand or times of system strain or imbalance when a major power plant or transmission line becomes suddenly unavailable. The peaker will also have "black start" capability, meaning it will have the ability to start up without any external power source. Thus, it will be able to provide the power needed to restart other power plants and restore electrical service during area-wide power outages, as well as provide power for a limited number of essential services while the larger, slower-starting plants come back on-line.

II. Project Objectives

The California Public Utility Commission's (CPUC's) August 2006 Assigned Commissioner Ruling[6] defined the Proposed Project's objectives: (1) to construct SCE-owned black-start capable generating facilities; (2) that are dispatchable; (3) with collateral benefits to SCE's transmission and distribution system as well as the CAISO grid; (4) immediately. In determining the specific type and location of generation to construct, SCE gave primary consideration to complying with the four mandatory directives contained in the CPUC order.

A. CPUC Directive

The CPUC ordered SCE to "pursue the immediate development and installation of up to 250 MW of black-start, dispatchable generating capacity within its service territory for Summer of 2007 operation." (ACR, p. 2) Additionally, "[s]uch units… should bring collateral benefits to SCE's transmission and distribution system as well as the CAISO grid." (ACR, p. 6).

In response to the CPUC directive, SCE built and is now operating four of the five planned "peaker" plants located in the cities of Norwalk, Ontario, Rancho Cucamonga and Stanton. Each of these four peaker projects was granted a mitigated negative declaration under CEQA. The Oxnard Peaker would be the final generating facility developed to fulfill the CPUC directive.

B. Black Start Generation

1. Black Start Capable Generation Unit – A "Peaker" Unit

The CPUC specifically directed SCE to develop black state capable generation. All five peakers were sited at locations where they could black start one or more major generating units. Emergency black start capability requires specific characteristics from the generation unit. The most important of these characteristics are as follows:

[6] *Assigned Commissioner's Ruling Addressing Electric Reliability Needs in Southern California for Summer 2007*, issued by CPUC President Michael Peevey on August 15, 2006 ("ARC")

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- The black start generator must be able to start at all times with no external source of electricity;
- This unit must be able to be remotely operated at the direction of the Independent System Operator (CAISO);
- The unit must be able to self-regulate its frequency to 60 Hz.[7]
- The unit must be able to provide the needed startup power and sustain the high electric and magnetic fields of alternating-current equipment.[8]
- The unit must be capable of supplying stable, continuous power over an extended period of time (i.e., 12-24 hours).

The above five characteristics can only be supplied by a high megawatt (MW) fossil fuel fired unit located reasonably close to the generating unit to be started. When combined with the need for generation at times of peak energy demand, these requirements prescribe peaking units.

2. A Peaker Unit Must Be Located Reasonably Close to the Generation Unit to Be Black Started

The specific distance that a peaker unit can be located from the generating unit to be started is primarily determined by: (1) the resistance to flow (impedance) of the transmission line, (2) the equipment that is located between the two generators, and (3) the ability of the operator to restrict the electricity flow to the desired route. High capacity transmission lines are designed to optimize the efficient transmission of electricity over long distances. These lines have lower impedance; therefore, less power is lost during the transmission of electricity. Consequently, a peaker can be located farther from the generating unit to be black started when the power is being transmitted on a higher capacity line (230 kV) than on a lower capacity line (66 kV). This is because power is lost when it is transmitted and there is a minimum amount of power needed to effect a black start.

The maximum separation distance is specific to the exact route that will be followed by the electricity. In the Oxnard area, SCE estimates that the maximum distance a black start unit could be located from the Mandalay Generating Station, the generating facility to be black started (see detailed discussion below at "Ventura/Santa Barbara County Specific Local Reliability Benefits"), is approximately 10-12 circuit

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[7] This characteristic requires a high mass spinning generator with the instrumentation and control system needed to regulate frequency to within tight parameters.

[8] In order to start a large generating unit such as the Mandalay Generating Station, multiple smaller motors that operate support equipment must be started prior to starting the generator itself. These motors include fuel gas compressors, circulating water pumps, and other process feed pumps. When an engine is at rest it requires additional energy ("inrush" energy) to break its inertia to bring it up to the required rotational speed. The amount of current required to start these large motors can be as high as three to seven times their basic operating requirements. This requires a black start unit capable of handling multiple high amperage, high VAR (Volt-Amp-Reactive) instantaneous draws. The larger the generating unit, the larger the black start unit must be to handle the needed startup power requirements.

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miles on the 66 kV system. Circuit miles reflect the miles of the intervening conducting wire, as opposed to simply street distance. On the 230 kV system, the maximum distance that a black start unit can be located is farther away. SCE has estimated that this function could be performed from the Santa Clara Substation, but is unlikely to be successful from either the Goleta or Moorpark Substations.

C. Dispatchable Generation

Dispatchable generation refers to types of electric generating units whose operation is under the control of the CAISO, and can be called upon as needed to meet the energy or reliability requirements of the electric grid. Generation sources such as cogeneration units or renewable energy projects that provide power when it is available, and not at the direction of the CAISO, are not considered dispatchable generation.

D. Collateral Benefits

The primary benefit of the peakers is the reliability benefit they provide to the transmission and generation system – not their independent energy production value. Reliability benefits can occur at the systemwide or local level. Because energy production and systemwide reliability benefits can be provided from many sites, SCE asked its transmission and distribution team to identify the specific regions where peaking capacity would most benefit local reliability needs. Similar sites were ranked by the number of reliability needs or emergency contingency situations that could simultaneously be solved by a single project.

The reliability of the existing electric grid already takes into account the benefits provided by existing generating sources. Therefore, only new generating sources can provide the additional stability and reliability that the system needs.

Systemwide Reliability Benefits

a) Capacity - A peaker unit contributes a system capacity benefit simply by being a new generating source. The amount of energy that can be imported into the Los Angeles Basin from out-of-state sources is limited to a specified proportion of the generation that is produced from within the local area.[9] Thus, construction of new generation within this area (known as the ISO-defined SP15 transmission constrained area) allows additional out-of-state generation to be imported into Southern California to supply its energy demand.

b) Non-Spinning Reserve - When major generation or transmission equipment shuts down unexpectedly, it causes a disruption to the electric system that can result in widespread failure if the system is not quickly stabilized to meet control performance standards. Non-spinning reserve generators (generators that are not operated to generate electricity, but are held in reserve to operate on demand at the order of CAISO) provide voltage and frequency support that allows the system to recover from disturbances. This

[9] This is known as the Southern California Import Transmission (SCIT) limit.

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benefit can only be provided by dispatchable generating units located within the control area. Because the proposed peaker has quick start ability, it can provide this benefit while it is shut down.

c) Renewable Energy Integration - The addition of intermittent renewable resources such as wind and solar generation to the electric grid requires the simultaneous availability of fossil fuel units[10] on the same electric subsystem as a backstop measure. This is because the power output from wind and solar resources fluctuates intermittently in time, for example, when wind levels decrease or clouds cover the sun. The electric system, on the other hand, must operate at a stable voltage and frequency, with a very low level of fluctuation. Dispatchable fossil fuel units such as the Proposed Project[11] are able to automatically adjust their output to fill in the gaps in the power supply that are caused by these fluctuations. These types of units can be controlled to increase or decrease their output to meet the electrical system demand. They also provide power when renewable resources are not available, such as at night or when the wind is not blowing.

General Local Reliability Benefits

a) Voltage Support - Due to electricity demand growth on the SCE system, certain areas on the system could benefit from additional local voltage or frequency support to improve power quality or relieve system overloads. In these cases, the existing transmission system was simply not constructed to supply the amount of energy now being demanded. Location of a peaker at these locations will avoid or defer future transmission or distribution projects that would otherwise be needed to address this issue. Voltage support is an ancillary benefit that was taken into consideration when discriminating between similar sites.

b) Line Loss Benefits – As discussed above, the farther electricity has to travel on the transmission system, the more power is lost. This is called line loss. This effect increases when the existing system is overloaded, such as on hot summer days. When a generator is connected close to the customers it serves, this loss is minimized and less electricity needs to be generated to serve the same load. Less generation means fewer air emissions and lower customer costs. Peakers operate for relatively few hours during the year; therefore, this benefit will occur primarily on the 66 kV system, where resistance to flow is higher. In the Santa Clara subsystem, the proposed peaker site is an optimal location to reduce line losses. Line loss is an ancillary benefit that was taken into consideration when discriminating between similar sites.

[10] In the future, a number of storage technologies currently under development will be capable of providing this benefit; however, these technologies will not be commercially available for a number of years.
[11] The peaker is capable of being fitted with a Remote Intelligent Gateway (RIG) that allows it to be used for Area Generation Control (i.e., automatic load following).

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Ventura/Santa Barbara County Specific Local Reliability Benefits

Certain locations on the SCE grid require additional generation or transmission infrastructure to address identified emergency scenarios. These locations will require the construction of future projects to eliminate these system weaknesses. Siting a peaker at these locations has the effect of both solving existing issues and replacing future projects that would otherwise need to be constructed.

In the Ventura-Santa Barbara System, SCE has identified the following local reliability projects: (1) providing black start service for the Mandalay Generating Station, and (2) providing additional emergency generation to the Goleta subsystem.

a) Mandalay Generating Station Black Start

Electricity use in the Ventura/Santa Barbara System has increased steadily at 2-3% per year as former agricultural lands are converted to residential, commercial and industrial projects; as consumers increase their energy usage by purchasing new electronic devices such as plasma televisions and digital video recorders; and as more coastal homes are constructed with air conditioning.

Presence of Air Conditioning in New Homes
Coastal Climate Zone 6[12]

	Pre-1992	1992-2003
No AC	71%	35%
AC	29%	65%

Consequently, peak electric load in this area has grown to 1,700 MW in 2008. In an emergency situation, when this area is isolated from the main electric grid, both the Mandalay (430 MW) and Ormond Beach (1,500 MW) Generating Stations must be operated at close to full load in order to supply sufficient electricity to meet local needs.

During major electric system upsets, generating stations are automatically programmed to shut down to prevent damage to their mechanical, electrical and fuel handling systems. Once a power plant has shut down, it requires an external source of energy to restart. There are currently no black start generators in the area that are capable of restarting either of these major plants to allow power to be restored to the electric grid. Without such a source of power, the Ventura/Santa Barbara area is at risk of remaining without electricity from several days to several weeks, while repairs are made to the system.

[12] Data was extracted from the California Energy Commission's Residential Appliance Saturation Survey 2004 (RASS 2004), which surveyed air conditioner installations in new homes throughout the state. The City of Oxnard is located in Coastal Climate Zone 6 of the survey.

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b) Goleta Subsystem Generation

The Santa Barbara area is currently served through a single bulk power substation, the Goleta Substation that receives its power through two 50-mile–long, 230 kV transmission lines. These two lines share common towers and are subject to a joint outage from a single event that affects the towers, e.g., a fire, earthquake, or other earth movement. Because the majority of the towers are located in remote mountain terrain, if such an event were to occur, the Santa Barbara area would be subject to an extended outage while these lines were repaired. Since local generation in this area is currently lower than demand, some level of forced service interruption would result during this interim period.

In this event, a limited amount of power could be supplied through the Santa Clara 66 kV system to meet certain essential emergency service requirements (police, fire stations, hospitals, etc). However, in order to supply this power, a minimum level of generation must be provided from within the Santa Clara 66 kV subsystem to ensure adequate voltage support and prevent electric equipment overloads. The proposed peaker would meet the required specifications – 66 kV connection within the Santa Clara subsystem – to be able to provide the needed system support to the Goleta subsystem over an extended period of time.

E. Immediate Development

In order to complete permitting and construction of five generation projects in less than one year from the date the CPUC directive was issued (which set forth a one year goal ending Summer 2007) for the peaker projects to be operational, sites that required minimal time to complete these activities were selected. Although the goal of constructing all five peakers by the Summer of 2007 has passed, the Project is still urgently needed[13] as was recently reconfirmed in the May 2, 2008 CAISO letter to the Commission.

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[13] According to the CPUC, the surprising growth in electricity demand throughout the state, coupled with the July 2006 heat storm, exposed certain vulnerabilities in the electric generation and transmission infrastructure that required immediate attention to assure future reliability. The California Independent System Operator's ("CAISO") assessment for the Summer of 2006 had indicated that the system could handle a demand in excess of 48,000-MW, with limited or no impact on firm load customers. However, the peak demand during the heat wave was 51,000-MW, well above any of the scenarios that were assumed in CAISO's assessment. The Summer 2006 demand was 12% higher than 2005's record; 6% higher than the worst case scenario CAISO had analyzed in its assessment; and 38% higher than the peak demand of the crisis year 2001. Moreover, it represented a demand that was not forecast to occur for another five years. Across CAISO's service area, weighted average temperatures during the heat wave ranged between 106 and 110 degrees Fahrenheit on various days, which is higher than any temperatures recorded in the 30-year history of temperature models used by CAISO. Even with the additional installed and anticipated new generating resources that will have come on-line between the summers of 2006 and 2008, CAISO still predicts a 10% risk that operating reserves in Southern California could be insufficient this summer. Although new resources have been procured and will continue to come on-line, SCE predicts that there remains a significant need for additional peaking resources in the future.

