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F10a

September 7, 2016

To: Coastal Commissioners and Interested Persons

From: Alison Dettmer, Deputy Director
Joseph Street, Environmental Scientist

Subject: **Addendum for 15-AFC-01 – Commission's 30413(d) review and report on the NRG Puente Power Project ("P3")**

This addendum provides correspondence received on the above-referenced document, staff's response to the correspondence, and several minor revisions to the Commission's report. The proposed revisions do not change staff's recommendation that the Commission **approve** submittal of the report to the Energy Commission ("CEC").

CORRESPONDENCE RECEIVED

- August 22, 2016 letter from Douglas Bosco (attached; received prior to staff report);
- September 1, 2016 letter from Brian Segee and Matthew Vespa, representing the Environmental Coalition of Ventura County, Environmental Defense Center, and Sierra Club (attached);
- September 1, 2016 letter from Tim Flynn, Mayor, City of Oxnard (attached);
- September 2, 2016 letter from Michael Carroll, Latham & Watkins LLP, representing NRG Energy Center Oxnard LLC ("NRG") (attached);
- September 6, 2016 letter from Michael Carroll, Latham & Watkins LLP, representing NRG (attached);
- September 6, 2016 letter from California Environmental Justice Alliance, Environmental Coalition, Environmental Defense Center, Sierra Club, Surfrider Foundation, Ventura Audubon Society, Ventura Coastkeeper, and Wishtoyo Foundation (attached).

The letters from the City of Oxnard and environmental organizations support the adoption of the proposed 30413(d) review and report to the CEC, but provide a number of additional comments.

Both letters raise the issue of environmental justice, expressing concern that the proposed project would result in disproportionate impacts to low-income and underserved communities in Oxnard. Additionally, the letter from the environmental groups questions whether on-site wetlands should also be considered environmentally sensitive habitat areas (ESHA). The City of Oxnard letter also states that the project would be inconsistent with both the City's recent 2030 General Plan amendment and its interpretation of a Local Coastal Program (LCP) policy governing the siting of energy-related facilities. The NRG letters raise issues regarding the proposed 30413(d) Report's findings and recommendations regarding wetlands, ESHA and site flooding hazards, and requests that the Commission eliminate the recommendation to relocate the project to an alternative site. These issues are addressed below.

Note: To accurately reflect the Commission's action, staff's modifications to the August 26, 2016, staff-recommended report are shown herein as ~~strikethrough~~ and **bold underline** text. The recommended modifications are as follows:

PROPOSED REVISIONS TO 30413(d) REPORT AND RESPONSE TO COMMENTS

30413(d) REPORT, COVER LETTER

Proposed Revision, page 1-2, first bullet:

- **Direct impacts to wetlands:** The P3 would be constructed in an area supporting hydrophytic plant species and thus meeting the definition of a wetland under the Coastal Act and Oxnard LCP. The project as proposed would result in the fill of approximately two acres of wetland habitat. This Report recommends that the CEC require NRG to relocate the project to a feasible on- or off-site alternative location which would avoid direct impacts to coastal wetlands. **If the CEC determines that no feasible, less environmentally damaging alternative exists, this Report recommends that the CEC require compensatory mitigation (wetland restoration) at a 4:1 ratio.**

Proposed Revision, page 2, second bullet, lines 9-13:

This Report first recommends that the CEC require NRG to relocate the project to an off-site alternative location that is free of current and future flood hazards. If ~~it is~~ **the CEC** determine~~d~~**s** that no **feasible, less environmentally-damaging** ~~such~~ alternative is ~~feasible~~ **available**, the Report recommends additional measures to bring the project into conformity with relevant Coastal Act and LCP policies to the extent feasible …

30413(d) REPORT, SECTION I.C – LAND USE

Proposed Additions, page 9, following paragraph 1:

Response to City of Oxnard Comments
In a letter submitted on September 2, 2016, the City of Oxnard's stated that the staff report did not fully address the project's inconsistency with the City's recent 2030

General Plan amendment, which prohibits the siting of power plants of 50 MW or greater capacity in areas subject to environmental hazards, including coastal hazards. This General Plan amendment is acknowledged on page 8 of the proposed 30413(d) report. However, as explained in Section I.B ("Regulatory Framework and Standard of Review") of the report, the Commission's review of the proposed project is limited to its conformity with the Chapter 3 policies of the Coastal Act and the certified LCP. The CEC must nevertheless consider the project's inconsistency with the City's General Plan when evaluating this project; this concern is not, however, appropriately included in the Commission's 30413(d) Report.

The City of Oxnard's letter also states that the proposed project would "not be consistent with the City's interpretation of its LCP." The letter appears to be referring to the policies governing development within the Coastal Energy Facilities (EC) zoning designation (see Oxnard Coastal Zoning Ordinance Section 17-20), specifically the policy stating that "coastal dependent energy facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth, where consistent with this article." The City asserts that this policy allows only coastal dependent energy-related facilities to be located within the EC sub-zone. The Commission disagrees with this interpretation of the LCP, and on previous occasions has found that the "power generating facilities and electrical substations" allowed under the EC zoning designation are not limited to coastal-dependent facilities (see Appeal No. A-4-OXN-07-096).

Environmental Justice

The issue area of environmental justice is not one that is addressed by the policies of Chapter 3 of the Coastal Act or the City of Oxnard LCP. Although both contain policies protecting and encouraging low-cost, visitor-serving recreational facilities and opportunities, and the LCP contains policies protecting low-cost housing within the coastal zone, neither contain policies addressing potential environmental justice issues associated with power plant siting. Accordingly, the avoidance and mitigation of any adverse effects on the environment that are significant only because of their disproportionate impacts on minority or low-income populations are outside the scope of the Commission's authority under both the Coastal Act and the City's LCP. Environmental justice concerns have been raised by the City and members of the public, however, so this section constitutes the Commission's response to these comments.

Comments submitted by both the City of Oxnard (see September 2, 2016 letter) and a coalition of environmental and social justice organizations (see September 2, 2016 and September 6, 2016 letters) note that Oxnard has a high proportion of low income and minority residents, and is the site of a disproportionate number of power plants, landfills, oil and gas development and other polluting industries compared to the surrounding region. The commenters suggest that in light of this present and historical burden, Oxnard should not be the site of another coastal power plant.

These concerns are partially addressed by CEC staff in the PSA, which used the most recent U.S. Census data to identify minority and below-poverty level populations within a six-mile radius of the P3. The demographic screening identified environmental justice populations based on race (greater than 50% minority) within the six-mile radius, particularly in Oxnard and Port Hueneme. The analysis also identified these cities having a higher percentage of residents living below the federal poverty level compared with Ventura County as a whole. Following CEQA guidelines, the PSA then evaluates potential impacts to environmental justice populations from the project related to air quality, hazardous materials management, land use, noise and vibration, public health, socioeconomics, soil and water resources, and waste management. In each subject area, the PSA concludes that, with the recommended conditions of certification, that there would be no significant environmental impacts, and thus no significant impacts on environmental justice populations. Given the current lack of enforceable Coastal Act policies addressing environmental justice, the Commission is not recommending that the CEC include additional conditions of approval to specifically address this issue. It nevertheless believes that the CEC should consider the environmental justice concerns raised by the commenters as a factor in its alternatives analysis as it considers the least environmentally damaging location for the proposed new power plant.

30413(d) REPORT, SECTION I.D – WETLANDS AND ENVIRONMENTALLY SENSITIVE HABITAT AREAS (ESHA)

Proposed Revision, p. 11, paragraph 3:

As described in the PSA, the MGS property, including the proposed 3-acre P3 site, was graded during the development of the power plant in the 1950s, and at present consists largely of developed, paved and disturbed areas dominated by ruderal and ornamental vegetation. ~~However, t~~**T**he proposed P3 site, located on approximately three acres in the northwest corner of the MGS, **has previously been used for temporary storage of dredge spoils from the Edison Canal and contaminated soils, but** currently supports a mixture of non-native and native vegetation, including several hydrophytic species considered to be wetland indicators.

Proposed Revision, p. 11, paragraph 3:

In the section devoted to "Wetlands and Other Jurisdictional Waters" (PSA p. 4.2-11), the PSA concludes that the site, having been "actively maintained to facilitate operation of existing power generation" and experiencing "varied uses such as a marine dredging spoils storage" does not contain wetlands or other waters under the jurisdiction of the U.S. Army Corps of Engineers or California Department of Fish and Wildlife. **A formal wetland delineation commissioned by NRG also concluded that there were no wetlands on the site (AECOM 2015).** However, under the definition of a wetland contained in the Coastal Commission's regulations and the City of Oxnard's certified LCP, only one of three parameters – the presence of hydric soils, hydrophytic vegetation, or wetland hydrology – is needed to delineate a coastal wetland. ~~As noted in the PSA,~~ NRG**'s** ~~conducted a formal~~ wetland delineation ~~within the proposed project site and noted~~ **documents** the presence of

three hydrophytic plant species **on the project site**, including pickleweed (*Salicornia pacifica*), woolly seablite (*Suaeda taxifolia*), and slenderleaf iceplant (*Mesembryanthemum nodiflorum*)~~,~~**. Each of these species is** included on the U.S. Army Corps of Engineers wetland plant list (Lichvar et al. 2014) …

Proposed Revision, p. 12, paragraph 1, line new footnote:

… The proposed project would result in the removal of hydrophytic vegetation (including approximately 1,000 woolly seablite plants) and the fill of this 2-acre wetland area.[3]

[3] The hydrophytic plant species found on the project site are relatively common in coastal wetlands, and the area is not known to support listed, rare or sensitive wildlife species. Thus, the project site does not meet the definition of an environmentally sensitive habitat area (ESHA) under Section 30107.5 of the Coastal Act.

Proposed Revision, p. 14, paragraph 1:

The PSA concludes that a wetland habitat mitigation ratio of 2:1 is appropriate due to what is described as the "diminished value, form and function" of the existing on-site wetlands, which are purported to "provide little beneficial value to wildlife" and few of the "positive benefits of a wetland, such as water filtration, foraging and habitat for wildlife, or water reabsorption." ~~The PSA does not indicate the basis for these conclusions, and~~ Commission staff is unaware of any **comprehensive** studies establishing the detailed hydrological and ecological characteristics of the site. ~~Regardless, t~~**T**he Commission notes that prior to the development of the MGS, the site was a part of a major coastal dune and wetlands complex extending between the Santa Clara River Estuary and Mugu Lagoon. In this landscape, small, backdune swale **and alkali meadow** wetlands were common. Some were hydrologically isolated; some were likely seasonal, displaying wetland hydrology for short periods at certain times of year, but nonetheless sufficient to support wetland vegetation (Beller et al. 2011). Speculatively, the presence of wetland vegetation within the project area may indicate the partial re-emergence of vegetation native to this historical landscape during a recent decrease in site disturbance. **Alternatively, the presence of salt-tolerant hydrophytic plants at the project site may be related to past deposition of saline dredge spoils at this location. Saline soils, possibly combined with soil compaction and impaired drainage, may have caused or contributed to the predominance of salt-tolerant hydrophytes on the project site (AECOM 2016).**

Regardless, for purposes of conformance with Coastal Act Section 30233(a), the Commission evaluates wetland indicators at a site in its present state, and, where fill of coastal wetlands is unavoidable, requires mitigation sufficient to minimize adverse impacts. Typically, the Commission has found that mitigation at a ratio of 4:1 (mitigation area to impact area) is necessary in order to account for temporal losses of wetland habitat (i.e., the period of time between the filling of the wetlands and the achievement of successful mitigation) and the significant likelihood that a wetland restoration project will fail (or only partially succeed) in meeting its performance standards. In cases where a wetland mitigation site has already been selected and a comprehensive restoration plan with rigorous performance criteria is available for

review, the Commission has at times adopted a reduced mitigation ratio. For the P3 project, absent a well-defined wetland mitigation plan, the Commission recommends that a 4:1 mitigation ratio be applied.

30413(d) REPORT, SECTION I.E – FLOOD, SEA LEVEL RISE, AND TSUNAMI HAZARDS

Proposed Revision, p. 25, paragraph 2:

Several other existing studies support the conclusion that the project site is currently vulnerable to flooding during a large storm or flood event. Recently, the City of Oxnard commissioned a vulnerability assessment of existing and future coastal hazards at the MGS (Revell 2015).[10] This assessment is based largely on coastal hazards modeling and mapping carried out as part of The Nature Conservancy (TNC)'s Coastal Resilience Ventura project (*see* ESA PWA 2013).[11] **In contrast to the FEMA maps and PSA analysis, which do not account for erosion during a large storm event, the TNC and Revell analyses take a highly conservative approach to modeling coastal erosion, essentially allowing high waves and water levels during an extreme storm to operate on the beach and dunes at the site for an "undefined" duration.** Consistent with the FEMA draft Work Map, these studies ~~indicate~~ **project** that water levels during a 100-year flood event would near the crest of the dunes west of the project site (ESA PWA 2013, see Fig. 3)**. A 100-year storm event is also projected to result in significant beach and dune erosion, leaving the site vulnerable to subsequent storm events.** ~~and that m~~**Much** of the MGS site ~~is currently~~ **could be** exposed to flooding during a 500-year event (modeled using wave conditions observed during the 1982-83 El Nino) (**Exhibit 9d**). The P3 site, due to its slightly higher elevation, would escape flooding, but necessary supporting facilities such as the SCE switchyard would flood and access to the P3 would be restricted. ~~Perhaps more crucially,~~ **Although** this site-specific assessment **should be considered a "worst case" scenario due to its extreme treatment of the erosion potential at the site,** ~~also concludes that the beach and dunes fronting the MGS site are vulnerable to wave-driven erosion -- which is not directly accounted for in either the FEMA maps or the PSA analysis -- and~~ **it nonetheless highlights** that such erosion is likely to be a major determinant of the severity of flooding at the site (Revell 2015). ~~The assessment indicates that a 100-year wave erosion event could remove more than 125 feet of the protective dunes and leave the site vulnerable to subsequent storm events.~~

Proposed Revision, p. 29, paragraph 2, beginning line 6:

The City of Oxnard's flood hazard vulnerability assessment (Revell 2015) attempts to account for both erosion and temporary increases in water level related to an extreme storm event. The modeling in this analysis assumes water levels and wave conditions observed during the historical "storm of record" (wave heights up to 25 feet NAVD88 during a

[10] Revell, D. (2015). *Vulnerabilities of the Proposed Mandalay Generating Station to Existing and Future Coastal Hazards and Sea Level Rise*. Revell Coastal, LLC, April 6, 2015.

[11] ESA PWA (2013). *Coastal Resilience Ventura – Technical Report for Coastal Hazards Mapping*. Prepared for the Nature Conservancy, July 31, 2013, 59 pp.
http://maps.coastalresilience.org/ventura/methods/CRV_Hazards_Mapping_Technical_Report.pdf

January 1983 storm) and ~~extreme dune erosion~~, **as noted above, makes very conservative assumptions about the amount of dune erosion that could occur during such a storm. In the report, this approach to modeling erosion is described as being** qualitatively similar to what might occur during a series of storms with no time for dune recovery. The modeling also assumes that sediment supply (riverine + sand bypass) will remain unchanged from the present. The results of this analysis, shown in **Exhibit 10b**, suggest that the P3 site could be essentially surrounded by floodwaters during an extreme storm in 2030 (8 inches of sea level rise), and that most of the project site would be vulnerable by 2060 (25 inches of sea level rise). The hazard maps presented in the City's analysis represent extreme, but plausible, scenarios, approximating the potential effects of a 500-year storm under future sea level rise conditions.

Information submitted by NRG provides a contrasting view of the flooding and sea level rise hazards at the site. Comments submitted on September 2, 2016, can be summarized as follows:

- **A comparison of aerial photos indicates that the beach fronting the MGS site has increased by more than 300 feet since 1947;**
- **Even if Ventura Harbor dredging ceased, a bypass bar would likely form and sand transport past the harbor would eventually resume;**
- **No actual flooding of the project site occurred during the January 1983 storm which provides oceanographic inputs for the Revell (2015) and ESA PWA (2013) modeling studies, suggesting that no flooding would occur during a similar storm in the future; furthermore, beach and dune widths fronting the MGS have increased since 1983;**
- **Historical rates of sea level rise have not resulted in narrowing of the beach;**
- **Assuming a beach slope of 3%, even the "high scenario" of two feet of sea level rise by 2050 would result in beach narrowing of only approximately 70 feet, leaving behind a beach over 200 feet wide;**
- **Tsunami or storm waves entering the Edison canal would be rapidly attenuated, making flooding of the project site from the Canal unlikely.**

Based on these considerations, NRG believes that the potential for flooding at the site during the project's proposed 30-year life is minimal.

Proposed Revision, p. 29, paragraph 4:

In summary, **although the amount and impacts of sea level rise at the site remain uncertain,** sea level rise would exacerbate existing coastal hazards at the project site, and increase the likelihood that the site could be flooded during the 30-year project life. Assuming a **present-day** coastal base flood elevation of +20 feet NAVD88, **up to** two feet of sea level rise would ~~likely lead to~~ **increase the likelihood of** breaching or overtopping of the protective dunes during a 100-year storm event, resulting in some degree of flooding at the MGS. **Sea level rise will also increase the area subject to flooding during a 500-year storm.** Moreover, high waves and fast-moving water during a major storm event are also likely to result in **some** erosion of the protective dunes adjacent to the MGS, which

would increase the extent and severity of flooding at the site. The potential for long-term changes in shoreline sand supply (related to variable riverine sediment input and sand bypassing at Ventura Harbor) add an additional element of uncertainty to future flooding projections.

Proposed Revision, p. 32, paragraph 4:

Third, the project site may also be vulnerable to tsunami flooding via the Edison Canal along the southern margin of the MGS. The Canal is directly connected to the ocean via Channel Islands Harbor, and its banks on the MGS site near the existing cooling intake are at an elevation of approximately 12 feet NAVD88. As a result, the project site may be subject to tsunami-driven seiches running up the canal.[19] **In its September 2, 2016 comment letter, NRG references a recent study (Thio et al. 2015) examining the progression of a large tsunami wave entering Channel Islands Harbor and the Edison Canal. Based on this study, a tsunami wave with an amplitude of 5.7 feet (1.75 m) in the ocean would attenuate to an amplitude of just 1.3 feet (0.4 m) approximately 2.5 miles up the canal.** ~~Although modeling for such an event is apparently not available, it is conceivable that sustained in-flow (tsunami waves typically have a 20 to 30 minute wave period that would result in about 10 to 15 minutes of sustained inflow) a~~ **Although it is not clear if a larger,** 9.51-foot tsunami wave proceeding up the Edison Canal at high tide **would attenuate to a similar degree,** ~~could overtop the banks of the channel and flood the MGS site, either at present or in the future.~~ **the risk of project site flooding via the Edison Canal appears to be low during the proposed 30-year life of the project.**

Proposed Revision, page 34, paragraph 1:

The PSA states that the proposed P3 would not represent a "critical facility" in the context of the electricity generation and distribution system, and on this basis concludes that a higher tolerance for flooding risk is appropriate. However, the Commission notes that the proposed facility would remain an important component of the regional system ~~[insert evidence from PSA)~~, and that electrical generating stations are typically classified as critical facilities for purposes of natural hazards and emergency planning.

30413(d) REPORT, APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

Proposed Additions to List of File Documents, beginning page 44:

AECOM (2016). Puente Power Project – Wetland Technical Studies Summary (with attachments), August 31, 2016. Submitted to CCC staff September 2, 2016.

***Correspondence Received**:*

August 22, 2016 letter from Douglas Bosco, "Re: Section 30413(d) Review of Puente Power Project."

[19] A seiche is a wave generated by the same types of events that cause a tsunami, but that occurs within an enclosed water body such as a bay, reservoir, or, in this case, a flood control channel.

September 1, 2016 letter from Brian Segee and Matthew Vespa, representing the Environmental Coalition of Ventura County, Environmental Defense Center, and Sierra Club, "Re: Proposal to Upgrade Mandalay Generating Station (Energy, Ocean Resources and Federal Consistency) (Agenda Item F10a)."

September 1, 2016 letter from Tim Flynn, Mayor, City of Oxnard, "RE: Item F10a Comment Letter Supporting Staff Recommendation (9/9/16 Coastal Commission Meeting)."

September 2, 2016 letter from Michael Carroll, Latham & Watkins LLP, representing NRG Energy Center Oxnard LLC, "Re: Puente Power Project."

September 6, 2016 letter from Michael Carroll, Latham & Watkins LLP, representing NRG, "Re: Puente Power Project – Response to Recommended Specific Provisions in August 26, 2016 Proposed Report."

September 6, 2016 letter from California Environmental Justice Alliance, Environmental Coalition, Environmental Defense Center, Sierra Club, Surfrider Foundation, Ventura Audubon Society, Ventura Coastkeeper, and Wishtoyo Foundation, "Re: Proposal to Upgrade Mandalay Generating Station (Energy, Ocean Resources and Federal Consistency) (Agenda Item F10a)."

August 22, 2016

VIA EMAIL

Alison Dettmer, Deputy Director
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Re: Section 30413(d) Review of Puente Power Project

Dear Ms. Dettmer and Mr. Luster,

I am the Chairman of the State Coastal Conservancy (the Conservancy) and have served on the Board of the Conservancy since 2003. This letter expresses my personal thoughts and not those of the Conservancy, as I have not brought this matter to our Board as of yet.

I am writing to urge the Coastal Commission (the Commission) to carefully consider certain issues as part of its review of the proposed Puente Power Project (the Project), given the fundamental inconsistency of the proposed Project with the work of the Conservancy over the last two decades to preserve and restore the Ventura County coastline.

As the Commission is aware, the Conservancy was established in 1976 to protect and improve natural lands and waterways along the entire length of the California coastline. To date, working closely with local communities, the Commission, other State and Federal agencies, environmental organizations, and private companies, the Conservancy has completed over 1,500 projects and is actively engaged in hundreds more. Among our most significant projects have been efforts in Ventura County to restore the waterways and coastal environments. All told, the Conservancy has expended nearly $60 million through these efforts in Ventura County, allowing the acquisition of 6,000 acres and preservation of an additional 1,900 acres to conserve and restore the waterways, the wetlands, and the coastal environments. Specifically, the Conservancy has been directly involved in the following efforts in Ventura County that are near the proposed Project:

> Ormond Beach Wetlands: Acquired 265 acres from Southern California Edison, provided funding to The Nature Conservancy to acquire 276 acres from the Municipal Water District, and prepared a restoration plan for 1,000 acres of wetlands.
>
> Santa Clara River Parkway: Acquired 16 miles of Santa Clara River plus seven miles of river corridor.

Mandalay Dunes: In February 2000, the Conservancy authorized the acquisition of the Mandalay Dunes, which is directly proximate to the proposed Project. The Conservancy determined that this area comprised rare coastal dune scrub habitat and, according to biologists, former backdune swale wetlands. The authorization was made with letters of support from numerous agencies and environmental organizations. The Conservancy Board recognized the opportunity to restore this area and integrate it with the surrounding parks, preserves, and endangered species habitat while providing continuous public management. Since that time, the Conservancy has also acted to fund acquisition of the adjoining Santa Clara River Estuary, acquisition of in holdings within McGrath State Beach, and the establishment of a Tern/Plover Restoration program in the area.

I believe that the Project would undermine this long-running effort to restore the coastal environments in Ventura County. It is my view that the analysis provided in the Preliminary Staff Assessment recently issued by the CEC obscures this fact and provides a scant, dismissive discussion of real, acceptable alternatives that may have greater relative merit than the proposed Project site, that would not impact wetlands, and that would avoid incurable inconsistencies with important Coastal Act policies and the work of the Conservancy.

As the Commission is aware, both the Coastal Act and the City of Oxnard Local Coastal Program prohibit the construction of new or expanded energy facilities that would result in the fill of wetlands where there is a feasible, less environmentally damaging alternative. *See* Coastal Act (Public Resources Code) § 30233(a). Likewise, Section 30264 of the Coastal Act permits construction of power plants in the coastal zone only where the CEC has determined the coastal site has greater relative merit than alternative sites that are suitable for power plant development. Pursuant to these Coastal Act requirements, the CEC may only authorize expansion of a coastal power plant upon finding that the site is of greater relative merit than other available sites and that there are no acceptable alternatives that would avoid filling wetlands. I do not believe the CEC's alternatives analysis is sufficient to allow the Coastal Commission to determine whether either of these requirements is satisfied.

The CEC's analysis rejects numerous feasible alternatives outside the coastal zone that may have greater relative merit and would avoid filling wetlands. The CEC's reasoning in this regard is cursory, rejecting acceptable alternatives due only to a lack of present site control by NRG. This narrow consideration of alternatives is insufficient for the purposes of determining consistency with Coastal Act policies. This is especially true here, given the existence of acceptable alternative sites that would allow for development of a power plant fulfilling the same local capacity requirements and generation needs that would be met by the proposed Project.

The proposed Project's inconsistency with Coastal Act policies relating to placement of fill in wetlands is unavoidable. The Coastal Act narrowly limits which facilities and uses are eligible to place fill in wetlands, the overwhelming majority of which are coastal-dependent. When the Coastal Act was drafted, it made sense to include energy facilities within these exceptions, as energy facilities located in the coastal zone were once dependent on the use of ocean water for cooling. Yet, four decades later, this no longer holds true. It simply makes no sense to build a new power plant on the coast. The risks presented by sea level rise cast further doubt on the wisdom of siting the Project in an area of the coast that will be significantly impacted by

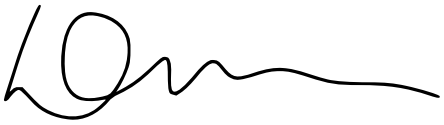
flooding and inundation in coming decades. For these reasons, allowing the Project to fill wetlands, even with mitigation, would not conform with the requirements of the Coastal Act.

These views are consistent with the significant efforts of the City of Oxnard and its residents in opposition to the proposed Project, efforts which the Conservancy has long supported.[1] As the Commission is aware, the City is in the midst of preparing a comprehensive update to its Local Coastal Program for consideration and approval by the Commission in 2017. Separate from this effort, on June 7, 2016, the City adopted a revision to its 2030 General Plan narrowly tailored to the purpose of prohibiting construction or modification of power plants that are under the exclusive jurisdiction of the CEC. The Project would not and cannot conform with this prohibition. Additionally, the City has taken great efforts to implement the Commission's Sea Level Rise Policy Guidance by identifying potential impacts of sea level rise within the area covered by its Local Coastal Program. The CEC's analysis all but ignores these efforts and instead concludes that the risks to the Project are low, disregarding the Commission's guidance for siting of critical infrastructure by essentially finding that the Project is not critical because its power is only needed at periods of peak demand.

As established by the Coastal Act and the Commission's Memorandum of Agreement with the CEC, the Commission's Section 30413(d) report must include consideration of many findings, including on the compatibility of the Project with the goal of protecting coastal resources. Given the Project's inconsistencies with requirements of the Coastal Act, the City of Oxnard's Certified Local Coastal Program, and the City's recent amendments to its 2030 General Plan, I would urge the Commission to provide a report to the CEC that details the incurable inconsistencies between the proposed Project and Coastal Act policies. Doing so would avoid perpetuating for decades to come one of the largest remaining deterrents to access on the Ventura County coastline and would avoid needless impacts to the coastal resources that both the Commission and the Conservancy have fought so hard to protect in Ventura County.

Thank you for your consideration of my views.

Sincerely,



Douglas H. Bosco

[1] *See* Letter from Peter S. Brand, State Coastal Conservancy, to Oxnard City Council (June 30, 2014), http://oxnard.granicus.com/MetaViewer.php?view_id=68&clip_id=2805&meta_id=141474.

AGENDA ITEM F10a—September 2016 Meeting (Newport Beach)

September 1, 2016

California Coastal Commission
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Re: Proposal to Upgrade Mandalay Generating Station (Energy, Ocean Resources and Federal Consistency) (Agenda Item F10a)

Sent via email to alison.dettmer@coastal.ca.gov

Dear Honorable Commissioners:

On behalf of Environmental Coalition of Ventura County, Environmental Defense Center, and Sierra Club, we respectfully urge you to adopt staff's proposed Report (prepared pursuant to section 30413(d) of the Coastal Act) to the California Energy Commission ("CEC") for NRG Energy's proposed "Puente Power Project," which would be the *fourth* fossil-fuel power plant to be sited on the City of Oxnard's beaches. Our organizations, which are also formal intervenors in the CEC certification process for Puente, believe that CCC staff has done a commendable and thorough job in preparing the Report, and we support the detailed recommendations identified by staff as necessary to bring the project in compliance with the Coastal Act, including the fundamental recommendation "that the CEC require NRG to relocate the project to an off-site alternative location that is free of current and future flood hazards."

Although proposed power plants such as Puente do not require a coastal development permit, your Commission still plays an essential and substantive role in the CEC power plant certification process by providing findings with respect to specific measures necessary to bring the project into compliance with Coastal Act policies. The CEC can only disregard these recommendations if it finds that they are infeasible or would cause greater environmental impacts than the project as proposed.

Here, the Puente Power Project 30413(d) Report concludes that the project as proposed and as analyzed by the CEC in its Preliminary Staff Assessment ("PSA") does not address all environmental impacts, including direct impacts to wetlands; indirect impacts to wetlands and environmentally sensitive habitat areas ("ESHA"); site exposure

to present and future hazards from flooding, sea level rise, and tsunamis; and effects on public access to the shoreline. The Report also notes that the Puente project would conflict with several land use policies under the Coastal Act and the City of Oxnard's Local Coastal Program.

CCC staff's clear-eyed review of this project illustrates that the proposed site is counter to basic Coastal Act policies:

> Ultimately, in spite of the uncertainty surrounding the exact degree of risk, there is substantial evidence that the project site could be exposed to flooding during its proposed 30-year operating life, and that over the long-term, this possibility would become a certainty. In this situation, Coastal Act Section 30253 requires that risks to life and property be minimized, and the stability and structural integrity of new development be assured, without resorting to the construction of shoreline protective devices. The Commission believes that the requirements of this policy can best be met through risk avoidance, that is, by the selection of an alternative inland site that is free of flooding hazards. (Staff Report, at p. 34).

Accordingly, the 30413(d) Report recommends "that the CEC require NRG to relocate the proposed project to an alternative site that is (a) outside the current 100-year and 500-year flood zones, and (b) would not be at risk of flooding related to high water levels, storm waves, or coastal erosion, including the effects of sea level rise, over the full 30-year project term." Similarly, the 30413(d) Report recommends that "the Energy Commission require that the proposed project be relocated to an alternative site that would not result in direct impacts to or fill of coastal wetlands." (Staff Report, at p. 13). Although the 30413(d) Report makes several additional laudable recommendations in an effort to lessen or mitigate Puente's array of adverse environmental impacts, we write primarily to support the most basic recommendation asking that the CEC require NRG to locate an alternate site.

In addition to our general support for the recommendations made in the 30413(d) report, we offer the following comments:

1. Direct Impacts on ESHA

Although the 30413(d) Report addresses indirect impacts to ESHA in detail, it does not appear to address the potential for onsite ESHA. The PSA dismisses the potential for onsite ESHA without discussion. Although the PSA does acknowledge that the project site contains more than 2 acres of wetlands (as defined by CCC wetlands policy), it does not take the next step to address whether these wetlands are ESHA. This

omission is particularly notable given that coastal wetlands and other natural waters are generally presumed to also be an ESHA. *Bolsa Chica Land Trust v. Superior Court* (1999) 71 Cal. App. 4th 493, 515.

Should the coastal wetlands or other areas within the project site also be determined as ESHA, section 30240 of the Coastal Act "does not permit its restrictions to be ignored based on the threatening or deteriorating condition of a particular ESHA." *Id.*at 507. The underlying policy rationale for the Coastal Act's strict protection of ESHAs has particular relevance to the proposed siting of this fourth power plant on the City of Oxnard's beaches:

> [I]f, even though an ESHA meets the requirements of section 30107.5, application of section 30240's otherwise strict limitations also depends on the relative viability of an ESHA, developers will be encouraged to find threats and hazards to all ESHAs located in economically inconvenient locations. The pursuit of such hazards would in turn only promote the isolation and transfer of ESHA habitat values to more economically convenient locations. Such a system of isolation and transfer based on economic convenience would of course be completely contrary to the goal of the Coastal Act, which is to protect *all* coastal zone resources and provide heightened protection to ESHAs. *Id*. (emphasis in original).

We respectfully ask staff to clarify whether onsite ESHA, and potential direct impacts to that ESHA, was considered in preparation of the 30413(d) Report.

2. Environmental Justice

The 30413(d) Report appears to also omit consideration of environmental justice issues. As stated in the CCC's 2015 Sea Level Rise Policy Guidance, the Coastal Act "recognizes the fundamental importance of the fair distribution of environmental benefits." Accordingly, the Policy directs that "[e]nsuring low-income and underserved communities are included in environmental decisions is a key tenet of environmental justice and will minimize disproportionate environmental and public health impacts."

The environmental justice implications of the Puente project are undeniable. The City of Oxnard is a majority-minority community, with 74% of residents of Hispanic descent and an additional 10% of residents identified as non-white. In addition to the three existing coastal power plants, Oxnard also contains an EPA Superfund site, landfills, and extensive oil and gas development adjacent to residences. State of California data contained within CalEnviro Screen 2.0 characterizes much of the City as disadvantaged, with several census tracts classified within the highest "score" (91%-

100%). When all census tracts are considered, the City of Oxnard ranks within the top 10% of California communities in terms of the environmental burden of dangerous and polluting industries. This community should not be saddled with yet another coastal power plant.

3. Conclusion

The siting of any additional fossil-fueled power plants on California's irreplaceable beaches is shortsighted under any circumstance; NRG's proposal to build the Puente project in an area uniquely vulnerable to sea level rise, beach erosion, and tsunami risk is simply reckless. We respectfully request that the California Coastal Commission fully and responsibly exercise its statutory authority under the Coastal Act and Warren-Alquist Act by adopting staff's 30413(d) Report (and recommendations) for the Puente Power Project, and transmitting that Report to the California Energy Commission.

Thank you for considering our recommendation.

Sincerely,

Brian Segee, Senior Attorney
Environmental Defense Center

Matthew Vespa, Senior Attorney
Sierra Club

cc: California Energy Commission, Docket No. 15-AFC-01

Tim Flynn
Mayor

CITY OF OXNARD CALIFORNIA

Honorable Supervisor and Chair Steve Kinsey
California Coastal Commission
45 Fremont Street, #2000
San Francisco, CA 94105

RE: Item F10a Comment Letter Supporting Staff Recommendation (9/9/16 Coastal Commission Meeting)

Chair Steve Kinsey:

I write on behalf of the City Council of the City of Oxnard (City) to fully support adoption of the Section 30413(d) August 26, 2016 report prepared by Coastal Commission staff regarding the new 262 MW Puente Power Plant (Project) now being considered by the California Energy Commission (CEC) to replace Units 1 and 2 of the Mandalay Generating Station (MGS) located at 393 N. Harbor Boulevard.

The City strongly supports the report's recommendation that the Project be relocated to an alternative site that avoids present and future risks from sea level rise, coastal flooding, dune and beach erosion, and tsunami inundation at the MGS site. As the report acknowledges, the Mandalay site is not only at risk from sea level rise and other coastal hazards, the Project presents many other inconsistencies with the City's Local Coastal Plan (LCP) and the Coastal Act. Specifically, the Project will result in the filling of coastal wetlands and additional impacts on adjoining wetlands due to the largely unknown subsurface connections and interactions between the fluctuating high water table and intruding ocean water. The U.S. Fish and Wildlife Service found that "Operation of the existing power plant has impacted western snowy plover and its critical habitat...new power plant at this location could potentially impact listed species and critical habitat in the future."[1] And, as noted in the 30413(d) report, the existing power plant already inhibits public beach access as a result of the existing discharge of industrial wastewater from the plant over the beach and across State tidelands that front the facility. In short, this is a terrible place to build a new power plant.

While the City agrees with the staff's discussion of the Project's impacts and inconsistency with various City policies, it would like to emphasize that the Project is also inconsistent with the City's recent 2030 General Plan amendment, which were not fully addressed in the staff report. First, the City has long interpreted its existing LCP policies to allow only coastal dependent energy related facilities. Since the proposed project is not coastal dependent, it would not be consistent with the City's interpretation of its LCP. Moreover, the City's recently adopted amendment to its 2030 General Plan prohibits the siting of power plants of 50 MW or greater generating capacity in areas subject to environmental hazards including

[1] US F&W Service comment letter to Shawn Pittard, CEC docket 15-AFC-01 dated August 18, 2016.

seismic hazards, coastal hazards, and sea level rise. Although the report acknowledges these amendments, it does not address the Project's clear inconsistency with the 2030 General Plan.

While Commission staff is correct that the City has not yet submitted its updated LCP, which currently allows energy facilities as a conditionally permitted use, the City's 2030 General Plan establishes the City's land use goals for the City as a whole.[2] The recent 2030 General Plan amendment acts as an overlay policy that identifies additional criteria that should be applied when determining whether a new power plant, or substantial expansion or replacement of an existing plant, of 50 MW or greater capacity, should be permitted in areas with greater known and uncertain risk compared to areas of less risk. The amendment reflects the City's policy judgment that large power plants should not be built in areas subject to higher environmental hazards, including landslide, flooding, seismic, or wildfire risks than areas with less risk. The amendment is also consistent with Government Code section 65302(g)(4), which requires the City to update its general plan to include policies to respond to climate change, including an assessment of vulnerabilities and the adoption of measures to avoid and adapt to climate change impacts.

The 30413(d) report validates the City's interest in preventing the development of large energy facilities in areas subject to known and increasing coastal hazards. In fact, the report explicitly finds: "The Commission believes that the requirement of this policy [to address coastal hazards] can best be met through risk avoidance, that is, by the selection of an alternative inland site that is free of flooding hazards." 30413(d) Report at p. 34.[3] There are at least two inland properties that meet all the siting criteria and avoid the impacts of the Puente Project, including inland sites in the City of Oxnard and one in unincorporated Ventura County near Santa Paula.

The City also concurs with the report's discussion on page 5 that the CEC is improperly assuming that absent the approval of the Project, the existing MGS Units 1 and 2 would remain in place indefinitely after decommissioning in 2020. It is not reasonable to assume that NRG will be permitted to allow a closed power plant to remain as a visual blight, attractive nuisance, possible source of polluted runoff and deteriorating airborne asbestos, and a source of raptor nesting sites that would prey on adjacent nesting sites of endangered Snowy Plovers and Least Terns. The CEC should assume that MGS Units 1 and 2 would be removed after their decommissioning and that the CEC's evaluation of alternative sites cannot state that the alternative sites are environmentally inferior to the Project because the old MGS units remain undemolished for another 30 years.

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[2] Gov't. Code §§ 65300, 65302. The City has a reasonable time to bring the coastal zoning into consistency with the General Plan. Gov't. Code § 65860(c). When the City updates its LCP, it will ensure that the LCP is consistent with the City's General Plan and the Coastal Act.

[3] The 30413(d) report also demonstrates that the Mandalay site is no longer an appropriate location for the "reasonable expansion" of existing electrical generating facilities. Although the Commission previously identified the site as such in a report first issued in 1978, since that time, significant new research has been conducted which demonstrates that this site in particular is subject to risk from sea level rise and coastal hazards. Moreover, these facilities are no longer coastal dependent because they are prohibited from using once through cooling systems that rely on ocean water. Given the Commission's policy to require the consideration of sea level rise when locating new or expanded electrical generating facilities, it no longer makes sense to rely on a report issued over 3 decades ago to determine now whether a site is appropriate for the reasonable expansion of an aging, obsolete facility.

Finally, the City must stress the issue of Environmental Justice (EJ) and how the majority minority population of Oxnard (85 percent not "White alone"[4]) is disproportionally impacted by being the location of three regional power plants, three closed landfills, and a large EPA Superfund site all either on the coast or relatively close to the coast or the Santa Clara River. State of California data contained within CalEnviro Screen 2.0 characterizes much of the City as disadvantaged, with several census tracts classified within the highest "score" (91%-100%). When all census tracts are considered, the City of Oxnard ranks within the top 10% of California communities in terms of the environmental burden of dangerous and polluting industries.

Our community is engaged in a long struggle to crawl out of this infamous legacy, and we have made progress with the Coastal Conservancy's Ormond Beach Wetlands Restoration project and the conversion of two landfills to a municipal golf course. The update to the City's LCP will reflect its long-term goals to protect the natural resources and coastal recreational opportunities in its coastal zone. The Puente Project represents a big step in the wrong direction and would interfere with the City's long-term goals for its coast. It is also inconsistent with the low-cost, low-intensity recreational opportunities afforded by the adjacent McGrath State Beach to the north, Mandalay Beach Park to the south, and public trust lands to the west—all of which serve a local, primarily minority low-income community, and the greater Central Coast region.

In closing, the City fully supports all the findings and recommendations of the 30413(d) Report and urges the Commission to adopt the Report and forward it to the CEC.

Sincerely

Tim Flynn

Tim Flynn
Mayor

cc: Chair Robert Weisenmiller, Ph.D., CEC
Janea A. Scott, CEC
President Pedro Pizarro, SCE
President and CEO Stephen Berberich, California ISO
President and CEO Mauricio Gutierrez, NRG Energy, Inc.

[4] < http://www.census.gov/quickfacts/table/RHI125215/0654652,06>

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052139-0005

September 2, 2016

Mr. Joseph Street
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Puente Power Project

Dear Mr. Street:

We are writing on behalf of NRG Energy Center Oxnard LLC ("NRG") regarding the Puente Power Project ("Project" or "P3"), which is currently under review by the California Energy Commission ("CEC") (Docket No. 15-AFC-01). We are in the process of reviewing the proposed "California Coastal Commission Report to California Energy Commission on Application for Certification 15-AFC-01 – NRG Puente Power Project" prepared by California Coastal Commission ("Coastal Commission") staff and released on August 26, 2016 ("Proposed Report").[1] The Proposed Report sets forth recommended findings on the Project's conformity to relevant policies of the California Coastal Act and the City of Oxnard's Local Coastal Program (LCP) and recommendations that, if included by the CEC as Conditions of Certification, would allow the Project to conform to the extent feasible with applicable Coastal Act and LCP policies. We appreciate that Coastal Commission staff issued the Proposed Report on a timely basis to allow for its consideration by the Coastal Commission and transmittal to the CEC in accordance with the schedule established by the CEC Committee reviewing the Project.

Based on our initial review of the Proposed Report, we believe that Coastal Commission staff has not fully considered critical information with respect to two areas in particular: i) identification of a portion of the Project site as wetlands; and ii) exposure of the Project site to flooding risk. As a result, the Proposed Report overstates the Project's potential impacts on

[1] The Proposed Report indicates that the Coastal Commission is reviewing the Project pursuant to Public Resources Code Section 30413(d). We note that the Section 30413(d) process applies only to notice of intention ("NOI") proceedings, and that thermal natural gas-fired power plant facilities, such as the Project, are statutorily exempt from the NOI process. (Pub. Resources Code, § 25540.6(a)(1)) The focus of this letter is on the substantive analysis and recommendations in the Proposed Report, as opposed to its statutory underpinnings; however, NRG reserves the right to assert any claims that it may have based on statutory authority.

wetlands and its exposure to flooding risks, which leads, in turn, to a recommendation that the Project be relocated to an alternative site. The purpose of this letter is to bring to staff's attention additional critical information that demonstrates that the Project, as proposed, is consistent with the Coastal Act and LCP policies in these two areas, and that the recommendation to relocate the Project is unfounded.

We note that the Proposed Report concludes that should the CEC deem alternative sites infeasible, the Project at the proposed site would be consistent to the extent feasible with relevant policies of the Coastal Act and LCP assuming implementation of certain alternative recommendations to relocating the Project. As set forth in its Alternatives Analysis prepared in the CEC proceedings (TN # 207096), NRG believes the many alternative sites that have been analyzed, including those evaluated in the Proposed Report, are infeasible. While we recognize that this is a determination that the CEC will make, as opposed to the Coastal Commission, we nevertheless bring to your attention some of the concerns related to the alternative sites evaluated in the Proposed Report, particularly in the two areas where concerns related to the proposed site have led the staff to make a recommendation to relocate the Project. Even though the Coastal Commission is not charged with completing a comprehensive alternatives analysis, we are providing information about how development of the Project at the proposed alternative sites may well lead to greater impacts, relative to development at the proposed site, in the very areas that led to consideration of alternative sites in the first place.

NRG believes that if staff and the Coastal Commission take into consideration the additional information provided herein, both will conclude that: i) the Project, as proposed, is consistent with the Coastal Act and LCP policies related to the areas of concern identified in the Proposed Report; ii) the identified alternative sites raise even greater concerns in these areas; and iii) the recommendation to relocate the Project is unfounded and should be eliminated from the final report submitted by the Coastal Commission to the CEC. None of the alternative sites analyzed by the CEC, including those highlighted in the Proposed Report, are superior to the proposed Project site, particularly with implementation of the CEC's proposed Conditions of Certification and the feasible recommendations of the Coastal Commission.

Wetlands Determination

NRG disagrees with the conclusion in the Staff Report that 2.03 acres of the Project site meet the criteria to be classified as a "wetland," as defined by the Coastal Act or the Coastal Commission's administrative regulations. The Project site is a portion of the Mandalay Generating Station (MGS), an industrial power generating facility that has been in existence since the 1950s. The Project site was originally slated for development of future steam-generating units; however, they were never constructed at this location. A 30-inch diameter gas line traverses the Project site, which was intended to be the gas supply for the future steam-generating units. Uses of the Project site over the past 60-plus years include the following:

- 1950s: The Project site was graded for the original MGS construction, and the 30-inch diameter gas line was installed.

- 1970s: The existing flood protection berm along the northern boundary of the property was constructed.

- 1970s: An insulator testing facility was constructed in 1970, and was used by Southern California Edison from 1971 to 1978 to study mean time to flash-over rates on various insulators in a coastal environment.

- 1983: Approximately 7,000 cubic yards of dredged spoils from the Edison Canal were temporarily stored on the Project site.

- 1996-1997: A 10-inch diameter gas line was installed across the Project site from the gas metering station to MGS Unit 3.

- 2000: Approximately 7,000 cubic yards of dredged spoils from the Edison Canal were temporarily stored on the Project site.

- 2003-2005: Approximately 75,000 cubic yards of accumulated sediment from the Edison Canal were placed on the Project site. Site preparation included excavation and placement of liner fabric. The dredged spoils were pumped into geotextile containment tubes, and placed on the Project site to dry.

- 2011: The Project site was used for temporary storage of contaminated soil removed in connection with Southern California Edison's remediation of the on-site retention basins. (See, Project AFC, pp. 2-3 through 2-4.)

The relevant definitions of "wetland" are set forth in the Proposed Report and restated here for ease of reference. The Coastal Act defines a wetland as:

> "Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. (Pub. Resources Code § 30121)

The Coastal Commission regulations contains the following definition of a wetland:

> Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year

> and their location within, or adjacent to, vegetated wetlands or deep-water habitats. (14 Cal. Code Regs. § 13577)

Applying the Coastal Act definition, the subject 2.03 acres is not covered periodically by shallow water, nor will it be covered permanently. The Project site is approximately 14 feet above sea level, is protected by approximately 30-foot tall dunes seaward, and an approximately 5-foot high earthen berm northward. It is also 5 to 9 feet above any potential subsurface waters. Applying the regulatory definition, the subject 2.03 acres do not have a water table at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes.

Wetland conditions do not exist on the Project site despite the presence of certain wetland indicator species. The presence of wetland indicator plant species on the Project site is more than likely the result of stored dredge materials. Because the Edison Canal is a saltwater environment, it is likely that the dredged spoils placed on the P3 site were saturated with saltwater, and that during the time of storage, saltwater infiltrated into the site soils. Over time, this practice likely resulted in an accumulation of salt in the site soils, making them more suitable for salt tolerant plant species such as woolly seablite, slenderleaf iceplant, and pickleweed.

A jurisdictional determination/wetland delineation prepared in March 2015 confirmed that neither hydric soils nor wetland hydrology is present on the Project site. The jurisdictional determination/wetland delineation specifically described the Coastal Commission's wetland delineation criteria and applied those criteria in its evaluation of the Project site. The jurisdictional determination/wetland delineation concluded that the Project site is not a wetland in accordance with the federal or Coastal Act definitions. Please refer to the memorandum entitled Puente Power Project - Wetland Technical Studies Summary, and attached hereto as Attachment A, which summarizes previously conducted technical studies, including the above-referenced jurisdictional determination/wetland delineation, evaluating the potential for wetlands at the Project site.

The Proposed Report fails to apply sound wetland science and practice to the Project site. The Coastal Commission's determination of the presence of a "one parameter wetland" typically follows methods promulgated by the U.S. Army Corps of Engineers, which require the presence of three wetland indicators (hydrology, hydrophytes and hydric soils). For federal determinations, the corroboration provided by the required presence of both wetlands hydrology and hydric soils greatly reduces the misidentification of plants as growing in wetlands, as opposed to uplands. Under the Coastal Commission's "one parameter" test, a finding of one of these three indicators creates a rebuttable, non-conclusive, presumption that an area is a wetland. Therefore, one may demonstrate that, despite the presence of a single wetland indicator, the area is, in fact, *not* a wetland. Such a demonstration has been made with respect to the Project site.

Based on the incorrect conclusion that a wetland exists on the Project site, the Proposed Report recommends that proposed CEC Condition of Certification BIO-9 be modified to require compensatory mitigation for direct impacts to wetlands in the form of wetland restoration at a ratio of 4:1 at a nearby location. (Proposed Report, p. 14) Compensatory mitigation should not

be required at all because the Project site does not include wetlands. Further, even if the subject 2.03 acres did constitute a wetland, the recommended 4:1 mitigation ratio is not appropriate given the poor quality of the subject acreage. Wetland mitigation ratios are typically determined based on the functions and values affected versus the function that is being restored, replaced or enhanced such that a 1:1 replacement of both acreage and function is accomplished; that is, if a higher quality mitigation is provided, the mitigation ratio may be lower than if lower quality mitigation is provided. For example, using the Army Corps' recent worksheet for establishing mitigation ratios for impacts to aquatic resources,[2] given the highly disturbed character of the plants identified on the Project site, the high percentage of non-native species, and general lack of wetland functions, a mitigation ratio of between 1:1 and 1.5:1 would be appropriate if the mitigation provided consists of moderate to high quality wetlands, and 1.5:1 if the mitigation provided consists of low to moderate quality. Even though NRG does not believe that any mitigation is required, it is prepared to accept CEC Condition of Certification BIO-9 as proposed, and to provide compensatory mitigation at the recommended 2:1 ratio.

The Proposed Report states that in the PSA, CEC staff recommended that 2.03 acres of the Project site be classified as a wetland pursuant to Coastal Act regulations. (Proposed Report, p. 12). While this is true, the PSA also makes clear that this recommendation is based exclusively on the Coastal Commission's highly conservative "one parameter approach" to defining wetlands, and that no portion of the Project site would be deemed a wetland under any other applicable criteria or definitions. The PSA states that "[t]he Coastal Commission uses this broad approach (i.e. a one-parameter approach) in determining wetland extent as a conservative means of defining and conserving wetlands, including conserving upland habitat surrounding a wetland." (PSA, p. 4.2-26).

In fact, the PSA emphasizes that the Project site does not exhibit any wetland indicators other than hydrophytic plants, and that even if this one indicator is sufficient to bring a portion of the Project site within the Coastal Commission's definition of a wetland, it is a poor quality wetland, at best. For example, the PSA makes the following points:

- The Project site has been actively maintained to facilitate operation of existing power generation, and has experienced varied uses, including as a marine dredging spoils storage; and therefore does not support wetlands or other waters under the jurisdiction of the Corps or CDFW. (PSA, p. 4.2-11).

- No other wetland indicators [other than hydrophytic plants], such as hydric soils or wetland hydrology were documented during the applicant's wetland delineation. (PSA, p. 4.2-11).

- Woolly seablite in the Project area is interspersed with the invasive iceplant, forming thick mats. These thick mats are of diminished value to wildlife, and woolly seablite is likely present only because the Project site is artificially saline, due to historical storage of ocean-dredged sediment. (PSA, p. 4.2-23).

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[2] http://www.spd.usace.army.mil/Portals/13/docs/regulatory/qmsref/ratio/12501.2-7-13.pdf.

- The wetlands on-site are degraded and contain plants suited to upland growth, and there is little to no differentiation between upland habitat surrounding the wetland, and the wetland, itself. (PSA, p. 4.2-26).

- There is no tidal influence to cause increased salinity, and water inputs are only from rainfall. (PSA, p. 4.2-26).

- The approximately 2.03-acre wetland has diminished value, form, and function. For these reasons, staff considers the wetlands to provide little beneficial value to wildlife, nor does the site on its own provide many of the positive benefits of a wetland, such as water filtration, foraging and habitat for wildlife, or water reabsorption. (PSA, p. 4.2-26).

Contrary to the assertion in the Proposed Report at page 14 that the CEC staff's assessment of the site is unsupported, the PSA references the staff's support for its assessment of the Project site, which includes the technical studies summarized in Attachment A to this letter. On the basis of its assessment of the Project site, the CEC staff concludes that compensatory mitigation at a 2:1 ratio would satisfy the Coastal Commission regulations in appropriately mitigating for development of the site, and the staff specifically rejects a ratio of 3:1 (PSA, p. 4.2-26).

Finally, the Proposed Report concludes its discussion of wetland impacts with the following statement: "Speculatively, the presence of wetland vegetation within the project area may indicate the partial re-emergence of vegetation native to this historical landscape during a recent decrease in site disturbance." (Proposed Report, p. 14). There is no evidence to support this claim, which is admittedly speculative. To the contrary, the CEC staff's PSA states "Researchers have deduced that in the early 1800s, the project site itself was sand dunes, with scattered alkali meadows in the low spots between the dunes (Bellar et al., 2011)." (PSA, pp. 4.2-5 through 4.2-6). According to the PSA, historical soil surveys of the area establish the fact that the area has never supported a wetland, nor provided the form or functions of a wetland. (PSA, p. 4.2-11).

Based on the foregoing, the Coastal Commission's determination that 2.03 acres of the Project site constitutes a wetland, which is driving the same reluctant conclusion on the part of the CEC staff, is unfounded and cannot serve as the basis for recommending that the Project be relocated to an alternative site. Further, while NRG is prepared to provide compensatory mitigation for the loss of hydrophytic plants at a ratio of 2:1, the mistaken determination that a portion of the Project site constitutes a wetland cannot be relied upon to recommend increasing the compensation ratio to anything higher than 2:1.

Flood, Sea Level Rise and Tsunami Hazards

The other primary justification provided in the Proposed Report for recommending an alternative site is the perceived vulnerability of the Project site to flood, seal level rise ("SLR") and tsunami hazards. For the reasons set forth below, the Proposed Report overstates these potential risks. In addition to extensive analysis of these issues in the CEC proceedings, as reflected in the PSA, these issues were the subject of expert testimony and briefing before the California Public Utilities Commission ("CPUC") in connection with the CPUC's consideration and approval of the resource adequacy purchase agreement between NRG and Southern California Edison for the Project.[3] Expert testimony presented in the CPUC proceedings, and relevant to the issues raised in the Proposed Report, is summarized in the Reply Brief of NRG Energy Center Oxnard LLC and NRG California South LP ("CPUC Reply Brief") attached hereto as Attachment B.

The Mandalay Generating Station ("MGS") site, of which the P3 site is a part, is located at an elevation of between 12 and 14 feet (NAVD88). Relative to the local tidal datums, the MGS site is approximately 7-9 feet above Mean Higher High Water (MHHW) and 11-13 feet above Mean Lower Low Water (MLLW). The P3 site is on the higher portion of the MGS site (~14 feet) and is, therefore, approximately 9 feet above MHHW. Compared to the local active tide gages (Santa Barbara and Santa Monica), the P3 site is over 5 feet higher than the highest observed water level (8.31 feet in November 1982).

Flooding Risk

Potential sources of flooding risk for the proposed Project site are the Santa Clara River (riverine flooding) if it overtopped its banks, or coastal flooding if a large storm in the Pacific Ocean overwhelmed the beach and dunes fronting the site. The entire MGS site, including the proposed P3 site, is outside the FEMA 100-year floodplain from either of these potential sources, riverine or coastal flooding.

If the Santa Clara River were to overtop its banks, flood waters would need to flow overland 3 to 4 miles before reaching the MGS site, and would be expected to be shallow. As shown on FEMA's Flood Insurance Rate Map (FIRM) Community Panel Numbers, No. 06111C0885E and 06111C0905E (Effective Date of January 20, 2010), a portion of the MGS site, including a very small portion of the P3 site on which nothing is planned for development, is shown in the FEMA "Zone X – Other Flood Areas" (areas protected by levees from 1 percent annual chance flood, areas of 0.2 percent annual chance flood; areas of 1 percent chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile). For the MGS site, including the P3 site, this flood hazard zone would be best described as an area of 0.2 percent annual chance flood, which corresponds to the 500-year floodplain, or an area of 1 percent chance flood (i.e., 100-year flood event) with average depths of less than 1 foot.

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[3] Application of Southern California Edison Company (U338E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area, Application No. 14-11-016, Filed November 26, 2014.

The FEMA maps, and a map from a recent study of the Santa Clara River provided in the Proposed Report, show flooding near the Project site from the Santa Clara River where it breaks out of its banks near its mouth. On the FEMA maps, the elevation is 10-12 feet, which is below the elevation of the flood protection berm along the north MGS property line. Furthermore, the Edison Canal would act as a drain limiting the amount of water that could flood the site from an upland source.

The other potential source of flooding, coastal flooding, is shown on the 2010 effective FEMA maps at the MGS site as a VE zone. VE zones are defined as "areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action." Unlike the more common AE zones, which show the depth or elevation of flood water, VE zones show the elevation of wave run-up. The effective FIRM shows a VE zone with a value of 13 feet.

FEMA is in the process of updating FIRMs of Ventura County. FEMA's Draft Work Map, which was included in the PSA as Soil & Water Figure 5 (PSA, p. 4.10-37), and is the precursor to preliminary maps, shows the VE zone has increased to 20 feet. This wave run-up level at 20 feet represents the ocean still water level (water level excluding waves) of approximately 7 to 9 feet in elevation plus the level of wave run-up on the beach, not the level of flooding. If FEMA determined that a dune would be overtopped by wave run-up (e.g., dune was lower in elevation than the VE zone), FEMA would include an estimate of the depth of flooding on the back side of the dune due to the water that overtopped the dune, typically shallow flooding of a few feet (not the elevation of the VE zone). FEMA did not include any flood zones on the back side of the dune since no overtopping was predicted. Additionally, since wave run-up is based on the beach slope, if the slope stays the same, the run-up would be the same. The dunes directly in front of the Project site are over 100 feet in width, and thus any future overtopping of shallow water, if it were to occur, would have to travel a significant distance prior to reaching the Project site. It is also overly simplistic to assume that 2 feet of SLR will result in a wave run-up level that is 2 feet closer to the top of the dune, because the dune itself could accrete and grow in size.

Coastal Erosion

NRG agrees that with Coastal Commission staff that "[t]he vulnerability of the project site to flood hazards, now and in the future, will be determined in part by the status of the coastal dunes immediately west of the MGS, and by the condition of the artificial berm along the site's northern boundary." (Proposed Report, p. 28). As stated in the Proposed Report, "The single most important determinant of flooding risk at the site, at least in the near term, appears to be the status of the beach and fronting dunes." (Proposed Report, p. 33). NRG also agrees with the staff conclusion that "sediment discharge from the Santa Clara River has comprised the majority of the shoreline sediment supply in the project vicinity, with sand bypassing from Ventura Harbor a secondary source." (Proposed Report, p. 28). These facts led the CEC staff to conclude in the PSA that "[t]he site specific characteristics of the beach (e.g., wide, dune backed, relatively low exposure to southern swells, and downcoast from a

large sediment source, the Santa Clara River) support this long-term shoreline accretion [referring to an increase in the width of the beach in front of the MGS site of over 200 feet during the period 1947-2016]." (PSA, p. 4.10-58).

In fact, the PSA significantly understates the extent of historic beach accretion. Since 1947, the beach fronting the MGS site has increased in width by more than 300 feet (see AFC Figure 4.15-7, which shows the growth in width based on aerial photos). The estimated width is the distance from the outfall headwall to the water line at the time of each photo. The estimate is approximate because the water level changes with the tides and season; however, all the photos, taken at different times over the decades, are consistent in showing the continual increase in beach width. In the 1950s and 1960s, a paved road ran along the beach just above the outfall headwall. The road is currently buried about 3 to 4 feet beneath the sand (based on an exploratory excavation done in 2014). As can be seen by comparing historic photos, the dunes have expanded farther towards the beach and ocean, and the old road is now partially covered by new dunes, indicating an increase in beach volume as well as width. The dunes' growth would appear to have been limited primarily by the outflow from the MGS outfall, rather than by erosion caused by extreme water levels or storms. This is indicated by the larger width in the dune field farther south from the outfall, where the outfall discharge impacts the beach less.

Having acknowledged the history of beach accretion fronting the MGS site, and the secondary role played by sand bypassing from the Ventura Harbor in contributing to such accretion, the Proposed Report then gives undue weight to concerns regarding possible future variability of dredging and sand bypassing. Even if Ventura Harbor dredging ceased, a bypass bar would likely form and sand transport past the harbor would eventually return to near pre-harbor construction conditions. The sand trap updrift of Ventura Harbor usually fills within a year or two, after which sand bypasses the trap and deposits in the channel and harbor requiring annual dredging to keep the harbor open. This year (2015-2016) resulted in a large amount of sediment bypassing the sand trap updrift of the Ventura Harbor and depositing sand into the Ventura Harbor inlet. The January 21, 2016 Ventura County Star newspaper reported that this past winter about 900,000 cubic yards of material was deposited at Ventura Harbor, filling the sand trap and overflowing into the inlet channel to the harbor. The newspaper reported that the harbor entrance normally has a depth of 40 feet but was down to 14 feet this year, and that the harbor entrance normally has a navigable area about 300 feet wide but was down to about 40 feet this winter. The harbor was dredged this winter, but if dredging did not occur, the harbor would likely be completely blocked within a few years. After that, most of the sediment that normally collected in the harbor and was dredged would bypass the harbor and continue south as it did before harbor construction. Thus, if dredging was completely and permanently discontinued at Ventura Harbor, which is unlikely, there would be only a short-term impact on the transport of sand.

The Proposed Report then expresses concern that wave driven erosion during a major storm event could result in significant erosion, reducing both the height and width of the protective dunes. (Proposed Report, p. 29). The Proposed Report relies heavily on the work of Dr. Revell. Dr. Revell's model has been shown to be inaccurate and flawed as applied to the Project site. The model predicted that an El Nino-type storm event, such as the one that

occurred in January 1983, would flood the entire Project site under current conditions, but that prediction is contrary to what actually happened. The January 1983 El Nino storm and other large storm events have occurred in the past, and the resulting waves and storm surges have had no impact on the MGS site – there was no flooding and no impact to MGS operations.