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Therefore, the following siting criteria that were used when initially comparing potential locations are still highly relevant. The identical criteria were utilized to site all five peakers within the SCE system.

a) Less than 50 MW Units

Given the grid's reliability issues and the need to swiftly comply with the CPUC directive, five 50 MW[14] units were selected for installation. Under the California Energy Commission's (the CEC) regulations, units less than 50 MW are exempted from the CEC's mandatory 12-18 month review period that is required for larger generating units. Further, constructing multiple units in different locations provides the highest degree of reliability benefits and has the potential to solve the greatest number of local reliability issues, in turn eliminating or deferring the maximum number of additional projects.

b) Existing SCE-Owned Property

The length of time required to purchase or condemn real estate for a potential peaker site would have prevented SCE from complying with the CPUC directive. Therefore, only existing SCE-owned properties were considered. Moreover, Project construction requires a minimum of 2-3 acres; therefore all candidate properties were screened to determine if sufficient space was available for the Proposed Project.

c) Transmission Availability

In locations where the transmission system is already overloaded, the existing infrastructure may not be capable of readily accepting additional energy. Therefore, only locations that had available capacity were selected. This is because the time and cost of upgrading the system would not be commensurate with either the schedule (delay to construct additional capacity would be too great) or size of the Proposed Project (the cost to provide additional transmission capacity would render the project infeasible).

d) No Significant Environmental Issues

Short list candidate sites were screened for environmental issues and rejected if any potentially significant environmental impacts were identified. To expedite permitting, SCE specifically selected sites that it believed would pose no significant adverse environmental impacts, and therefore would not require an EIR or lengthy permit processes.

[14] 50MW is the gross output rating of the selected LM6000 engine. After plant auxiliary loads and local temperature and elevation impacts, the net output of these units onto the SCE grid will be approximately 45MW.

e) Minimal Fuel Gas and Transmission Infrastructure Construction Requirements

Long interconnection distances increase permitting complexity, the potential for significant environmental issues, project costs, and the length of time needed for construction. Sites were screened to determine if the necessary natural gas and transmission inter-tie infrastructure was readily available and could be permitted and constructed in a relatively short time period. This entailed sites in close proximity to 66 or 115 kV tie-in locations and main gas lines with adequate capacity and pressure. SCE chose to interconnect the units on the lower voltage sub-transmission system, because the engineering and approval time needed to connect to the higher voltage 230 kV system was significantly greater due to the different process that must be followed. Connecting to the lower voltage system also provided greater local reliability benefits.

f) No Extraordinary Engineering or Construction Issues

Short list candidate sites were screened for geotechnical concerns, site access, equipment relocation, and other engineering and construction issues that would preclude the Proposed Project from meeting engineering or construction standards or would unreasonably delay the Proposed Project. Examples include significant grading or cut and fill site preparation which, in some cases, can only be conducted during certain times of year.

IV. Alternatives Analysis

Systemwide Site Selection

The number one location identified by SCE's transmission and distribution group as requiring a black start peaker and/or other projects to resolve local reliability needs was the Ventura/Santa Barbara system west of the Pardee Substation. In this area, the most important locational reliability criteria in order of importance are: (1) the ability to black start the Mandalay Generating Station; (2) providing additional generation capacity to the Goleta subsystem; and (3) providing local system reliability benefits such as voltage support and overload reduction.

In SCE's initial Fall 2006 assessment of potential locations, the primary criteria utilized when comparing sites was completing the Proposed Project by the Summer 2007, as required by the CPUC.

In February 2007, when it became apparent that Project approval was not forthcoming from the City of Oxnard, SCE reviewed the selection of the Mandalay site to determine if moving the Proposed Project to another site would be appropriate. At that time, SCE considered sites both within and outside of the Ventura/Santa Barbara system. However, because of the critical need for black start and local reliability projects in the Ventura/Santa Barbara area, which will require new generation and/or transmission projects to resolve these issues regardless of the Proposed Project, SCE determined that

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the original location of the Proposed Project adjacent to the Mandalay Generating Station remained the best location on its system.

Through the various phases of the Proposed Project development process (including the various appeals), SCE has revisited project location to determine if greater need existed elsewhere. Every review has resulted in the same conclusion – that the Mandalay site is the optimal location for the Proposed Project on the SCE system.

Ventura/Santa Barbara Site Screening

At the time the CPUC directive was issued, SCE screened all available SCE-owned property inside its system according to the following criteria:

- SCE owned property
- 2-3 acres of available land within or adjacent to an existing 66 or 115 kV substation
- Not within 1,000 feet of a school or hospital

These criteria were used to assess general constructability, permitability, and speed of construction. Available land was first screened based on information provided by SCE's corporate real estate and transmission planning groups regarding parcel sizes. Promising sites were screened using Google Earth. As part of the current project reassessment, customer-owned substation properties were also reviewed, and all available sites in the Ventura/Santa Barbara area were screened using LandVision to confirm property acreages.

Substations Screened

Loc	Substation	City	Screening Assessment
SC	Camarillo	Camarillo	Not enough space. Residential on three sides. Across street on fourth.
SC	Camgen	Camarillo	Space available. Cogen. Serves CSU Channel Islands Campus. Greenfield.
G	Capitan	Naples/Goleta	Not enough space. Possibly a customer sub (Exxon). Hilly terrain.
G	Carpinteria	Carpinteria	Not enough space. Residential on one side.
SC	Casitas	Ventura	Not enough space. Residential on one side. Across street on second.
SC	Channel Island	Oxnard	Not enough space. Across the street from homes on the marina.
SC	Charmin	Oxnard	Space available. Cogen. Serves Proctor & Gamble.
G	Colegio	Isla Vista	Space available. Customer sub. Serves UC Santa Barbara.
SC	Colonia	Oxnard	Not enough space. Adjacent residence (Abel Ranch).
M	Crater	Calabasas	Not enough space.
G	Desal	Santa Barbara	Not enough space. Customer sub. City of Santa Barbara.
G	Ellwood	Goleta	Space available. Within 1,000 ft of Ellwood Unified school.
SC	Estero	Oxnard	Not enough space.
G	Exgen	Goleta	Space available. Cogen. Serves Exxon.
SC	Fillmore	Fillmore	Not enough space. Residential on three sides.
G	Gaviota	Gaviota	Not enough space. Possible transmission capacity issues.
SC	Getty	Ventura	Space available. Customer sub. Serves Chevron.

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G	Goleta	Santa Barbara County	Space available. SCE sub.
SC	Gonzales	Oxnard	Not enough space. Residential on one side.
G	Isla Vista	Isla Vista	Not enough space. Residential on one side.
M	Latigo	Malibu	Not enough space. Nearby homes.
SC	Lehman	Oxnard	Not enough space. Customer sub. Serves Port Hueneme Seabee Base.
SC	Levy	Oxnard	Not enough space.
M	Malibu	Agoura Hills	Not enough space. Close to homes.
SC	Mandalay	Oxnard	Space available. SCE sub.
SC	Missile	Oxnard	Space available. Customer sub. Serves Point Mugu Air Station.
M	Moorpark	Moorpark	Space available. SCE sub.
M	Newbury	Thousand Oaks	Not enough space.
M	Oak Park	Thousand Oaks	Not enough space. Residential on two sides.
SC	Ojai	Ojai	Not enough space. Residential on three sides. Athletic club on the fourth.
G	Onshore	Goleta	Customer sub. Possibly serves the golf course.
SC	Ormond Beach	Oxnard	Not enough space. Available SCE land is mainly transmission line right of ways.
G	Ortega	Summerland	Not enough space. Residential on one side.
SC	Oxgen	Oxnard	Not enough space. Cogen. Serves Boskovich Farms food processing.
M	Pharmacy	Thousand Oaks	Customer sub.
M	Potrero	Thousand Oaks	Not enough space.
SC	Procgen	Oxnard	Space available. Cogen. Serves Proctor & Gamble.
M	Reclaim	Calabasas	Not enough space. Customer sub. Serves Las Virgines MWD.
M	Royal	Simi Valley	Not enough space.
G	San Marcos	Santa Barbara	Not enough space. Adjacent to condominiums.
SC	San Miguel	Ventura	Not enough space.
G	Santa Barbara	Santa Barbara	Not enough space.
SC	Santa Clara	Ventura	Space available. SCE sub.
SC	Saticoy	Saticoy	Not enough space. Across the street from residential housing.
M	Shelline	Calabasas	Customer sub.
SC	Shellsom	Somis	Not enough space. Customer sub. Serves industrial/petroleum customer.
SC	Somis	Somis	Not enough space. Customer sub. Serves industrial customer.
M	Tapia	Malibu	Not enough space.
SC	Tayshell	Ventura	Not enough space. Possibly a customer sub.
M	Thousand Oaks	Thousand Oaks	Not enough space. Residential on two sides.
SC	Three M	Camarillo	Space available. Customer sub. Serves Imation Corp.
SC	Unioil	Oxnard	Space available on adjacent SCE land. Customer sub. Serves DCOR.
M	Valdez	Calabasas	Not enough space. Residential on four sides.
G	Vegas	Goleta	Not enough space. Next to homes.
SC	Wakefield	Santa Paula	Not enough space. Within 1000 feet of Webster school.
SC	Wastewater	Oxnard	Not enough space. Customer sub. Serves City of Oxnard Wastewater Treatment.
SC	Williamette	Port Hueneme	Possible space available. Cogen. Serves Weyerhaeuser.

G = Goleta; M= Moorpark; SC = Santa Clara

Key:

	SCE Land – Space Available
	Customer Land – Space Available
	SCE/Customer Land – No Space Available

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There are three bulk power substations located within the Ventura/Santa Barbara area. These are the Goleta, Santa Clara, and Moorpark Substations. All power in this area is supplied from one of these three electric systems. These three bulk substations and one generation site passed the initial screening process and were given more detailed analysis: the. These sites were:

- Goleta
- Mandalay
- Moorpark
- Santa Clara

This short list of potential sites was subjected to more detailed analysis. Based on the screening criteria listed above, additional transmission, environmental, and construction information was gathered to rank and assess each site. The criteria were:

- Transmission availability
- No significant environmental issues
- No significant engineering or construction issues
    - Minimum gas pipeline/transmission line infrastructure construction
- Local system reliability benefits
    - Black start Mandalay Generating Station
    - Provide emergency generation to the Goleta system
    - Provide local voltage support benefits

The information that was gathered is summarized below.

Goleta Substation

At this location the project site includes SCE-owned land both inside and outside the existing fenced substation, because insufficient space exists within the currently developed substation to house the Proposed Project. Therefore, the project would require clearing vegetation from previously undeveloped land, grading hillsides and redesigning the main access road. The gas connection would require trenching through several miles of undeveloped land and include one railroad and one highway crossing. Road redesign would require road realignment near the substation and road widening in several locations. This would require coordination with Santa Barbara County, which may require additional concurrent work along the full 3 mile length of the road. A minimum of four 66kV lines would require relocation to improve site accessibility.

Transmission Availability
The Goleta Substation has sufficient capacity to accept connection by the project. However, facility upgrades would be needed that require 12 months to construct.

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Environmental Issues
Environmentally sensitive habitat is known to occur in the vicinity of this site and along the access road that would need to be expanded if the project were developed. The toxic endpoint[15] of a potential ammonia release would likely exit the fenced site boundary. The clearing of undeveloped land would likely cause permitting delay and additional environmental review requirements, which may include the preparation of an EIR. The Santa Barbara Air Pollution Control District (SBAPCD) permit processing time is expected to be lengthy based on recent permitting history for major projects. The required City permitting for road reconstruction would also likely be lengthy because of the need to negotiate ancillary road upgrades long desired by the County. Given the identified issues, permitting was unlikely to be completed in time for Summer 2007 operations, as required by the CPUC directive.

Construction Issues
Even if permits could be obtained, the necessary engineering and construction of the access road, pipeline, transmission upgrades, and developed site expansion made a project at this site unlikely to be completed by Summer 2007, as required under the CPUC Directive. Even after road reconstruction, access issues would still need to be addressed to get the required equipment to the project site due to the existing terrain.

Reliability Benefits
Siting a peaker at this location would provide generation to the Goleta subsystem, as well as local voltage and frequency benefits. However, it is unlikely that a peaker at this location would be able to black start the Mandalay Generating Station.

Summary
Potential environmental and construction issues have been identified at this location. This site will not fulfill the need for black start generation at Mandalay, the primary criteria guiding site selection. When SCE initially began the site selection process, this site was eliminated because it could not be completed in time for the 2007 start date required by the CPUC directive. Greater environmental impacts, greater costs, and fewer reliability benefits continue to weigh against its selection, particularly in light of the continuing and urgent need for black-start capable generating facilities in the region.

Mandalay Brownfield Site

At this location the project site is a previously developed brownfield site that contained a former tank farm that once served the adjacent Mandalay Generating Station. Gas and electrical connections are short and located in previously disturbed areas. The nearest homes are located 750 feet away from the Proposed Project site.

[15] The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible of other serious health effects or symptoms which could impair an individual's ability to take protective action.