Since the 1983 event, the beach fronting the MGS site has accreted and is now wider than it was in 1983. In addition, foredunes have formed and stabilized farther out towards the ocean. Thus, under "current conditions," the Project site is not more vulnerable to coastal hazards than it was in 1983, but is actually less vulnerable. Under current conditions, the Project site is protected by a beach that is 300 feet wide, with dunes that are 20 to 30 feet high. If the same event occurred today, the waves would break onto a wider beach and would need to erode the newly formed foredunes before impacting the main dunes protecting the Project site. Given that no damage occurred in 1983, it is unlikely that any damage would occur under current conditions. (See, CPUC Reply Brief, pp. 10-13).

The Proposed Report then analyzes the potential effects of long-term sea level rise (SLR). For historical perspective, during the period of 1947-2016, SLR has been 0.004 foot per year (1.34 millimeters per year (mm/yr)), as measured at the Santa Monica gage. This amounts to about 3 inches since construction of the original MGS power plant approximately 60 years ago. Although the historical rate of SLR is less than the predicted future rate, the fact that the beach has grown in width notwithstanding SLR indicates a stable beach. We also note that for the projected SLR scenario of 24 inches by 2050 to occur, the rate of SLR would need to increase by more than tenfold over recent historical levels to 14.1 mm/yr. If the supply of sand from the north is not sufficient to keep up with SLR, the beach will contract. The existing slope of the beach averages approximately 3 percent, based on the 2013 LiDAR data. Assuming the high-scenario SLR of 24 inches by 2050, and that the beach slope remains the same, the beach would be expected to shrink by about 70 feet (24 inches/0.03/12 inches/foot) by 2050. For the FEMA VE zone calculations a beach slope of 10% was used. In this case the beach erosion is expected to be 20 feet. Over the expected 30-year life of the proposed project (2020 through 2050), the high-scenario SLR rate is considered to be extremely conservative, considering that recent historic rate of SLR is considerably less than the predicted future rate. Assuming the low or medium SLR scenarios, the estimated beach reduction would be on the order of about 20 or 45 feet, respectively. The *2013 Coastal Resilience Study* (specifically, Figure 16 in that report) shows that the sediment yield from the Santa Clara and Ventura Rivers should remain about the same as the historical yield until about 2050. Thus, the existing data indicate that loss of beach is unlikely to occur over the life of the Project, and even under the most conservatives analysis, the width of the beach fronting the MGS site would continue to be over 200 feet wide.

Edison Canal Flooding

The Proposed Report expresses concern regarding the potential for flooding as a result of elevated levels of water in the Edison Canal due to a severe storm or flood event or tsunami. The Edison Canal is a 2.5-mile-long, manmade canal. The entrance to the canal is at the northern end of the Channel Islands Harbor under Channel Islands Boulevard; approximately 2 miles from the harbor entrance.

The MGS roads and parking lot near the canal are at elevation 12 feet NAVD88, or more. Most of the canal banks on the MGS property are greater than 14 feet in elevation, although they decrease to about 12 feet at the head of the canal. An extreme tidal elevation is unlikely to exceed 8 feet. The maximum observed water levels at NOAA gages at Los Angeles, Santa Barbara, Port San Luis, and Rincon Island are all less than 8 feet. The historical peak at Santa Monica is 8.3 feet NAVD88, or about 0.3 foot above the 100-year water level. Therefore, flooding from the Edison Canal due to extreme water levels is unlikely. Even assuming an increase in sea level of 24 inches by the year 2050, the extreme water levels in the canal would be about 10 feet, that is, approximately 8 feet for a 100-year (or more) return period tide, plus 2 feet of high-scenario SLR. The water level would be expected to stay within the canal, but freeboard at the head of the canal (i.e., at the MGS inlet) would be reduced by about 2 feet, or to about 4 to 5 feet.

NRG has also analyzed the potential for flooding of the Edison Canal from a tsunami. The harbor entrance is between two jetties and is protected by a parallel offshore breakwater that extends across the entire mouth of the harbor entrance. Several studies on the effects of breakwaters on tsunami run-up height have been conducted (for example, Irtem et al. [2011], Adrichem and Aranguiz [2010], and Ha et al. [2014]). The general conclusion is that breakwaters can reduce the height and extent of tsunami run-up. The amount of reduction depends on the exact configuration of the breakwater and local beaches, but a reduction is anticipated. In addition to the breakwater, parallel jetties restrict the harbor entrance width to about 400 feet. There are two small beaches (Kiddie Beach and Hobie Beach) near the harbor entrance that the United States Army Corps of Engineers (USACE) created when it constructed the harbor. These beaches were specifically designed as surge beaches to absorb the impact of tidal surges that would otherwise damage facilities or boats in the harbor.

Inside the harbor, the channel is further restricted to less than 300 feet wide by residential developments on both sides of the channel. The harbor contains more than 2,000 boat slips, which will tend to reduce the energy of a tsunami. A little more than 2 miles into the harbor, the Edison Canal starts. The channel is further narrowed at this point to approximately 100 feet wide. The MGS facility is located another 2 miles from the start of the canal. The narrow canal restricts the inflow of water upstream. The canal dimensions are approximately 10 feet deep and 40 to 100 feet wide in the vicinity of the MGS intake. The depth of water fluctuates with the tide and ranges from approximately 2.5 to 7.5 feet MLLW (or approximately 2.3 to 7.3 feet NAVD88). Freeboard in the canal is on the order of approximately 6 to 7 feet.

Attachment C to this letter is a figure from a recent simulation for a tsunami generated by an earthquake on the Ventura-Pitas Point fault, which has an estimated return period of approximately 800 to 2,500 years (Thio et al., 2015). The figure shows the maximum wave amplitude plotted from the entrance to the harbor, through the harbor, and up the canal. The amplitude initially decreases as the waves enter the harbor, but increases toward the end of the harbor where the canal starts due to the restricted flow through the canal, which causes a local buildup of the wave. The restriction of the flow in the canal causes rapid attenuation of the

waves as it propagates further north. Based on the foregoing, flooding of the Project site from the Edison Canal is unlikely.

Tsunami Flooding on the MGS Beach

Studies of distant earthquakes (teletsunamis) indicate that the Project site is unlikely to be in the inundation zone. Studies of tsunamis generated by local earthquakes indicate that the site is unlikely to be in an inundation zone for "frequent" events (events with return periods of 1,000 to 1,500 years or less). Studies that used conservative assumptions indicate that the Project site might be in an inundation zone for less frequent events, e.g., 2,500-year return period; however, the predicted water level is lower than the top of the dunes. Analysis of return periods for various tsunami sources indicate return periods of between 800 and 10,000 years. In all cases, the maximum projected wave height is well below the top of the existing dunes that protect the Project site.

Alternative Site Locations

As reflected in its Revised Preliminary Staff Assessment ("PSA") (TN #211885-1), CEC staff has undertaken a robust analysis of alternative site locations for the Project, which includes multiple off-site locations, and two alternative configurations within the existing Mandalay Generating Station ("MGS") site. The CEC staff's analysis was informed, in part, by an alternatives analysis prepared by NRG (TN # 207096). The Proposed Report focuses on three of the alternative sites – the "Ormond Beach" site and the two alternative configurations within the MGS site.

Under the California Environmental Quality Act ("CEQA"), the CEC is tasked with completing an analysis of alternatives to the Project, including alternative sites. The Proposed Report acknowledges the CEC's role in this regard and does not purport to contain a comprehensive alternatives analysis. However, the Proposed Report does addresses alternative sites based on concerns related to impacts on coastal wetlands and risk from flooding, SLR and tsunami hazards associated with the proposed Project site. As explained above, the Proposed Report overstates the impacts and risks in these two areas. Once all of the available and relevant data and analysis is taken into consideration, it is clear that Project impacts to wetlands and the risk of flooding are not significant enough to warrant recommending relocation of the Project to an alternative site. This conclusion alone eliminates the need for analysis of alternative sites in the Proposed Report.

Nevertheless, and notwithstanding the primary role of the CEC in evaluating Project alternatives, we are providing the following information regarding the feasibility issues associated with the alternative sites analyzed in the Proposed Report. Perhaps most important for purposes of the analysis in the Proposed Report, the alternative sites under consideration may pose impacts and risks that are greater than those of the proposed Project site in the very areas that led to Coastal Commission staff's consideration of alternative sites in the first place – biological resource impacts and flooding risks.

Ormond Beach Alternative Site

The Ormond Beach Alternative Site is adjacent to property proposed for inclusion in the Ormond Beach Wetlands Restoration Project, a joint effort of the California Coastal Conservancy, the Nature Conservancy, the Southern California Wetlands Recovery Project, the County of Ventura and the City of Oxnard, to restore the Ormond Beach wetlands and uplands habitat. A May 26, 2016 Coastal Conservancy Staff Recommendation that the Conservancy authorize disbursement of funds to prepare a restoration/public access plan and associated technical studies for the restoration of the coastal wetlands, beach, dunes, and associated uplands at Ormond Beach described the significance of this project as follows:

> At over 1,000-acres, the Ormond Beach wetlands complex is the largest wetland restoration opportunity in southern California. The Conservancy, The Nature Conservancy (TNC), and the City of Oxnard (City) collectively own 645 acres at Ormond Beach. The U.S. Fish and Wildlife Service last month approved a grant to the Conservancy to acquire an additional 13 acres.
>
> Ormond Beach is considered by many wetland experts to be the most important wetland restoration opportunity in southern California. Restoration of the wetlands is a high priority of the Southern California Wetlands Recovery Project. Although large areas of the wetlands have been drained, filled and degraded over the past century, this is one of the few places in coastal southern California with an intact dune-transition zone–marsh system, allowing restoration of an intact wetland ecosystem and providing a buffer against sea level rise and the impacts of climate change. The largely agricultural surroundings provide an opportunity unique in most of coastal southern California to expand the current protected areas and to restore the approximate extent of the historic wetland area.

The Ormond Beach Alternative Site analyzed in the Proposed Report is adjacent to more than 500 acres of land proposed for inclusion in the Ormond Beach Restoration Project. The alternative site is on the north side of McWane Boulevard, and the lands proposed for acquisition and inclusion in the Ormond Beach Restoration Project are across the street and south of McWane Boulevard. (See, http://archive.vcstar.com/news/local/oxnard/ormond-beach-wetlands-preservation-effort-looks-for-boost-from-grant-2f5c6f1e-7ed0-1e6c-e053-0100007-374326751.html). Since one of the primary drivers for the Proposed Report's consideration of alternative sites is concern regarding the Project's potential impacts to biological resources (coastal wetlands), consideration of an alternative site in such a potentially biologically sensitive area seems misplaced. This is particularly true in light of the discussion above regarding whether or not a portion of the proposed Project site is a wetland.

Furthermore, while the Ormond Beach Alternative Site is not in the coastal zone, it could be susceptible to flooding, sea level rise and tsunami hazards due to its proximity to the coast,

less extensive dunes relative to the proposed Project site, and its relatively low elevation. The tops of the dunes along the beach in the southern portion of Oxnard are much lower than the dunes fronting the proposed Project site; therefore, this site would be expected to be more susceptible to sea-level rise and tsunami-related impacts than the Project site. Thus, the suggested alternative site may be more at risk from the very hazards that led to the analysis of alternatives to the proposed Project site in the first place. Again, this may be particularly true when the actual risks associated with the proposed Project site are properly analyzed and put into context.

In addition to its adjacency to lands slated for inclusion in the Ormond Beach Restoration Project, and its potential susceptibility to flooding, the Ormond Beach Alternative Site presents the following additional feasibility constraints that are not fully reflected in the Proposed Report:

- Potentially significant impacts associated with construction of new linear infrastructure, such as gas pipelines, water supply pipelines and transmission lines, that are not required in connection with the proposed Project site.

- Connection to the nearest natural-gas trunk line of sufficient capacity would require an approximately 2,100-foot pipeline, which would require constructing the buried pipeline under Edison Drive and the transmission line that parallels Edison Drive.

- Connection with the City's recycled water supply would require an approximately 4,200-foot linear to the AWPF at West Hueneme Road and South J Street and/or the potable water pipeline that borders the site along Arcturus Avenue and E. McWane Boulevard.

- The nearest 220-kV electrical interconnection is approximately 1,000 feet from the alternative site.

- Impacts associated with ground disturbance during construction (e.g., soil erosion, dust, etc.) would be substantially more for this alternative site than for the Project.

- Construction phase traffic impacts would also increase, due to the installation of offsite linears along McWane Boulevard and Edison Drive.

- Potential visual impacts would be more than for the Project due to the new offsite transmission lines and development of a power-generating facility, with its associated infrastructure, on a site that is generally surrounded by low commercial and industrial structures and farmland.

For all of the above reasons, the Ormond Beach Alternative Site is not practically or environmentally superior to the proposed Project site.

MGS Site Reconfiguration #1 and #2

As acknowledged in the Proposed Report, the MGS Site Reconfiguration Alternatives are at lower elevations than the proposed Project site, and, therefore, at greater risk of flooding hazards than the Project as proposed. Presumably then, these alternative sites were evaluated because of their ability to avoid impacts to areas determined to be wetlands. The discussion above with respect to wetlands establishes that no portion of the Project site constitutes a wetland under even the Coastal Commission's conservative approach, and that NRG is nevertheless willing to provide compensatory mitigation at a ratio of 2:1. Thus, there is no basis for increasing the risk of Project flooding by relocating the Project to a lower elevation area of the MGS site.

In addition to the increased risk of flooding, the Proposed Report does not appear to take into consideration the following feasibility issues associated with the MGS Site Reconfiguration Alternatives.

MGS Site Reconfiguration #1

- This proposed P3 power block location would require the relocation of the existing gas metering station and main 30-inch gas line for the existing MGS Units 1, 2, and 3. This would also cause interruption of the existing units operation during the relocation of the metering station and main gas line.

- The existing MGS leach field would have to be relocated.

- The P3 combustion turbine generator unit would need to be rotated 180° from what is proposed in the PSA (i.e., inlet filter facing the road), and the unit would need to move approximately 75 feet west, in order to provide the required space for the tempering air fans and ducting.

- This proposed location would likely require significant additional noise mitigation compared to the proposed site to avoid offsite noise impacts.

- This proposed location would create significantly greater visual impact by moving the power block approximately 425 feet closer to the roadway.

- This location reduces access for P3 constructability, which would adversely impact the P3 project construction schedule.

- The proposed relocation of the stack would require the Project air modeling and air permit application to be revised, which could significantly impact the permitting schedule.

- In this reconfiguration, the northern portion of the power block would be placed directly on the existing earthen dike, which would need to be rebuilt to provide flood protection.

MGS Site Reconfiguration #2

- This proposed P3 power block location would require the shutdown of MGS Units 1 and 2 prior to the construction of the P3 for removal of the existing circulating water piping that partially underlies the proposed site.

- The proposed relocation area for the existing warehouse building is the current location of the existing plant gas metering station and leach field. The relocation of these facilities would have significant impacts on the existing units' operations and P3 construction schedule.

- This proposed P3 power block location would interfere with the planned demolition of existing MGS Units 1 and 2. The demolition execution plan would have to be revised from explosive to mechanical demolition, significantly increasing the cost.

- This proposed P3 power block location will have a significant impact on the planned construction corridor for the P3 project electrical and water lines.

- The proposed relocation of the stack would require the Project air modeling and air permit application to be revised, which could significantly impact the permitting schedule.

- The proposed P3 power block location will restrict or eliminate a major access area for the construction and assembly of the P3 combustion turbine generator unit.

- The proposed P3 power block location will restrict access to maintain the GSU, Unit Aux transformer, and GT electrical equipment.

- The suggested reconfiguration would interfere with the existing MGS Units 1 and 2 transmission line interconnection to the SCE switchyard. As proposed in the PSA, the P3 selective catalytic reduction unit would be in direct conflict with the existing transmission line.

- The suggested reconfiguration does not satisfy P3's objective to reuse existing MGS infrastructure, such as the existing warehouse.

Conclusion

When all of the relevant information regarding whether or not a portion of the proposed Project site meets the definition of a wetland, and the Project's potential exposure to flooding, sea level rise and tsunami hazards, is taken into consideration, the extent of the impacts and risk associated with the Project as proposed do not warrant a recommendation to relocate the Project to an alternative site. Furthermore, all of the alternative sites analyzed in the PSA present their own set of environmental and feasibility issues. In fact, if the impacts and risks of the proposed Project are accurately characterized, developing the Project at the alternative site locations analyzed in the Proposed Report may well lead to greater impacts and risks, relative to the proposed Project site, in the very areas that the Coastal Commission staff has expressed concerns.

Based on the information and analysis contained herein, NRG urges the Coastal Commission staff to modify the Proposed Report, and the recommendations contained therein, as follows:

- Reverse the determination that a portion of the Project site meets the definition of a wetland;
- Reassess the level of risk to the proposed Project site from flooding, sea level rise and tsunami; and
- Eliminate the recommendation to relocate the Project to an alternative site.

Thank you for your consideration of these comments. We look forward to continuing discussions with you as this matter proceeds.

Best regards,

Michael J. Carroll
Of LATHAM & WATKINS LLP

Attachments
cc: Mark Delaplaine

ATTACHMENT A

AECOM
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Suite 100
Santa Barbara, CA 93117
www.aecom.com

805 692 0600 tel
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Memorandum

To	Joseph Street, California Coastal Commission	Page	1 of 2
Subject	Puente Power Project - Wetland Technical Studies Summary		
From	Julie Love		
Date	August 31, 2016		

This memorandum serves to summarize previously conducted technical studies evaluating the potential for wetlands at the Puente Power Project (P3) as documented in the Application for Certification.

Local Habitats

P3 will encompass approximately 3 acres within the fenced boundaries of the existing MGS, near the northern edge of the facility. The site itself has been graded and subjected to various human uses in the past, and the vegetation is significantly disturbed. Dominant plants include many invasive weeds, including freeway iceplant (*Carpobrotus edulis*), slenderleaf ice plant (*Mesembryanthemum nodiflorum*), and Russian thistle (*Salsola tragus*); and horticultural species such as lollypop tree (*Myoporum laetum*). Remnant coastal dune scrub habitats occur in the southern portion of the site, supporting native species including coyote brush (*Baccharis pilularis*) and woolly seablite (*Suaeda taxifolia*). However, even this area is disturbed, and invasive species are prevalent. Soils in the P3 site appear to have been artificially compacted, and infiltration may be impaired. The presence of woolly seablite, a facultative wetland plant commonly found in salt marshes, supports this notion, because unimpacted soils in the vicinity are generally sandy and well-drained, and would not naturally retain water in the upper soil layers as required by this species.

Wetlands and Other Waters of the United States

During the botanical survey conducted in March 2015, a wetland delineation was performed within the P3 site. The investigation revealed that wetland hydrology and hydric soils were absent, but that the disturbed vegetation on the site exhibits a predominance of salt-tolerant hydrophytes. Because all three wetland parameters (hydrophytic vegetation, wetland hydrology, and hydric soils) were not present, the site does not constitute a wetland as defined by U.S. Army Corps of Engineers (USACE) regulations.

The California Coastal Act provides protection for wetlands within California's Coastal Zone, and defines wetlands as "...lands within the Coastal Zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." The Coastal Commission has issued regulations and guidance directing that the delineation of coastal wetlands should employ the

three-parameter approach used by the USACE, but that a positive wetland determination can be made based on the presence of any one parameter, rather than requiring all three parameters to be present. Although the P3 site exhibits a predominance of hydrophytic vegetation, this vegetation is the result of chronic disturbance and human intervention, and is not indicative of wetland conditions.

As shown on data sheets in Attachment 1, the P3 site contains three hydrophytes among its dominant plant species: woolly seablite, slenderleaf ice plant, and pickleweed (*Sarcocornia pacifica*). However, many obligate upland species are also abundant on the site, including coyote brush, freeway ice plant, Russian thistle, and others. It is uncommon for wetland species and obligate upland plant species to co- occur this extensively in natural settings, and the presence of hydrophytes on the P3 site is probably the result of past human uses. As described above, the P3 site was graded and used for storage of dredged spoils from the Edison Canal for a period of several years. Because the Edison Canal is a saltwater environment, it is presumable that the dredged spoils placed on the P3 site were saturated with saltwater, and that during the time of storage, saltwater infiltrated into the site soils. Over time, this practice likely resulted in an accumulation of salt in the site soils, making them more suitable for salt- tolerant plant species such as woolly seablite, slenderleaf ice plant, and pickleweed. This hypothesis is supported by the fact that none of the surrounding areas in the MGS facility, which exhibit disturbed conditions similar to the proposed P3 site but which were not used for storage of dredged material, support these salt-tolerant hydrophytes. Although it is not known, it is possible that the stored spoils may have contained propagules of these species and facilitated their introduction onto the site.

Due to the highly disturbed and anthropogenically influenced nature of the onsite vegetation, this parameter is not a reliable indicator of the site's wetland status. As directed by the USACE's Arid West Regional Supplement to the Wetland Delineation Manual, in cases where one parameter is naturally problematic or significantly disturbed, the other two parameters should be relied upon in greater detail for making the wetland determination. The site did not exhibit wetland hydrology or hydric soils, suggesting that despite the presence of hydrophytic vegetation under disturbed conditions, the site does not qualify as a wetland. This notion is further supported by a direct comparison with wetland definition in the Coastal Act statute: the site is not covered periodically or permanently by shallow water, and is not similar to a marsh or swamp. The site contains no hydrologic features, receives no hydrologic inputs other than direct rainfall, and is not connected to freshwater or tidal habitats. Indicators of wetland hydrology, which should have been evident if the site ponded water for considerable periods of time, were found to be absent. Considering this information, the P3 site is not a wetland as defined by the Coastal Act.

Attachments

Attachment 1 – USACE Wetland Determination Data Forms

ATTACMENT 1

WETLAND DETERMINATION DATA

FORMS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site:	Mandalay Puente Power Site	City/County:	Oxnard/Ventura	Sampling Date:	3/12/2015 and 4/02/15
Applicant/Owner:	NRG Energy	State: CA		Sampling Point:	1
Investigator(s):	Julie Love and Elihu Gevirtz	Section, Township, Range:			
Landform (hillslope, terrace, etc.):	Flat	Local Relief (concave, convex, none):	None	Slope (%):	0-1%
Subregion (LRR):	C	Lat: 34.2080839	Long: -119.2512036	Datum:	NAD 83 UTM Zone 11
Soil Map Unit Name:			NWI Classification:		

Are climatic/hydrological conditions on the site typical for this time of the year? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☑ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" Present? ☐ Yes ☐ No

Are Vegetation, ☐ Soil, ☑ or Hydrology ☐ naturally problematic? (If needed, explain answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☑ Yes	☐ No	**Is the Sampled Area within a Wetland?** ☐ Yes ☑ No
Hydric Soil Present?	☐ Yes	☑ No	
Wetland Hydrology Present?	☐ Yes	☑ No	

Remarks:
Typical conditions but drought. Vegetation sampled 3/12/15. Soil and hydrology sampled 4/2/15. Historically disturbed w/ vehicles & equipment. Flooded in 2005 with water from dredge spoils from Mandalay canal that covered site. Water gradually left tubes. Tubes were on site for 2-3 years.

VEGETATION

Tree Stratum — Plot size: 30ft radius	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum — Plot size: 20ft radius			
1. Baccharis pilularis	5	Y	UPL
2. Suaeda taxifolia	20	Y	FACW
3.			
4.			
5.			
Total Cover:	25		
Herb Stratum — Plot size: 10ft radius			
1. Salicornia pacifica (NWI: Sarcocornia pacifica)	45	Y	OBL
2. Carpobrotus edulis	20	Y	UPL
3. Mesembryanthemum nodiflorum	23	Y	FAC
4. Salsola tragus (dead/alive)	2	N	FACU
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum — Plot size: 10ft radius			
1. N/A			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 10 — % Cover of Biotic Crust: 0

Dominance Test Worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiplied by:	
OBL species	45	x1 =	45
FACW species	20	x2 =	40
FAC species	23	x3 =	69
FACU species	2	x4 =	8
UPL species	25	x5 =	125
Column Totals:	115 (A)		287 (B)

Prevalence Index = B/A = 2.495652174

Hydrophytic Vegetation Indicators:
☑ Dominance Test is >50%
☑ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Remarks:
Suaeda taxifolia/Mesembryanthemum nodiflorum community.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	N/A				SaLo	very gritty

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? ☐ Yes ☑ No

Remarks:
Soils may be influenced by prior stock piling/storage of estuarine spoils and water that were deposited on the site in 2005 and remained there for 2-3 years. May not be significant anymore? Naturally problematic sandy soil. Shovel refusal at 16 inches due to big rock. Rocks throughout. Maybe asphalt?

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizopheres along Living Roots (C3)
- ☐ Presence Of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ☐ Yes ☑ No Depth (inches): _____
Water Table Present? ☐ Yes ☑ No Depth (inches): _____
Saturation Present? (Includes capillary fringe) ☐ Yes ☑ No Depth (inches): _____

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
FAC Neutral = 2:2. Conditions are same for 3/12/15 and 4/12/15.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site:	Mandalay Puente Power Site	City/County:	Oxnard/Ventura	Sampling Date: 3/12/2015 and 4/02/15
Applicant/Owner:	NRG Energy	State: CA		Sampling Point: 2
Investigator(s):	Julie Love and Elihu Gevirtz	Section, Township, Range:		
Landform (hillslope, terrace, etc.): Flat		Local Relief (concave, convex, none): None		Slope (%): 0-1%
Subregion (LRR):	C	Lat: 34.2080103	Long: -119.2515025	Datum: NAD 83 UTM Zone 1
Soil Map Unit Name:			NWI Classification:	

Are climatic/hydrological conditions on the site typical for this time of the year? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☑ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" Present? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☑ or Hydrology ☐ naturally problematic? (If needed, explain answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☑ Yes	☐ No	
Hydric Soil Present?	☐ Yes	☑ No	**Is the Sampled Area within a Wetland?** ☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No	

Remarks:
Typical conditions but drought. Vegetation sampled 3/12/15. Soil and hydrology sampled 4/2/15. Site previously disturbed w/ vehicles & equipment. Flooded in 2005 with water from dredge spoils from Mandalay canal in geo tubes. Tubes were on site for 2-3 years.

VEGETATION

Tree Stratum (Plot size: 30ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: 20ft radius)			
1. Suaeda taxifolia	65	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	25		
Herb Stratum (Plot size: 10ft radius)			
1. Salicornia pacifica (NWI: Sarcocornia pacifica)	3	N	OBL
2. Carpobrotus edulis	5	N	UPL
3. Mesembryanthemum nodiflorum	15	Y	FAC
4. Salsola tragus (dead/alive)	1	N	FACU
5. Solanum douglasii	1	N	FAC
6. Atriplex semibaccata	2	N	FAC
7. Medicago polymorpha	<1	N	FACU
8.			
Total Cover:	28		
Woody Vine Stratum (Plot size: 10ft radius)			
1. N/A			
2.			
Total Cover:			
% Bare Ground in Herb Stratum: 5	% Cover of Biotic Crust: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiplied by:	
OBL species	3	x1 =	3
FACW species	65	x2 =	130
FAC species	17	x3 =	51
FACU species	3	x4 =	12
UPL species	5	x5 =	25
Column Totals:	93 (A)		221 (B)

Prevalence Index = B/A = 2.376344086

Hydrophytic Vegetation Indicators:

☑ Dominance Test is >50%

☑ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Remarks:
Suaeda taxifolia/Mesembryanthemum nodiflorum community.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3.5	10YR 3/2	100	N/A				SaLo	
3.5-4.5	10YR 4/2	100					SaLo	
4.5-12	10YR 2/2	100					SaLo	
4.5-12	Rust	<1					SaLo	Two <1mm specks of rust color on soil clumps/rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):
Type: _____
Depth (inches): _____

Hydric Soil Present? ☐ Yes ☑ No

Remarks:
Soils may be influenced by prior stock piling/storage of estuarine spoils and water that were deposited on the site in 2005 and remained there for 2-3 years. May not be significant anymore? Naturally problematic sandy soil. Shovel refusal at 12 inches. Rocks throughout but not as much as Sample Point 1. Soil is more compacted and harder to get through than Sample Point 1. No asphalt-like rocks. SaLo due to <1 inch ribbon but feels and sticks together like there's a little clay. Lighter layer 3.5-4.5 goes all around the pit.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizopheres along Living Roots (C3)
- ☐ Presence Of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth (inches): _____
Water Table Present?	☐ Yes	☑ No	Depth (inches): _____
Saturation Present? (Includes capillary fringe)	☐ Yes	☑ No	Depth (inches): _____

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
FAC Neutral = 1:0. Conditions are same for 3/12/15 and 4/12/15.

ATTACHMENT B

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U338E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area.	Application 14-11-016 (Filed November 26, 2014)

REPLY BRIEF OF NRG ENERGY CENTER OXNARD LLC AND NRG CALIFORNIA SOUTH LP

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August 5, 2015

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REPLY BRIEF OF NRG ENERGY CENTER OXNARD LLC AND NRG CALIFORNIA SOUTH LP

NRG Energy Center Oxnard LLC ("NECO") and NRG California South LP ("NRG South") (together, "NRG") submit their reply brief pursuant to Rule 13.11 of the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission"), and the schedule in the Assigned Commissioner's Scoping Memo and Ruling dated March 13, 2015. This reply brief responds to the opening briefs filed by the Office of Ratepayer Advocates ("ORA"), the City of Oxnard ("City"), Sierra Club, California Environmental Justice Alliance ("CEJA"), Center for Biological Diversity ("CBD") and World Business Academy ("WBA").

I. INTRODUCTION

ORA, Sierra Club and WBA oppose approval of the tolling agreement with NRG South for the existing 54 megawatt ("MW") Ellwood Generating Station ("Ellwood"), which will be refurbished (without any change in size or capacity) to achieve a remaining 30-year design life ("Ellwood Refurbishment Contract"). The Ellwood Refurbishment Contract was selected as a mutually inclusive offer with a tolling agreement for a new 0.5 MW energy storage facility to be built at the Ellwood site ("Ellwood Storage Contract"). As explained below, procurement of the bundled Ellwood Refurbishment Contract and Ellwood Storage Contract is consistent with the Commission's procurement rules and the procurement authority of Southern California Edison Company ("SCE"). Approval of these contracts adds energy storage (which will be incremental

capacity) at the Ellwood site, and lengthens Ellwood's useful life and enhances its operations, all as allowed under the Commission's procurement rules. Selection of the Ellwood Refurbishment Contract is also consistent with the Commission's prior decision approving an application by Pacific Gas and Electric Company ("PG&E") for approval of the results of its new generation request for offers ("RFO"), which procured contracts for new, incremental capacity and contracts for existing capacity that did not count toward PG&E's new generation procurement authorization.

The City, Sierra Club, CEJA, CBD and WBA oppose approval of the resource adequacy purchase agreement with NECO for the 262 MW simple cycle peaking facility known as the Puente Power Project ("Puente") (the "Puente Contract"). Puente will be built on a portion of the site of the existing Mandalay Generating Station ("Mandalay") in Oxnard, which is a plant that uses once-through cooling ("OTC") technology and is scheduled to retire. The City and Sierra Club rely on a modeling exercise prepared by the City's retained consultant, Dr. Revell, to assert that locating Puente at the Mandalay site will be "unreliable." As explained below, the modeling results have been discredited in the record and shown to be unreliable. The assertions of the City and Sierra Club do not support a finding regarding Puente's future reliability. The City also attempts to discredit the testimony of NECO's expert witness, Mr. Mineart, but the City's arguments misrepresent the record and are not credible.

The City also wrongly argues that procurement of the Puente Contract does not ensure reliability in the Moorpark sub-area because Puente is not in Goleta. The City fails to understand that Decision 13-02-015 authorized procurement for the Moorpark sub-area to address reliability issues arising largely due to the retirement of almost 2,000 MW of OTC capacity. All of this existing OTC capacity is located in Oxnard. The Puente Contract provides the opportunity to replace the almost 2,000 MW of aging OTC capacity with 262 MW of new fast-start peaking

capacity that repurposes and reuses existing gas and transmission infrastructure at the Mandalay site. This is an ideal local reliability solution.