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Transmission Availability
The adjacent substation contains sufficient capacity to accept connection by the Proposed Project. Local system upgrades consisting of the replacement of 32 breakers will be required, but could have been completed expeditiously to meet a Summer 2007 schedule.

Environmental Issues
No significant environmental issues were identified at the proposed site. Houses are located a sufficient distance away that noise impacts can be mitigated. No known endangered species exist in the identified construction zones, and the project site does not encompass any environmentally sensitive habitat area. Sufficient land exists to site the ammonia storage and injection equipment at a location that will eliminate potential offsite impacts.

Construction Issues
No significant construction issues were identified at the proposed site. Minor geotechnical issues can be easily overcome based on past construction experience with the adjacent plant and the extensive existing geotechnical data.

Reliability Benefits
The proposed site is the best location to black start the adjacent Mandalay Generating Station. Power can be used to serve load in the Santa Barbara system during emergencies via the 66 kV system. The substation connection is deep within the distribution system and will create local reliability benefits, including voltage support, reduced equipment overloading, and reduced line losses.

Summary
No known significant or construction issues exist for this site. The site fulfills all identified local reliability criteria in the region, thereby avoiding the maximum number of additional future local generation and transmission projects. This location is the least cost, least impact, best fit of all sites that were considered.

Moorpark Substation

This project site is located in the previously graded and graveled southwest corner of the substation that fronts Los Angeles Avenue. Houses currently exist or are scheduled to be constructed immediately across the street and within approximately 200 feet of the project site on two sides. Future housing will also be constructed on the hillside to the north at elevations above the project site. There are no available gas lines in the immediate vicinity, which will require the construction of a 5.8 mile long gas line that is expected to run under paved city streets for its full length.

Transmission availability
The substation contains sufficient capacity to accept connection by the project. Local system upgrades consisting of the replacement of 32 breakers will be required.

Environmental Issues
Insufficient space may exist at this site to provide landscaping or a sound wall. This coupled with the fact that residences will be located at elevations above the project site may make it difficult to mitigate potential noise issues, resulting in a permitting delay or the inability to permit the site. Less available space in which to site the ammonia storage and injection system may prevent potential ammonia release hazards from being contained on site.

Construction Issues
Existing substation equipment would need to be relocated to make space for the peaker.

Reliability Benefits
A peaker sited at this location would not provide any local reliability benefits. It is unlikely that a peaker at this location would be able to black start the Mandalay Generating Station. This location cannot provide additional generation to the Goleta subsystem because the two systems do not have a common 66 kV connection. No local reliability benefits to the Moorpark subsystem would be produced because: a) voltage support is not an issue at this location; and b) the peaker would be connected to a bulk 230/66 kV transmission substation which eliminates the line loss benefits that would accrue if the peaker would be connected to at 66/12 kV local substation, such as is the case at the Mandalay site.

Summary
Potential environmental issues may exist at this location. This site will provide no local reliability benefits and no greater systemwide reliability benefits than a location elsewhere on SCE's system. In 2007, this site was rejected because it was less certain the site could be permitted and constructed within the required timeframe than the Mandalay site and it provided none of the desired local reliability benefits. Under the current analysis, this site would not be selected under any circumstances because it will not provide local reliability benefits.

Santa Clara Substation

At this location the only space available for a peaker project is outside the existing fence line at the southeast corner of the property, thereby impacting presently undeveloped land. Construction at this location would require extensive grading, leveling, filling, and relocation of the main drainage structure for the site to create sufficient space. Due to the existing, steep access road into the site on the East side, a massive retaining wall would have to be constructed to allow sufficient space and to contain the fill material.

Transmission availability
The substation contains sufficient capacity to accept connection by the project. Specific interconnection studies were not performed for this location, so it is not known if system upgrades will be required for connection.

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Environmental Issues
Significant greenfield construction at this site suggests potential environmental impacts, and the preparation of an EIR may be required. Because the required permitting would have delayed development of the project at this site beyond the 2007 deadline, no additional environmental screening was performed.

Construction Issues
Construction at this site could not be completed in 2007. The significant engineering challenges at this site may make it non-constructible regardless of schedule. Construction at the available site is constrained by multiple existing 66 kV transmission lines. Gas pipeline construction would require a directional bore under the CA-126 freeway. Costs for this site would be significant and could be prohibitive. Because the site could not be constructed in 2007, no additional screening was performed.

Reliability
A peaker at this location would likely be capable of black starting the Mandalay Generating Station. Power from this location can be used to serve load in the Santa Barbara system during emergencies via the 66 kV system. No local reliability benefits to the Santa Clara subsystem would be produced from a connection at this location for the same reasons as the Moorpark connection.

Summary
This site possesses significant engineering challenges that may make it non-constructible. This site was rejected in 2007 because it could not be constructed on the required schedule and more favorable sites existed. Greater environmental impacts and fewer reliability benefits, coupled with the identified construction issues continue to weigh against this site.

Initial Site Screening Summary

At the time of its initial siting assessment, SCE would have preferentially sited the project at a site that could have been constructed by Summer 2007, even if that site would have provided fewer reliability benefits than alternate sites, due to its need to comply with the timing requirements of the CPUC directive. As such, constructability was ranked higher than reliability during the first pass screening.

Summary Site Ranking Criteria

Importance		1	2	3	4	5	6
Rank	Location	Available Transmission Capacity	No Significant Environmental Issues	No Significant Construction Issues	Black Start Mandalay	Goleta System Power	Local System Benefits
1	Mandalay	Y	Y	Y	Y	Y	Y
2	Moorpark	Y	N	Y	N	N	N
3	Goleta	Y	N	N	N	Y	Y
4	Santa Clara	Y	N	N	Y	Y	N

Based on the detailed screening information obtained for each site, the Mandalay site was determined to be superior in all respects. At the Mandalay site, the Proposed Project would have:

- No significant environmental impacts
- No construction issues
- Maximum reliability benefits

Furthermore, Mandalay was the site with the greatest potential to meet the required schedule, if permitting were to proceed expeditiously.

Moorpark was judged superior to Goleta as a backup site during the initial assessment period because it was judged to have the potential to achieve the 2007 deadline, even though this location did not provide the desired reliability benefits, as long as further analysis was able to demonstrate that the site could be quickly permitted.

Site Reassessment

As previously discussed, by February 2007, when it became apparent that the Mandalay project would not be constructed in time to meet Summer 2007 needs, SCE reassessed the Project to determine if the peaker would be better placed at a different location on the SCE system to provide needed reliability benefits. At this point, a project that was not already under environmental review could not be constructed by the required deadline. With this specific timing constraint eliminated, the most important criteria became finding a site that would provide the most local reliability benefits. The Ventura/Santa Barbara system remains the most important location on the SCE system in which to site new black start peaking generation. Therefore, this area ranks even higher when the specific timing requirements are no longer relevant. Although the initial Summer 2007 deadline has passed, timing is still an important criterion.

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After removing criteria directly related to Summer 2007 timing, transmission capacity remains the threshold issue for project viability. Although the level of expected environmental impacts and the difficulty/cost of project construction are still important in distinguishing between similar sites, the primary consideration is now local reliability.

Importance		1	2	3	4	5	6
Rank	Location	Available Transmission Capacity	Black Start Mandalay	Goleta System Power	Local System Benefits	No Significant Environmental Issues	No Significant Construction Issues
1	Mandalay	Y	Y	Y	Y	Y	Y
2	Goleta	Y	N	Y	Y	N	N
3	Santa Clara	Y	Y	Y	N	N	N
4	Moorpark	Y	N	N	N	N	Y

Based on the most current assessment of potential project sites, Mandalay remains the preferred location for the same reasons it was initially selected. It is the site with: (1) the least environmental impacts (2) that best meets the purpose and need of the Proposed Project; and (3) entails the least complicated construction at lowest cost to SCE's customers.

In this analysis, Goleta ranks second, because even though this location does not provide black start capability, it provides important local reliability benefits to the Goleta subsystem that would otherwise require the construction of a new generation project in the Santa Barbara area. In this event, a second generation project would need to be proposed and constructed in the Oxnard area in order to provide black start capability. Santa Clara is ranked third because it is unlikely that a project could be constructed at this location under any circumstances or that project costs would be reasonable. In this analysis, Moorpark ranks fourth. Since it provides no local reliability benefits, a project would not be constructed at this location.

Non-SCE Owned Property

As part of the current assessment, SCE also reviewed existing customer substations with available adjacent land to determine if these locations could provide the same reliability benefits as the Mandalay site while allowing construction outside of the coastal zone. Because the Mandalay Generating Station can only be black started from within the Santa Clara subsystem when the peaker is connected is made to a non-bulk power 66 kV substation, only customer substations within Santa Clara were assessed. These sites included:

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Substation	City	Screening Assessment
Camgen	Camarillo	Cogen. Serves CSU Channel Islands.
Charmin	Oxnard	Cogen. Serves Proctor & Gamble.
Getty	Ventura	Customer sub. Serves Chevron.
Missile	Oxnard	Customer sub. Serves Point Mugu Air Station.
Procgen	Oxnard	Cogen. Serves Proctor & Gamble.
Three M	Camarillo	Customer sub. Serves Imation Corp.
Unioil	Oxnard	Customer sub. Serves DCOR.
Williamette	Port Hueneme	Cogen. Serves Weyerhaeuser.

Circuit diagrams were reviewed to determine the circuit distance from these locations to the Mandalay Generating Station. These distances are as follows:

Substation	Distance
Camgen	28 miles
Charmin	18 miles
Getty	19 miles
Missile	30 miles
Procgen	18 miles
Three M	28 miles
Unioil	0.7 miles
Williamette	36 miles

In the Oxnard area, a black start generator must be located within 10-12 circuit miles to allow a successful black start. Only the Unioil Substation is located close enough to the Mandalay Generating Station for this to occur. The Unioil 66 kV substation is located within the DCOR oil processing facility located adjacent and to the west of the project site and between it and the ocean. Therefore, connecting the peaker to this location would not move its proposed footprint. As such, the existing site remains the preferred alternative.

Discussion of Project Alternatives

The following project alternatives were identified from a review of comment letters and testimony provided during both the City of Oxnard and the Commission's environmental review processes.

1) No Project Alternative

The Ventura/Santa Barbara system west of the Pardee Substation area has been identified as the area on the SCE system most in need of the Proposed Project. In this area, local reliability needs include: 1) providing black start service for the Mandalay Generating Station, and 2) providing additional emergency generation to the Goleta subsystem through the 66 kV system. No other projects have been proposed that will

provide the reliability benefits of the Proposed Project. If the Proposed Project is not constructed, one or more future generation or transmission projects will need to be constructed in this same area to address these issues.

This alternative does not satisfy the fundamental purpose and need for the project.

2) Renewable Energy/Demand Side Management/Energy Efficiency Alternative

Renewable energy, demand side management and energy efficiency projects are valuable to help reduce demand on SCE's system; however, they do not fulfill the purpose and need for the Proposed Project. Projects in these three categories are neither black start capable or dispatchable as required by the CPUC directive. More importantly, none of these project categories have the physical characteristics required to provide black start capability to the Mandalay Generating Station, nor to provide the voltage support inside the Santa Clara system that is required to allow additional emergency generation to be routed into the Goleta system via the 66 kV network.

Wind and solar project cannot be counted on to start at all times and provide stable, continuous power over an extended period of time (i.e., 12-24 hours) as is required during emergency situations. The wind is not always blowing and the sun is not always shining. Although demand side management and energy efficiency projects are effective in reducing the demand for electricity, they do not generate additional electricity, and therefore cannot provide reliability benefits.

The electric system needs many types of projects to function effectively. SCE is pursuing numerous renewable, demand side management, and energy efficiency projects in parallel with the Proposed Project. The same CPUC directive that directed SCE to install new peaking capacity also ordered SCE to aggressively expand its Air Conditioner Cycling Program by 300 MW.

> "… I direct Southern California Edison Company (SCE) to expand its Air Conditioning Cycling Program (ACCP, also referred to as Summer Discount Plans) to target an additional 300 megawatts (MW) of program capacity for the summer 2007 season." (ACR, p. 2)

In parallel with developing the proposed peakers by the Summer 2007, SCE was successful in adding 187 MW of new ACCP capacity to its program, resulting in a total demand response capability of 1,260 MW, the largest such program in the state. This capacity represents over 28 times the generation provided by the Proposed Project.

SCE is also recognized as the nation's leader in energy efficiency programs. Between 2004-2013, SCE plans to develop programs to achieve cumulative energy savings goal of 2,228 MW, more than 49 times the generation from the Proposed Project. Based on the programs that have been implemented to date (2004-2008), SCE is expected to achieve more energy efficiency benefits for its customers than any utility in the country by the end of this year. In the Ventura County area alone, SCE has contributed

$2.2 Million to the Ventura Country Regional Energy Alliance (VCREA), a joint powers agency composed of public agencies working in collaboration to implement energy efficiency programs in Ventura County. The City of Oxnard is a member of the alliance and benefits from these funds.

SCE also leads the nation in renewable energy procurement. SCE purchases more than one-eighth of all renewable electricity produced for sale in the U.S., including 90% of all solar power generated. Since 2002, SCE has entered into long term contracts for up to 4,500 MW of renewable capacity, more than 100 times the generation from the Proposed Project. A majority of these contracts are for the development of new facilities throughout the Southern California region. The State's renewable procurement targets are some of the most aggressive in the Nation and SCE is pursuing a variety of alternatives to help meet these goals.

At the local level, SCE is the administrator of $1 billion in funding under the California Solar Initiative that is available to all SCE customers, including customers in the Ventura/Santa Barbara area, on a first come, first serve basis to defer the cost of installing up to 805 MW of small scale (1 kW-5 MW) residential and commercial rooftop solar projects within SCE's service territory. SCE has also proposed the largest utility-owned industrial scale rooftop solar project in the world. This project would install 250 MW of solar panels on 65 million square feet of unused industrial rooftops in Southern California. Jointly, these two projects will provide over 23 times the amount of generation from the Proposed Project.

Nonetheless, despite the fact that SCE is conducting all of the above projects, they neither replace nor reduce the purpose and need of the Proposed Project.

3) Existing Local Cogeneration Alternative

Existing cogeneration units located within the Santa Clara subsystem do not meet the purpose and need of the Proposed Project. Cogenerators typically utilize similar hardware to the Proposed Project in order to simultaneously create steam for industrial processes and power for on-site equipment. Excess power is sold to SCE. Although similar hardware is used, the equipment is configured and operated differently than peakers. Cogenerators can also be operated at a relatively constant level without producing steam to either provide power to an industrial process or to burn a waste stream from an industrial process, such as a landfill. Again, these units are not configured to operate in the same fashion as a peaker.

The output of all existing generation resources, including cogenerators, was taken into account by the CAISO and the CPUC prior to their determination that more peak generation was necessary. Therefore, the CPUC order to construct 250 MW of new generation would not be satisfied by assuming that existing cogeneration units can provide the needed electricity.

Further, because the output of cogenerations are designed to remain stable to support industrial processes, they are not dispatchable on peak, nor can they provide the other system reliability benefits that would be provided by a peaker. Finally, these units are not configured for black start capability and have already been taken into consideration when determining the amount of generation needed within the Santa Clara Subsystem to allow emergency power to be routed into the Goleta subsystem.

Consequently, these units do not meet the purpose and need of the Proposed Project.

4) EF Oxnard Alternative

EF Oxnard contacted SCE in March 2007 suggesting that its site would be suitable for the Proposed Project. At that time, SCE conducted a preliminary screening investigation of the site and concluded that the site did not meet its initial screening criteria. SCE has reviewed this site again as part of its current review and has reached the same conclusion.

The primary reason the site is not suitable is that it does not posses the required amount of unoccupied land to house the project's 2-3 acre footprint. The land that was identified by EF Oxnard as available for SCE's use contains less than 0.5 acres of available space. Even assuming that existing structures could be removed, only 1 acre of space is available in which to construct both the project and a new substation. (See Attachment B)

The existing substation and transmission lines at this location were not designed to accommodate more than a single generating unit. The existing underground 66 kV transmission line is located in a vault that would need to be expanded to house a second line. In addition, a new loop substation would need to be constructed to accommodate the additional SCE peaking unit. This new substation would require an additional 0.25 acres of contiguous fenced space.

Because there is insufficient space at this location to construct the Proposed Project, this alternative does not meet the purpose and need of the Proposed Project.

5) East of Harbor Boulevard Alternative

At the time the Proposed Project was originally sited, the City of Oxnard asked SCE to consider constructing the peaker on SCE-owned land on the east side of Harbor Boulevard behind the Mandalay 66 kV substation. This location consists of previously undeveloped, but degraded dune habitat. SCE considered this site as requested, but concluded that a peaker at this location would:

1) Still be located within the coastal zone;
2) Require clearing 2-3 acres of undeveloped dune land for the project, as well as an additional 2-3 acres for laydown and the natural gas metering station;

3) Require the additional construction of a new transmission line and access road across currently undeveloped land;
4) Be more visible to residents, because it would not be viewed against the backdrop of the Mandalay Generating Station;
5) Have a toxic endpoint from a potential ammonia tank release that would extend outside the project site;
6) Be located closer to residences once the adjacent agricultural land is converted to residential development.
7) Not be consistent with the principal of preferentially using brownfield sites to construct new generation

It was concluded that this location would likely have significantly greater environmental impacts than the proposed location.

6) Mandalay Generating Station Alternative

Use The Existing Mandalay Generating Station Peaker

Using the existing Reliant Energy peaker does not meet the purpose and need of the Proposed Project. The output of this peaker was taken into account when the need for additional generation was identified by the CAISO and the CPUC. Therefore, the CPUC order to construct 250 MW of new generation would not be satisfied by assuming that the existing unit is providing the needed electricity.

Further, this unit is not capable of meeting the grid reliability requirements needed in the area. The Reliant peaker has been in operation since 1970 and is capable of producing up to 140 MW of energy on peak, although its operation is limited to approximately 85 hours per year due to air quality permit emission limits. The equipment is over 30 years old and has been discontinued, such that parts are no longer readily available in the event of a breakdown. This unit is not configured to either black start or to provide auxiliary power to the main Mandalay generators; therefore, it cannot provide black start services. Due to its limited hours of operation, it cannot provide energy to the Goleta subsystem during extended outages. For these reasons, the existing unit does not have the desired reliability characteristics for an emergency function.

Because it was concluded that unit does not conform to the requirements of the CPUC directive, and neither provides additional energy or capacity benefits nor the required local reliability benefits, this alternative does not satisfy the purpose and need of the Proposed Project.

Replace the Existing Mandalay Generating Station Peaker

The existing Mandalay Generating Station peaker is operated by Reliant Energy. SCE neither owns property nor makes business decisions on behalf of Reliant Energy. SCE is not aware of any plans for Reliant Energy to retire this unit, which currently supplies power to the SCE system and produces revenue for Reliant's shareholders.

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Construction on the Reliant site was originally rejected in 2007 because SCE-owned land was needed to meet the required schedule. Although the Summer 2007 deadline has passed, timing is still an issue.

As noted above, the CPUC directive requires 250 MW of new SCE-owned generation. Therefore replacing the existing 140 MW peaker with the proposed 45 MW peaker would not meet the purpose and need of the Proposed Project. A project capable of supplying a net total of 185 MW of power would be needed to ensure that an additional 45 MW of power would be available. This would require designing and permitting a significantly larger and completely different project than what has been proposed. The Proposed Project does not include removal and replacement of existing equipment, only the construction of a project on clear and available land. Such a project would trigger lengthy CEC review, which is inconsistent with project objectives.

Finally, any new project would be SCE-owned. This would require independent support equipment in order to provide mechanical and electrical separation from the Reliant facility. Even assuming the original 45 MW project, this requirement would result in a larger footprint (2-3 acres) than is being utilized by the existing equipment, which would require siting the unit at a different location on the property.

For all these reasons, replacing the existing unit with the Proposed Project is not viable, and would not meet the purpose and need of the Proposed Project.

Build SCE's Peaker on the Mandalay Generating Station Property

As noted above, SCE does not own this property and Reliant Energy has not indicated its willingness to sell SCE a portion of its land for the proposed project. Attempting to negotiate a real estate transaction for a portion of its property would delay the project and has no guarantee of success.

Further, based on a review of the site layout, the only available parcel of land that is of sufficient size to house the Proposed Project is located to the north of the existing generating units. This land is located immediately adjacent to the beach, sensitive dune habitat, and McGrath State Beach. This location would place the Proposed Project closer to sensitive habitat and would require the construction of a new transmission line across undeveloped land.

At this location, the peaker would:

1) Still be located within the coastal zone;
2) Would be located immediately adjacent to the beach, dune habitat, and McGrath State Beach park;
3) Require the construction of a new transmission line across currently undeveloped land;
4) Possess potential ammonia tank hazards that would extend outside the project site into publicly accessible areas; and

5) Be inconsistent with the principal of preferentially using brownfield sites to construct new generation.

Because constructing the peaker at this location would have greater environmental impacts than at its current location, the current location remains the preferred alternative.

7) Non-Coastal Location in the Ventura/Santa Barbara Area Alternative

At the time the peaker project was originally sited, SCE considered all SCE-owned property on its system, including all locations in the Ventura/Santa Barbara County areas located at or near 66 or 155 kV subtransmission lines. Since that time, SCE has also reviewed potential customer substation properties against its required criteria. In all cases, the current project site is environmentally superior, less costly, and provides the greatest amount of system reliability benefits.

Conclusion

SCE has conducted a detailed needs and siting assessment for the Proposed Project, both at the time of its original siting and subsequent to that time. Based on all available information, the Proposed Project site on SCE-owned brownfield land adjacent to the existing Mandalay Generating Station is the best location to meet the purpose and need of the project among the various alternatives considered, and is also the environmentally-preferred site.

SOUTHERN CALIFORNIA EDISON
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March 19, 2009

Ms. Alison Dettmer and Mr. Cassidy Teufel
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA
94105-2219

Re: Appeal No. A-4-OXN-07-096 (Southern California Edison Company, McGrath Beach "Peaker" Power Plant)

Dear Ms. Dettmer and Mr. Teufel:

At the August 6, 2008 Commission hearing, it was asserted that Southern California Edison ("SCE") inappropriately under represented the true impacts from the McGrath Beach Peaker by manipulating the emissions and hazards modeling performed for the Ventura County Air Pollution Control District ("VCAPCD"). Specifically, there was concern that SCE had "averaged" its emissions, rather than assessing impacts based on reasonable worst case assumptions for the applicable averaging time.

These assertions were incorrect and these concerns unfounded. The attached document, entitled Maximum Potential Air Quality Impacts From McGrath Peaker Project Operations, explains the assumptions SCE used and its modeling results. SCE assumed a "worst-case" exposure level and assumed multiple operating scenarios that exceed the peaker's permitted operating hours. The maximum predicted air quality concentrations and carcinogenic and non-carcinogenic risks associated with human exposure both at the Project fence line and in receptor areas located within 1 kilometer do not pose any significant risk to human health. As such, no established emissions/air quality standards or health-based exposure thresholds are exceeded.

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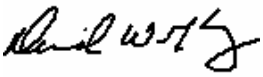
Moreover, the maximum potential criteria pollutant and toxic air contaminant emissions from the proposed Project were modeled to the satisfaction of the VCAPCD (see attached email from Terri Thomas of the VCAPCD). The VCAPCD agrees with the conclusion that air emissions from the proposed Project will not result in significant long or short term adverse health effects.

Please contact me at (626) 302-2149 or david.kay@sce.com if you have any questions or need additional information.

Sincerely,



David W. Kay
Manager, Environmental Projects

Attachments: Maximum Potential Air Quality Impacts From McGrath Peaker Project Operations;
Terri Thomas of VCAPCD email dated 9/26/08 to Uve Sillat of SCE

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September 8, 2008

Maximum Potential Air Quality Impacts
From McGrath Peaker Project Operations

Issue of Concern:

During the August 6, 2008 Coastal Commission hearing regarding the permitting of Southern California Edison's ("SCE") 45 Megawatt proposed Peaker Generator Project at McGrath Beach (the "Project"), one of the Commissioners expressed concern that the majority of the peaker emissions would occur only during June to September each year (see transcripts, P. 61, Lines 24-25; P. 62, Lines 1-7). The Commissioner was concerned that such emissions would occur during the time of year when the highest air pollution levels occur in Ventura County and that SCE had not fully or appropriately evaluated such air quality impacts from the Project. This is not the case. In fact, the SCE evaluation assumed a "worst-case" exposure level far greater than would actually occur during peaker operation, and assumed multiple operating scenarios that exceed the permitted operating hours for the unit. Under all of these scenarios, no established emissions and air quality standards are exceeded nor health-based exposure thresholds approached due to permitted operation of the peaker facility.

Air Quality Modeling of Project Impacts Compared to Ambient Air Quality Standards:

SCE supported the City of Oxnard Planning Division's Initial Study ("IS") of environmental impacts from the Project by analyzing the Project's permitted potential to emit for each of the criteria pollutants for which modeling is required by the Ventura County Air Pollution Control District ("VCAPCD"). The results of this air quality impact modeling assessment[1] are depicted in Figure 1 below as a percentage of the air quality standard for each pollutant and averaging period required by VCAPCD regulations. The data behind the graph are shown in the Appendix.

[1] The air quality impact modeling used for the air quality assessment was approved by the Ventura County Air Pollution Control District as part of SCE's application to the district for an Authority To Construct permit. The air quality standards modeling used the USEPA Industrial Source Complex – PRIME (ISC-PRIME, version 04269) dispersion model, used in accordance with VCAPCD guidance.