The City and Sierra Club urge the Commission to delay approval of the Puente Contract until after the California Energy Commission ("CEC") renders its licensing decision for the Puente Application for Certification ("AFC"), but they have not shown how the CEC's decision would help "illuminate" issues,."assist" review, or allow the Commission to "better evaluate" the Puente Contract. The Puente Contract is final and has been executed by SCE and NECO. Delay serves no valid purpose. In the Puente Contract, NECO agreed to assume the risk of an unfavorable CEC licensing decision. The Commission should approve the Puente Contract without delay, and thereby allow NECO to undertake its obligation to obtain CEC approval for Puente in accordance with its contractual commitment. This result would be consistent with the Commission's prior decisions approving contracts for new generation.

The City wrongly asserts that Commission approval of the Puente Contract will prejudice the CEC's ability to consider a full range of alternatives and potential mitigation for Puente. This is not true. The City's relies entirely on the "Alternatives" section of the AFC for Puente, which was prepared by NECO's permitting team and submitted to the CEC. Regardless of what is written in the AFC, it is obvious that an applicant cannot dictate what the CEC will consider or require as part of its review of the Puente AFC. The City's argument is contrary to all reason and common sense. NECO's statements in the AFC are also consistent with CEQA, which does not require consideration of alternatives that cannot achieve a project's fundamental purpose.

The City further errs in asserting that Commission approval of the fixed price in the Puente Contract somehow limits the CEC's authority to require changes in the Puente project that might substantially increase its costs. This is wrong. The Puente Contract specifies a fixed resource adequacy payment with no mechanism for increasing that price during the contract term. Under the Puente Contract, NECO will be responsible for paying for and implementing

any mitigation required by the CEC. Commission approval of the Puente Contract does not, and could not, limit the CEC's authority to consider and require mitigation that is shown to be necessary to mitigate significant environmental impacts or ensure reliability.

The City also wrongly argues that the Commission must act as the lead agency under the California Environmental Quality Act ("CEQA") and conduct an environmental review of Puente. It is well established that Commission approval of a utility power purchase agreement is not a "project" for purposes of CEQA and does not trigger a requirement for environmental review under CEQA.

In a new twist on an old, wrong argument, the City alleges that the Commission must act as the lead agency under CEQA for Puente because approval of the Puente Contract would foreclose alternatives or mitigation measures that would ordinarily be part of CEQA review of Puente. This is also wrong. The City again distorts the statements in the Alternatives section of the Puente AFC. NECO does not have the power to dictate or constrain the CEC's authority to consider project alternatives or require mitigation. The City also misrepresents the testimony of NECO's witness, Ms. Gleiter, by alleging that Ms. Gleiter testified that Commission approval of the Puente Contract "makes it far more likely that the CEC will approve" the Puente AFC. In actuality, when Ms. Gleiter was asked to confirm this during cross-examination, she replied: "No, that is definitely not true."[1] Contrary to the City's arguments, Commission approval of the Puente Contract does not, and could not, commit the CEC to approve the Puente AFC or limit the scope of the CEC's environmental review of Puente.

The City also alleges that Puente provides more capacity than needed, but the City's position is contrary to the record. The CAISO's testimony shows that the selected contracts actually are only a portion of the resources needed to meet reliability needs in the Moorpark

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[1] Reporter's Transcript, Volume 2 (NRG/Gleiter), p. 340 lines 16-21.

sub-area. SCE's testimony also explains that the Puente Contract was necessary to meet the minimum procurement level of 215 MW that the Commission required in Decision 13-02-015.

CEJA argues that SCE's evaluation of offers in the RFO failed to comply with Commission decisions requiring consideration of environmental justice impacts, but its argument misinterprets the Commission's guidance on the use of qualitative considerations in an RFO. In directing utilities to consider certain qualitative bid evaluation metrics, the Commission did not specify that utilities must give disproportionate consideration to environmental justice factors over other qualitative considerations such as the preference for using brownfield sites rather than greenfield sites. The Commission also did not specify that qualitative considerations would override the utilities' quantitative analysis of which resources are the lowest cost and best fit for the utility's need. SCE has shown that the Puente Contact was the most cost-effective gas-fired offer, and it also satisfies the Commission's preference for locating new capacity at brownfield sites instead of greenfield sites. Siting Puente at the existing Mandalay site also provides environmental benefits because it provides the opportunity to replace almost 2,000 MW of aging OTC capacity with 262 MW of new fast-start peaking capacity. Construction of Puente thus would result in a net environmental benefit to the local community.

CEJA also incorrectly argues that SCE's selections of the Puente Contract and the Puente Refurbishment Contract were inappropriately based on a "qualitative" assessment regarding the risk of resource shortages due to the possible retirement of existing non-OTC units owned by NRG South. This claim is contrary to the record, which shows that SCE selected the winning contracts for the Moorpark sub-area based primarily on its quantitative analysis of net market value. Additional qualitative factors may have supported its selection, but the Puente Contract won due to its net market value. SCE's testimony also shows that the Ellwood Refurbishment Contract offered a low cost solution to improve reliability in the Goleta service area. The Independent Evaluator performed an independent, parallel evaluation of the offers and confirmed

that the contracts' economics and their general terms and conditions represented the best resources available from a competitive solicitation.

Sierra Club, the City and WBA unreasonably urge the Commission to reject the RFO results, and to require SCE to start over and conduct another RFO to procure a greater quantity of preferred resources. SCE explained that it selected every preferred resources offer for the Moorpark sub-area other than energy storage, and still had to select a large gas-fired generation offer to meet the minimum procurement authorization of 215 MW. Given that SCE has just completed an exhaustive RFO process, it is not reasonable to expect that the results of a second RFO would produce materially greater amounts of preferred resources. WBA's witness also confirmed that the resources advocated by WBA were not bid into the RFO and are "speculative numbers." It would not be prudent to risk local reliability based on speculation about alternative resources.

II. DISCUSSION

A. The Ellwood Refurbishment Contract Does Not Violate Commission Rules Or SCE's Procurement Authority.

ORA and Sierra Club oppose approval of the Ellwood Refurbishment Contract based on their view that SCE lacks authority to procure capacity from a refurbished existing plant in the LCR RFO.[2] Sierra Club argues that SCE violated procurement rules adopted on page 28 of Decision 14-02-040, but review of that decision shows that SCE's procurement of the bundled Ellwood Refurbishment Contract and Ellwood Storage Contract is consistent with the Commission's procurement rules. In Decision 14-02-040, the Commission stated:

> While current rules do not specifically prohibit the combination of RFOs for existing or new facilities, we hereby clarify that upgraded and repowered plants are allowed to bid in new generation RFOs. We clarify the rules so as to oversee the

[2] ORA Opening Brief, pp. 5-7; Sierra Club Opening Brief, pp. 5-7.

administration of RFOs that fill defined reliability needs in the most cost effective way.

Allowing for the incremental capacity of existing plants or repowered plants to participate in long-term RFOs appropriately acknowledges the varied technological capabilities and improvements possible with today's generation stock, and may alleviate some need to build additional capacity. **In addition, it may be possible for an existing power plant to add capabilities (e.g., energy storage, more optimal ramp rate, or start up times) that would enhance the operation of the plant and increase its value to the system.**

In discussing this issue, first we need to define the term "incremental capacity." We will take SCE's recommendation that the definition should be "capacity incremental to what was assumed in the underlying needs assessment." In other words, these are net additions. **We agree with SDG&E that an existing facility may provide value to IOU ratepayers if it has a useful life extending beyond its current contract or is able to lengthen its useful life by upgrading or repowering various facility components.** The following terms are defined herein:

- Upgraded plants: Upgrades are defined as expanding the generation capacity at, **or enhancing the operation of, a generation facility**, so long as such incremental MW and/or enhanced operating characteristics can provide the necessary attributes that the Commission has authorized the utility to procure. **An upgraded plant** or a plant with incremental capacity additions **would be a plant where the main generating equipment is retained and continues to operate.**

- Repowered plants: Repowers are defined as capital investments that extend the useful life of a generation facility, after the planned retirement date. A repowered facility is a facility where the main generating equipment (such as the turbine) is changed out for new equipment.[3]

Procurement of the bundled Ellwood Refurbishment Contract and Ellwood Storage Contract is consistent with these rules. First, as quoted above, the Commission recognized that the rules do not "prohibit the combination of RFOs for existing or new facilities." Sierra Club

[3] Decision 14-02-040, pp. 28-29 (emphasis added).

tries to read such a prohibition into the rules, but none actually exists. Second, the combination of the Ellwood Refurbishment Contract and the Ellwood Storage Contract adds energy storage, which will be incremental capacity and a "net addition" at the existing Ellwood site. This is specifically allowed under the rules cited above. Third, refurbishing the Ellwood plant will "lengthen its useful life" and "enhances the operation of" the existing Ellwood plant, and provides the necessary attributes that SCE is authorized to procure. This is specifically allowed under the definition of an upgraded plant.

Sierra Club also misses the point that when a plant is repowered or upgraded to add incremental capacity, the utility would be expected to contract for all of the plant's available capacity, not just the portion that is incremental. Thus, while only the incremental capacity or "net addition" counts toward the amount of capacity that the utility is authorized to procure from new generation, it is reasonable to expect the utility to contract for all of the available capacity in order to meet reliability needs and obtain the best value from the upgrade. Certainly it would make no sense to buy only incremental capacity without also taking advantage of the existing capacity that was assumed to continue operating in the underlying need determination. To continue operating, an expanded plant also would need to have an off-taker for all of the plant's capacity, not just the portion that is incremental.

The Commission has previously approved contracts with existing plants that were procured through a utility's long-term RFO for new generation. In Decision 10-07-045, the Commission approved three contracts procured by PG&E through its 2008 long-term RFO. Of the three approved contracts, only one was for a new generating facility. The other two approved contracts were (1) a tolling agreement for the existing 674 MW Contra Costa Generating Station, and (2) a power purchase agreement for the existing 129 MW Midway Sunset Project. The Commission approved both contracts as part of its approval of PG&E's RFO results, and neither

contract involved upgrades or incremental capacity.[4] This precedent supports approval of the Ellwood Refurbishment Contract in this proceeding. As stated above, in Decision 14-02-040 the Commission noted that current rules do not prohibit the combination of RFOs for existing or new facilities, and did not adopt such a prohibition.

This precedent also shows that ORA's arguments are unfounded. ORA argues that the Ellwood Refurbishment Contract exceeds SCE's procurement authority and "subverts" the long-term procurement process.[5] As explained above, the procurement rules do not prohibit SCE from entering into agreements that accomplish the dual purpose of adding incremental storage capacity at Ellwood and lengthening its useful life. The Commission also previously approved the results of PG&E's long-term RFO process, which included two contracts for existing generation. ORA also acknowledges that SCE could contract with Ellwood through "bilateral contracts."[6] If SCE had executed the Ellwood Refurbishment Contract through a bilateral negotiation, SCE would file an application to obtain Commission approval. ORA has not shown why a separate bilateral negotiation and application process for the Ellwood Refurbishment Contract would be preferable to considering it here. It was logical and prudent to procure the Ellwood Refurbishment Contract in the RFO for the Moorpark sub-area, and it is most efficient to consider the Ellwood Refurbishment Contract in this proceeding given its role in addressing unique reliability concerns in a portion of the Moorpark sub-area.

ORA also mistakenly suggests that the Ellwood Refurbishment Contract has a "premium capacity price" similar to new capacity.[7] This is not true. SCE has explained that the Ellwood Refurbishment Contract offers a low cost option for enhancing long-term reliability in the Goleta

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4 Decision 10-07-045, pp. 36-40.

5 ORA Opening Brief, pp. 6-9.

6 ORA Opening Brief, p. 8.

7 ORA Opening Brief, p. 8.

service area.[8] The Independent Evaluator also performed an independent, parallel evaluation of the offers and concluded that all of the selected contracts, which include the Ellwood Refurbishment Project, merit Commission approval "because the contracts' economics and their general terms and conditions represented the best resources available from a competitive solicitation."[9]

Finally, ORA's argument that the 54 MW Ellwood Refurbishment Contract must count toward the 215 to 290 MW of incremental procurement authorized in Decision 13-02-015 makes no sense.[10] The 54 MW is existing, not incremental, capacity and SCE has been very clear on that point. The CAISO's studies also assumed that Ellwood would continue operating. Treating Ellwood as incremental capacity would falsely inflate the amount of incremental capacity to be added to the system.

B. The City Has Not Shown That Puente Will Be "Unreliable."

The City relies solely on the modeling exercise presented by its retained consultant, Dr. Revell, to allege that locating Puente at the Mandalay site would be "unreliable."[11] NRG's opening brief explained that the predictions of Dr. Revell's model have been shown to be inaccurate and flawed as applied to the Puente site. The model predicted that an El Nino-type storm event such as the one that occurred in January 1983 would flood the entire Puente site under current conditions, but that prediction is contrary to what actually happened. The January 1983 El Nino storm and other large storm events have occurred in the past, and the resulting waves and storm surges have had no impact to the Puente site – there was no flooding

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8 Exhibit SCE-7 (Cushnie), p. 6 lines 15-17.

9 Exhibit SCE-2, Appendix D (Independent Evaluator Report), p. 39.

10 ORA Opening Brief, p. 6.

11 City of Oxnard Opening Brief, pp. 6-7 and Exhibit A. Sierra Club makes the same assertions, but relies solely on the reports provided by the City's consultants. Sierra Club Opening Brief, pp. 2-4.

and no impact to Mandalay's operations.[12] Since the 1983 event, the beach fronting the Puente site has accreted and is now wider than it was in 1983.[13] In addition, as can be seen in the historic photos included with Mr. Mineart's testimony, foredunes have formed and stabilized farther out towards the ocean.[14] Thus, under "current conditions," the Puente site is not more vulnerable to coastal hazards than it was in 1983, but is actually less vulnerable. Under current conditions, the Puente site is protected by a big sandy beach that is 300 feet wide, with dunes that are 20 to 30 feet high.[15] If the same event occurred today, the waves would break onto a wider beach and would need to erode the newly formed foredunes before impacting the main dunes protecting the Puente site. Given that no damage occurred in 1983, it is unlikely that any damage would occur under current conditions.

Under cross-examination, Dr. Revell admitted that he did not consider what actually happened (or did not happen) at Mandalay during the 1983 storm event that he modeled.[16] Dr. Revell also admitted that he did not validate his model to actual events at the Mandalay site (which would have shown him that the model's predictions are wrong), and he did not try to calibrate the model with data regarding historical events to improve its accuracy.[17] Dr. Revell also stated that he does not intend to re-evaluate the model's accuracy now that he has the benefit of knowing Mandalay's site experience.[18] Dr. Revell also admitted that he is aware that the

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12 Exhibit NRG-2 (Mineart), Appendix B, p. 2; Reporter's Transcript (NRG/Mineart), Vol. 2, p. 382 line 24 through p. 383 line 3.

13 Exhibit NRG-2 (Mineart), Appendix B, p. 5 and Attachment 1.

14 Exhibit NRG-2 (Mineart), Appendix B, Attachment 1.

15 Exhibit NRG-2 (Mineart), Appendix B, p. 4; Reporter's Transcript (NRG/Mineart), Vol. 2, p. 386 lines 22-24.

16 Reporter's Transcript, Vol. 3 (City of Oxnard/Revell), p. 515 lines 20-25 and p. 517 lines 17-21.

17 Reporter's Transcript, Vol. 3 (City of Oxnard/Revell), p. 527 line 12 through p. 528 line 1.

18 Reporter's Transcript, Vol. 3 (City of Oxnard/Revell), p. 616 lines 11-25 ("And so it's possible, but I'm not currently – you know, it's not currently in the works.").

beach has grown.[19] Despite these flaws in Dr. Revell's analysis, the City repeats its alarmist predictions and sticks to its story that Puente "faces significant coastal hazards."[20] As shown above, the City's assertions are not credible and do not support a finding regarding Puente's future reliability.

The City also misleadingly suggests that by 2060 sea level rise will overtake the coast and flood "the majority of the Puente site" "under the lowest sea level rise projections."[21] The City fails to note that this dire prediction also relies on Dr. Revell's modeling of an extreme storm event similar to the January 1983 storm, but occurring in 2060 in combination with projected sea level rise. As explained above, the model's inaccuracy in predicting impacts from a storm that actually occurred in 1983 with no impact to the Puente site shows that the model cannot be trusted to predict what could happen from a recurrence of the same storm in 2060. Dr. Revell's modeled results also assumed that coastal erosion would occur due to wave impacts and sea level rise, but this contradicts evidence showing that the beach has not eroded and instead has grown steadily.[22] As Mr. Mineart explained, the likelihood of damage to the Puente site due to wave run up and storm surge flooding during an extreme storm event in 2050 "is remote," because for this to occur the beach would need to erode most of the way back to the dunes, a distance of over 300 feet.[23] Thus, for the City's prediction to be accurate, not only would the beach need to stop growing, it also would need to shrink substantially – by over 300 feet – to

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19 Reporter's Transcript, Vol. 3 (City of Oxnard/Revell), p. 595 lines 17-21.

20 City of Oxnard Opening Brief, pp. 6-7 and Exhibit A.

21 City of Oxnard Opening Brief, p. 7.

22 Exhibit NRG-2 (Mineart), Appendix B, p. 5 (showing that the beach has widened by approximately 200 feet since 1947 and is currently approximately 300 feet wide); Reporter's Transcript, Volume 2 (NRG/Minear), p. 408 lines 22-25 ("You could see from the photos it has grown from '47 up to 2012 where our photos cover you can see that the beach has grown fairly regularly.").

23 Exhibit NRG-2 (Mineart), Appendix B, p.4.

reduce the level of protection historically provided by the beach. The City has not shown that this is probable.

The City also relies on Dr. Revell's theory, which has been discredited, that sediment supply to the beach fronting the Puente site is likely to decrease and leave the Puente site more exposed to coastal hazards and the impacts of sea level rise in the future.[24] Recognizing that Dr. Revell admitted that the beach has grown,[25] the City now warns that the beach "can't grow much wider," and insists that the "long-term trend for beach conditions indicates diminished sediment supply and more erosion."[26] Dr. Revell's statement that the beach "can't grow much wider" is unsupported – he made this assertion by looking at a photograph of the current beach without any explanation.[27] As explained above, the record shows that the beach in front of the Puente site has grown steadily over time. There is no evidence demonstrating that the beach "can't grow much wider." Dr. Revell's theory that sediment supply will diminish and lead to more erosion is also contrary to evidence showing that sediment supply is not likely to decrease significantly during Puente's operating life. Sediment yield from the Santa Clara River is a significant source of sediment for the beach fronting the Puente site, and is not predicted to decline significantly during Puente's useful life.[28] Dr. Revell's unsupported statements to the contrary are unreliable.

The City attempts to discredit the testimony of NECO's expert witness, Mr. Mineart, but the City's arguments misrepresent the record and are not credible. First, NECO did not present

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24 City of Oxnard Opening Brief, p. 7.

25 Reporter's Transcript, Volume 3 (City of Oxnard/Revell), p. 595 lines 17-21.

26 City of Oxnard Opening Brief, p. 7.

27 Reporter's Transcript, Volume 3 (City of Oxnard/Revell), p. 601 lines 4-27.

28 Reporter's Transcript, Volume 2 (NRG/Mineart), p. 409 line 17 through p. 410 line 10; Exhibit CO-4 ("Coastal Resilience Ventura: Technical Report of Coastal Hazards Mapping"), Figure 16 (fourth to last page of document) (showing substantial increases in sediment yield from the Santa Clara River, with decreases below historic levels not occurring until after almost 2050, the end of Puente's useful life).

expert testimony in order "to cast doubt" on long-term threats to Puente as the City alleges.[29] The City falsely suggests that NECO is trying to hide risks. In fact, NECO undertook an analysis of coastal hazards to inform its own investment decision. NECO made a contractual commitment to spend hundreds of millions of dollars to build a new plant at the Mandalay site, and bears the full risk under the Puente Contract if the plant cannot operate reliably due to coastal hazards.[30] The results of NECO's analysis show that coastal hazards do not prevent Puente from providing a reliable source of resource adequacy capacity.[31] NECO has millions of dollars on the line if its analysis is wrong. As the only party bearing that investment risk, NECO has zero incentive "to cast doubt" on threats to the plant.

Second, the City wrongly asserts that Mr. Mineart's analysis is "unreliable," and attacks his experience and credentials.[32] Mr. Mineart is a registered professional engineer with more than 30 years of experience in the fields of hydrologic, hydraulic and hydrodynamic analysis, erosion and sediment transport modeling, risks assessments, climate change and sea level rise, and surface and groundwater fate and transport modeling.[33] His resume describes his extensive experience assessing risks to infrastructure projects from wave impacts and flooding hazards, including due to projected sea level rise.[34] Compared to Dr. Revell's resume, Mr. Mineart has far greater experience conducting project-specific and site-specific risk assessments for infrastructure projects. Dr. Revell also admitted that he did not factor site-specific

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29 City of Oxnard Opening Brief, p. 7.

30 Exhibit NRG-1 (Gleiter), pp. 8-9.

31 Exhibit NRG-2 (Mineart), Appendix B, p. 6 ("The combined effects of [sea level rise ("SLR")], potential erosion of the berm, wave events, and storm surge run-up that could occur during the life of the project through planning horizon 2050 are not expected to adversely impact the project. The potential anticipated elevation of SLR, in combination with any of these natural phenomena or weather-induced events, would be well below the beach dunes in proximity to the west boundary of the project site.").

32 City of Oxnard Opening Brief, p.

33 Exhibit NRG-2 (Mineart), Appendix A.

34 Exhibit NRG-2 (Mineart), Appendix A.

considerations such as the operating experience at Mandalay into his analysis. Mr. Mineart's site-specific analysis is more appropriate to assess potential risks to Puente than the general Ventura County coastline analyses commissioned by the City.

Third, the City argues that Mr. Mineart's analysis was "improperly truncated," but Mr. Mineart correctly considered potential impacts during Puente's planned operating life, which is expected to last approximately 30 years between 2020 and 2050.[35] The City states that a 30-year useful life is contrary to the Coastal Commission's guidance recommending that sea level rise planning use a 100-year lifespan for critical infrastructure, including "power plants and energy transmission infrastructure."[36] The CEC disagrees with the Coastal Commission's blanket characterization of power plants as "critical infrastructure," and the resulting recommendation that all power plants "warrant special considerations such as applying a 500-year event design standard, assuming the highest sea-level rise projections, and protection from the worst-case future impacts."[37] The CEC explained that CEC staff analyzes information specific to each proposed project and site location, and expressed concern that "the public and intervening parties may believe that the Guidance recommends special considerations to all power plants without question."[38] The CEC therefore asked the Coastal Commission to remove "power plants" from the critical infrastructure category "to avoid a default assumption that all power plants are critical."[39] Applying these comments, the Coastal Commission modified the final recommended policy guidance so that "critical infrastructure" now only includes "**some** power plants and

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35 NRG-2 (Mineart), Appendix B, p. 3.

36 City of Oxnard Opening Brief, p. 8.

37 CEC Comments on Public Review Draft, California Coastal Commission Sea-Level Rise Policy Guidance, July 20, 2015, attached to this reply brief as Appendix A.

38 *Id.*

39 *Id.*

energy transmission infrastructure."[40] Given that the CEC has exclusive jurisdiction to evaluate the threat to Puente's reliability from coastal hazards and sea level rise, the CEC will decide the applicable considerations to apply to Puente in light of its useful life and site-specific conditions.

Fourth, the City falsely asserts that Mr. Mineart "simply assumed that beach accretion would keep up with sea level rise."[41] This misrepresents Mr. Mineart's analysis. Mr. Mineart's analysis assumed that beach accretion *would not* keep up with sea level rise. Despite the fact that accretion "has been occurring along the stretch of beach adjacent to the project site," Mr. Mineart applied a worst-case assumption that the beach would not keep up with sea level rise and would erode "about 130 feet from its current location by year 2060."[42] However, even applying this "worst-case scenario and assuming that historical accretion will not continue, the beach would be approximately the same width in 2050 as it was in 1947."[43] Thus, even if beach accretion does not keep up with sea level rise, the existing accreted beach is wide enough to accommodate the worst-case erosion scenario without jeopardizing the Puente site.

Fifth, the City faults Mr. Mineart for assuming 130 feet of *beach* erosion rather than 130 feet of *dune* erosion, citing the Coastal Resilience Ventura report, but the City has not shown how 130 feet of *dune* erosion in front of the Puente site is plausible given that the existing dunes are fronted by a 300-foot wide beach. Mr. Mineart explained during hearings that "they have such a huge protective beach right now," and "[t]he beach is 300-feet wide."[44] He also explained that "the beach is big enough that the dunes are not going to take a constant full force of wave

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40 California Coastal Commission Sea Level Rise Policy Guidance, Recommended Final Draft – July 31, 2015, p. 80 (insert to draft shown in bold underlined text), available at: http://documents.coastal.ca.gov/assets/slr/guidance/July2015_Full_RecFinal.pdf.

41 City of Oxnard Opening Brief, p. 9.

42 Exhibit NRG-2 (Mineart), Appendix B, p. 5.

43 Exhibit NRG-2 (Mineart), Appendix B, p. 5.

44 Reporter's Transcript, Volume 2 (NRG/Mineart), p. 386, lines 22-24.

action."[45] Mr. Mineart also explained that "we know the dunes have been stable," and "[t]here's no evidence of erosion," and "[t]here's no evidence that waves have ever impacted the dunes historically."[46] Mr. Mineart's site-specific analysis of the beach in front of the Puente site shows that the dune erosion predicted in the Coastal Resilience Ventura report is not accurate as applied to this particular site.

Sixth, the City incorrectly asserts that the 1984 aerial photograph attached to Mr. Mineart's testimony "shows significant erosion of the dune in front of the Mandalay site from just one large storm event from over 30 years ago."[47] Dr. Revell's "observation" from the 1984 photograph is contrary to Mr. Mineart's testimony as cited above, and also contradicts reports from the Mandalay plant staff, who confirmed that the 1983 storm event had no impact to the Mandalay site.[48] Significant dune erosion in front of the Mandalay site would have been reported by staff, and likely would have taken years to repair itself.

Dr. Revell's assertion that the 1984 photograph shows substantial erosion is not substantiated. Dr. Revell said that "vegetation has been substantially denuded or eroded in front of the site" in the 1984 photograph, but this is not evidence of dune erosion. The amount of visible vegetation varies in the aerial photographs. The most credible explanation for these differences is the relative resolution of the photographs. Scattered vegetation on the dunes cannot be seen as easily in the low resolution photographs as in the high resolution photographs. The 1984 photograph has a low resolution compared with, for example, the photograph from 1959, which more clearly shows vegetation and the road that used to be visible between the

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45 Reporter's Transcript, Volume 2 (NRG/Mineart), p. 387, lines 25-28.

46 Reporter's Transcript, Volume 2 (NRG/Mineart), p. 381, lines 17-21.

47 City of Oxnard Opening Brief, p. 10.

48 Exhibit NRG-2 (Mineart), Appendix B, p. 2 ("A review of large storm events that have caused damage at Oxnard Shores (1960, '63, '65, '71, '78, '83, '88, '95 and '97-98) indicated no impact to the project site with the exception of the need to repair rip-rap at the MGS outfall in 1983).

Puente site and the beach. As shown in the photographs from 1977, 1994, 2005, 2009, 2010 and 2012, that road has been covered with accumulated sand,[49] and the accumulated sand also could explain why vegetation is sometimes less visible in the photographs. Dr. Revell's willingness to testify to "significant erosion of the dune" based solely on the low resolution 1984 aerial photograph is not credible.

Finally, the City asserts that the Puente site is exposed to flooding from a tsunami triggered by an underwater landslide known as the "Goleta 2 Landslide," even under current conditions.[50] The City's analysis is based on modeling assumptions and mapping that assumed hydraulic connections between the tsunami wave and the Puente site.[51] The City's analysis for current conditions is contrary to the Tsunami Inundation Map for Emergency Planning developed by the California Emergency Management Agency, which shows that the Puente site is not currently in the tsunami inundation zone, including for a tsunami triggered by a Goleta 2 Landslide.[52] As Mr. Mineart testified, accretion of the beach in front of the Puente site so far has kept up with sea level rise.[53] Thus, the evidence does not suggest that the tsunami inundation map is wrong today. The City's claim to the contrary again casts doubt on the City's modeling prediction for future years.

In addition, NRG's opening brief explained that the Goleta 2 Landslide has an expected return rate of once every 15,000 years, which means it has a 0.2 percent chance of occurring during Puente's useful life.[54] Given this extremely low probability of occurrence, it is not

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49 Exhibit NRG-2 (Mineart), Appendix B, Attachment 2.

50 City of Oxnard Opening Brief, p. 11.

51 Exhibit CO-2 (Cannon), Attachment 2, pp. 5-6.

52 Exhibit NRG-2 (Mineart), Appendix B, Attachment 2; Exhibit NRG-4 ("Tsunami Inundation Map for Emergency Planning), Table 1: Tsunami sources modeled for Ventura County coastline (showing Goleta Landslide #1 and Goleta Landslide #2 in the list of Local Sources).

53 Reporter's Transcript, Volume 2 (NRG/Mineart), p. 376 line 28 through p. 377 line 4 (explaining that the beach "has been growing even though the sea has been rising").

54 NRG Opening Brief, p. 28.

reasonable to reject the Puente project based on a Goleta 2 Landslide. Even the City's witness Mr. Cannon acknowledged that "it's going to be up to the coastal engineer and the client that he's working for"[55] to decide how to plan for a Goleta 2 Landslide.

C. Contrary To The City's Arguments, Puente Is Ideally Located To Meet Local Reliability Needs In The Moorpark Sub-Area.

The City argues that procurement of the Puente Contract does not ensure reliability in the Moorpark sub-area because Puente is not in Goleta.[56] The City's argument is wrong. Puente is ideally located at the site of one of the existing OTC plants. The Commission previously found that replacing the OTC units with new generation at the same site would be "certain" to meet reliability needs. In Decision 13-02-015, the Commission found that: "Gas-fired resources at the current OTC sites are certain to meet the ISO's criteria for meeting LCR needs"; and "Other resources can also meet or reduce LCR needs, but may not be effective in doing so."[57] The Commission also found that "[t]he most likely locations for to meet LCR needs in the Moorpark sub-are are the sites of the current OTC plants."[58] The CAISO's testimony confirms that procurement of the Puente Contract meets local reliability needs and enhances the safe and reliable operation of SCE's electrical system.[59]

The City also misconstrues the reliability issue identified for the Goleta service area. Reliability in Goleta was not the only driver for LCR procurement for the Moorpark sub-area. As confirmed in Decision 13-02-015, the Commission authorized procurement for the Moorpark sub-area to address reliability issues arising largely due to the assumed retirement of almost 2,000 MW of OTC capacity. All of the relevant OTC capacity is currently located in Oxnard, at

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55 Reporter's Transcript, Volume 3 (City of Oxnard/Cannon), p. 634 lines 10-17.

56 City of Oxnard Opening Brief, p. 13.

57 Decision 13-02-015, Finding of Fact 26.

58 *Id.*, Finding of Fact 39.

59 Exhibit CAISO-1 (Sparks), p. 4 lines 8-13; Exhibit CAISO-3 (Millar), pp. 4-5.

Mandalay and the Ormond Beach Generating Station. The Puente Contract offers an opportunity to replace almost 2,000 MW of aging OTC capacity with 262 MW of new fast-start peaking capacity that repurposes and reuses existing gas and transmission infrastructure. This is an ideal local reliability solution for the Moorpark sub-area.