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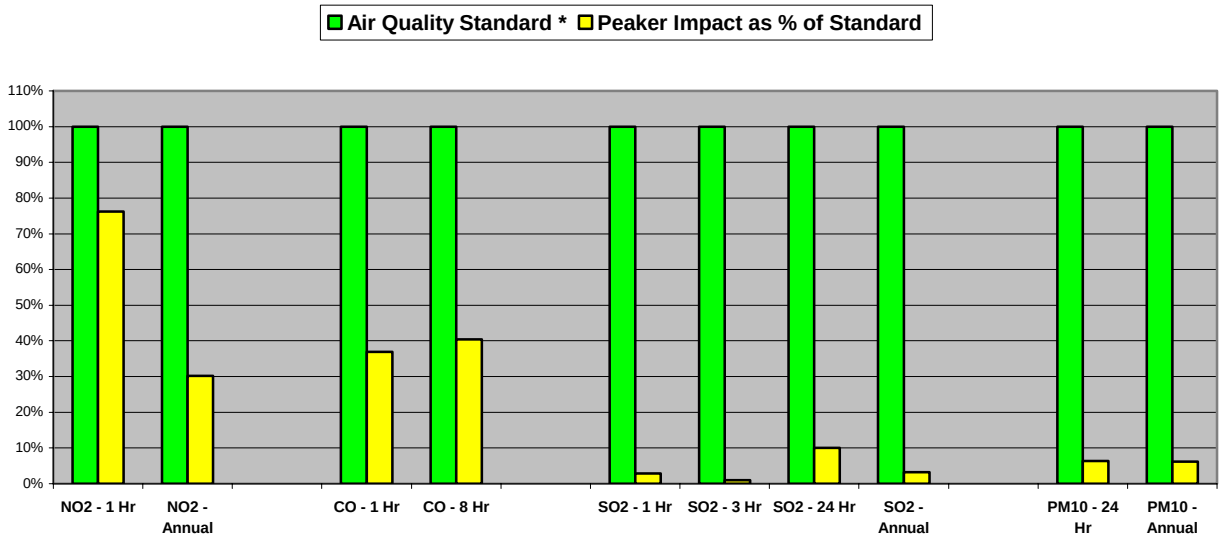
Figure 1. McGrath Peaker Maximum Predicted Air Quality Impacts As a Percentage of Ambient Air Quality Standards



*** Monitored PM 10 in Ventura County Exceeds the PM10 AAQS Without Peaker Operation. Therefore, EPA's Significant Impact Levels for PM10 are Used for Comparison with Peaker Impacts.**

These air quality modeling results assess both short-term (i.e., less than or equal to 24-hours) and long-term (annual) ambient air quality standards ("AAQS"). Cumulative air quality impacts were assessed by adding the model-predicted impacts to representative, pre-existing background air quality concentrations to determine total air quality concentrations for comparison against the AAQS. The chart demonstrates that all predicted total air quality concentrations associated with the proposed project are well below the AAQS.

To ensure that potential impacts from operation of the Project were evaluated under all meteorological conditions, the modeling was conducted for every hour of a 3-year period using VCAPCD-approved meteorological data. Potential impacts were evaluated under all meteorological conditions for each 1 hour, 3 hour, 8 hour, 24 hour, and annual period, as applicable, based on the averaging time of each corresponding air quality standard; the highest impact was identified in each case in regard to each air quality standard. The results are shown in the chart above. The impacts were assessed (1) at the Project fence line by receptors placed every 30 meters, and (2) from the fence line to one kilometer from the fence line by receptors with 100 meter spacing. The extent of the receptor grid is more than adequate to resolve the maximum predicted impacts due to facility operations since the majority of the maximum impacts occurred in the near-field of the Project site.

Air Quality Modeling of Project Impacts Compared to Air Toxics Risk Assessment Thresholds:

The IS also assessed the potential human health risks from emissions of Federal Hazardous Air Pollutants ("HAPs") and California Toxic Air Contaminants ("TACs") using

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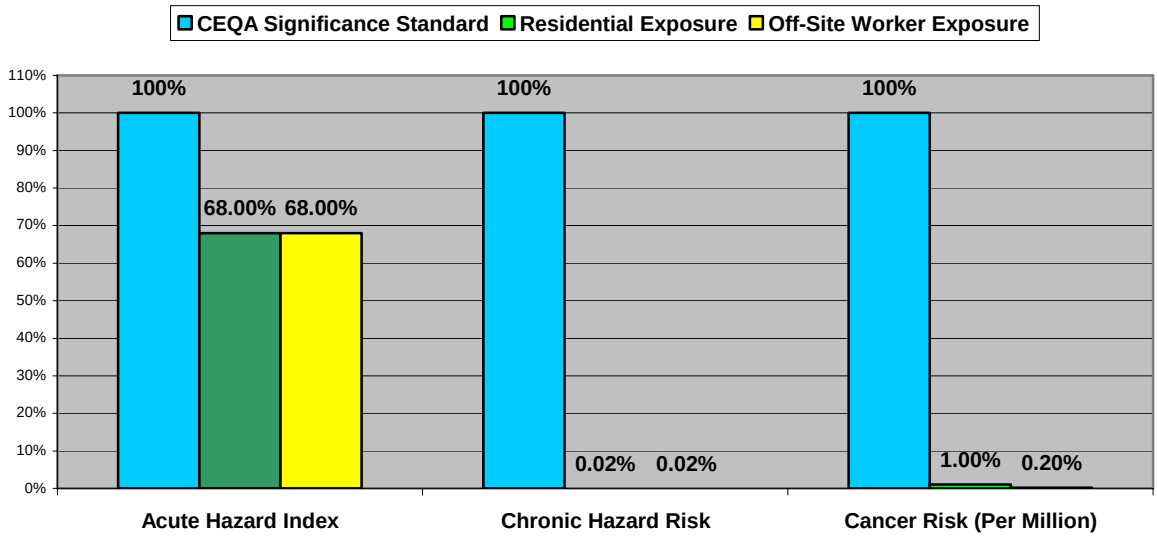
California Office of Environmental Health Hazard Assessment ("OEHHA") guidance,[2] and the California Air Resources Board ("CARB") Hot Spots Analysis and Reporting Program.[3] The TAC risk modeling used the same 3-year period of meteorological data and receptor spacing that was used in the criteria pollutant modeling to resolve the maximum predicted risks due to Project operation.

The results of this assessment show that the proposed Project's emissions of HAPs and TACs result in insignificant cancer risks and acute and non-carcinogenic chronic hazardous impacts from Project operations. Figure 2 below depicts these insignificant results from the Project. The data behind the graph are shown in the Appendix.

Figure 2. McGrath Maximum Predicted Air Toxics as a Percentage of The CEQA Significant Risk Thresholds



Conclusion:

The maximum potential criteria pollutant and toxic air contaminant emissions from the proposed Project were modeled to the satisfaction of the VCAPCD (March 19, 2007 VCAPCD Memorandum). The maximum predicted air quality concentrations, and carcinogenic and non-carcinogenic risks, associated with human exposure at the Project fence line, as well as in receptor areas located within 1 kilometer (including the nearby planned residential community) do not pose any significant risk to human health for both residents and off-site workers.

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[2] "Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments," published by the California Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA 2003).

[3] The IS assessment of project impacts from emissions of HAPS used The CARB Hot Spots Analysis and Reporting Program (HARP, Version 1.3).

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The air quality standards are set by EPA and the state of California at levels that protect humans from health impacts with an added margin of safety, as required under federal and state laws. The air quality standards are designed with differing averaging times (e.g., 1-hour, 3-hour, 8-hour, 24-hour, and annual averaging) based on scientific health morbidity and mortality studies.

Therefore, the VCAPCD, OEHHA, and CARB approved methods used by the Project for assessing the criteria pollutant and toxic air contaminant health impacts provide the public with full assurance that SCE's McGrath Peaker Project results in insignificant impacts on human health and consequently, the Project authority to construct permits should not be withheld by the Commission based on assertions of air quality impacts.

Appendix

Predicted Air Quality Impacts and Toxic Air Contaminant Risk Levels – Initial Study Data Tables

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu g/m^3$)	Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	SIL ($\mu g/m^3$)	AAQS ($\mu g/m^3$)	Increment ($\mu g/m^3$)
NO_2	1-hour	160.70	97.8	258.50	n/a	338	n/a
	Annual	8.37E-03	16.9	16.90	1	56	25
CO	1-hour	204.62	8,280.0	8,484.62	2000	23,000	n/a
	8-hour	16.12	4,025.0	4,041.12	500	10,000	n/a
SO_2	1-hour	0.26	18.3	18.56	n/a	655	n/a
	3-hour	0.08	13.1	13.18	25	1,300	512
	24-hour	6.59E-03	10.5	10.51	5	105	91
	Annual	7.0E-05	2.6	2.60	1	80	20
PM10	24-hour	0.11	127.2	127.31	5	50	30
	Annual	1.11E-03	31.0	31.00	1	20	17

[1] Background PM10 concentrations exceed the California AAQS and increments. Project impacts are insignificant (i.e.,. less than the Significant Impact Level [SIL]), thus by definition the project impacts will not cause or contribute to a violation of the AAQS.

Receptor	Cancer Risk (Per Million)	Chronic Hazard Index	Acute Hazard Index
Residential	0.01	0.0002	0.68
Off-Site Worker	0.002	0.0002	0.68
CEQA Significance Thresholds	*1.0*	*1.0*	*1.0*
Significant? (Yes/No)	**No**	**No**	**No**

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So. Cal. Edison

From: "Terri Thomas" <terri@vcapcd.org>
Sent: Friday, September 26, 2008 2:54 PM
To: Uve.Sillat@sce.com
Cc:
Subject: RE: Paper on McGrath Peaker Impacts

I reviewed the document titled "Maximum Potential Air Quality Impacts From McGrath Peaker Project Operations", dated September 8, 2008 and agree with the conclusion that air emissions from the project will not result in significant long term or short term adverse health effects.

Terri Thomas
VCAPCD
805/645-1405

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So. Cal. Edison

Uve Sillat/SCE/EIX
09/26/2008 09:57 AM

To David Kay/SCE/EIX@SCE
cc
bcc
Subject Fw: Paper on McGrath Peaker Impacts

History: This message has been replied to.

FOR INTERNAL USE ONLY

----- Forwarded by Uve Sillat/SCE/EIX on 09/26/2008 09:56 AM -----

"Terri Thomas"
<terri@vcapcd.org>
09/25/2008 04:00 PM

To Uve.Sillat@sce.com
cc "John Harader" <johnh@vcapcd.org>, "Keith Duval" <keith@vcapcd.org>, "Kerby Zozula" <kerby@vcapcd.org>, "Mike Villegas" <mike@vcapcd.org>
Subject RE: Paper on McGrath Peaker Impacts

I reviewed the air toxics health risk assessment (HRA) for the proposed McGrath Peaker. The HRA adequately demonstrated that air emissions from the project will not exceed VCAPCD levels for permit issuance. Both long term (cancer and chronic noncancer) and short term (acute noncancer) impacts were addressed using reasonable worst case assumptions for the applicable averaging time.

My review memos are attached.

Terri Thomas
VCAPCD
805/645-1405

7891edisonpeakerrev.doc edisonpeakerceqa.doc

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So. Cal. Edison

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Alicia Stratton DATE: June 6, 2007

FROM: Terri Thomas

SUBJECT: Health Risk Assessment for Southern California Edison

I reviewed the health risk assessment submitted for Southern California Edison. SCE proposes to operate an electricity peaker turbine adjacent to the Reliant Mandalay Generating Station. The peaker facility includes a gas turbine and a natural gas fired black start engine. Natural gas combustion produces a number of toxic compounds some of which are carcinogenic and others that have acute and chronic noncancer adverse health impacts.

In November 2006, I reviewed a very similar health risk assessment that was submitted for APCD Authority to Construct Application 07891-100. My comments on that risk assessment are attached.

The only significant difference between the current (February 2007) risk assessment and the November assessment is the emission estimates for the peaker turbine. The February 2007 assessment does not assume any reduction in organic toxics for the catalyst. The current analysis also assumes fuel consumption in the peaker of 957,207 MMBtu/yr vs. 849,000 MMBtu/yr in the Authority to Construct analysis.

I reran the assessment with the new emission rates and the conclusion remains the same.

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VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: John Harader DATE: November 27, 2006

FROM: Terri Thomas

SUBJECT: Health Risk Assessment for Southern California Edison (Application 07891-100)

I reviewed the health risk assessment submitted for Southern California Edison. SCE proposes to operate an electricity peaker turbine adjacent to the Reliant Mandalay Generating Station. The peaker facility includes a gas turbine and a natural gas fired black start engine. Natural gas combustion produces a number of toxic compounds some of which are carcinogenic and others that have acute and chronic noncancer adverse health impacts.

The health risk assessment used the ARB HARP model. The equipment was assumed to have vertical stacks without raincaps. Receptors were placed at 25 meters intervals on the property line and from the source and every 100 meters to a distance of 300 meters from the source and every 100 meters to a distance of 2 kilometer. Receptors were also placed at a number of nearby residences, and proposed residences, and workplaces. Meteorological data from the District's Emma Wood (Ventura) station was used.

Emissions from the turbine were calculated using emission factors from the AP-42. The emission calculations looked correct. Note that 50% control of organic toxics was assumed for the catalyst. Emissions from the black start engine were calculated based on the ARB CATEF database. Emission factors for natural gas fired engines are available in AP-42, so it is not clear why CATEF factors were chosen over AP-42. I don't have any information to determine whether the CATEF or the AP-42 emission factor is more representative of the actual emissions from the proposed engine.

The maximum calculated acute hazard index was 0.8 at the eastern property line (Harbor Boulevard). The acute hazard index was due to emissions of acrolein from the black start engine. The CATEF emission factor that was used is an order of magnitude lower than the AP-42 factor. Use of the AP-42 factor would result in a calculated acute hazard index at the property line greater than 1. The hazard index would not exceed 1 at any point beyond the property line. There is no EPA or ARB approved stack test method for acrolein. ARB is currently recommending that, under the "Hot Spots" program, reporting of acrolein be postponed until a test method is available. (Proposed Amendments to the Emission Inventory Criteria and Guidelines Report for the Air Toxics "Hot Spots"

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Program, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, November, 2006). Due to the uncertainty in the data, I do not recommend that any action be taken regarding potential acrolein emissions from the engine.

The concentration and health risk calculations were correct based on the inputs used. The calculated health risks were below the District's permit issuance levels.

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February 5, 2009

Mr. Cassidy Teufel
California Coastal Commission
45 Fremont, Suite 2000
San Francisco, CA
94105-5200

Agenda Item W7a

Re: Appeal No. A-4-OXN-07-096 (Southern California Edison Company, Oxnard "Peaker" Power Plant)

Dear Mr. Cassidy Teufel:

We are writing in response to questions raised at the August 6, 2008 Coastal Commission hearing as well as your request for additional analysis of the McGrath Beach Peaker project (the "Project") site conditions, specifically whether the condition of the areas that will be impacted by the placement of the transmission line poles and the natural gas pipeline might constitute sand dune habitat that qualifies as environmentally sensitive habitat area under the Oxnard local coastal program. To provide additional information about these areas, we asked biologist/botanist Tony Bomkamp, of Glenn Lukos Associates, to conduct a study quantifying the composition and approximate cover of the vegetation at the Project site (attached). For the reasons discussed in detail below, neither the proposed site of the peaker nor the areas where the transmission line poles or the natural gas pipeline will be located (collectively the "Project Site") qualify as environmentally sensitive habitat area because: (1) the City of Oxnard's coastal land use plan specifically designates sand dune habitat that qualifies as environmentally sensitive habitat area and the Project Site is not so designated; (2) the Project Site is so degraded that it does not fit within the definition of environmentally sensitive habitat areas established by either the Coastal Commission or the City, as confirmed by the attached biological survey; and (3) the designation of the Project Site as an environmentally sensitive habitat area would be inconsistent with the City's prior interpretation and application of its own local coastal program.

I. THE CITY'S LCP DOES NOT DESIGNATE THE PROJECT SITE ESHA

The City adopted the Oxnard Local Coastal Program ("LCP"),[1] which includes the Oxnard Coastal Land Use Plan ("CLUP") and sets forth the specific regulations implementing the Oxnard CLUP. The Coastal Commission reviewed the LCP to ensure it conformed to the policies and standards of the Coastal Act and subsequently certified it. The LCP defines ESHA

[1] The LCP is codified in Chapter 17 of the Oxnard Municipal Code as the Oxnard Coastal Zoning Ordinance.

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So. Cal. Edison

as those areas designated ESHA in the CLUP -- ESHA is "[a]ny area, *as identified by the Oxnard coastal land use plan* [CLUP]...."[2]

Although the CLUP incorporates the Coastal Act's definition of ESHA -- defining ESHA as any "area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities or developments"[3] -- it explicitly designates and maps four specific habitat types as ESHA. None of the designated or mapped sensitive habitat areas identify or encompass any portion of the Project Site.

Specifically, the CLUP identifies "four examples of sensitive habitats" within the City's coastal zone: "wetlands, sand dune, riparian areas and McGrath Lake."[4] With respect to sand dunes, the relevant sensitive habitat at issue here, the CLUP designates five areas of sand dunes in the coastal zone that qualify as ESHA. The language used in the CLUP's designation of sensitive sand dune habitat is exhaustive – "Sand dunes are found in five areas of the coastal zone":

(1) "[a] 26-acre area of dunes at the intersection of Fifth Street and Harbor Boulevard,"
(2) the area "within the 54-acre parcel located between Harbor Boulevard and the Edison Canal, and south of Wooley Road,"
(3) an area "located at the northerly end of the "The Colony" property adjacent to the Oxnard State Beach Park site,"
(4) "[a] chain of dunes parallel the beach from the Santa Clara River mouth south to Fifth Street," and
(5) an area "located at Ormond Beach."[5]

These areas are set forth specifically in Map 7 of the CLUP. The Project Site is not located within any of the five designated sand dune areas (or any other specified sensitive habitat area). Thus, the Project Site is not ESHA.

The Project Site is divided into adjacent locations separated by Harbor Boulevard and the Mandalay Canal. At the location west of Harbor Boulevard, the peaker plant would be constructed. At two other locations east of Harbor Boulevard, the natural gas pipeline and transmission line poles would be installed. None of these locations are ESHA under the CLUP. The peaker plant, while located near the "chain of dunes parallel the Santa Clara River mouth to Fifth Street," most of which are within either "McGrath State Beach Park or the recently acquired, unimproved Mandalay Beach County Park,"[6] would not be constructed on any land containing sensitive sand dune habitat or any land so designated.

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[2] Oxnard City Code § 17-3 (emphasis added).

[3] City of Oxnard CLUP p. IV-3.D (citing Coastal Act Policy 30107.5).

[4] City of Oxnard CLUP § 3.2.2 (III-7).

[5] City of Oxnard CLUP § 3.2.2 (III-8).

[6] *Id.*

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The Project components east of Harbor Boulevard -- the natural gas pipeline and transmission line poles -- are not located in any area designated under the CLUP as a sensitive habitat area. Specifically, the two parcels of SCE-owned land where the natural gas pipeline and electrical transmission lines would run are isolated and separated from any of the CLUP's designated sensitive habitat areas. As such, pursuant to the City's detailed and exhaustive designation of ESHA, no part of the Project's natural gas pipeline or transmission line poles would be located on ESHA.

Therefore, because the LCP specifically designates the sand dune habitat that constitutes ESHA and this designation does not include any portion of the Project Site, a finding by the Coastal Commission that the Project Site contains ESHA is contrary to and inconsistent with the LCP.

Moreover, recent case law confirms that when an LCP identifies ESHA, the Coastal Commission's authority to designate ESHA is more limited than its general authority on *de novo* review of a CDP appeal. In *Security National Guaranty, Inc. v. California Coastal Comm'n*, 159 Cal. App. 4th 402 (2008), the Court of Appeal held that when a certified LCP is in place and a CDP is appealed to the Coastal Commission, the Commission's jurisdiction is limited to determining whether or not a proposed development conforms to the certified LCP.[7]

Accordingly, were the Commission to designate SCE's Project Site as ESHA, when it has not been designated ESHA in the CLUP, the Commission would contradict the City's certified LCP.

II. THE PROJECT SITE DOES NOT FALL WITHIN THE DEFINITION OF ESHA

While we do not believe the Project Site can be designated ESHA given the inconsistency such a designation would create with the LCP, even if a case-by-case determination of ESHA was made under the standard set forth in the Coastal Act, the conditions on the Project Site would not be considered ESHA. The City's CLUP incorporates the Coastal Act's definition of ESHA. It defines ESHA as any "area in which plant or animal life or their habitats are either

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[7] *Security National Guaranty, Inc. v. California Coastal Comm'n*, 159 Cal. App. 4th 402 (2008), *request denied*, 2008 Cal. LEXIS 5546 (2008). This case involved an oceanfront site owned by Security National Guaranty ("SNG") in Sand City. The Commission approved Sand City's LCP, which designated and mapped areas of the city that were determined to be ESHA. However, the LCP maps did not include any ESHA on SNG's site and there were no provisions in the Sand City LCP that specifically provided that additional areas could be designated ESHA on a case-by-case basis. SNG proposed building a resort on its property and applied to Sand City for a development permit. The City approved the permit, which was appealed to the Commission. On appeal, the Commission denied the CDP based on a site specific biological review in the staff report that determined that the entire project site was ESHA. SNG filed a petition for writ of administrative mandamus, arguing that the Commission's ESHA designation exceeded the Commission's statutory grant of authority because the designation conflicted with the ESHA provisions in the certified LCP. The Court of Appeal agreed with SNG. The Court reasoned that by designating the area at issue ESHA, the Commission impermissibly exceeded its authority by attempting to amend part of Sand City's LCP, a power the Coastal Act expressly allocates to local governments. In addition, the court found that the Commission exceeded an express limitation on its jurisdiction in permit appeals. The Court held that the Commission's jurisdiction in the context of a CDP appeal is limited to determining whether or not a development conforms to the certified LCP. *See* Cal. Pub. Res. Code §30603(b)(1). By designating an area ESHA that was not so designated in the LCP, the Commission contradicted the LCP and imposed its own additional standard, thereby exceeding its jurisdiction.

rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities or developments."[8] Biological surveys demonstrate that the conditions on the Project Site do not satisfy the requirements of ESHA.

A. *Site Conditions at the Location of the Proposed Peaker Plant*

The proposed site of the peaker plant is a brownfield site that has been graded and is devoid of any significant vegetation. This portion of the Project Site was formerly occupied by oil tanks and is located immediately adjacent to the much larger Mandalay power plant and DCOR oil processing facilities. It does not contain any environmentally sensitive sand dune habitat. While there are areas known to support several special-status biological resources near the site, such as the Mandalay State Beach Park, no such areas exist on the site where the peaker plant would be built.[9] Therefore, this Project area does not meet the definition of ESHA and should not be so considered.

B. *Site Conditions East of Harbor Boulevard*

1. *The Natural Gas Pipeline*

The underground natural gas pipeline will be installed on a portion of the Project site east of Harbor Boulevard. The pipeline will be located within the Harbor Boulevard public right-of-way, a previously disturbed and existing pipeline corridor. The pipeline will be 6 inches in diameter, with a length of approximately 1,800 feet. The maximum depth of the pipeline may vary, but the line will be installed at a minimum depth of 36 inches, with a planned depth of 42 inches. The majority of the disturbance will be temporary in nature, with one permanent disturbance of approximately 6 square feet at the pipeline connection point to install an access lid.

The attached biological study by Tony Bomkamp quantified the composition and approximate cover of the vegetation along the proposed natural gas pipeline route. The study demonstrates that the pipeline route is highly degraded and therefore does not constitute coastal dune habitat that qualifies as ESHA. The survey revealed that the study area has been subject to various types of disturbance, including the installation of existing utilities and roads and the invasion and establishment of non-native invasive plants. Data collected from the pipeline route transect indicates a relatively high level of disturbance. Native plant cover along the transect comprises only approximately 10.7 percent of the total cover. The remainder is comprised of 48.4 percent non-native cover, 29.3 percent un-vegetated sand dune, 7.3 percent disturbed bare areas, and 4.3 percent asphalt. Furthermore, when just the vegetated areas are considered, the level of disturbance is very high, with approximately 82 percent of all vegetation consisting of non-native species. Because the Project site does not contain the vegetation and habitat consistent with sensitive coastal dune habitats, the study concluded that the Project site does not qualify as ESHA.

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[8] City of Oxnard CLUP IV-II.D (citing Coastal Act Policy 30107.5).

[9] Given the proximity of the Project site to sensitive resources, the Commission imposed certain Special Conditions designed to protect sensitive species should they appear during construction and to address all comments made by USFWS and State Parks relevant to sensitive biological resources.

2. *The Transmission Line*

The new transmission line poles east of Harbor Boulevard will be added to the existing Channel Islands-Mandalay pole line to avoid the need for a second set of poles. To accommodate the new line, seven (7) existing poles will be replaced in approximately the same locations, with the replacement poles standing 5 feet higher than the previous poles to accommodate an additional circuit. Three (3) new poles will be added to the seven replacements to support the added stresses. Of these three new poles, one will be a steel pole (required to handle corner stress) requiring a 7-foot diameter concrete foundation. To the extent possible, new or replacement wood poles will be placed in the same location as the existing poles to be replaced to reduce ground disturbance. New pole placements will be located on bare ground or in stands of iceplant and non-native vegetation. The permanent ground disturbance impact of the new poles will be 87 square feet. The current design of the pole replacement program offers the best trade off between minimizing the number of poles, minimizing their height, minimizing the size of the pole bases, and replacing poles in the same location to minimize any incremental disturbance.

The biological study demonstrates that any transmission line impact will occur in a small disturbed area. The transmission line route from the proposed Project to its tap point on the existing 66kV Mandalay-Gonzales line would be located within an existing transmission corridor. Native plant cover along the transmission line transect only comprises approximately 14.9 percent of the total cover. The remainder is comprised of 40.9 percent non-native cover, and 44.1 percent of the area is un-vegetated. Moreover, when just the vegetated areas are considered, the level of disturbance is very high, with approximately 73 percent of all vegetation consisting of non-native species. Based on this study, the Project area does not qualify as ESHA and should not be so considered.

Therefore, even if the City or the Coastal Commission were able to undertake a *de novo* review of ESHA, under the Coastal Act's Chapter 3 policies, the Project Site cannot be designated ESHA because it does not meet the standard for what constitutes ESHA.