D. Parties Have Not Shown That CEC Approval Is Necessary For The Commission's Evaluation Of The Puente Contract.

The City and Sierra Club argue that the Commission should delay approval of the Puente Contract until after the CEC approves the Puente AFC, based on assertions that CEC approval somehow would "illuminate" issues, "assist" review, and allow the Commission to "better evaluate" the Puente Contract.[60] These vague arguments do not explain how delay would help the Commission evaluate the reasonableness of the Puente Contract. The Puente Contract is final and has been executed by SCE and NECO. Delay would not change the terms of the Puente Contract. In reality, the only result of delay would be to delay the full effectiveness of the Puente Contract, and miss the deadline for Commission approval that is specified therein. This would expose NECO to the risk of termination, which likely is what the City and Sierra Club are attempting to achieve with their push for delay.

Even if the termination trigger in the Puente Contract were extended until after the CEC process is complete, delay still serves no valid purpose. As one scenario, assume the CEC approves construction of Puente as proposed in the AFC. If this occurs, there would be nothing further for the Commission to consider, and no reason for additional review of the Puente Contract. There would be no valid basis for revisiting the CEC's approval of construction at the Puente site, given the CEC's exclusive authority to make that decision.

As a second scenario, assume the CEC rejects the Puente AFC. If the Commission approves the Puente Contract now to make it fully effective, then the CEC's rejection of the AFC

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60 City of Oxnard Opening Brief, pp. 13-14; Sierra Club Opening Brief, p. 5.

would result in termination of the Puente Contract and NECO would owe a termination payment to SCE equal to its development security.[61] If Commission approval were delayed, however, NECO would not owe a termination payment because the Puente Contract would not have become fully effective when CEC rejection occurs.[62] This shows that delay in Commission approval actually would be to ratepayers' detriment, because it would delay achievement of the condition that causes the Puente Contract to become fully effective and binding on the parties. In either case, however, if the CEC rejects the AFC, there would be nothing further for the Commission to consider, and no reason for additional review of the Puente Contract.

As a third scenario, assume the CEC approves construction of Puente but requires additional mitigation not proposed in the AFC, such as potential requirements for monitoring the dunes. Under the Puente Contract, NECO bears all responsibility and costs associated with constructing, operating and maintaining Puente to supply resource adequacy capacity in accordance with the Puente Contract. NECO therefore will be responsible for paying for and implementing any mitigation required by the CEC. The City is very confused in this regard, because it seems to believe that the fixed price in the Puente Contract somehow limits the CEC's authority.[63] This is not correct. The Puente Contract specifies a fixed resource adequacy payment with no mechanism for increasing that price during the contract term. In the third scenario, NECO would pay for any increased costs associated with required mitigation and ratepayers would be insulated from those additional costs. Thus, in the third scenario, there would be nothing further for the Commission to consider, and no reason for additional review of the Puente Contract.

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61 Exhibit NRG-1 (Gleiter), p. 8 lines 14-19.

62 Exhibit NRG-1 (Gleiter), p. 8 lines 5-10.

63 City of Oxnard Opening Brief, pp. 16-17.

As a fourth scenario, assume the CEC approves construction of Puente, but finds that another site is environmentally superior. Parties who oppose Puente make much of this possibility, but consideration of the factors supporting reuse of a brownfield site and an existing power plant site with gas and transmission infrastructure already in place shows that this is not a likely outcome of the alternatives analysis. The CEC has explained the purpose of its alternatives analysis as follows:

> The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives that achieve the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. (Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); see also, tit. 20, § 1765.)
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> The range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6(f).) Rather, the analysis is necessarily limited to alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project." (Id.)[64]

Under these tests, the CEC considers the "comparative merits" of a reasonable range of feasible alternative sites and technologies that would achieve the basic objectives of the project, but would "avoid or substantially less potentially significant environmental impacts." Puente avoids many impacts that would occur if the plant were built at a greenfield site or a site that lacks existing gas and electric transmission infrastructure. The CEC will conduct the required alternatives analysis, but it seems unlikely that other sites would be environmentally preferable given that the Puente site has been used continuously for power generation since the 1950s.

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[64] California Energy Commission Final Decision on the Carlsbad Energy Center Project, June 2012, CEC-800-2011-004-CMF, p. 3-1.

Nevertheless, even if the CEC were to find that the Puente site cannot be approved due to the existence of feasible environmentally superior alternative sites that would avoid or substantially lessen potentially significant environmental impacts and also achieve the project's objectives, this outcome would not necessarily lead to further consideration of the Puente Contact in the form presented in this proceeding. If NECO does not have the ability to acquire and use the alternative site, then the fourth scenario would lead to termination of the Puente Contract just like a CEC decision rejecting the AFC. On the other hand, if NECO could obtain site control, it would be necessary to make changes to existing transmission interconnection arrangements for Puente and the Puente Contract in order to move Puente to the other site. In that situation, additional Commission review of the Puente Contract in its current form would not be relevant, and a modified contract would be submitted for review if agreed to by the parties. Thus, even under the improbable scenario in which an alternative site were shown to be environmentally superior to the Puente site, there would be no reason for additional review of the executed Puente Contract.

NECO urges the Commission to see through the rhetoric of parties who pretend to want additional "illumination" from the CEC process. In the Puente Contract, NECO agreed to assume the risk of an unfavorable CEC licensing decision. The Commission should approve the Puente Contract without delay, and allow NECO to undertake its obligation to obtain CEC approval for Puente in accordance with its contractual commitment. This outcome would be consistent with the Commission's prior decisions approving contracts for new generation.

E. Approval Of the Puente Contract Will Not Impair The CEC's Environmental Review Or Constrain The CEC's Authority To Evaluate Alternatives.

The City argues that Commission approval of the Puente Contract will "prejudice the CEC's ability to consider a full range of alternatives and potential mitigation for the Puente

Project."[65] This is not true. The City's relies entirely on the "Alternatives" section of the AFC for Puente, which was prepared by NECO's permitting team and submitted to the CEC. Regardless of what is written in the AFC, it is obvious that an applicant does not have the ability to dictate what the CEC can and cannot consider or require as part of its review of the Puente AFC. The City's argument is contrary to all reason and common sense.

The City also misrepresents NECO's statements in the Puente AFC. The language quoted by the City reflects NECO's position regarding the relative importance of the stated project objectives for Puente. The Alternatives section of the AFC describes a range of reasonable alternatives to Puente as proposed, including: the "No Project" alternative required by CEQA; alternative generation technologies and configurations; alternative sources of water supply; alternative waste handling systems; and alternative emission control technologies.[66] The Alternatives section lists the project objectives, which include the objective to fulfill NECO's obligations under the Puente Contract, along with seven other project objectives.[67] The Alternatives section then recites the applicable CEQA requirements for considering a reasonable range of alternatives, noting that "there is no ironclad rule governing the nature or scope of alternatives to be discussed other than the rule of reason."[68] In the next paragraph, which is the one the City cites, NECO presents its view that the project objective of meeting NECO's obligations under the Puente Contract is particularly important. That paragraph explains that the objective of meeting NECO's contractual commitment to build Puente with the technology and at the location specified in the Puente Contract "must be kept in mind when determining what

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65 City of Oxnard Opening Brief, p. 15. CEJA makes a similar argument. CEJA Opening Brief, pp. 22-25.

66 Exhibit CO-3, p. 5-1.

67 Exhibit CO-3, p. 5-1.

68 Exhibit CO-3, p. 5-2.

constitutes a range of reasonable alternatives, as well as which alternatives might be considered feasible."[69]

NECO's statements in the Puente Alternatives discussion are entirely consistent with CEQA's requirements for consideration of alternatives. Under CEQA, alternatives must be able to attain most of the basic objectives of the project.[70] CEQA does not require consideration of alternatives that "cannot achieve the project's underlying fundamental purpose."[71] An agency therefore may structure its alternatives analysis based on a reasonable definition of the project's underlying purpose, and need not study alternatives that cannot achieve that fundamental goal.[72] There is no rule requiring a CEQA analysis to explore offsite project alternatives in every case.[73] An agency may determine that no feasible locations exist either because basic project objectives cannot be achieved at another site, or because there are no sites meeting the criteria for feasible alternative site.[74] NECO's position is also consistent with California Public Resources Code Section 25540.6(b), which specifies that an evaluation of alternative sites is not required when a natural gas-fired thermal power plant is proposed for development at an existing industrial site such as Mandalay.

Ultimately, CEC Staff and the CEC AFC Committee for Puente will determine what constitutes a range of reasonable alternatives, and which alternatives should be considered in light of the project objectives. It is a legal certainty that NECO does not have the power to dictate or limit the scope of that review. The City's arguments to the contrary are without merit.

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69 Exhibit CO-3, p. 5-2.

70 Title 14, California Code of Regulations, Section 15126.6(a).

71 *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings,* 43 Cal.4th 1143, 1165 (2008).

72 *Id.,* p. 1166.

73 *California Native Plant Society v. City of Santa Cruz,* 177 Cal. App. 4th 957, 991 (2009).

74 *See City of Long Beach v. Los Angeles Unified School District,* 176 Cal. App. 4th 889, 921 (2009).

The City further errs in asserting that Commission approval of the fixed price in the Puente Contract somehow limits the CEC's authority "to require changes in the Puente project that might substantially increase its costs."[75] This assertion is wrong. As explained above, NECO will be responsible for paying for and implementing any mitigation required by the CEC. Commission approval of the Puente Contract does not, and could not, limit the CEC's authority to consider and require mitigation that is shown to be necessary to mitigate significant environmental impacts or ensure reliability.

F. The City's Argument That The Commission Must Conduct A CEQA Review Of Puente Misrepresents NECO's Testimony And CEQA.

The City argues that the Commission must act as the lead agency under CEQA and conduct an environmental review of Puente.[76] CBD also argues that CEQA requires environmental review in this proceeding,[77] and CEJA argues that the Commission is a "responsible agency" and must wait for the CEQA lead agency to complete its environmental review before approving the Puente Contract.[78] This is wrong. It is well established that Commission approval of a utility power purchase agreement is not a "project" for purposes of CEQA and does not trigger a requirement for environmental review under CEQA. In its recent decision approving a power purchase agreement executed by San Diego Gas and Electric Company for a new gas-fired power plant, the Commission rejected CBD's argument that CEQA review was required, and explained:

> To the contrary, CEQA Guidelines, long-standing case law, and Commission precedent all make clear that Commission review of purchase power contracts does not trigger CEQA. A contract for purchase power by a regulated entity is not a "project" pursuant to CEQA. CEQA defines a "project" as "[a]ctivities involving the

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75 City of Oxnard Opening Brief, pp. 16-17.

76 City of Oxnard Opening Brief, p. 17.

77 CBD Opening Brief, pp. 16-17.

78 CEJA Opening Brief, p. 22.

> issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies." (Public Resources Code § 21065.) Commission approval of a purchase power contract does not confer a lease, permit, license, certificate, or any other entitlement on the seller. Rather, it is an assurance that the utility will recover through its rates the costs that it incurs under the contract. It is well-settled that "[s]uch a ratemaking order is not 'project' under CEQA. All Commission orders concluding that CEQA does not apply to a ratemaking proceeding have been upheld. (E.g., Samuel C. Palmer, III v. Public Utilities Commission SF# 23980, writ denied 5/10/79.)" (D.86-10-044 at 16-17, 1986 Cal. PUC LEXIS 642, 16-17 (Cal. PUC 1986).)
>
> Likewise, the Commission is not a "responsible agency" under CEQA when it approves purchase power contracts. A "responsible agency" is defined as a public agency other than the lead agency which has discretionary approval power over the project. (Public Resources Code § 21069.) While the Commission has considerable discretion over whether to approve a purchase power contract, it does not have power to approve or deny the underlying generation project. The project underlying the purchase power contract could proceed regardless of the Commission's decision. (Id. at 16-18.)[79]

In a new twist on an old, wrong argument, the City alleges that the Commission must act as the lead agency under CEQA for Puente because approval of the Puente Contract would foreclose alternatives or mitigation measures that would ordinarily be part of CEQA review of Puente.[80] This is not true. As explained above, the City distorts the statements in the Alternatives section of the Puente AFC. NECO does not have the power to dictate or constrain the CEC's authority to consider project alternatives or require mitigation.

The City also asserts that NECO's witness, Ms. Gleiter, testified that "contract approval will provide significant financial momentum to the Puente project," and "makes it far more likely that the CEC will approve its project."[81] The City misrepresents Ms. Gleiter's testimony. When asked to confirm that "NRG has determined that PUC approval here makes it more likely

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79 Decision 15-05-051, pp. 29-30 (footnotes omitted).

80 City of Oxnard Opening Brief, pp. 17-18.

81 City of Oxnard Opening Brief, p. 18.

that it will receive approval of this project from the CEC", Ms. Gleiter responded: "No, that is definitely not true."[82]

Instead, Ms. Gleiter testified that Commission approval of the Puente Contract allows NECO to "scale expenses at risk."[83] As has been made clear in this proceeding, NECO is assuming substantial risk by agreeing to permit and build Puente to supply resource adequacy capacity pursuant to the Puente Contract. Numerous milestones in the project development process must be achieved successfully in order for NECO to meet this contractual commitment. Commission approval of the Puente Contract is one significant milestone because, as Ms. Gleiter explained, the Puente Contract provides the revenue stream that supports the investment. CEC approval of the Puente AFC is another obvious key milestone. Mr. Gleiter's testimony explained how a project developer views these milestones together. As long as both milestones remain unmet, the total risk of success or failure is heightened, making the significant project development and permitting expenditures more "at risk." Meeting one key milestone such as approval of the Puente Contract makes a developer more comfortable about continuing to spend millions of dollars to meet the next key milestone of obtaining CEC approval. There are other milestones in this risk assessment, including project financing and construction hurdles. But the risk assessment described by Ms. Gleiter is a purely internal risk assessment by NECO and its parent company. NECO's assessment of its own financial risk does not, and indeed could not, limit the CEC's authority to decide whether or not to approve the Puente AFC, or constrain the CEC's independent review of the Puente AFC. The City's argument to the contrary is wrong.

In addition, the CEQA case law cited by the City does not apply here. In *Save Tara v. City of West Hollywood,* the Court addressed "the question of whether and under what circumstances an agency's agreement allowing private development, conditioned on future

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82 Reporter's Transcript, Volume 2 (NRG/Gleiter), p. 340 lines 16-21.

83 Exhibit NRG-1 (Gleiter), p. 7 lines 23-25.

compliance with CEQA, constitutes approval of the project within the meaning of sections 21100 and 21151" of CEQA.[84] That case involved an agreement entered into by the City of West Hollywood conveying to a developer an option to purchase certain city-owned real estate for use to construct a housing development, with an additional commitment by the city (not conditioned on CEQA compliance) to contribute toward development costs. The city's obligation to convey the property was conditioned on all applicable requirements of CEQA having been satisfied. The petitioners sought a decision holding that the city was required to prepare an environmental impact report for the housing development project *before* it agreed to convey the property to the developer. The Court held that: "A CEQA compliance condition can be a legitimate ingredient in a preliminary public-private agreement for exploration of a proposed project, but if the agreement, viewed in light of all the surrounding circumstances, commits the public agency as a practical matter to the project, the simple insertion of a CEQA compliance condition will not save the agreement from being considered an approval requiring prior environmental review."[85]

The holding in *Save Tara* does not apply in this proceeding. The Commission is not conveying any property to NECO, or agreeing to explore or move forward with a public-private partnership with NECO. The Commission also is not granting approval for construction of Puente to proceed. Commission approval of the Puente Contract also does not, and could not, commit the CEC to approve the Puente AFC or limit the scope of the CEC's environmental review of the Puente project. Although the City and other parties have insisted on using this proceeding to object to Puente on environmental grounds, the only action that the applicant has requested with respect to Puente is for the Commission to approve the Puente Contract as reasonable and authorize rate recovery. Consistent with the Commission's long-standing and recently affirmed precedent on utility power purchase agreements, approval of the Puente

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84 *Save Tara v. City of West Hollywood,* 45 Cal. 4th 116, 121 (2008).

85 *Id.*, p. 132.

Contract is not a "project" for purposes of CEQA. NECO's testimony about how it views its financial risks does not change this well settled legal conclusion.

Finally, even if the Commission's approval of the Puente Contract were technically a "project," which it is not for the reasons discussed above, CEQA provides an exemption for actions undertaken by public agencies relating to any thermal power plant that will be licensed by the CEC. Pursuant to California Public Resources Code Section 21080(b)(6), CEQA does not apply to:

> Actions undertaken by a public agency relating to any thermal powerplant site or facility, including the expenditure, obligation, or encumbrance of funds by a public agency for planning, engineering, or design purposes, or for the conditional sale or purchase of equipment, fuel, water (except groundwater), steam, or power for a thermal powerplant, if the powerplant site and related facility will be the subject of an environmental impact report, negative declaration, or other document, prepared pursuant to a regulatory program certified pursuant to Section 21080.5, which will be prepared by the State Energy Resources Conservation and Development Commission, by the Public Utilities Commission, or by the city or county in which the powerplant and related facility would be located if the environmental impact report, negative declaration, or document includes the environmental impact, if any, of the action described in this paragraph.[86]

The CEC is the "State Energy Resources Conservation and Development Commission" referenced in the statute, and its thermal power plant siting and environmental review process is a certified regulatory program pursuant to California Public Resources Code Section 21080.5. The CEC's certified regulatory program entails a full environmental review of potential project impacts and imposes requirements necessary to ensure that all potential environmental impacts are mitigated to below significant levels. This further demonstrates that the City's CEQA argument is baseless.

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[86] *See also* CEQA Guidelines, 14 Cal. Code Regs. Section 15271.

G. The City's Challenge To Puente's Size Is Contrary To The Record.

The City argues that the size of the Puente Contract is "unjustifiable" based on the City's interpretation of the CAISO's studies.[87] The City's argument is contrary to the testimony of the CAISO's witness, who cautioned that the resources for which SCE seeks approval in this proceeding "are only a portion of those necessary to meet reliability needs in the Moorpark sub-area."[88] SCE's testimony also explains that in order to meet the minimum procurement level of 215 MW that the Commission required in Decision 13-02-015, it was necessary to select a large gas-fired project, and Puente was the most cost effective gas-fired generation offer.[89]

H. CEJA Misinterprets The Commission's Guidance On Qualitative Considerations In An RFO.

CEJA argues that SCE's evaluation of offers in the RFO failed to comply with Commission decisions requiring consideration of environmental justice impacts.[90] CEJA's argument misinterprets the Commission's guidance on the use of qualitative considerations in an RFO. CEJA relies on Decision 07-12-052, where the Commission stated that "[t]he evaluation criteria used in competitive solicitations must be clear, transparent, and available to potential bidders early enough in the procurement process to permit potential bidders to tailor their projects to fit the utility's actual needs."[91] The Commission then stated that: "We discuss below certain bid evaluation metrics that we urge the utilities, in conjunction with Independent Evaluators, Procurement Review Groups and Energy Division, to consider when developing the RFO bid documents and process."[92] The Commission found that utilities should consider

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87 City of Oxnard Opening Brief, pp. 20-21.

88 Exhibit CAISO-1 (Sparks), p. 3 line 22 through p. 4 line 1.

89 Exhibit SCE-7 (Cushnie), p. 1 line 12 through p. 2 line 1; Exhibit SCE-1 (Singh), p. 45 line 18 through p. 46 lines 2, 9-10.

90 CEJA Opening Brief, pp. 5-10.

91 Decision 07-12-052, p. 155.

92 *Id.*

capacity and energy benefits, resource diversity, portfolio fit, local reliability/resource adequacy, congestion costs, credit and collateral, debt equivalence, potential treatment under financial accounting rules, and transmission costs/savings, as well as "disproportionate resource sitings in low income and minority communities, and environmental impacts/benefits (including Greenfield vs. Brownfield development)."[93]

In suggesting that utilities should consider these bid evaluation metrics, the Commission did not specify that utilities must give disproportionate consideration to environmental justice factors over other qualitative considerations such as the preference for using brownfield sites rather than greenfield sites. The Commission also did not specify that qualitative considerations would override the utilities' quantitative analysis of which resources are the lowest cost and best fit for the utility's need. Utilities have flexibility to apply relevant qualitative considerations in their RFO resource evaluations, as long as they demonstrate how resource selections were made and justify their selected contracts.

SCE complied with those requirements in this proceeding. SCE's testimony and the Independent Evaluator's report show that SCE selected the winning contracts for the Moorpark sub-area based primarily on its quantitative analysis of net market value – namely, the valuate of a resource's energy, ancillary services, and capacity benefits, minus fixed and variable offer-related costs.[94] SCE also assessed non-quantifiable characteristics of each offer. SCE's selection process revealed that the Puente Contact was the most cost-effective gas-fired offer, and it also satisfies the Commission's preference for locating new capacity at brownfield sites instead of greenfield sites.

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93 *Id.*, pp. 156-157.

94 Exhibit SCE-1 (Singh), pp. 30-49; Exhibit SCE-2, Appendix D (Independent Evaluator Report), p. 5.

Siting Puente at the existing Mandalay site also provides environmental benefits because it accommodates the potential retirement of almost 2,000 MW of aging OTC capacity with 262 MW of new fast-start peaking capacity. The OTC units in Oxnard require between 12 and 18 hours to start up, which means that they have emissions during the entire lengthy start up period, in addition to the time they operate to meet electricity needs.[95] In addition to being significantly smaller than the existing OTC capacity, Puente will be able to start and be at its full capacity in only 10 minutes, avoiding the significant start up emissions of the existing OTC units.[96] Moreover, unlike the existing OTC units, Puente will be able to be shut down at night and restarted the next day, further reducing emissions compared to the existing OTC units. Construction of Puente thus will result in a net environmental benefit to the local community.

CEJA also argues that SCE failed to favor renewable energy projects in environmental justice communities,[97] but the record shows that SCE selected every renewable offer available in the RFO for the Moorpark sub-area.[98]

I. CEJA Misinterprets The Record, Which Shows That SCE Selected Contracts Based On Its Least Cost Best Fit Quantitative Analysis.

CEJA argues that SCE's selections of the Puente Contract and the Puente Refurbishment Contract were inappropriately based on "qualitative" assessments regarding the risk of resource shortages due to the possible retirement of existing non-OTC peaking resources owned by NRG South.[99] This claim is contrary to the record. As stated above, SCE's testimony and the Independent Evaluator's report show that SCE selected the winning contracts for the Moorpark sub-area based primarily on its quantitative analysis of net market value – namely, the value of a

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95 Reporter's Transcript, Volume 2 (NRG/Gleiter), p. 351 lines 3-12.

96 Exhibit NRG-1 (Gleiter), p. 2 lines 24-28.

97 CEJA Opening Brief, p. 10.

98 Exhibit SCE-7 (Bryson), p. 14 lines 2-3.

99 CEJA Opening Brief, pp. 11-20.

resource's energy, ancillary services, and capacity benefits, minus fixed and variable offer-related costs.[100] SCE's selection process revealed that the Puente Contact was the most cost-effective gas-fired offer, and it also satisfies the Commission's preference for locating new capacity at brownfield sites instead of greenfield sites. Additional qualitative factors may have supported this selection, but the Puente Contract won due to its net market value.

SCE's testimony also shows that the Ellwood Refurbishment Contract offered a low cost solution to improve reliability in the Goleta service area, and SCE added the 0.5 MW Ellwood Storage Contract and a 1 MW rooftop solar project in Goleta to help address unique reliability concerns in Goleta. SCE's testimony explains that the set of selected contracts were "the best combination of offers" and "allowed SCE to select cost-competitive Preferred Resources offers."[101] The Independent Evaluator performed an independent, parallel evaluation of the offers and concluded that all of the selected contracts merit Commission approval "because the contracts' economics and their general terms and conditions represented the best resources available from a competitive solicitation."[102]

J. Parties Have Not Shown That Another RFO Would Produce Materially Greater Amounts Of Preferred Resources.

Sierra Club, the City and WBA unreasonably urge the Commission to reject the RFO results and require SCE to start over by conducting another RFO for preferred resources.[103] SCE explained that it selected every preferred resources final offer for the Moorpark sub-area other than energy storage, and had to select a large gas-fired generation offer to meet the minimum

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100 Exhibit SCE-1 (Singh), pp. 30-49; Exhibit SCE-2, Appendix D (Independent Evaluator Report), p. 5.

101 Exhibit SCE-1 (Singh), p. 46 lines 7-9.

102 Exhibit SCE-2, Appendix D (Independent Evaluator Report), p. 39.

103 Sierra Club Opening Brief, p. 5; City of Oxnard Opening Brief, pp. 25-26; WBA Opening Brief, p. 3.

procurement authorization of 215 MW.[104] Given that SCE just completed an exhaustive RFO process, it is not reasonable to expect that the results of a second RFO would produce materially greater amounts of preferred resources. Parties have not shown that a second RFO would yield a materially different result that the RFO that SCE just completed.

WBA argues that SCE should select alternative resources to meet local reliability needs in the Moorpark sub-area, but the resources described in WBA's testimony were not even bid into the RFO.[105] WBA's witness also admitted that the resources identified in WBA's testimony are "speculative numbers."[106] It would not be prudent to risk local reliability based on speculation about alternative resources.

III. CONCLUSION

For the reasons explained in NRG's opening brief and reinforced above, the Commission should approve all 11 contracts selected and executed by SCE for the Moorpark sub-area, including the Puente Contract, the Ellwood Refurbishment Contract, and the Ellwood Storage Contract. The Commission should approve all of these contracts without delay or condition.

August 5, 2015

Respectfully submitted,

/s/ Lisa A. Cottle

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Attorneys for NRG Energy Center Oxnard LLC and NRG California South LP

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104 Exhibit SCE-7 (Cushnie), p. 1 line 20 through p. 2 line 1.

105 Reporter's Transcript, Volume 1 (WBA/Perry), p. 161 line 18 through p. 163 line 5 and p. 165 lines 16-20.

106 Reporter's Transcript, Volume 1 (WBA/Perry), p. 166 line 9.

DOCKETED

Docket Number:	15-AFC-01
Project Title:	Puente Power Project
TN #:	205429
Document Title:	Letter Re: Comments on Public Review Draft, California Coastal Commission Sea-Level Rise Policy Guidance, dated July 20, 2015
Description:	N/A
Filer:	Alicia Campos
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	7/20/2015 1:30:15 PM
Docketed Date:	7/20/2015

CALIFORNIA ENERGY COMMISSION
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Sacramento, California 95814
Main website: www.energy.ca.gov

July 20, 2015

California Coastal Commission
c/o Sea-Level Rise Working Group
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RE: Comments on Public Review Draft, California Coastal Commission Sea-Level Rise Policy Guidance

Dear Sea-Level Rise Working Group,

The California Energy Commission appreciates the opportunity to comment on the Public Review Draft of the revised Sea-Level Rise Policy Guidance, dated May 27, 2015. The Guidance was reviewed by several divisions within the agency, and was of particular interest to staff of the Siting, Transmission, and Environmental Protection Division. During the licensing process of thermal power plants 50 megawatts or greater, Energy Commission staff provide an independent assessment of the proposed energy facility and ancillary facilities. As directed by Governor Executive Order S-13-08 for state agencies to plan for sea-level rise and climate impacts, staff include sea-level rise estimates in their assessment of a proposed project.

We support the Coastal Commission's effort to provide an overview of the best available science on sea level rise for California and recommended methodology for addressing it in Coastal Commission planning and regulatory actions. Our only concern is the document's reference to power plants. The Guidance specifically identifies power plants as critical infrastructure (page 80), therefore warranting special considerations such as applying a 500-year event design standard, assuming the highest sea-level rise projections, and protection from the worst-case future impacts (page 138).

Staff analyzes information specific to each proposed project and site location. We are concerned that by presenting all power plants as critical infrastructure, the public and intervening parties may believe that the Guidance recommends special considerations to all power plants without question. While the Energy Commission has exclusive jurisdiction over thermal power plants of 50 megawatts or greater, preempting the jurisdiction of all other state and local agencies, we do not wish to appear to be acting in conflict with the Guidance.

We recommend that "power plants" be removed from the third bullet on page 80 to avoid a default assumption that all power plants and ancillary facilities are critical. Alternatively, adding a statement or footnote to page 80 or 81, such as the following, may clarify how the Guidance document applies to power plants:

"The lists of critical infrastructure can vary widely from community to community. For planning purposes, a jurisdiction should determine criticality based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions."

Also, Appendix F on page 283, under Public Works Facilities, please make the following edit:

(a) All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, ~~except for~~ except for energy facilities 50 megawatts or greater [which are regulated by the ~~Public Utilities~~ **California Energy** Commission].

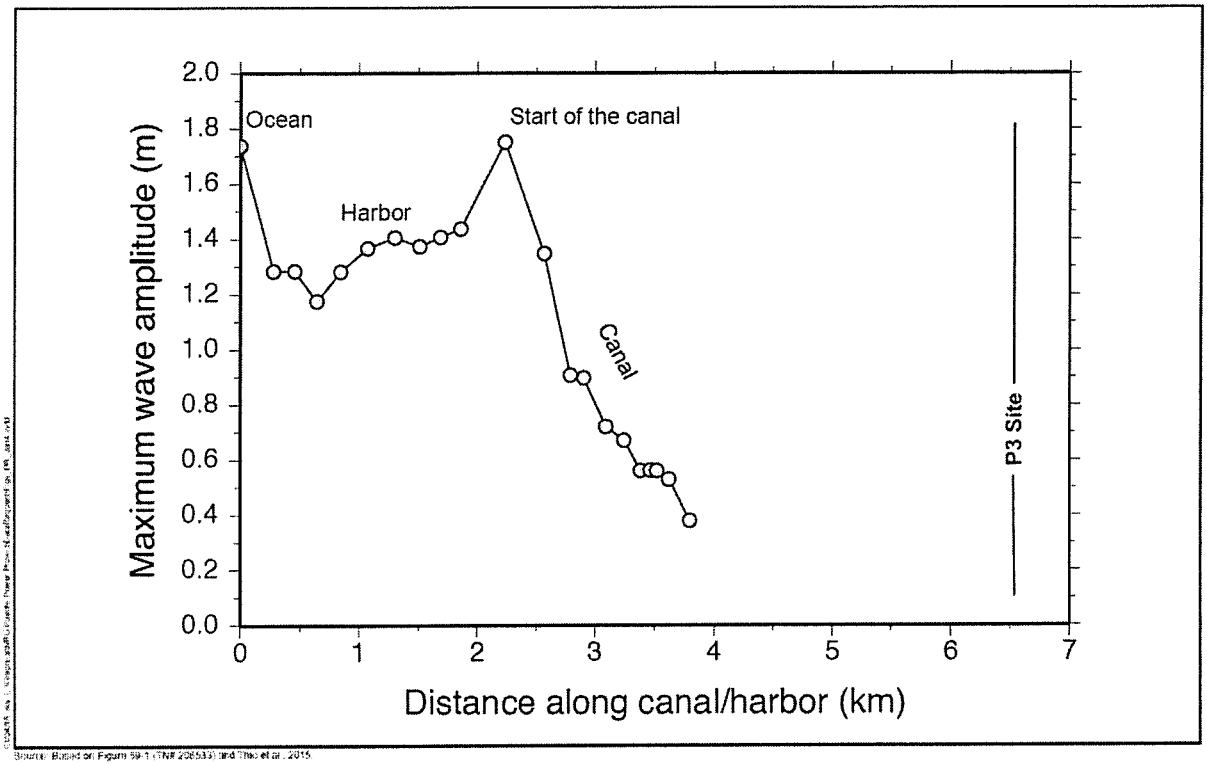
Thank you again for the opportunity to provide comments. Please note that this letter contains comments from Energy Commission staff as it pertains to their assessment of new and replacement power plants in the coastal zone. If you have any questions, please contact Matthew Layton at matthew.layton@energy.ca.gov or (916) 654-3868.