III. DESIGNATING THE PROJECT SITE ESHA IS INCONSISTENT WITH PRIOR APPLICATIONS OF THE CITY'S LCP

If the Coastal Commission were to designate the Project site ESHA, such a designation would be inconsistent with both the City's and the Coastal Commission's prior applications of the Oxnard LCP in the area adjacent to the Project site. Both the City and the Coastal Commission reviewed the immediately adjoining North Shore project[10] site, located at the

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[10] By way of background, in July 1999, the City of Oxnard certified the FEIR for the North Shore Project, approved a General Plan Amendment, an LCP Amendment, Tentative Tract Map No. 5060, and a CDP. In August of 1999, the City's decision to approve the CDP was appealed to the Coastal Commission. In the fall of 1999, in connection with the pending appeal, Coastal Commission staff advised the City and North Shore applicant to proceed first with a LCP Amendment. As a result, the City revoked its CDP approval in January of 2000 and began preparation of site-specific amendment for the North Shore Project site. In April of 2002, the Coastal Commission reviewed and approved the City's LCP Amendment with suggested modifications. In May of 2002, the Oxnard City Council accepted the Commission's suggested modifications to the LCP Amendment and in June of that same year, the Coastal Commission certified the LCP Amendment.

northeast corner of the intersection of Harbor Boulevard and West Fifth Street -- adjacent to and just south of SCE's property east of Harbor Boulevard. The City and the Coastal Commission determined that because the area was degraded and did not contain vegetation characteristic of sensitive coastal dune habitat, none of the North Shore project site, including the dune areas, qualified as ESHA. This analysis is consistent with the information set forth in the attached biological study prepared by Glenn Lukos Associates at the Project Site east of Harbor Boulevard. Given both the City's and Commission's recognition of the highly degraded nature of the North Shore project site and the determination it was not ESHA, it would be inconsistent to declare the SCE Project site here, nearly identical to that of the North Shore project in its degraded nature, ESHA.

At all stages of the North Shore project's environmental review, habitat similar to the habitat found on SCE's Project site was determined to be too degraded to constitute ESHA. The Draft EIR prepared by the City of Oxnard noted that the southern dune scrub on the North Shore project site was "extremely disturbed"[11] and that the loss of 8.15 acres of this habitat would not be considered a substantial loss of wildlife habitat or sensitive resources.[12] The Final EIR ("FEIR") reiterated these findings, noting that the vegetation communities on the North Shore property have low to moderate biological values, largely due to the level of disturbance on the site. The FEIR notes that each of the dune patches on the site is relatively small, is characterized by a low diversity and low coverage of dune indicator plant species, is surrounded by non-sandy soils, is isolated and fragmented from each other as well as from off-site dune habitats, and does not support known species or populations of special status plant or animal species.[13] Consequently, the disturbed dune scrub habitats on the North Shore site were not considered representative of the unique and rare coastal dune scrub habitats that exist elsewhere in the region.[14]

The Coastal Commission's review of the City's determination concluded that the dune habitat on the North Shore project site did not qualify as ESHA. In April of 2002, the Coastal Commission reviewed and approved the City's LCP amendment for the North Shore project, with suggested modifications. The Staff Report concurred with the City that 43.5 acres of bare ground and iceplant vegetation on the North Shore project site had no biological value. The Staff Report's revised findings noted that there are 23.4 acres of dune scrub, coyote brush cluster, buckwheat and coastal sagebrush habitats present onsite that are in a degraded and disturbed state and thus have reduced biological value.[15] The Commission therefore likewise concluded that disturbed dune scrub did not qualify as ESHA.[16]

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[11] North Shore at Mandalay Bay Draft EIR, 235.

[12] North Shore at Mandalay Bay Draft EIR, 244.

[13] North Shore at Mandalay Bay FEIR, 3.0-14-15.

[14] North Shore at Mandalay Bay FEIR, 3.0-14.

[15] City of Oxnard LCP amendment, OXN-MAJ-1-00, page 57.

[16] *Id.* However, the Commission did find that the Ventura Marsh milk vetch on the North Shore project site qualified as ESHA. The FEIR addendum responding to the Coastal Commission's findings associated with the

Like the habitat found at the North Shore project site, the conditions at the SCE Project site directly adjacent to North Shore project is highly disturbed and supports a lower diversity of plant and animal species compared to similar regional habitat. Like the North Shore site, each of the dune patches on the SCE Project site are relatively small, are characterized by a low diversity and low coverage of dune indicator plant species, and are isolated and fragmented from each other as well as from off-site dune habitats. Thus, it follows that like the North Shore project site, the SCE Project site does not contain ESHA. If the Commission were to designate the SCE Project site east of Harbor Boulevard ESHA, it would result in an inconsistent application of the City's CLUP.

IV. CONCLUSION

For the reasons stated above, the Project Site is not ESHA. The Oxnard CLUP specifically designates areas of sand dune habitat that qualify as ESHA within the City of Oxnard and the Project Site has not been so designated. Additionally, the Project fails to support a diversity of rare or especially valuable plant and animal species and is so degraded that it does not fit within the definition of ESHA. Finally, designating the Project site ESHA would be inconsistent with the City's and the Coastal Commission's prior interpretations and applications of the Oxnard CLUP.

Please contact me at (626) 302-2149 or david.kay@sce.com if you have any questions or need additional information.

Sincerely,

David W. Kay
Manager, Environmental Projects

Attachments: Glenn Lukos Associates' October 16, 2008 Report
North Shore at Mandalay Bay Draft EIR excerpts
North Shore at Mandalay Bay FEIR excerpts
North Shore at Mandalay Bay Addendum to FEIR excerpts
Coastal Commission Staff Report Revised Findings re City of Oxnard LCP Amendment, OXN-MAJ-1-00 excerpts

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City's site-specific LCP Amendment reiterated that the dune scrub communities on the North Shore project site were degraded and of moderate biological value. Addendum North Shore at Mandalay Bay FEIR, 2.0-26-27.

MEMORANDUM

GLENN LUKOS ASSOCIATES

Regulatory Services

PROJECT NUMBER: 04760008MAND

TO: David Kay, Southern California Edison
cc: Wendy Miller, Southern California Edison
Damon Mamalakis, Latham & Watkins, LLP

FROM: Tony Bomkamp and Paul Schwartz

DATE: October 16, 2008

SUBJECT: Results of Studies to Quantify the Composition and Approximate Cover of Vegetation Associated with the McGrath Beach "Peaker" Power Plant Project East of Harbor Boulevard, Ventura, California

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On October 13, 2008, GLA biologists/botanists Tony Bomkamp and Paul Schwartz conducted a study to quantify the composition and approximate cover of the vegetation along the proposed natural gas pipeline route (Pipeline Route) immediately adjacent to Harbor Boulevard as well as along the proposed transmission line corridor (Transmission Line) that would connect the Southern California Edison substation with the proposed McGrath Beach "Peaker" power plant.

The general study area consists of highly degraded coastal dune areas adjacent to Harbor Boulevard (Exhibit 1: Transect Map]. The Mandalay Canal (an artificial cooling channel constructed to service the existing Mandalay Generating Station) bisects, but is not included in the study area.

The study area has been subject to various types of disturbance, including the installation of existing utilities and roads, and the invasion and establishment of non-native invasive plants which has been exacerbated by its close proximity to Harbor Boulevard. Much of the general study area is dominated by non-native fig-marigold (a.k.a. iceplant) (*Carpobrotus edulis*), and native heather goldenbush (*Ericameria ericoides*). Fig-marigold is a highly invasive non-native ground cover plant that has become established on coastal dunes throughout much of coastal California. Heather goldenbush is a native shrub that is found in sandy dune habitats from Los Angeles County north to Sonoma County. Exhibit 2 [Site Photographs] depicts the general conditions associated with the transect locations. The methodologies and results of the vegetative study are discussed below in detail.

29 Orchard ▪ Lake Forest ▪ California 9263
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METHODOLOGY

Linear transects were sampled to determine the composition and approximate cover of the vegetation within areas proposed for impacts associated with the installation of the natural gas pipeline and transmission line corridor. An approximate 1,500 foot transect was sampled along the center-line of the proposed natural gas pipeline route, and an approximate 1,000 foot transect was sampled along the center-line of the proposed transmission line corridor [Exhibit 1]. In accordance with vegetation sampling methodologies established by the California Native Plant Society, the biotic or abiotic cover along the transect was recorded every 0.5 meter.

The proposed natural gas pipeline would be installed within the Harbor Boulevard Bridge that spans the canal; therefore the pipeline has no potential impacts on the canal or associated banks and no transect data was recorded for these areas. In addition, work necessary for installation or removal of the transmission line poles would be conducted no closer to the banks of the canal than 50 feet. Therefore, data collection associated with the proposed transmission line was limited to the areas between the existing or proposed transmission pole locations, but not between the existing or proposed transmission poles located immediately north and south of Mandalay Canal. Exhibit 1 depicts the locations of the two transects.

RESULTS

Pipeline Route

Table 1 depicts the results of the transect data recorded for the Pipeline Route. Table 2 below summarizes the data from Table 1.

TABLE 1. Results of Transect Data for the Natural Gas Pipeline Route

Point Find	Number of "Hits"	Percent of Total
Un-Vegetated Sand Dune	263	29.2
Disturbed Bare	65	7.2
Carpobrotus edulis (NN)*	386	43.0
Ericameria ericoides	57	6.3
Asphalt	39	4.3
Bromus diandrus (NN)	36	4
Croton californicus	24	2.7
Cynodon dactylon (NN)	10	1.1
Heterotheca villosa	7	0.7
Lotus scoparious	4	0.4
Abronia umbellata ssp. *umbellata*	3	0.3

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Ambrosia chamissonis	2	0.2
Bromus madritensis ssp. *rubens* (NN)	2	0.2
Eriogonum fasciculatum ssp. *fasciculatum*	1	0.1
Myoporum laetum (NN)	1	0.1
Total	**900**	**100***

(NN) - Denotes a plant species that is not native to California
* - Percentages were rounded to the nearest tenth resulting in a percent total slightly less than 100 percent (99.8 percent).

TABLE 2. Summary of Data for the Natural Gas Pipeline Route

Point Find	Number of "Hits"	Percent of Total
Native Cover	98	10.7
Non-Native Cover	435	48.4
Un-Vegetated Sand Dune	263	29.3
Disturbed/Bare	65	7.3
Asphalt	39	4.3
Total	**900**	**100**

Transmission Line Corridor

Table 3 depicts the results of the transect data recorded for the Transmission Line. Table 4 below summarizes the data from Table 3.

TABLE 3. Results of Transect Data for the Transmission Line

Point Find	Number of "Hits"	Percent of Total
Un-Vegetated Sand Dune	257	44.1
Carpobrotus edulis (NN)*	238	40.8
Bromus madritensis ssp. *rubens* (NN)	1	0.2
Lotus scoparious	13	2.2
Lessingia filanginifolia ssp. *filanginifolia*	5	0.9
Ericameria ericoides	59	10.1
Heterotheca villosa	8	1.4
Camissonia cheiranthifolia	1	0.2
Opuntia littoralis	1	0.2
Total	**583**	**100***

(NN) - Denotes a plant species that is not native to California
* - Percentages were rounded to the nearest tenth resulting in a percent total slightly more than 100 percent (100.1 percent).

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TABLE 4. Summary of Data for the Transmission Line

Point Find	Number of "Hits"	Percent of Total
Native Cover	87	14.9
Non-Native Cover	239	41.0
Un-Vegetated Sand Dune	257	44.1
Total	**583**	**100***

* - Percentages were rounded to the nearest tenth resulting in a percent total slightly less than 100 percent (99.9 percent).

CONCLUSIONS

Data collected from the Pipeline Route transect indicates a relatively high level of disturbance. Native plant cover along the transect comprises approximately 10.7 percent of the total cover. The remainder is comprised of 48.4 percent non-native cover with fig marigold by far the most dominant, comprising 43 percent of the 48.4 percent non-native vegetation. 29.3 percent un-vegetated sand dune, 7.3 percent disturbed bare areas, and 4.3 percent asphalt make up the remainder of the cover along the transect. When just the vegetated areas are considered, the level of disturbance is very high with approximately 82 percent of all vegetation consisting of non-native species, with fig marigold accounting for approximately 73 percent of all the vegetation.

In addition, it is important to note that the natural gas pipeline will be installed between two existing pipelines (an 8 inch oil pipeline and a 10 inch natural gas pipeline) and Harbor Boulevard (see Photograph 5), resulting in very limited temporary impacts to highly disturbed habitat. Based on the highly degraded character of the vegetation, including significant relative cover by an invasive exotic (i.e., fig marigold), and the location between existing pipelines, the area to be affected by the pipeline installation does not warrant an ESHA determination under the Coastal Act.

Data collected from the Transmission Line transect shows a slightly lower level of disturbance within the sand dune habitat associated with the Transmission Line when compared to the Pipeline Route transects. Native plant cover along the Transmission Line transect comprises approximately 14.9 percent of the total cover. The remainder is comprised of 40.9 percent non-native cover, and 44.1 percent un-vegetated sand dune. When just the vegetated areas are considered, the level of disturbance is very high with approximately 73 percent of all vegetation consisting of non-native species, with fig marigold accounting for all but approximately 0.5 percent of the non-native cover. Based on the highly degraded character of the vegetation, including significant relative cover by an invasive exotic (i.e., fig marigold), and the location

within an existing transmission line corridor, the area to be affected within the transmission line corridor does not warrant an ESHA determination under the Coastal Act.