Sincerely,

Originally Signed By
Roger E. Johnson, Deputy Director
Siting, Transmission, and
Environmental Protection Division

cc: Robert Oglesby
Matthew Layton
Marylou Taylor

ATTACHMENT C



Maximum Tsunami Wave Amplitude Dissipation
(from earthquakes on the Ventura-Pitas Point fault and adjacent structures, 2015, annual meeting of the Southern California Earthquake Center, Palm Springs. Available online at: http://scecinfo.usc.edu/core/cis/2015am/view_abstract.php.)

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September 6, 2016

Mr. Joseph Street
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Puente Power Project – Response to Recommended Specific Provisions in August 26, 2016 Proposed Report

Dear Mr. Street:

On behalf of NRG Energy Center Oxnard LLC ("NRG" or "Applicant"), owner and developer of the Puente Power Project ("Project" or "P3") currently under review by the California Energy Commission ("CEC") (Docket No. 15-AFC-01), we hereby respond to the recommended specific provisions ("Recommendations") contained in the proposed "California Coastal Commission Report to California Energy Commission on Application for Certification 15-AFC-01 – NRG Puente Power Project" prepared by California Coastal Commission ("Coastal Commission") staff and released on August 26, 2016 ("Proposed Report").[1]

This letter supplements our earlier correspondence dated September 2, 2016, in which we provided additional information related to the staff's initial determination that a portion of the Project site constitutes a "wetland," and staff's assessment of risk related to flood, sea level rise and tsunami hazards. Based on that additional information, we requested that Coastal Commission staff: i) reverse its initial determination that a portion of the Project site constitutes a wetland; ii) reassess the level of risk to the Project from flooding, sea level rise and tsunami hazards; and iii) delete from the Proposed Report any Recommendations that the Project be relocated to an alternative site. This letter responds to the remainder of the Recommendations. The attached table identifies each of the Recommendations and indicates whether NRG accepts

[1] The Proposed Report indicates that the Coastal Commission is reviewing the Project pursuant to Public Resources Code section 30413(d). We note that the Section 30413(d) process applies only to notice of intention ("NOI") proceedings, and that thermal natural gas-fired power plant facilities such as the Project are statutorily exempt from the NOI process. (Pub. Resources Code, § 25540.6(a)(1).) NRG's commitment to implement the Recommendations as set forth in this letter does not constitute concurrence that Section 30413(d) applies to the Coastal Commission's review of the Project or the Recommendations provided by the Coastal Commission to the CEC.

the Recommendation as proposed, accepts the Recommendation with proposed revisions, or rejects the Recommendation.

In the event the Project is approved by the CEC as proposed, NRG is prepared to make significant commitments to implement the Recommendations, some of which will require substantial changes to the Project, including removal of the existing shoreline discharge outfall. NRG's commitment to implement the Recommendations as set forth in the attached table, taken together with the additional information contained in our earlier correspondence to you, further supports a finding that the Project as proposed will conform to the extent feasible with relevant policies of the California Coastal Act and the City of Oxnard's Local Coastal Program, and reinforces that any Recommendation to relocate the Project is unfounded and unnecessary.

NRG urges the Coastal Commission staff to supplement the Proposed Report to reflect the additional information provided in our September 2, 2016 letter, acknowledge NRG's commitment to implement the Recommendations as set forth herein, and eliminate any Recommendation that the Project be relocated. Thank you for your consideration of our input on the Proposed Report. We look forward to continuing discussions with you as this matter proceeds.

Best regards,

Michael J. Carroll

Michael J. Carroll
Of LATHAM & WATKINS LLP

Attachment
cc: Mark Delaplaine

Puente Power Project (15-AFC-01)

Response to Recommended Specific Provisions in California Coastal Commission Staff's Proposed Report

Topic Area	CCC Staff's Recommended Specific Provision	Applicant's Response Accept/Accept with Revisions/Reject
Wetlands and ESHA		
Direct Wetland Impacts - Alternatives	To ensure that the P3 conforms to the policies of Coastal Act Sections 30231 and 30233(a) and LCP Policy 52, we recommend the Energy Commission require that the proposed project be relocated to an alternative site that would not result in direct impacts to or fill of coastal wetlands. Alternative sites could include, but are not limited to, the Ormond Beach Area or on-site reconfiguration alternatives identified in the PSA. (Proposed Report, p. 13)	**Reject** As set forth in NRG's September 2, 2016 comments, no portion of the proposed Project site meets the definition of a "wetland." Further, no alternative offsite or onsite reconfigurations are feasible or environmentally superior to the proposed site.
Direct Wetland Impacts - Mitigation	If the CEC determines that relocating the P3 to an alternative site that avoids fill of coastal wetlands is infeasible, consistency with Coastal Act Section 30233(a) would still require that the adverse impacts of wetland fill be minimized by the provision of feasible mitigation measures. In order to ensure that the proposed mitigation fully compensates for temporal losses of wetland habitat and accounts for significant uncertainties in the success of any wetland restoration project, and thus minimizes the adverse effects of the project, the Commission recommends that the CEC modify Condition BIO-9 to require compensatory mitigation for direct impacts to wetlands in the form of wetland restoration at a 4:1 ratio at a nearby location. (Proposed Report, p. 14)	**Accept with Revisions** As set forth in NRG's September 2, 2016 comments, no portion of the proposed Project site meets the definition of a "wetland," and therefore compensatory mitigation is not required. Nevertheless, Applicant is prepared to accept Condition of Certification BIO-9 as proposed in the PSA at a ratio of 2:1 as a means of mitigating for the loss of hydrophytic plants currently present on the proposed Project site.
Indirect Impacts to Wetlands and ESHA – Required Buffer	To ensure the project conforms to the extent feasible with LCP Policy 6, we recommend the Energy Commission modify Condition BIO-7 to require that NRG design the P3 such that all project-related development is at least 100 feet, and further, if feasible, from nearby areas that meet the Coastal Commission and LCP definitions of wetlands or ESHA. We also recommend that submittal of revised project plans be required to reflect these changes in the project layout.	**Accept** As currently proposed, all Project-related development, , including the construction laydown and parking areas, are at least 100 feet from currently identified off-site wetlands and ESHA north of the MGS property. Applicant therefore accepts this recommendation with respect to such wetlands and ESHA, and will implement best management practices (BMPs) to minimize potential impacts to those resources. CEC staff has proposed Condition of Certification

Topic Area	CCC Staff's Recommended Specific Provision	Applicant's Response Accept/Accept with Revisions/Reject
	This recommended modification would also require NRG to submit a revised project plan showing that all project-related development is at least 100 feet from wetlands and ESHA. This requirement could be met through the selection of an off-site alternative location (such as the Ormond Beach Area site), relocating the project to one of the two on-site alternative locations identified in the Alternatives section (PSA pages 211-324), or by moving the proposed project footprint (specifically, the construction and laydown area) a few dozen feet away from the northern boundary of the site, which abuts the wetland/ESHA restoration area. Such an adjustment would appear to be feasible based on the amount of space available within the project site. (Proposed Report, p. 16)	BIO-6, which requires a Biological Resources Implementation and Monitoring Plan (BRIMP) to implement BMPs, monitoring and contingency measures. The BRIMP, together with the other proposed Conditions of Certification, will ensure that Project-related activities will not result in significant adverse effects on ESHA. It should be noted that the existing flood protection berm along the northern MGS property line separates the Project site from the identified off-site wetlands and ESHA areas.
Indirect Impacts to Wetlands and ESHA – Avoiding Effects of Construction Dewatering on Adjacent ESHA/Wetland Areas	To ensure project dewatering is done in a manner consistent with applicable Coastal Act and LCP policies, the Commission recommends that the CEC modify **Condition SOIL&WATER-3** to require that groundwater level monitoring measures be included in the required dewatering plan. Specifically, we recommend that the required monitoring include monitoring of groundwater levels at a minimum of two locations along the northern edge of the MGS parcel (between the P3 site and adjacent habitat areas). Additionally, we recommend that **Condition SOIL&WATER-3** be modified to require that NRG immediately cease dewatering activities if groundwater monitoring demonstrates a decrease in groundwater levels outside of the previously- projected radius of influence, until such time as NRG has revised the dewatering and/or foundation installation plan to reduce the area of groundwater drawdown such that reduced groundwater levels do not extend beyond the monitoring wells and parcel boundary. (Proposed Report, p. 17)	**Accept** Applicant accepts this recommendation with the following clarifications: • Applicant agrees to develop a Construction Dewatering Plan and submit to the CEC CPM for review and approval. This plan will be developed during detailed design and will provide details of the dewatering methods, areas to be dewatered, monitoring requirements and criteria for modifying the plan as needed. • Although PSA SOIL&WATER-3 is titled Construction Dewatering Plan, the text is incorrect. It does not describe dewatering, but instead incorrectly addresses wastewater discharges during operations, i.e., it is a duplicate to SOIL & WATER-4. It is expected that CEC staff will correct and modify SOIL&WATER-3 as appropriate. • Applicant agrees to perform groundwater elevation monitoring during dewatering activities that could affect wetlands and ESHA north of the site. There is one existing monitoring well (MW-2) between the P3 site and the northern boundary that could be used to avoid potential impacts associated with installing additional wells and/or piezometers. The location and

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		need for an additional monitoring well would be evaluated in the proposed Construction Dewatering Plan submitted to the CEC CPM.
Indirect Impacts to Wetlands and ESHA – Reducing Effects of Project Noise and Vibration on Adjacent ESHA/Wetland Areas	The Commission generally concurs with the PSA's recommended approach to avoiding and reducing noise-related effects in the nearby ESHA and wetland areas. However, the Commission recommends two modifications to **Condition BIO-8** to ensure consistency with Coastal Act and LCP provisions requiring protection of these habitat areas: .	
	• **Inclusion of noise monitoring and noise thresholds:** The sensitive-species monitoring provisions of **Condition BIO-8** should be modified to include both monitoring of noise levels and an allowable noise threshold in adjacent sensitive habitat, in order to prevent disturbance of nesting birds during construction and demolition activities. Specifically, **Condition BIO-8** should be modified to require that NRG prepare and implement a Noise Monitoring Plan throughout construction and demolition activities taking place during the bird breeding season (February 1 to August 31). The Plan should require continuous noise monitoring at several locations near known or suitable nesting habitat adjacent to the project site, and should require that noise levels at these monitoring locations not exceed 8 dBA above ambient levels or 60 dBA (hourly average Leq), whichever is greater. In addition, sound levels within 100 feet of active nests (as identified during the nesting surveys required pursuant to Condition BIO-8) should not exceed 65 dBA. The Plan should also require that monitoring devices be reviewed daily during any construction occurring within 400 feet of the project's boundary with adjacent wetland, mulefat scrub or dune areas, and during any pile-driving activities. If construction noise exceeds these levels, NRG should be required to implement noise-reduction measures, which may include installing	**Accept with Revisions** Applicant agrees to prepare a Noise Monitoring Plan for construction and demolition. Applicant proposes the following revisions to the recommendation: • Applicant accepts a 65 dBA hourly Leq construction/demolition noise limit monitored as part of Condition of Certification BIO-8 activities at a distance of 100 feet from an active nest during the breeding/nesting season, based on the understanding that the limit applies to construction/demolition noise from the P3 and MGS site only. • With ambient noise level measurements (to assess noise above ambient that would be attributed to construction/demolition noise for P3 and demolition of MGS Units 1 & 2) adopted as part of BIO-8 activities near active nests, Applicant does not agree that continuous monitoring at several additional and as-yet unidentified habitat locations needs to be implemented. Applicant also does not agree with the suggested noise limits of 60dBa and increase of 8 dBa for these unidentified locations, on the basis that page 4.2-28 of the PSA notes "the Energy Commission declined 60 decibels as too low a disturbance threshold to use for avian species (CEC 2014)." Therefore,

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	temporary sound barriers, or, as feasible, moving noise-generating activities further from the ESHA/wetland areas, and avoiding pile driving or confining pile driving to project areas furthest from the sensitive habitats. These recommendations are complementary to and more protective of sensitive wildlife than the current requirements of **Condition BIO-8**, which would rely on relatively infrequent monitoring of known nests and would not require impact avoidance measures to be enacted until the disturbance or "take" of nesting birds had already occurred. (Proposed Report, pp. 19-20)	Applicant recommends that the following sentence be removed from the provision as shown in strikeout below: ~~The Plan should require continuous noise monitoring at several locations near known or suitable nesting habitat adjacent to the project site, and should require that noise levels at these monitoring locations not exceed 8 dBA above ambient levels or 60 dBA (hourly average Leq), whichever is greater.~~
	• **Prohibition on pile driving during nesting season:** Second, Condition BIO-8 should be modified to require that NRG schedule and conduct all pile driving activities outside the February 1 through August 31 breeding and nesting season. Condition BIO-8 currently leaves open the possibility that pile driving could occur in close proximity to active nesting areas. As noted above, the PSA already anticipates that noise levels during pile driving would exceed the 60 – 65 dBA threshold deemed by the CDFW and USFWS to be protective of nesting birds at distances of 2,600 to 4,100 feet, which would encompass large areas of known and suitable nesting habitat in the wetlands and dunes surrounding the MGS site. Additionally, pile driving has the potential to cause substantial vibration levels (VdB), in nearby wetlands and ESHA, although the PSA does not identify those expected levels. Given the expected threshold exceedance and the additional unquantified but likely significant vibration-related effects, this modification would further reduce project-related adverse effects on nearby ESHA and wetland areas. (Proposed Report, p. 20)	**Accept with Revisions** Applicant's current plan is to avoid pile driving altogether and use alternative methods for construction of P3, such as auger cast, hydraulic or drilled piles, whichminimize noise and vibration. In the event that during detailed design or during construction, pile driving becomes necessary, and it is not feasible to schedule and conduct the pile driving outside the February 1 through August 31 breeding and nesting season, Applicant will work with the biologist and CEC's CPM to develop an appropriate plan to reduce project-related adverse effects on nearby ESHA and wetland areas.
Wastewater Discharge & Impacts of Outfall Structure	To ensure consistency with Coastal Act and LCP Policies requiring the maintenance and protection of marine resources and sensitive species and habitats and the minimization of adverse impact from adjacent development, and LCP Policy 64, requiring the reuse of	**Accept** Subject to CEC approval of an alternative means of handling process wastewater and stormwater from P3, Applicant will discontinue use of the existing MGS outfall and will include removal of the outfall as

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Maintenance	wastewater from energy-related facilities, the Commission recommends that the CEC require NRG to develop a Wastewater Reuse and Recycling Plan, including any necessary water treatment, that would maximize reuse of the process wastewater and storm water generated and collected at the MGS following the construction of the P3 and decommissioning of Units 1 and 2 and eliminate the discharge of wastewater to the beach. The Plan could include the possible reclamation, storage and reuse of storm water as described above, the treatment and reinjection of wastewater for purposes of groundwater recharge (to replace infiltration lost as a result of impervious surfaces on the MGS site), treatment and discharge to the Edison Canal (if such use would promote water circulation necessary to prevent stagnation), treatment and recycling for off-site industrial, agricultural or urban use, or other beneficial uses. In the event that full wastewater reuse and recycling is determined to be infeasible, we recommend that the CEC require the Wastewater Plan to include measures that would prevent the recurrence of back-beach ponding, avoid impacts to avian nesting areas, and eliminate the need for repeated excavation of a discharge channel on the beach. (Proposed Report, p. 22)	part of the demolition of MGS Units 1 and 2. P3 will reuse process wastewater and stormwater to the maximum extent feasible.
Flood, Sea Level Rise, and Tsunami Hazards		
Flood, Sea Level Rise, and Tsunami Hazards	To address hazards presented by flooding, sea level rise and tsunamis, and their associated risks to the proposed facility, and to allow consistency with relevant provisions of the Coastal Act and LCP, the Commission recommends the CEC develop a new condition of certification achieving the following: **Relocation of Project to Minimize Risk of Flooding:** In order to ensure that the proposed project minimizes risks to life and property, assures stability and structural integrity, and remains inland of the 100-year flood zone over the full life of the project, as required by Coastal Act Section 30253 and LCP Policies 40 and 56, the Commission recommends that the CEC require NRG to relocate the proposed project to an alternative site that is (a) outside the current 100-year and 500-year flood zones, and (b) would not be at risk of flooding related to high water levels, storm waves or coastal erosion,	**Reject** As set forth in NRG's September 2, 2016 comments, the level of risk associated with exposure to flood, sea level rise and tsunami hazards does not warrant relocation of the Project. Further, no alternative offsite or onsite reconfigurations are feasible or environmentally superior to the proposed site. .

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	including the effects of sea level rise, over the full 30-year project term. (Proposed Report, p. 35)	
Flood, Sea Level Rise, and Tsunami Hazards	If the CEC determines that there is no feasible site meeting these criteria to which the project could be relocated, the Commission recommends the following new and modified conditions are necessary allow consistency, to the extent feasible, with relevant Coastal Act and LCP policies:	
	• **Flood Damage Prevention:** In order to minimize risks to life and property from flooding within the confines of the MGS site, the Commission recommends the CEC include the following new condition of approval: Prior to the start of construction, NRG shall submit for CPM review and approval, certification from a licensed engineer that the proposed facility is elevated above, or protected from, a 500-year flood event at the project site that includes an additional 24 inches of sea level rise. The engineer's determination shall describe the methods and include the calculations used to determine the elevation of the current 500-year flood event at the site and those used to determine the elevation of a future 500-year flood event with the additional 24 inches of sea level rise expected during the facility's thirty year operating life. The elevations and proposed changes to the facility design shall be incorporated into the final project design submitted to the CPM. (Proposed Report, pp. 35-36)	**Accept** Applicant accepts this recommendation.
	• **No Shoreline Protective Device:** Coastal Act Section 30253(b) requires that new development "neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area **or in any way require the construction of protective devices** ..." To ensure consistency with this policy, the Commission recommends that the CEC include the following new condition of approval: In the event that the approved development, including any future improvements, is threatened with damage or destruction from coastal hazards, or is damaged or destroyed by coastal hazards,	**Accept** Applicant accepts this recommendation.

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	protective structures (including but not limited to seawalls, revetments, groins, deep piers/caissons, etc.) shall be prohibited. By acceptance of the CEC approval, the project owner waives any right to construct such protective structures, including any that may exist under Public Resources Code Section 30235. (Proposed Report, p. 36)	
	• **Beach and Dune Monitoring:** Due to the importance of a wide beach and intact dunes for reducing flood hazards at the project site, the Commission recommends that the CEC require NRG to implement a Beach and Dune Monitoring Program to be carried out over the life of the project. The purpose of this monitoring would be to determine if, and at what rate, the beach and/or dunes are eroding. The Program should include triggers for further action based on the degree of beach narrowing and/or dune loss, and measures should be identified that could halt or slow the observed erosion without construction of shoreline protective devices. One such measure could include financial support for dredging and sand bypassing at Ventura Harbor, particularly if a hiatus in sand bypassing is shown to be contributing to erosion at the project site. (Proposed Report, p. 36)	**Accept** Applicant accepts this recommendation.
	• **Facility Removal.** As discussed above, in the second half of the century the MGS is likely to be subject to hazards, including increasingly frequent and severe flooding and shoreline erosion, which will render the facility, including the P3, inoperable. In order to minimize this risk to life and property, and assure that the proposed development does not contribute to the destruction of the site or surrounding area, as required by Coastal Act Section 30253, the Commission recommends that the CEC require NRG to submit a plan, prior to the end of the proposed 30-year life of the P3, for the decommissioning and full removal of the facility. (Proposed Report, p. 36)	**Accept** Applicant accepts the CEC's standard Condition of Certification regarding facility closure and removal (proposed Condition of Certification COM-15, PSA, p. 6-19).
Public Access and Recreation		

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Public Access and Recreation - Wastewater Discharge and Reuse of Outfall Structures	To ensure consistency with Coastal Act Sections 30210 and 30211, and LCP Policies 52 and 54, the Commission recommends that the CEC require NRG to develop a Wastewater Reuse and Recycling Plan, including any necessary water treatment, that would maximize reuse of the process wastewater and storm water generated and collected at the MGS following the construction of the P3, and eliminate the discharge of wastewater to the beach. In the event that full wastewater reuse and recycling is determined to be infeasible, the Commission recommends that the CEC require that the Wastewater Plan include measures that would prevent the recurrence of back-beach ponding, avoid the creation of public hazards and other impacts to public access and recreation, and eliminate the need for repeated excavation of a discharge channel on the beach. (Proposed Report, p. 40)	**Accept** To address this recommendation, and satisfy the requirements of Public Resources Code section 25529 related to establishment of an area for public use, subject to CEC approval of an alternative means of handling process wastewater and stormwater from P3, Applicant will discontinue use of the existing MGS outfall and will include removal of the outfall as part of the demolition of MGS Units 1 and 2. P3 will reuse process wastewater and stormwater to the maximum extent feasible.
Public Access and Recreation – Public Access Improvements	To address the public access requirements of Section 25529 of the Warren-Alquist Act as well as the relevant provisions of the Coastal Act and LCP, the Commission recommends that **Condition LAND-1** be modified to require the full removal, partial removal, or down-sizing of the existing outfall structures (including riprap and fence), to eliminate or minimize impacts to public access. (Proposed Report, pp. 41-42)	**Accept** Subject to CEC approval of an alternative means of handling process wastewater and stormwater from P3, Applicant will discontinue use of the existing MGS outfall and will include removal of the outfall as part of the demolition of MGS Units 1 and 2. P3 will reuse process wastewater and stormwater to the maximum extent feasible.
Public Access and Recreation – Facility Abandonment	In order to avoid foreseeable public access impacts from any future abandonment-in-place of the MGS and/or P3, and to allow consistency with Coastal Act and LCP policies requiring maximum public access and requiring that energy-related development be designed to minimize adverse effects on public access, the Commission recommends that the CEC include a new condition of approval requiring that NRG develop decommissioning plans which include the removal of all MGS and P3 structures and facilities, including below-grade components, at the end of the operating lives of the respective facilities. (Proposed Report, p. 42)	**Accept with Revisions** Applicant's commitment regarding demolition of MGS Units 1 and 2 is set forth in its "Project Enhancement and Refinement – Demolition of Mandalay Generating Station Units 1 and 2" docketed with the CEC on November 19, 2015 (TN # 206698). With respect to P3, Applicant accepts the CEC's standard Condition of Certification regarding facility closure and removal (proposed Condition of Certification COM-15, PSA, p. 6-19), which requires development and CEC approval of a Final Closure Plan to "ensure that a facility's eventual permanent closure and long-term maintenance do not pose a threat to public health and safety and/or to environmental quality."

Topic Area	CCC Staff's Recommended Specific Provision	Applicant's Response Accept/Accept with Revisions/Reject
Public Access and Recreation – Project-Related Traffic	To ensure consistency with Coastal Act and LCP policies protecting public access to the coast, the Commission recommends that Condition TRANS-3 be modified to require NRG to include in its Traffic Control Plan any measures necessary to minimize construction traffic on weekends and holidays, and to avoid delays and degraded LOS during these key recreational periods. (Proposed Report, p. 43)	**Accept** Applicant accepts this recommendation. Please note that proposed Condition of Certification TRANS-2, as opposed to TRANS-3, addresses the Traffic Control Plan.

September 6, 2016

California Coastal Commission
45 Fremont, Suite 2000
San Francisco, CA 94105-2219

Re: Proposal to Upgrade Mandalay Generation Station (Energy, Ocean Resources and Federal Consistency) (Agenda Item F10a)

Sent via email to alison.dettmer@coastal.ca.gov

Dear Honorable Commissioners:

The undersigned organizations submit this letter to the California Coastal Commission respectfully urging you to adopt staff's proposed Report (prepared pursuant to section 30413(d) of the Coastal Act) to the California Energy Commission ("CEC") for NRG Energy's proposed "Puente Power Project," which would be the *fourth* fossil-fuel power plant to be sited on the City of Oxnard's beaches. Our organizations believe that CCC staff has done a commendable and thorough job in preparing the Report, and we support the detailed recommendations identified by staff as necessary to bring the

project in compliance with the Coastal Act, including the fundamental recommendation "that the CEC require NRG to relocate the project to an off-site alternative location that is free of current and future flood hazards."

Although proposed power plants such as Puente do not require a coastal development permit, your Commission still plays an essential and substantive role in the CEC power plant certification process by providing findings with respect to specific measures necessary to bring the project into compliance with Coastal Act policies. The CEC can only disregard these recommendations if it finds that they are infeasible or would cause greater environmental impacts than the project as proposed.

Here, the Puente Power Project 30413(d) Report concludes that the project as proposed and as analyzed by the CEC in its Preliminary Staff Assessment ("PSA") does not address all environmental impacts, including direct impacts to wetlands; indirect impacts to wetlands and environmentally sensitive habitat areas ("ESHA"); site exposure to present and future hazards from flooding, sea level rise, and tsunamis; and effects on public access to the shoreline. The Report also notes that the Puente project would conflict with several land use policies under the Coastal Act and the City of Oxnard's Local Coastal Program.

CCC staff's clear-eyed review of this project illustrates that the proposed site is counter to basic Coastal Act policies:

> Ultimately, in spite of the uncertainty surrounding the exact degree of risk, there is substantial evidence that the project site could be exposed to flooding during its proposed 30-year operating life, and that over the long-term, this possibility would become a certainty. In this situation, Coastal Act Section 30253 requires that risks to life and property be minimized, and the stability and structural integrity of new development be assured, without resorting to the construction of shoreline protective devices. The Commission believes that the requirements of this policy can best be met through risk avoidance, that is, by the selection of an alternative inland site that is free of flooding hazards. (Staff Report, at p. 34).

Accordingly, the 30413(d) Report recommends "that the CEC require NRG to relocate the proposed project to an alternative site that is (a) outside the current 100-year and 500-year flood zones, and (b) would not be at risk of flooding related to high water levels, storm waves, or coastal erosion, including the effects of sea level rise, over the full 30-year project term." Similarly, the 30413(d) Report recommends that "the Energy Commission require that the proposed project be relocated to an alternative site that would not result in direct impacts to or fill of coastal wetlands." (Staff Report, at p. 13).

Although the 30413(d) Report makes several additional laudable recommendations in an effort to lessen or mitigate Puente's array of adverse environmental impacts, our undersigned organizations write primarily to support the most basic recommendation asking that the CEC require NRG to locate an alternate site.

The 30413(d) Report does omit one important issue—environmental justice. As stated in the CCC's 2015 Sea Level Rise Policy Guidance, the Coastal Act "recognizes the fundamental importance of the fair distribution of environmental benefits." Accordingly, the Policy directs that "[e]nsuring low-income and underserved communities are included in environmental decisions is a key tenet of environmental justice and will minimize disproportionate environmental and public health impacts."

The environmental justice implications of the Puente project are undeniable. The City of Oxnard is a majority-minority community, with 74% of residents of Hispanic descent and an additional 10% of residents identified as non-white. In addition to the three existing coastal power plants, Oxnard also contains an EPA Superfund site, landfills, and extensive oil and gas development adjacent to residences. State of California data contained within CalEnviro Screen 2.0 characterizes much of the City as disadvantaged, with several census tracts classified within the highest "score" (91%-100%). When all census tracts are considered, the City of Oxnard ranks within the top 10% of California communities in terms of the environmental burden of dangerous and polluting industries. This community should not be saddled with yet another coastal power plant.

The siting of any additional fossil-fueled power plants on California's irreplaceable beaches is shortsighted under any circumstance; NRG's proposal to build the Puente project in an area uniquely vulnerable to sea level rise, beach erosion, and tsunami risk is simply reckless. We respectfully request that the California Coastal Commission fully and responsibly exercise its statutory authority under the Coastal Act and Warren-Alquist Act by adopting staff's 30413(d) Report (and recommendations) for the Puente Power Project.

Thank you for considering our recommendation.

Sincerely,

Strela Cervas, Co-Director
California Environmental Justice Alliance

Janis McCormick, President
Environmental Coalition

Brian Segee, Senior Attorney
Environmental Defense Center

Matt Vespa, Senior Attorney
Sierra Club

Paul Jenkin, Environmental Coordinator
Surfrider Foundation, Ventura County Chapter

Bruce Schoppe, President
Ventura Audubon Society

Jason Weiner, General Counsel and Water Initiative Director
Ventura Coastkeeper

Mati Waiya, Executive Director
Wishtoyo Foundation

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F10a

August 26, 2016

TO: Commissioners and Interested Parties

FROM: Alison Dettmer, Deputy Director – Energy, Ocean Resources, and Federal Consistency Division
Joseph Street, Environmental Scientist – Energy, Ocean Resources, and Federal Consistency Division

RE: Report to Commission and possible Commission action regarding the California Energy Commission's Application for Certification (15-AFC-01) – NRG Energy Center Oxnard, LLC, Puente Power Project, reviewed pursuant to Coastal Act section 30413(d)

On September 9, 2016, Commission staff will brief the Commission on the proposed Puente Power Project ("P3"), which is being reviewed by the California Energy Commission ("CEC"). The proposed project would replace the existing Units 1 and 2 of the Mandalay Generating Station with a new, 262-megawatt (MW) gas-powered generating facility within the same site.

Pursuant to the Warren-Alquist Act, the CEC has sole permitting authority for locating or expanding power plants with a greater than 50-megawatt capacity, including those located in the coastal zone; therefore, the project does not require a coastal development permit. Nevertheless, section 30413(d) of the Coastal Act expressly authorizes the Coastal Commission to participate in the CEC's proceedings and provide findings with respect to specific measures necessary to bring the project into conformity with Coastal Act policies. Pursuant to section 25523(b) of the Warren-Alquist Act, the CEC must include those specific provisions in its final project decision unless it finds that they are infeasible or would cause greater adverse environmental impacts.

Staff is proposing the Commission approve the attached report (the "30413(d) Report"), which provides recommended findings and provisions for the CEC to include as part of any approval of the proposed project. In June 2016, CEC staff published its Preliminary Staff Assessment providing a detailed description of the proposed project and including recommended conditions of approval. These recommended conditions would address many, but not all, environmental impacts of the project. As proposed, the project has the potential to adversely affect coastal resources in a variety of ways. These concerns, which are described in more detail in the attached 30413(d) Report, include:

- **Direct impacts to wetlands:** The P3 would be constructed in an area supporting hydrophytic plant species and thus meeting the definition of a wetland under the Coastal

Act and Oxnard LCP. The project as proposed would result in the fill of approximately two acres of wetland habitat. This Report recommends that the CEC require NRG to relocate the project to a feasible on- or off-site alternative location which would avoid direct impacts to coastal wetlands.

- **Indirect impacts to wetlands and environmentally sensitive habitat areas ("ESHA"):** The proposed project has the potential to result in several indirect adverse impacts to adjacent wetlands and ESHA related to the following: (a) the project location within required buffers; (b) noise generated during construction and demolition activities; (c) groundwater dewatering during construction of below-grade structures; and (d) discharge of wastewater to the beach during project operation, which could affect the nesting sites of sensitive bird species. This Report recommends that the CEC include new or modified conditions of approval requiring the project to meet LCP requirements for buffers around sensitive habitats, implement noise monitoring and abatement measures, monitor groundwater levels during any dewatering activities, and develop a wastewater reuse and recycling plan to avoid or minimize discharges to the beach.
- **Site exposure to present and future hazards from flooding, sea level rise and tsunamis:** Over its 30-year project term, the proposed project would be at increasing risk of adverse impacts from flooding related to storms, sea level rise and coastal erosion. Portions of the site are already within the FEMA 500-year flood zone, while both the forthcoming FEMA flood map revisions and independent studies of flood hazards in the project vicinity indicate that the site may also be at risk from a 100-year flood event. Future sea level rise of up to 2 feet by 2050 will exacerbate the risk of flooding, particularly when storm-driven erosion of the dune system protecting the site is taken into account. This Report first recommends that the CEC require NRG to relocate the project to an off-site alternative location that is free of current and future flood hazards. If it is determined that no such alternative is feasible, the Report recommends additional measures to bring the project into conformity with relevant Coastal Act and LCP policies to the extent feasible, including: (a) facility design measure (e.g., grading/berming) to reduce flooding risks; (b) a requirement that no future shoreline armoring be built to protect the project; (c) beach and dune monitoring requirements; and (d) a requirement to fully remove the facility at the end of the project term.
- **Effects on public access to the shoreline:** In order to avoid project impacts to public access, and meet Coastal Act, LCP and Warren-Alquist Act requirements that energy-related development maximize and provide new public access opportunities, this Report recommends that the CEC include new or modified conditions of approval requiring: (a) development of a wastewater reuse and recycling plan to avoid or minimize discharges to the beach; (b) removal or reduction in size of the wastewater outfall and associated riprap and fencing located on the beach; and (c) full removal of MGS and P3 structures, including below-grade components, upon decommissioning.

Attached for the Commission's consideration is a draft transmittal letter to the CEC and an accompanying 30413(d) Report that sets forth recommended findings on the proposed project's conformity to relevant policies of the Coastal Act and the City of Oxnard's Local Coastal Program (LCP) and recommended specific provisions that, if included by the CEC as conditions of its project approval, would allow the project to conform to the extent feasible to

applicable Coastal Act and LCP policies. Staff believes its recommended conditions are feasible and are necessary to ensure the proposed project will be consistent, to the extent feasible, with relevant policies of the Coastal Act and Local Coastal Program.

Should the Commission wish to forward the attached letter and report to the CEC, staff recommends that the Commission adopt the following Motion and Resolution. Passage of this motion will result in adoption of the following resolution and attached report and direction to the staff to forward the attached report to the CEC. The motion passes only by affirmative vote of a majority of the Commissioners present.

Motion

I move that the Commission adopt the attached report and direct staff to forward this report to the California Energy Commission pursuant to Coastal Act section 30413(d).

Resolution to Approve Report

The Commission hereby adopts the attached report regarding the proposed Puente Power Project on grounds that the report includes the findings and conditions necessary to comply with the Commission's obligations under Coastal Act section 30413(d).

Staff recommends the Commission **approve** the Motion and Resolution.

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DRAFT

September 9, 2016

Janea Scott
Commissioner and Presiding Member
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

RE: Coastal Commission's 30413(d) Report for the Proposed NRG Energy Center Oxnard, LLC Puente Power Project – Application for Certification #15-AFC-01

Dear Ms. Scott:

On September 9, 2016, by a vote of _____, the California Coastal Commission, at a public hearing, approved forwarding this letter and the attached report for the California Energy Commission's ("CEC's") consideration. The report assesses the proposed Puente Power Project ("P3") for conformity with the Chapter 3 policies of the Coastal Act and the policies of the City of Oxnard's certified Local Coastal Program ("LCP"). The assessment provides findings and recommended conditions that will allow the proposed project to be built and operated consistent, to the extent feasible, with those policies.

The project, proposed by NRG Energy Center Oxnard, LLC (hereafter "NRG" or "the applicant"), consists of the construction of the P3 facility, a single-fuel combustion turbine generator producing up to 262 megawatts (MW) of electricity, and the retirement and demolition of two gas-fired steam-generating units (Units 1 and 2) at the existing Mandalay Generating Station (MGS). Retirement of Units 1 and 2 would end the current plant's reliance on its "once-through cooling" (OTC) system that uses large volumes of seawater to cool the existing generating units.

Pursuant to the Warren-Alquist Act, the CEC has sole permitting authority for locating or modifying power plants with a greater than 50-MW capacity, including those located in the coastal zone. Nevertheless, section 30413(d) of the Coastal Act expressly authorizes the Coastal Commission to participate in the CEC's proceedings and provide findings with respect to specific measures to bring a power plant project located within the coastal zone into conformity with Coastal Act and LCP policies. Warren-Alquist Act section 25523(b) requires the CEC to include the Coastal Commission's recommended specific provisions in its final project decision unless it finds that they are infeasible or would cause greater adverse environmental impacts. Staff of the two Commissions have developed a Memorandum of Agreement that describes the manner in which the two Commissions will coordinate their respective reviews and identifies the

process for the CEC to consider the Coastal Commission's findings and recommended specific provisions.

For this proposed project, the Coastal Commission has focused its Coastal Act section 30413(d) review on the project's potential adverse effects in five key issue areas: (1) land use, (2) environmentally sensitive habitat areas ("ESHA") and wetlands, (3) hazards associated with flood, tsunami, and sea level rise, (4) wastewater management, and (5) public access to the shoreline. The attached report includes several specific provisions the Coastal Commission recommends the CEC adopt as part of any final approval of 15-AFC-01 to ensure the proposed project is consistent to the maximum extent feasible with relevant Coastal Act and LCP policies.

Thank you for your consideration of the Coastal Commission's findings and recommendations.

Sincerely,

JOHN AINSWORTH
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California Coastal Commission

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Coastal Commission Report
to
California Energy Commission
on
Application for Certification 15-AFC-01
– NRG Puente Power Project –

Reviewed pursuant to
Coastal Act Section 30413(d)

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I. FINDINGS AND RECOMMENDED SPECIFIC PROVISIONS

A. PROJECT DESCRIPTION

The Mandalay Generating Station (MGS) is an existing electrical generating facility located in the coastal zone in the City of Oxnard (**Exhibits 1, 2**). It is owned and operated by NRG Energy Center Oxnard, LLC (hereafter, either "the applicant" or "NRG"). The power plant site covers about 36 acres in the northwest portion of the City. The site is bordered by sand dunes, a beach area and the Pacific Ocean to the west, McGrath State Park to the north, Harbor Blvd. to the east, and the Southern California Edison (SCE) McGrath Peaker Plant site, an oil storage and distribution facility, and Mandalay County Park to the south (**Exhibit 2**). A switchyard within the site is owned and operated by SCE. Extensive agricultural areas occur inland of the MGS, and the nearest existing residential area is the Oxnard Shores mobile home park approximately one mile south of the P3 site. An approved residential development, the North Shore at Mandalay Bay, scheduled for construction beginning in 2016, would be approximately half a mile from the P3.

The existing MGS includes three operational electrical generating units. The existing Units 1 and 2 (430-megawatt combined generating capacity) are cooled using a "once-through cooling" process in which NRG pumps in up to 254 million gallons per day of ocean water conveyed to the site via a 2.5-mile long canal ("Edison Canal", "Mandalay Canal") connecting to the Channel Islands Harbor. As the seawater is pumped through the facility, it removes excess heat from the generating units and is then discharged as wastewater back into the Pacific Ocean via a concrete and rock-lined outfall structure on the beach immediately seaward of the MGS (see **Exhibits 2-4**). Units 1 and 2 are subject to the State Water Resources Control Board's Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling ("Once-Through Cooling Policy"), which requires that pumping of ocean water for cooling at the MGS be greatly reduced or eliminated by December 2020. A third existing generating unit (Unit 3) consists of an air-cooled, 130-MW gas combustion turbine that does not require once-through cooling.

Proposed Puente Project ("P3")

In April 2015, NRG submitted its Application for Certification ("AFC") to the Energy Commission. NRG is proposing to construct a new, 262-megawatt (MW) generating unit and associated facilities on approximately 3 acres of the MGS site (**Exhibit 3**). All construction laydown and parking areas would also be within the MGS site. If the new P3 generating unit is approved and developed, the existing MGS Units 1 and 2 would be retired and demolished. The existing Unit 3 would be retained and continue to operate. The proposed P3 is more fully described in the CEC's Preliminary Staff Assessment ("PSA"), available at the following web links:

PSA Part 1: http://docketpublic.energy.ca.gov/PublicDocuments/15-AFC-01/TN211885-1_20160620T131522_Revised_P_r_e_l_i_m_in_a_r_y_S_t_a_ff_A_s_s_e_s_s_m_e_n_t.pdf;

PSA Part 2: http://docketpublic.energy.ca.gov/PublicDocuments/15-AFC-01/TN211885-2_20160620T131526__Revised_P_r_e_l_i_m_in_a_r_y_S_t_a_ff_A_s_s_e_s_s_m_e_n_t.pdf.

The main project components include the following:

- A single gas-fired combustion turbine generator (262 MW net generating capacity) providing fast-start, peaking generation capability;
- A 188-foot-tall exhaust stack;
- Four 100-foot-tall transmission line poles connecting the new power block to the existing SCE switchyard;
- Extensions of existing water, storm drain, fire water loop septic and gas lines to service the new generating unit;
- Decommissioning of the existing MGS Units 1 and 2, and demolition and removal of the power block structures and exhaust stacks, once the new generating unit is built and operational.

The proposed new generating unit would run on natural gas supplied by existing pipelines, but would require construction of a new gas metering station adjacent to the P3 site and a new pipeline extending approximately 500 feet from the metering station to the generating unit. The proposed unit would connect to the existing SCE switchyard using one of the breaker positions vacated by the retirement of MGS Units 1 and 2. The new generating facility would be air-cooled and would therefore eliminate the use of ocean water for once-through cooling at MGS.

NRG proposes to construct the P3 over a 21-month period between October 2018 and June 2020. Commercial operation of P3 is anticipated by June 2020. Decommissioning of Units 1 and 2 is proposed to begin by December 2020, with demolition activities beginning by late 2021 and lasting approximately 15 months. The CEC's review anticipates a power plant operating life of 30 years for the P3, extending between 2020 and 2050.

Alternatives

The PSA evaluates a variety of project alternatives, including a "No-Project" alternative, a number of off-site locations, and two on-site project reconfigurations (see PSA beginning page 6.1-1). Several of the key alternatives are as follows:

- *No-Project Alternative*: Not constructing the P3 would avoid several environmental impacts, including impacts to coastal wetlands, but would not fulfill NRG's project objectives.
- *Del Norte/Fifth Street Off-site Alternative*: Constructing the project at this location in eastern Oxnard, five miles inland of the Coastal Zone, would avoid hazards from flooding, sea level rise and tsunamis (see Section I.E, below) and impacts to coastal wetlands, but would result in potentially significant, unavoidable impacts to aviation at a nearby airport due to thermal plumes from the power plant.
- *Ormond Beach Area Off-site Alternative*: Constructing the project at an undeveloped (but cleared and graded) industrial site in southern Oxnard, north of the existing Ormond Beach Generating Station and approximately 0.75 miles inland from the ocean, would avoid coastal hazards and impacts to coastal wetlands. The site is privately-owned and not currently under NRG's control.

- *On-Site Project Reconfiguration*: The PSA also identifies two additional locations within the MGS site where the P3 could be located which would avoid impacts to coastal wetlands (see **Exhibit 5**). The first location, in the northeastern portion of the MGS, is a paved area currently used for parking. The second location, in the center of the site between Units 1 and 2 and the SCE switchyard, includes paved areas and an existing warehouse which would have to be dismantled. No feasibility issues are identified for this alternative.

The alternatives analysis contained in the PSA determines that at least two alternatives -- the off-site Ormond Beach Area location and the on-site reconfigurations – would be environmentally superior to the proposed project, but stops short of determining whether these alternatives would indeed be feasible.

The PSA assumes that under all alternatives other than the proposed project the existing MGS Units 1 and 2 would remain in place, even after the cessation of operations in 2020. In effect, any alternative other than the proposed project is immediately put at a disadvantage because it is assumed that none of the benefits of the removal of the existing facility would be realized. In conversation with Commission staff, City of Oxnard representatives have stated that, if the MGS Units 1 and 2 were to remain in place following the 2020 shutdown, the City would consider declaring the structures a nuisance under state law and pursue all means of requiring their demolition.[1] The Commission urges the CEC to reconsider its baseline for evaluating project alternatives, taking into account the likelihood that the existing MGS Units 1 and 2 would be removed even in the absence of the P3.

B. Regulatory Framework and Standard of Review

Pursuant to the Warren-Alquist Act, the CEC has exclusive siting authority over thermal electric power plants of 50 megawatts or greater capacity proposed to be built in California. According to section 25500 of the Warren-Alquist Act, "The issuance of a certificate by the [Energy] commission shall be in lieu of any permit, certificate, or similar document required by any state, local or regional agency, or federal agency to the extent permitted by federal law, for such use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency, or federal agency to the extent permitted by federal law." Section 25523(a) of the Warren-Alquist Act additionally requires the CEC to assess the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety. Moreover, section 25523(d)(1) of that Act requires that the CEC make findings regarding the conformity of the proposed project with all applicable laws, including federal laws, such as the Coastal Zone Management Act.

The CEC evaluates and makes its determination regarding proposed facilities through its Application for Certification (AFC) process. When the CEC is considering licensing a facility pursuant to its AFC process, it is the lead state agency for purposes of the California Environmental Quality Act (CEQA), and the CEC's Preliminary and Final Staff Assessments (PSA, FSA) include analyses similar to those normally provided in an Environmental Impact Report (EIR). The June 2016 PSA provides the CEC staff analysis of the proposed project,

[1] C. Williamson, City of Oxnard, personal communication, July 26 and August 18, 2016.

examines engineering, environmental, public health, and safety aspects of the facility, and includes proposed conditions of certification, which are similar to mitigation measures identified in an EIR.

While the CEC has exclusive jurisdiction over siting proposed power plants as described above, both the Coastal Act and the Warren-Alquist Act provide a role for the Coastal Commission to play in the CEC's review of power plants proposed to be located in the coastal zone. Both Acts include mechanisms authorizing the Coastal Commission to evaluate whether the proposal conforms to Coastal Act policies and to inform the CEC of the results of this evaluation. Section 30413(d) of the Coastal Act requires the Coastal Commission to 1) "participate in proceedings" that the CEC undertakes pursuant to its siting authority "with respect to any thermal powerplant…to be located…within the coastal zone," and 2) submit to the CEC a report (hereinafter, the "30413(d) report") on the proposed project's conformity with the Coastal Act's resource protection and use policies, and the policies and implementing ordinances of the certified local coastal program ("LCP") (in this case, the certified LCP of the City of Huntington Beach). Additionally, Warren-Alquist Act Section 25523(b) requires the CEC to include in its decision on the AFC any "specific provisions" provided by the Coastal Commission in its 30413(d) report to bring the proposed project into conformity with the policies of the Coastal Act. That section also establishes that the CEC may omit the specific provisions of the Coastal Commission's report only if the CEC finds that adopting the provisions would result in greater adverse impact on the environment or that such provisions would not be feasible. Staff of the two Commissions have prepared a Memorandum of Agreement that describes the manner in which the two Commissions will coordinate their respective reviews and identifies the process for the CEC to consider the Coastal Commission's findings and recommended specific provisions.

Coastal Act section 30413(d) directs that the Coastal Commission's report consider and make findings regarding the following:

> *(1) The compatibility of the proposed site and related facilities with the goal of protecting coastal resources.*
>
> *(2) The degree to which the proposed site and related facilities would conflict with other existing or planned coastal-dependent land uses at or near the site.*
>
> *(3) The potential adverse effects that the proposed site and related facilities would have on aesthetic values.*
>
> *(4) The potential adverse environmental effects on fish and wildlife and their habitats.*
>
> *(5) The conformance of the proposed site and related facilities with certified local coastal programs in those jurisdictions, which would be affected by any such development.*
>
> *(6) The degree to which the proposed site and related facilities could reasonably be modified so as to mitigate potential adverse effects on coastal resources, minimize*

conflict with existing or planned coastal-dependent uses at or near the site, and promote the policies of this division.

(7) Such other matters as the commission deems appropriate and necessary to carry out this division.

This report is the Coastal Commission's analysis of the proposed project's conformity with the Chapter 3 policies of the Coastal Act and the certified LCP. For this proposed project, the Coastal Commission has focused on the following issue areas: (1) land use, (2) wetlands and environmentally sensitive habitat areas (ESHA), (3) flood, tsunami, and sea level rise, (4) wastewater management, and (5) public access and recreation. The Coastal Commission's analysis relies largely on the information contained in the CEC Preliminary Staff Assessment ("PSA"), the evidentiary record of this AFC proceeding that has been compiled thus far, and on information identified in the Substantive File Documents described in Attachment A to this report. To ensure the CEC has the full record necessary to adopt the Coastal Commission's recommended provisions, Coastal Commission staff will docket separately those relevant documents identified as Substantive File Documents.

C. LAND USE

NRG proposes to construct the P3 on approximately 3 acres of the MGS site (**Exhibit 3**). As noted in the PSA's Land Use Section (page 4.6-4), the City's General Plan and Coastal Land Use Plan[2] designate the site as "Public Utility/Energy Facility" (PUE), with allowable uses including large electrical generating and transmission facilities and infrastructure. The Oxnard Coastal Zoning Ordinance identifies the P3 site as within the Coastal Energy Facilities (EC) sub-zone, which is intended to "provide areas that allow for siting, construction, modification and maintenance of power generating facilities and electrical substations consistent with Policies 51, 52, 54, 55 and 56 of the Oxnard coastal land use plan." As summarized in Coastal Zoning Ordinance Section 17-20(A), the following Coastal Act provisions and Land Use Plan policies apply specifically to the EC sub-zone:

(1) *Coastal dependent energy facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth, where consistent with this article. (Coastal Act Section 30260)*

(2) *All new energy-related development shall conform to the air quality regulations set forth by the Ventura County Air Pollution Control District, the air quality management plan and new source review rule 26. (Policy 29)*

(3) *Energy related development shall not be located in coastal resource areas including sensitive habitats, recreational areas and archaeological sites. All development adjacent to these resource areas or agricultural areas shall be designed to mitigate any adverse impacts. (Policy 52)*

(4) *All new energy-related development shall be located and designed to minimize adverse effects upon public access to the beach. (Policy 54)*

[2] The coastal development policies and standards that apply to the subject project site are found in the two documents that make up the City of Oxnard's Local Coastal Program (LCP), namely the Coastal Land Use Plan (effectively certified in May 1982) and Coastal Zoning Ordinance (effectively certified in March 1985).

(5) No energy related development shall be located seaward of the 100 year flood/wave run-up line as designated by the U.S. Department of Housing Insurance Program Administration and the land use map of the Oxnard coastal land use plan. (Policy 56)

(6) Wastewater from any energy related facilities shall be treated as necessary and put to reuse including, but not limited to the following:

(a) Re-injection into the aquifer or ground water recharge system; and

(b) Recycling for industrial, agricultural or urban use. (Policy 64)

On June 7, 2016, the Oxnard City Council approved an amendment to the City of Oxnard General Plan to prohibit power generation facilities of greater than 50-MW capacity in areas subject to coastal hazards, including the MGS and P3 site. The General Plan amendment became effective on July 7, 2016. The City has indicated that it will seek an amendment to its certified LCP which would incorporate this prohibition. However, no proposed LCP amendment has yet been submitted to or approved by the Coastal Commission. Thus, the proposed P3 generating plant remains a conditionally-permitted use of the Coastal Energy Facilities (EC) sub-zone, and existing LCP policies governing coastal hazards still apply for purposes of the Commission's review under Coastal Act Section 30413(d).

As proposed, the P3 project would conflict with several land use policies applicable to the EC sub-zone. The proposed project location in the northwestern portion of the MGS would place the P3 within an area meeting the definition of a coastal wetland under the LCP and Coastal Act. The project could also result in indirect adverse impacts to adjacent wetlands and environmentally sensitive habitat area, both in direct conflict with LUP Policy 52 and other LCP policies. Additionally, the proposed discharge of wastewater to the beach via an existing outfall would interfere with public access to the beach and pose a potential threat to the beach nesting areas of sensitive avian species, contrary to LUP Policies 52 and 54. The proposed discharge would also fail to meet the mandate of LUP Policy 64 to treat and reuse wastewater from an energy-related facility. These inconsistencies with LCP land use policies are described more fully in Sections I.D, I.F and I.G, below, as are the Commission's recommended specific provisions necessary to achieve consistency with relevant Coastal Act and LCP policies.

Wastewater Outfall Structure

The existing wastewater outfall structure is located on a separate, NRG-owned parcel immediately seaward of the MGS site (**Exhibits 3, 4**). The outfall consists of a concrete discharge structure and riprap-lined channel cutting across the beach; a chain link fence along the crest of the riprap and behind the concrete discharge point is intended to limit access to the structure. Unlike the MGS site proper, the beach parcel is identified in the Oxnard Coastal Zoning Ordinance (CZO) as within the Coastal Recreation (RC) sub-zone. The purpose of the RC sub-zone is "to provide open space for various forms of outdoor recreation of either a public or private nature … which will protect and enhance areas which have both active and passive recreation potential" (CZO Sec. 37-2.13.1). As summarized in Coastal Zoning Ordinance Section 37-2.13.2, permitted and conditional uses within this sub-zone are limited to recreational and educational activities, along with infrastructure to support such uses (e.g., parking, campgrounds and picnic areas, boat launches, etc.). The wastewater outfall, which pre-dates the certification of the LCP, is a legal non-conforming structure within the RC sub-zone. Nonetheless, CZO Section 37-4.6.1 "provides for the administration of nonconforming buildings

and uses in order to promote the public health, safety and general welfare, and to bring such buildings and uses into conformity with the goals and policies of the Oxnard Coastal Land Use Plan," and is intended to prevent the expansion of nonconforming uses, establish circumstances under which they may be continued, and "provide for the removal, correction or change" of such uses. The proposed reuse of the outfall structures to serve the P3 would represent the extension of a non-conforming use. The Commission urges the CEC to consider alternative approaches to wastewater handling that would allow for the decommissioning and removal of the non-conforming structures, consistent with the goals and policies of the LCP. As described in Section I.G, below, the Commission is recommending the full or partial removal of the outfall structures in order achieve consistency with the public access and recreation policies of the Coastal Act and LCP.

D. WETLANDS AND ENVIRONMENTALLY SENSITIVE HABITAT AREAS (ESHA)

Coastal Act Section 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30233(a) states, in relevant part:

> *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> > *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
> >
> > …
>
> *(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary.*

Section 30121 of the Coastal Act defines a wetland as follows:

> *"Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.*

In addition, both Section 13577(b)(1) of the Commission's Administrative Regulations (Title 14, Division 5.5) and LCP Policy 9 provide:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.*

Coastal Act Section 30240 states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

LCP Policy 6 states, in relevant part:

> *As a part of the Phase III Implementation portion of the LCP process, a resource protection ordinance was created, defining the only uses permitted in areas designated on the land use map with the Resource Protection Zone. The ordinance incorporated the following policies which the City will implement to the extent of its legal and financial ability:*
>
> …
>
> *d. New development adjacent to wetlands or resource protection areas shall be sited and designed to mitigate any adverse impacts to the wetlands or resource.*
>
> *A buffer of 100 feet in width shall be provided adjacent to all resource protection areas. The buffer may be reduced to a minimum of 50 feet only if the applicant can demonstrate the large buffer is unnecessary to protect the resources of the habitat area. All proposed development shall demonstrate that the functional capacity of the resource protection area is maintained. The standards to determine the appropriate width of the buffer area are:*
>
> *1) biological significance of the area*
> *2) sensitivity of the species to disruption*
> *3) susceptibility to erosion*
> *4) use of natural and topographical features to locate development*

5) parcel configuration and location of existing development
6) type and scale of development proposed
7) use of existing cultural features to locate buffer zones

When a development is proposed within an environmentally sensitive habitat or a resource protection area, or within 100 feet of such areas, a biological report shall be prepared which includes applicable topographic, vegetative and soils information. The information shall include physical and biological features existing in the habitat areas. The report shall be prepared by a qualified biologist, and shall recommend mitigation measures to protect any impacted resources. All recommendations shall be made in cooperation with the State Department of Fish and Game. When applicable, restoration of damaged habitats shall be a condition of approval.

LCP Policy 52 states in part:

Industrial and energy-related development shall not be located in coastal resource areas, including sensitive habitats, recreational areas, and archaeological sites. All development adjacent to these resource areas or agricultural areas shall be designed to mitigate any adverse impacts …

The findings below separately assess two types of project-related impacts – first, direct wetland impacts within the potential project footprint, and then indirect impacts to adjacent wetlands and ESHA with potential to occur during facility construction and operations. Both the Coastal Act and the City's LCP include policies requiring the protection of wetlands and environmentally sensitive habitat areas. The policies require that development adjacent to environmentally sensitive areas be sited and designed to prevent impacts which would significantly degrade those areas. The LCP prohibits industrial and energy-related development within coastal resource areas, including ESHA and wetlands, and requires that buffer zones be established around such areas to protect them from the indirect impacts of proposed development.

Direct Wetland Impacts
As described in the PSA, the MGS property, including the proposed 3-acre P3 site, was graded during the development of the power plant in the 1950s, and at present consists largely of developed, paved and disturbed areas dominated by ruderal and ornamental vegetation. However, the proposed P3 site, located on approximately three acres in the northwest corner of the MGS, currently supports a mixture of non-native and native vegetation, including several hydrophytic species considered to be wetland indicators.

In the section devoted to "Wetlands and Other Jurisdictional Waters" (PSA p. 4.2-11), the PSA concludes that the site, having been "actively maintained to facilitate operation of existing power generation" and experiencing "varied uses such as a marine dredging spoils storage" does not contain wetlands or other waters under the jurisdiction of the U.S. Army Corps of Engineers or California Department of Fish and Wildlife. However, under the definition of a wetland contained in the Coastal Commission's regulations and the City of Oxnard's certified LCP, only one of three parameters – the presence of hydric soils, hydrophytic vegetation, or wetland hydrology – is needed to delineate a coastal wetland. As noted in the PSA, NRG conducted a

formal wetland delineation within the proposed project site and noted the presence of three hydrophytic plant species, including pickleweed (*Salicornia pacifica*), woolly seablite (*Suaeda taxifolia*), and slenderleaf iceplant (*Mesembryanthemum nodiflorum*), included on the U.S. Army Corps of Engineers wetland plant list (Lichvar et al. 2014). Pickleweed is considered to be a wetland obligate species ("almost always occurs in wetlands"), while woolly seablite is a facultative wetland plant ("usually occurs in wetlands, but may occur in non-wetlands"). In the PSA, CEC staff recommended that 2.03 acres of the project site be classified as a wetland pursuant to Coastal Act regulations. The Commission's senior ecologist Dr. Jonna Engel has visited the project site and agrees that the presence of these hydrophytic plant species indicates that this portion of the project site meets the definition of a wetland under the Coastal Act and City of Oxnard LCP. The proposed project would result in the removal of hydrophytic vegetation (including approximately 1,000 woolly seablite plants) and the fill of this 2-acre wetland area.

Under City of Oxnard LCP Policy 52, energy-related development is not an allowable use within coastal resource areas and sensitive habitats, including wetlands as defined in the LCP. In contrast, Coastal Act Section 30233(a) permits wetland fill for a limited set of allowable uses, including "new or expanded … energy … facilities", provided that there are no feasible less environmentally damaging alternatives and where feasible mitigation measures have been provided to minimize the adverse effects of the wetland fill. The construction of a new natural-gas fired generating unit at the MGS would comprise a new or expanded energy facility, and thus would represent an allowable use under Coastal Act Section 30233(a). However, as described below, there appear to be several less environmentally damaging alternatives which would avoid the need for wetland fill altogether.

Alternatives

As described above in Section I.C ("Land Use and Alternatives"), the PSA identifies several alternative locations for the P3, both on- and off-site, that would avoid the fill of coastal wetlands and other substantial adverse environmental effects, and which have not been determined to be infeasible. In particular, the Ormond Beach Area off-site alternative (see **Exhibit 1**) and the Conceptual Site Reconfigurations 1 and 2 (**Exhibit 5**) would avoid the fill of coastal wetlands on the project site and, as previously developed/disturbed industrial sites lacking delineated wetlands, would appear to be less environmentally damaging than the proposed location for P3.

In the case of the Ormond Beach Area alternative, the PSA notes that NRG does not have control over the vacant, privately-owned parcels comprising the alternative site and that uncertainties and delays related to acquiring or leasing the site, project design, planning and analysis, and installing utility interconnections could affect the feasibility of this alternative. However, the PSA did not conclude that the use of this site would be infeasible. Either of the Conceptual Site Reconfiguration alternatives crafted by CEC staff would result in the P3 being constructed at a different location within the MGS site. Although these alternatives would require redesigned plans for the power block structures and other facilities, and thus could introduce delays in project completion, they would avoid the greater logistical complications of the Ormond Beach Area alternative. The PSA indicates that the two on-site alternative locations are at slightly lower elevations. As discussed in section I.E (Flood, Tsunami and Sea Level Rise Hazards), the on-site alternative locations may be at marginally greater risk of flooding over the 30-year life of

the project, but could, if selected, be protected through measures such as grading to a higher elevation or construction of protective berms.

At present, there appear to be at least three potentially feasible alternative locations for the P3 facility which would maintain the biological productivity and quality of coastal wetlands and avoid the fill of two acres of wetlands that would occur as a result of the propose project.

> **Coastal Commission Recommended Specific Provisions**
> To ensure that the P3 conforms to the policies of Coastal Act Sections 30231 and 30233(a) and LCP Policy 52, we recommend the Energy Commission require that the proposed project be relocated to an alternative site that would not result in direct impacts to or fill of coastal wetlands. Alternative sites could include, but are not limited to, the Ormond Beach Area or on-site reconfiguration alternatives identified in the PSA.

Mitigation
When direct wetland impacts are unavoidable and allowable, mitigation must be required to compensate for the lost habitat functions and values. The Coastal Commission's compensatory mitigation requirements generally include specific performance standards, monitoring provisions, and reporting requirements needed to ensure a project provides the expected level of mitigation. The Coastal Commission also requires a mitigation ratio (in many cases starting at about 4:1) to reflect that it usually takes several years for replacement habitat to succeed and replace the lost functions and values, that performance standards are not always met, and that mitigation usually results in different functions and values than were present in the affected wetland area.

In order to mitigate for the loss of the 2.03 acres of coastal wetlands that would be eliminated by the P3 as proposed, the PSA recommends **Condition of Certification BIO-9**, which would require NRG to mitigate for the permanent impacts to on-site wetlands at a 2:1 ratio, as follows:

> *The project owner shall provide funds to acquire mitigation land at an existing, or soon to be established, salt marsh or estuary habitat restoration project close to the site of impact … Mitigation shall occur using an established wetland restoration program or mitigation bank, with preference given to programs within the same watershed as the project (Santa Clara-Calleguas), or any other wetland restoration program approved by the CPM.*

Under this condition of certification, NRG would be required to prepare, and submit for CEC approval, a Wetland Compensation Plan including, but not limited to, the following key components:

- A baseline review of existing physical, biological and hydrological conditions at the mitigation site(s), including analyses of existing ecological functions and values and potential constraints on successful habitat creation or restoration efforts;
- A set of goals, objectives and performance criteria for the proposed mitigation site(s) that identify specific creation or restoration measures to be implemented;
- A detailed work plan, including any necessary site grading, vegetation removal and planting, and maintenance activities;

- A monitoring program (minimum 5 years) to determine whether the sites are meeting performance criteria and establish the success of the mitigation program;
- Provision of adequate funding to complete the mitigation work;
- Preparation of annual project and monitoring reports;
- Contingency measures and planning to ensure long-term success.

The PSA concludes that a wetland habitat mitigation ratio of 2:1 is appropriate due to what is described as the "diminished value, form and function" of the existing on-site wetlands, which are purported to "provide little beneficial value to wildlife" and few of the "positive benefits of a wetland, such as water filtration, foraging and habitat for wildlife, or water reabsorption." The PSA does not indicate the basis for these conclusions, and Commission staff is unaware of any studies establishing the detailed hydrological and ecological characteristics of the site. Regardless, the Commission notes that prior to the development of the MGS, the site was a part of a major coastal dune and wetlands complex extending between the Santa Clara River Estuary and Mugu Lagoon. In this landscape, small, backdune swale wetlands were common. Some were hydrologically isolated; some were likely seasonal, displaying wetland hydrology for short periods at certain times of year, but nonetheless sufficient to support wetland vegetation (Beller et al. 2011). Speculatively, the presence of wetland vegetation within the project area may indicate the partial re-emergence of vegetation native to this historical landscape during a recent decrease in site disturbance.