Southern California Edison (SCE) has agreed to prepare a Restoration Plan that includes the following: (1) removal of all fig marigold from 37 acres of SCE-owned property to the east of Harbor Boulevard and within the study area; (2) revegetation of those areas disturbed during placement/removal of transmission poles, installation of natural gas pipeline and associated staging, construction and access activities with native plant species representative of the southern dune scrub habitat community and grown from locally collected seed; and (3) monitoring of the fig marigold removal areas and native plant revegetation sites every six months and submit annual monitoring reports for five years from the date of issuance of the Coastal Development Permit. Such a restoration program would result in the conversion of dune habitat from an area with high levels of disturbance to an area that would consist of near-pristine dunes.

Legend

Natural Gas Pipeline Transect

Trasmission Line Transect

N

0 100 200

Feet

McGRATH PEAKER STATION

Transect Map

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Photograph 5. This photograph depicts the location of the existing pipeline corridor. The proposed natural gas pipeline route is to be installed between the existing pipeline corridor and Harbor Boulevard. Photograph taken on October 13, 2008.

Photograph 6. This photograph depicts an extensive stand of fig marigold typical throughout the 37-acres of southern dune habitat that SCE has agreed to enhance through the removal of fig marigold. Photograph taken on October 13, 2008.

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EXHIBIT 2

McGRATH PEAKER STATION

Site Photographs

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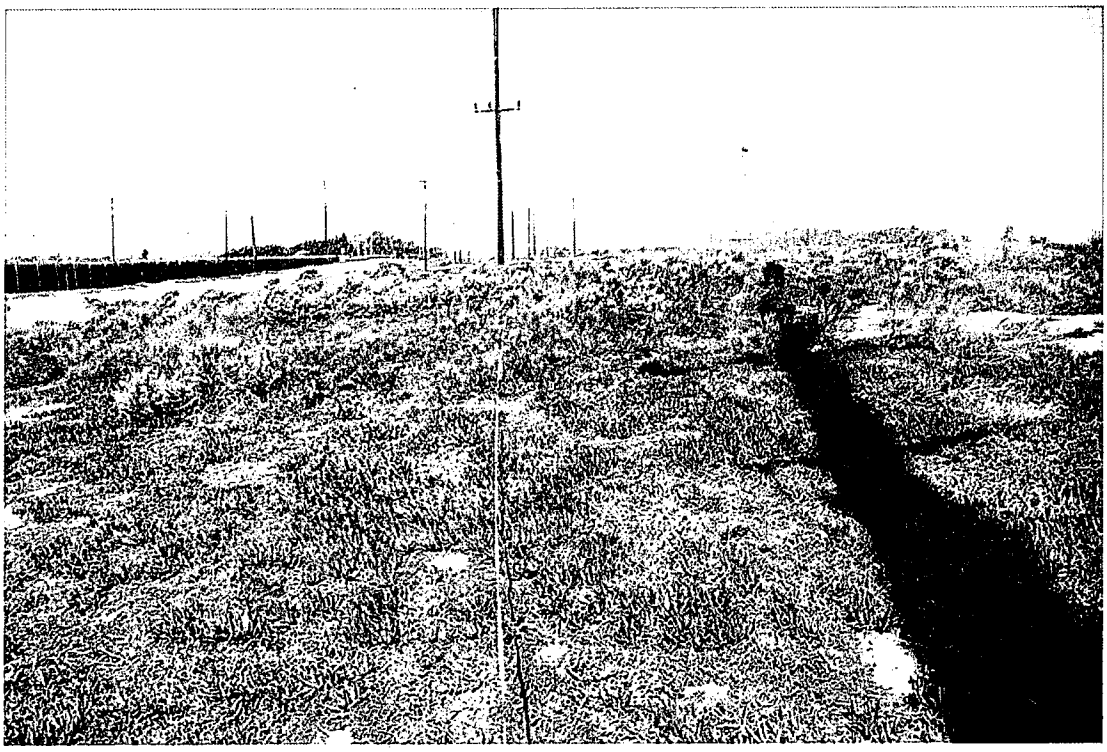
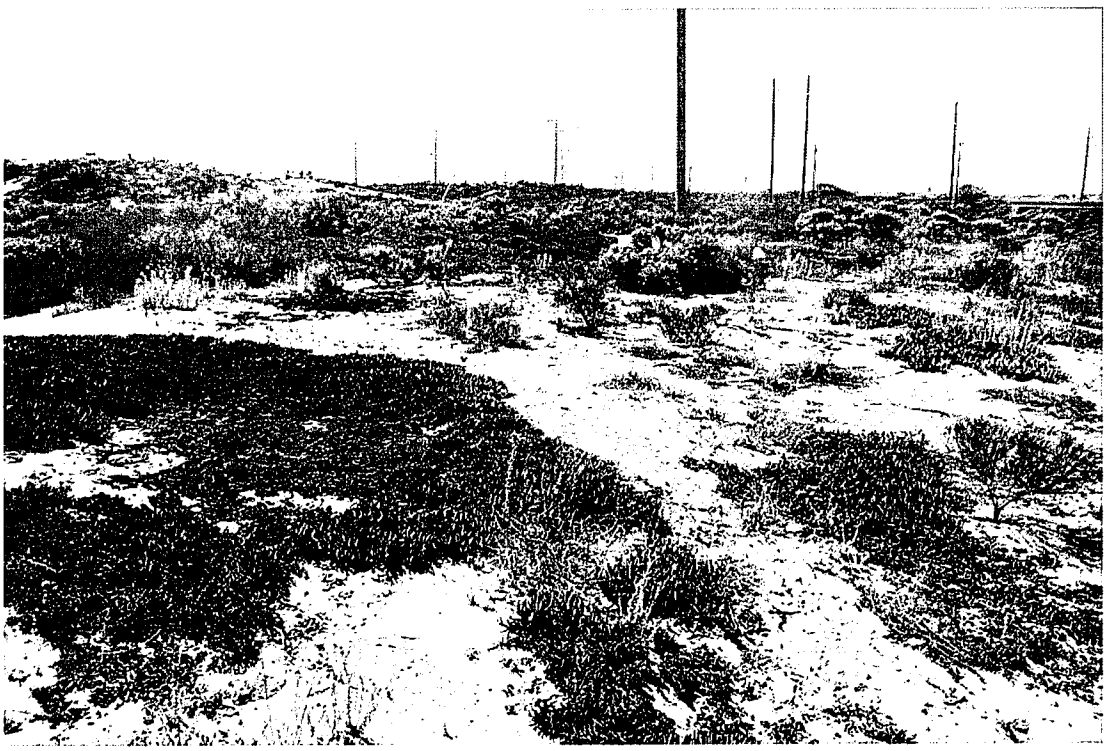


Photograph 3. This photograph depicts the typical site conditions along the proposed transmission line corridor south of the Mandalay Canal. Here you can see an extensive stand of fig marigold in the foreground. Photograph taken on October 13, 2008.



Photograph 4. This photograph depicts the typical site conditions along the proposed transmission line corridor north of the Mandalay Canal. Photograph taken on October 13, 2008.

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EXHIBIT 2

McGRATH PEAKER STATION

Site Photographs

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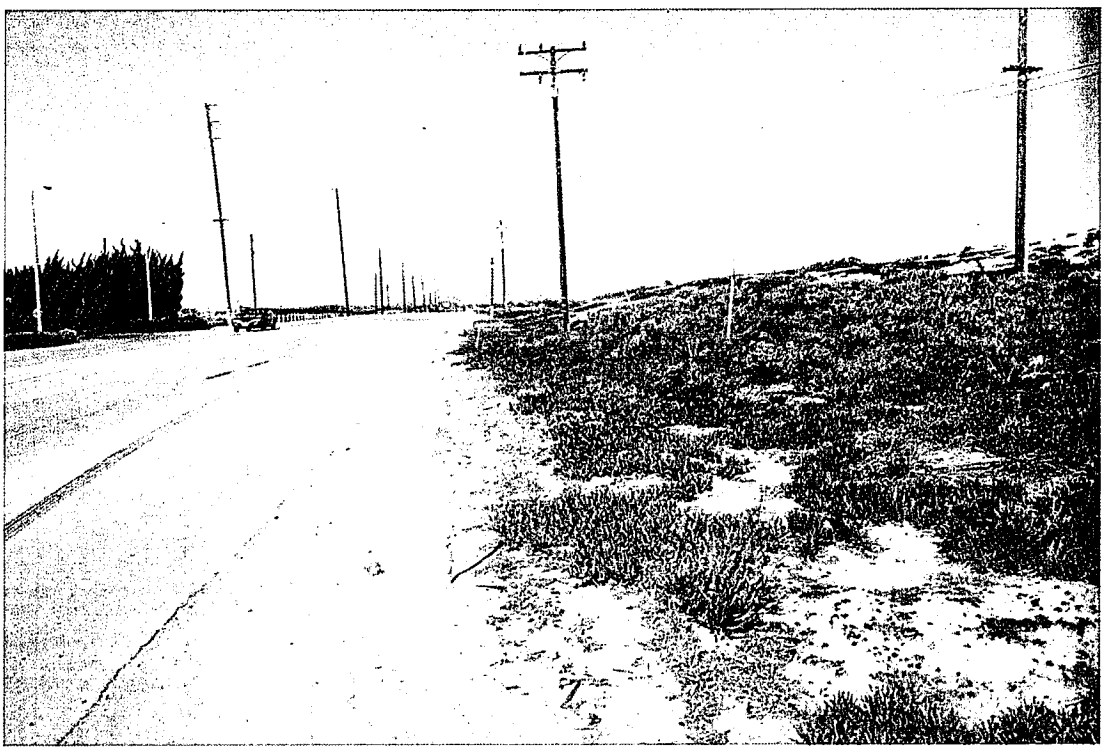
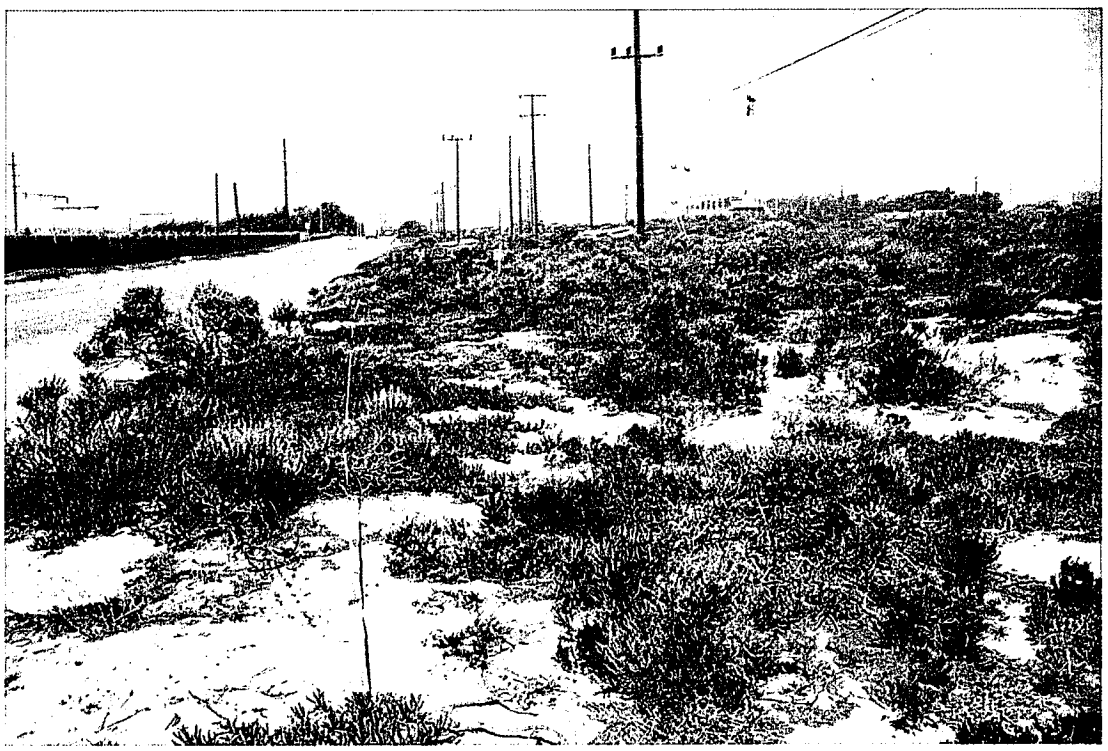


Photograph 1. This photograph depicts the typical site conditions adjacent to Harbor Boulevard north of the Harbor Boulevard Bridge. The stake at center left shows where the proposed natural gas pipeline is to be installed. Photograph taken on October 13, 2008.



Photograph 2. This photograph depicts the typical site conditions adjacent to Harbor Boulevard south of the Harbor Boulevard Bridge. Here the transect tape shows where the proposed natural gas pipeline is to installed. Photograph taken on October 13, 2008.

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