Coastal Commission Recommended Specific Provisions

If the CEC determines that relocating the P3 to an alternative site that avoids fill of coastal wetlands is infeasible, consistency with Coastal Act Section 30233(a) would still require that the adverse impacts of wetland fill be minimized by the provision of feasible mitigation measures. In order to ensure that the proposed mitigation fully compensates for temporal losses of wetland habitat and accounts for significant uncertainties in the success of any wetland restoration project, and thus minimizes the adverse effects of the project, the Commission recommends that the CEC modify **Condition BIO-9** to require compensatory mitigation for direct impacts to wetlands in the form of wetland restoration at a **4:1 ratio** at a nearby location.

Indirect Impacts to Wetlands and ESHA

Several components of the project as currently proposed are inconsistent with LCP Policy 6, which requires new development to be located at least 100 feet from wetlands and other resource protection areas. Additionally, project construction, operation and demolition activities have the potential to cause adverse indirect impacts to nearby wetlands and ESHA due to dewatering, noise and vibration, and wastewater discharge onto the beach. These impacts are described below, along with recommended conditions to ensure the project avoids and minimizes these impacts to the extent feasible, as required by relevant LCP and Coastal Act provisions.

Background

The P3 site is situated within a remnant coastal dune, lagoon and wetlands complex that formerly extended along the coast between the Santa Clara River and Mugu Lagoon (e.g., Beller et al. 2011). Although much of this coastal lowland ecosystem has been developed or converted to agricultural use, relatively intact dune, beach, and wetland habitats and vegetation communities

remain in the vicinity of MGS property, and along the coast to the north and south. Wetland and riparian habitats (e.g., bulrush marsh, arroyo willow thickets, mulefat scrub) occur surrounding McGrath Lake and in the open space immediately to the north of the project site, in scattered patches east of Harbor Blvd., and within Mandalay County Park/State Beach to the south of the MGS (*see* **Exhibits 6**, **7**). At present, the California Coastal Conservancy, in partnership with local government and other organizations, is undertaking major habitat restoration efforts in the project area, including along the Santa Clara River floodplain and south of the project site at Ormond Beach. Active dune and wetland habitat restoration is also occurring around McGrath Lake and in the area immediately north of the project site and MGS boundary.

Coastal dunes supporting both native and non-native vegetation communities occur along the shoreline to the north, west and south of the project site (see **Exhibit 7**). The wetland, dune and beach habitats in the project vicinity are known to support a variety of common and rare/sensitive wildlife species (see **Exhibit 8**). Special-status species occurring in the project area include the federally-listed California least tern (endangered) and Western snowy plover (threatened); state-listed "Species of Special Concern" such as burrowing owl, western pond turtle, silvery legless lizard, Blainville's horned lizard, and two-striped garter snake and globose dune beetle may also occur in the area due to the presence of suitable wetland, riparian and dune habitats. The beaches and sand dunes within Mandalay State Beach and McGrath State Beach in the vicinity of the project site support both wintering populations and breeding populations of Western snowy plover, and the beaches and dunes immediately in front of the MGS are included in the designated critical habitat for this species (**Exhibit 8**). The northwest corner of the project site is approximately 500 feet from the closest potential snowy plover nesting area. California least tern is known to nest on the open beaches between the Santa Clara River mouth and McGrath Lake, and in the immediate vicinity of the MGS.

Due to their rarity, sensitivity to disturbance, and the presence of special-status species, many of the coastal dune, scrub and riparian habitats surrounding the MGS site meet the Coastal Act and LCP definitions of ESHA, and thus require special protection.

Required Buffer
LCP Policy 6 requires a minimum 100-foot buffer between new development and resource protection areas, including ESHA and wetlands. As shown in the PSA and **Exhibit 7**, the boundaries of the P3 project site are located approximately 100 feet from mulefat scrub ESHA (some of which is currently undergoing habitat restoration, see above), which could result in non-conformity to this LCP policy. The P3 site is also immediately adjacent to a line of coastal dunes that, though dominated by non-native iceplant vegetation, may nonetheless provide habitat value.

The proximity of the project site to the habitat areas may also exacerbate some of the other indirect adverse impacts described below, including potential dewatering of wetland habitat during project construction, and adverse effects of noise, vibration, and project lighting on listed sensitive species known or potentially occurring in those areas during both construction and operations. The PSA includes proposed **Condition BIO-6**, which would require the development and implementation of a Biological Resources Mitigation Implementation and Monitoring Plan, **Condition BIO-7**, which identifies a number of impact avoidance and

minimization measures that, if implemented, would reduce the project's indirect impacts on nearby wetlands and ESHA, and **Conditions BIO-1** through **BIO-4**, which would appoint and define the duties and authority of a designated biologist and biological monitors to oversee project activities (see PSA, pp. 4.2-46 to 4.2-53).

Coastal Commission Recommended Specific Provision
To ensure the project conforms to the extent feasible with LCP Policy 6, we recommend the Energy Commission modify **Condition BIO-7** to require that NRG design the P3 such that all project-related development is at least 100 feet, and further, if feasible, from nearby areas that meet the Coastal Commission and LCP definitions of wetlands or ESHA. We also recommend that submittal of revised project plans be required to reflect these changes in the project layout.

This recommended modification would also require NRG to submit a revised project plan showing that all project-related development is at least 100 feet from wetlands and ESHA. This requirement could be met through the selection of an off-site alternative location (such as the Ormond Beach Area site), relocating the project to one of the two on-site alternative locations identified in the Alternatives section (PSA pages 211-324), or by moving the proposed project footprint (specifically, the construction and laydown area) a few dozen feet away from the northern boundary of the site, which abuts the wetland/ESHA restoration area. Such an adjustment would appear to be feasible based on the amount of space available within the project site.

Avoiding Effects of Construction Dewatering on Adjacent ESHA/Wetland Areas
Groundwater levels beneath the MGS and proposed P3 site were detected at approximately 9 feet below ground surface (bgs) during a 2013 geotechnical survey, and historically have been measured between approximately 5 to 9 feet bgs (PSA page 4.10-12). Results from groundwater monitoring wells maintained by Southern California Edison on or near the MGS site indicate that groundwater levels are hydraulically-connected to the ocean and fluctuate with tidal cycles and in response to seasonal changes in climate. Groundwater at the site is directly connected to and generally down-gradient from groundwater underlying wetlands and riparian habitats within McGrath State Beach and adjacent to the northern side of the MGS property. Groundwater withdrawal ("dewatering") during project construction activities has the potential to accelerate groundwater flow and lower the water table in areas adjacent to the project site, with possible adverse effects on neighboring wetland habitats.

The PSA states that installation of foundations for the P3 power block would involve excavation to a maximum depth of approximately 7 feet bgs, and thus could require dewatering of groundwater. In the event that groundwater is encountered during excavation and dewatering is necessary, NRG proposes to install shoring around the construction area and dewatering sumps within the shored area. Assuming the groundwater depth during construction activities is 7 feet bgs, dewatering is expected to last for 90 days, with an estimated water withdrawal rate of 0.3 million gallons per day (MGD). NRG has estimated that, using this approach, the "radius of influence" (area in which groundwater levels are affected) of the proposed dewatering would be contained within the project site. In the PSA, CEC staff agrees with this assessment and concludes that the proposed dewatering during construction would be unlikely to affect

groundwater levels in adjacent wetland areas. The PSA also recommends **Condition SOIL&WATER-3**, which would require NRG to prepare and submit for approval a dewatering plan prior to the excavation of the power block foundation.

Groundwater drawdown that adversely affected nearby wetlands or ESHA would be inconsistent with LCP Policies 6 and 52 and Coastal Act Sections 30231 and 30240, which require that habitat values be maintained and protected and that development adjacent to these areas mitigate any adverse impacts. Although it appears unlikely that the wetlands and riparian habitats adjacent to the project would be affected by the proposed dewatering activities, insufficient information exists to support a definitive conclusion (for instance, the PSA has not provided a numerical estimate of the dewatering radius of influence). NRG has also indicated its willingness to monitor groundwater levels adjacent to the construction site using existing wells and/or temporary piezometer wells.

Coastal Commission Recommended Specific Provisions

To ensure project dewatering is done in a manner consistent with applicable Coastal Act and LCP policies, the Commission recommends that the CEC modify **Condition SOIL&WATER-3** to require that groundwater level monitoring measures be included in the required dewatering plan. Specifically, we recommend that the required monitoring include monitoring of groundwater levels at a minimum of two locations along the northern edge of the MGS parcel (between the P3 site and adjacent habitat areas). Additionally, we recommend that **Condition SOIL&WATER-3** be modified to require that NRG immediately cease dewatering activities if groundwater monitoring demonstrates a decrease in groundwater levels outside of the previously-projected radius of influence, until such time as NRG has revised the dewatering and/or foundation installation plan to reduce the area of groundwater drawdown such that reduced groundwater levels do not extend beyond the monitoring wells and parcel boundary.

Reducing Effects of Project Noise and Vibration on Adjacent ESHA/Wetland Areas

The PSA (see page 4.2-29, Biological Resources, Table 5) identifies expected routine construction and demolition noise levels at several locations surrounding the project site, including within nearby ESHA/wetland areas to the north and west of the MGS. At the selected location within the wetlands near McGrath Lake (site LT-B, approx. 1,000 feet north of the MGS), noise levels from project demolition are estimated to be less than 57 dBA; at the edge of the dunes approximately 500 feet west of the MGS (site LT-A), project noise levels are estimated to be less than 64 dBA.[3] These estimates are similar to ambient noise levels measured along the shoreline. However, it should be noted that areas of suitable habitat for sensitive species, including wetlands and coastal dunes, occur within 100 feet of the P3 site, and thus may be subjected to noise levels higher than those estimated for the more distant locations included in Table 5.

[3] dBA is a measure of the relative loudness of sounds through the air, in decibels. Decibels describe the intensity of sound, and are logarithmic – for example a 60 dBA sound is perceived as twice as loud as a 50 dBA sound. Typical sound levels include 30-35 dBA in quiet, rural areas, 70-75 dBA for freeways from about 50 feet away, and 100 dBA for a jet taking off from 1000 feet away.

The PSA (see pages 4.2-30 and 4.7-9) also indicates that certain proposed activities, specifically pile driving during P3 construction and the planned explosive demolition of MGS Units 1 and 2, would produce short periods of more intense noise. The PSA states that pile driving using traditional techniques can be expected to reach 104 dBA at 50 feet, and that noise levels at sensitive receptor locations (sites LT-1, -2, and -3) between 2,600 and 4,100 feet south of the MGS would reach from 66 – 70 dBA. The explosive demolition of the Units 1 and 2 structures would generate short bursts of noise at levels of 100 – 110 dBA at a location (LT-1, Oxnard Shores development) approximately 3,900 feet from the MGS. Large habitat areas known to support sensitive species (for example, Western snowy plover nesting areas), including the wetlands surrounding McGrath Lake and dune and beach areas along McGrath State Beach, Mandalay State Beach, and fronting the project site, are closer to the existing power blocks than the LT-1 location, and would thus almost certainly be exposed to noise levels in excess of 110 dBA during demolition activities.

The PSA notes that elevated noise levels during project construction could discourage sensitive species from using nearby habitat areas and adversely affect their breeding or nesting behavior, and that chronic exposure to excessive noise has been demonstrated to adversely affect foraging behavior, reproductive success, population density, and community structure. Although avian species may be more sensitive to noise during breeding and nesting season, several types of "take" or harm identified above could occur any time of year due to the relatively high noise levels expected from project construction activities, in particular the planned pile driving and explosive demolition.

Commission staff has previously sought guidance from staff of the California Department of Fish and Wildlife (CDFW) on acceptable noise levels and mitigation measures for construction projects near habitat areas used by sensitive avian species.[4] Both CDFW and the U.S. Fish and Wildlife Service (USFWS) have developed and implemented recommended measures on a number of such projects, and have developed detailed thresholds for use in identifying potential "take" or harm to sensitive species.[5] These thresholds range from "hearing damage" to "masking," which is a level preventing or reducing communication among individuals, and can result from proximity to construction equipment like that being used for this project.

The conclusions and recommendations of CDFW and USFWS essentially identify potential harm or "take" when noise levels are above ambient and greater than about 60 dBA. These sound levels are considered harmful to avian species and could result in "take" of special status species that use these ESHA/wetland areas, such as Western Snowy Plover, California Least Tern, and Burrowing Owl. Mitigation measures employed by both CDFW and USFWS generally require that applicants conduct monitoring to ensure sound levels remain below thresholds known to result in take and conduct nesting surveys and ongoing monitoring to identify and avoid potential adverse effects to nesting birds.

While the PSA describes the expected decibel levels from construction activities, including pile driving, it does not identify the expected increase in ground borne noise and vibration levels

[4] Commission staff personal communication with CDFW staff, September 19 and October 18, 2013.

[5] See, for example, Dooling and Popper (2007), *The Effects of Highway Noise on Birds*, prepared for California Department of Transportation.

(VdB) that would occur in adjacent ESHA/wetland areas during project operations, particularly during pile driving.[6]

To reduce noise effects on nearby avian species and other sensitive receptors, the PSA's proposed **Condition Noise-6** would, among other things, restrict heavy equipment operation and "noisy work" during construction and demolition activities to daylight hours and weekdays, require the use of noise attenuation devices on vehicles, require the replacement of equipment generating excessive noise, and require the use of temporary acoustic barriers if found to be beneficial for reducing noise. Additionally, proposed **Condition BIO-8** would include the following requirements to avoid and minimize noise impacts to nesting birds: (1) Pre-construction nest surveys in all potential nesting habitat within 0.25-mile of the project boundary for any construction/demolition activities during the breeding and nesting season (February 1 – August 31); (2) weekly monitoring of any detected nests for signs of disturbance; if nest disturbance is observed, adaptive measures (e.g., halting construction, use of noise barriers, etc.) must be implemented until fledging has occurred; (3) explosive demolition of Units 1 and 2 must occur outside the nesting season; (4) pile driving should occur outside the nesting season "to the extent possible"; and (5) required reporting and notification to resource agencies.

Coastal Commission Recommended Specific Provisions

The Commission generally concurs with the PSA's recommended approach to avoiding and reducing noise-related effects in the nearby ESHA and wetland areas. However, the Commission recommends two modifications to **Condition BIO-8** to ensure consistency with Coastal Act and LCP provisions requiring protection of these habitat areas:

- **Inclusion of noise monitoring and noise thresholds:** The sensitive-species monitoring provisions of **Condition BIO-8** should be modified to include both monitoring of noise levels and an allowable noise threshold in adjacent sensitive habitat, in order to prevent disturbance of nesting birds during construction and demolition activities. Specifically, **Condition BIO-8** should be modified to require that NRG prepare and implement a Noise Monitoring Plan throughout construction and demolition activities taking place during the bird breeding season (February 1 to August 31). The Plan should require continuous noise monitoring at several locations near known or suitable nesting habitat adjacent to the project site, and should require that noise levels at these monitoring locations not exceed 8 dBA above ambient levels or 60 dBA (hourly average Leq), whichever is greater. In addition, sound levels within 100 feet of active nests (as identified during the nesting surveys required pursuant to Condition BIO-8) should not exceed 65 dBA. The Plan should also require that monitoring devices be reviewed daily during any construction occurring within 400 feet of the project's boundary with adjacent wetland, mulefat scrub or dune areas, and during any pile-driving activities. If construction noise exceeds these levels, NRG should be required to implement noise-reduction measures, which may include

[6] Ground borne noise and vibration is measured using "VdB," or vibration decibel levels, to distinguish it from airborne sound. Very low VdB levels can be imperceptible, but levels of around 100 VdB and higher can cause structural damage.

installing temporary sound barriers, or, as feasible, moving noise-generating activities further from the ESHA/wetland areas, and avoiding pile driving or confining pile driving to project areas furthest from the sensitive habitats.

These recommendations are complementary to and more protective of sensitive wildlife than the current requirements of **Condition BIO-8**, which would rely on relatively infrequent monitoring of known nests and would not require impact avoidance measures to be enacted until the disturbance or "take" of nesting birds had already occurred.

- **Prohibition on pile driving during nesting season:** Second, **Condition BIO-8** should be modified to require that NRG schedule and conduct all pile driving activities outside the February 1 through August 31 breeding and nesting season. **Condition BIO-8** currently leaves open the possibility that pile driving could occur in close proximity to active nesting areas. As noted above, the PSA already anticipates that noise levels during pile driving would exceed the 60 – 65 dBA threshold deemed by the CDFW and USFWS to be protective of nesting birds at distances of 2,600 to 4,100 feet, which would encompass large areas of known and suitable nesting habitat in the wetlands and dunes surrounding the MGS site. Additionally, pile driving has the potential to cause substantial vibration levels (VdB), in nearby wetlands and ESHA, although the PSA does not identify those expected levels. Given the expected threshold exceedance and the additional unquantified but likely significant vibration-related effects, this modification would further reduce project-related adverse effects on nearby ESHA and wetland areas.

Wastewater Discharge & Impacts of Outfall Structure Maintenance

LCP Policy 64 states:

> *It shall be a condition of approval that, wherever possible, wastewater from any industrial or energy-related facility shall be treated as necessary and put to reuse including, but not limited to, the following: the reinjection into the aquifer or ground water recharge system, recycling for industrial use, agricultural use, or urban services.*

NRG proposes to discharge storm water and process wastewater from the P3 to the beach fronting the MGS via an existing outfall structure (see **Exhibits 3, 4**). The outfall and existing wastewater discharges are permitted under Los Angeles RWQCB Order No. R4-2015-0201, which expires in December 2020, at which point the existing MGS Units 1 and 2 must cease operations. New discharges from the P3 may require further authorization from the RWQCB.

At present, wastewater generated at the MGS – including cooling water, process water, and storm water runoff from the power plant site – is collected in two large retention basins (North and South Basins) and discharged via the existing concrete and rock outfall structure on the beach in front of the plant. At maximum capacity, the existing MGS discharges up to 255 million gallons per day of wastewater. However, as noted in the PSA (see page 4.10-66), since 2010 MGS Units 1 and 2 have operated at an average capacity factor of less than 4%, with average ocean water intake (and wastewater discharge) rates ranging from 42 to 109 million gallons per day.

This wastewater discharge process sends large volumes of warm water across the beach, scouring a channel or trench that can be several feet deep (see **Exhibits 4, 12**). The channel is frequently fully or partially blocked by natural sand accumulation, at times causing extensive alongshore ponding in the back-beach area (**Exhibit 4**). NRG has previously applied to the City for an emergency coastal development permit to bulldoze a discharge channel. In reviewing this application, the City of Oxnard found that the wastewater pond can extend toward nesting sites for Western snowy plover and California least tern, representing a threat to these areas (see Emergency CDP No. PZ 15-000-17, granted on April 6, 2015). Maintenance of a free-flowing channel for wastewater discharge is "required for the safe operation of the power plant and to prevent ponding of the discharge laterally on the beach to the north and south, potentially flooding Least Tern and Snowy Plover nesting areas and creating a hazard to the public utilizing the beach." More recently, NRG has applied to the City for a regular CDP to allow the "periodic removal of sand barriers which accumulate and obstruct the proper flow into the ocean from the saltwater discharge system …"[7]

Following the construction of the P3 and decommissioning of MGS Units 1 and 2, the use of ocean water for once-through cooling would be eliminated; because the P3 would be a dry-cooled facility and use dry low-NO_x burners, the use of cooling water would no longer be necessary, and the volume of wastewater generated at the site would be greatly reduced. The PSA states (see page 4.10-16) that the annual water use at the new P3 would be less than 20 acre-feet per year (AFY), including both industrial process water (approximately 16 AFY) and potable water (about 3 AFY), provided by the City of Oxnard through the existing MGS potable water system. Nonetheless, NRG proposes to retain the existing retention basins and outfall structures in order to allow for the collection and discharge of wastewater (storm water and process water) associated with the new P3.

As a part of the P3, a new storm water conveyance system would be constructed to direct runoff from the P3 site to the existing North and South basins for disposal, or, possibly, to a service water tank for reuse. The PSA describes the proposed handling of storm water as follows (see page 4.10-17):

> *Depending on availability, P3 storm water may be reclaimed and stored an existing service-water tank, which would offset a corresponding amount of potable water usage. A system would be installed to provide the ability to reuse storm water collected from the new P3 project area to the service-water tank. Excess storm water would discharge to the existing North and South basins.*

Processed wastewater from the new P3 would be directed to the existing retention basins and discharged, along with storm water, to the ocean via the existing outfall structure

Wastewater discharge associated with the proposed P3 has the potential to result in similar problems associated with wastewater ponding as are presently observed, which could threaten known nesting sites of listed avian species and require regular channel excavation activities that would damage and disrupt beach habitats.

In comments submitted to the Los Angeles RWQCB, the City of Oxnard has indicated that several feasible alternatives to the beach discharge of wastewater exist, including discharge into

[7] Coastal Development Permit application submitted to the City of Oxnard by NRG California South LP, May 4, 2015.

the City's storm or sanitary sewer system or to the Edison Canal to promote water circulation.[8] Other alternatives that should be evaluated include the treatment and reinjection of wastewater for groundwater recharge (to replace infiltration lost as a result of capture by impervious surfaces on the MGS site), and treatment and recycling for off-site industrial, agricultural or urban use, or other beneficial uses, consistent with LCP Policy 64 (See Section I.F below for a discussion of the public access impacts of the proposed discharge system).

Coastal Commission Recommended Specific Provisions

To ensure consistency with Coastal Act and LCP Policies requiring the maintenance and protection of marine resources and sensitive species and habitats and the minimization of adverse impact from adjacent development, and LCP Policy 64, requiring the reuse of wastewater from energy-related facilities, the Commission recommends that the CEC require NRG to develop a Wastewater Reuse and Recycling Plan, including any necessary water treatment, that would maximize reuse of the process wastewater and storm water generated and collected at the MGS following the construction of the P3 and decommissioning of Units 1 and 2 and eliminate the discharge of wastewater to the beach. The Plan could include the possible reclamation, storage and reuse of storm water as described above, the treatment and reinjection of wastewater for purposes of groundwater recharge (to replace infiltration lost as a result of impervious surfaces on the MGS site), treatment and discharge to the Edison Canal (if such use would promote water circulation necessary to prevent stagnation), treatment and recycling for off-site industrial, agricultural or urban use, or other beneficial uses. In the event that full wastewater reuse and recycling is determined to be infeasible, we recommend that the CEC require the Wastewater Plan to include measures that would prevent the recurrence of back-beach ponding, avoid impacts to avian nesting areas, and eliminate the need for repeated excavation of a discharge channel on the beach.

Conclusion

The Commission finds that the CEC's implementation of the above-recommended Specific Provisions would allow the proposed project to be consistent to the extent feasible with relevant policies of the Coastal Act and LCP.

E. FLOOD, SEA LEVEL RISE, AND TSUNAMI HAZARDS

Coastal Act Section 30253 states, in relevant part:

New development shall do all of the following:

(a)Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

[8] See Los Angeles Regional Water Quality Control Board, "Response to Comments for the Tentative Time Schedule Order (TSO) for NRG California South LP Mandalay Generating Station, Oxnard, CA. (NPDES No. CA0001180, CI No. 2093)", December 21, 2015. (15-AFC-01 TN# 207118, submitted 12/24/15).

LCP Policy 39 states:

> *All applications for grading and building permits and subdivisions shall be reviewed for threats from hazards such as seismic activity, liquefaction, tsunami run-up, seiche, beach erosion, flood, storm wave run-up, and expansive soils. Geologic reports may be required in known hazard areas. Appropriate mitigation measures shall be applied to minimize threat from any hazards.*

LCP Policy 40.a states:

> *If new development is located within the 100-year flood and storm wave runup area as designated by the Department of Housing and Urban Development and on the land use map, it shall be designed and engineered to withstand the effects of the flooding and wave runup without the use of seaways or other protective structures. Particular care shall be given in protecting the necessary gas, electrical, sewer and water connections from breaking in the event of heavy wave runup. Any person developing property within the 100-year flood line shall agree to indemnify and hold the City harmless from any liability or damages resulting from the construction of his development.*

LCP Policy 56 states:

> *No energy related development shall be located seaward of the 100 year flood/wave run-up line as designated by the U.S. Department of Housing Insurance Program Administration and the land use map of the Oxnard Land Use Plan.*

The P3 site and MGS as a whole are located in a relatively low-lying area immediately adjacent to the shoreline and the Pacific Ocean. As a result, the site may be subject to present and future adverse effects from flooding, sea level rise and tsunamis. The Commission's Senior Coastal Engineer, Dr. Lesley Ewing, has reviewed the coastal hazards analysis contained in the PSA as well as other relevant sources of information, and has summarized her evaluation in a memorandum included in this report as **Appendix B**. The findings below describe the current and future vulnerabilities of the proposed project site, and provide recommended specific provisions to allow consistency with relevant Coastal Act and LCP policies.

Site Elevations & Topography

The PSA describes the MGS site as generally flat, with grade elevations of between 12 and 14 feet above the North American Vertical Datum of 1988 (NAVD88), which at this location, during the current tidal epoch, is approximately equal to the mean lower low water (MLLW) level.[9] The proposed P3 site, in the northwestern corner of the property, is slightly higher (approximately +14 feet) than the rest of the MGS (grade elevations +12 to 13 feet). To the west, the MGS is bordered by a line of dune generally ranging from +20 to 30 feet at its crest, affording a degree of natural protection to the site. The beach to the west of the dunes is several hundred feet wide, varying over time and in response to seasonal wave conditions. An artificial flood protection berm along the northern edge of the MGS property was constructed in the

[9] Throughout this report, elevations are reported relative to NAVD88 unless otherwise indicated.

1970s; the top of this berm reaches elevations of +17 – 20 feet. Based on the topographic map of the site provided in the PSA (see Project Description Fig. 3, p. 3-6), a low point in the dunes (approx. +17.6 feet) exists along an access road in the northwestern corner of the MGS, where the dunes intersect with the artificial berm. The banks of the Edison (Mandalay) Canal, along the southern portion of the MGS site, are at an elevation of approximately +12 feet.

Present-day Flood Hazards

FEMA Maps

The PSA evaluates present-day flood hazards at the P3 site based on the 2010 Federal Insurance Rate Maps (FIRM) created by the Federal Emergency Management Agency (FEMA), which show areas subject to flooding based on historic, meteorologic, hydrologic and hydraulic data, as well as existing surface features such as flood-control structures and development (see **Exhibit 9a**). The 2010 FIRM for Oxnard shows the MGS as outside the 100-year flood zone ("base flood zone"), which is the area with a 1% annual probability of flood occurrence, but largely within the 500-year flood zone (0.2% annual chance of occurrence). The 100-year flood zone immediately seaward of the MGS, however, is identified as a VE zone, which indicates an area subject to flooding by deep, fast-moving water with a high potential to cause erosion or structural damage (see **Appendix B**). The VE zone base flood elevation adjacent to the project site is estimated to be +13 feet NAVD88, similar to the elevation of the MGS and P3 site. The base flood elevation related to a Santa Clara River floodway in the area immediately to the north of the P3 site is approximately +12 feet. These flood elevations are similar to those on much of the MGS site (and slightly lower than the elevation of the proposed P3 site), indicating that the MGS's position outside the 100-year flood zone is dependent on the continued presence and integrity of the line of dunes immediately to the west of the site, and of the artificial berm along the site's northern boundary.

Updates to the FIRM for the Oxnard area are in progress, with new preliminary maps expected to be released in September 2016. Importantly, the 2016 updates represent the first comprehensive re-examination of coastal flood risk since the initial flood maps were prepared in the 1980s. A draft Work Map for the 2016 FIRM update is provided in the PSA as a supplement to the 2010 map. On this map (**Exhibit 9b**), the P3 site remains outside the 100-year flood zone, but the coastal base flood elevation has been increased by over 50% to +20 feet NAVD88, and the seaward edge of the VE zone has been extended approximately 230 feet inland into the line of dunes west of the MGS. Though not shown on the draft Work Map, at a base flood elevation of 20 feet, floodwaters would be expected to spill over into the MGS site via low points in the dune and berm system noted above. Storm conditions capable of producing a coastal base flood elevation of +20 feet would be accompanied by large waves and fast-moving water, potentially leading to the erosion of the beach and fronting dunes and overtopping of the dunes in some locations.

Additionally, neither the existing 2010 FIRM nor the 2016 draft Work Map appear to account for the presence of the Edison Canal along the southeastern boundary of the MGS. The canal is directly connected to the Pacific Ocean via Channel Islands Harbor, and thus could be subject to elevated water levels during a severe storm or flood event, although the increase in canal water levels at the MGS would be attenuated by the long distance up the canal and lags in water

transport. If water levels in the canal were to exceed approximately +12 -13 feet, then the MGS and P3 site would also be exposed to flooding from this source.

In summary, the 2010 and draft 2016 FEMA flood hazard maps indicate that the MGS and project site are subject to a certain degree of flood risk. The MGS (and a small portion of the P3 site) are located within the current 500-year flood zone, and thus could be expected to flood during an extreme event. The site lies outside the 100-year flood zone by virtue of the protective dunes and artificial berm surrounding its seaward margins. However, when low points in these features are considered, and the likelihood of erosion during a storm event is taken into account, the project site could be exposed to flooding during a 100-year flood.

Other Flood Hazard Analyses

Several other existing studies support the conclusion that the project site is currently vulnerable to flooding during a large storm or flood event. Recently, the City of Oxnard commissioned a vulnerability assessment of existing and future coastal hazards at the MGS (Revell 2015).[10] This assessment is based largely on coastal hazards modeling and mapping carried out as part of The Nature Conservancy (TNC)'s Coastal Resilience Ventura project (*see* ESA PWA 2013).[11] Consistent with the FEMA draft Work Map, these studies indicate that water levels during a 100-year flood event would near the crest of the dunes west of the project site (ESA PWA 2013, see Fig. 3), and that much of the MGS site is currently exposed to flooding during a 500-year event (modeled using wave conditions observed during the 1982-83 El Nino) (**Exhibit 9d**). The P3 site, due to its slightly higher elevation, would escape flooding, but necessary supporting facilities such as the SCE switchyard would flood and access to the P3 would be restricted. Perhaps more crucially, this site-specific assessment also concludes that the beach and dunes fronting the MGS site are vulnerable to wave-driven erosion -- which is not directly accounted for in either the FEMA maps or the PSA analysis -- and that such erosion is likely to be a major determinant of the severity of flooding at the site (Revell 2015). The assessment indicates that a 100-year wave erosion event could remove more than 125 feet of the protective dunes and leave the site vulnerable to subsequent storm events. It also suggests that during a 500-year wave event, large portions of the MGS site could be subject to direct wave impacts following substantial erosion of the protective dunes.

A separate flood hazard modeling effort in the vicinity of the proposed project was conducted as part of the California Coastal Conservancy (Conservancy)'s Santa Clara River Parkway project, which seeks to restore a continuous river and floodplain corridor along the full Ventura County length of the river for purposes of aquatic and riparian habitat enhancement and conservation, improved flood protection, and public access. Flood hazard modeling was carried out in order to better understand the potential effects of different scenarios of river levee setback and removal (Stillwater Sciences 2011).[12] In contrast to the existing FIRM and FEMA's draft 2016 map, the

[10] Revell, D. (2015). *Vulnerabilities of the Proposed Mandalay Generating Station to Existing and Future Coastal Hazards and Sea Level Rise*. Revell Coastal, LLC, April 6, 2015.

[11] ESA PWA (2013). *Coastal Resilience Ventura – Technical Report for Coastal Hazards Mapping*. Prepared for the Nature Conservancy, July 31, 2013, 59 pp. http://maps.coastalresilience.org/ventura/methods/CRV_Hazards_Mapping_Technical_Report.pdf

[12] Stillwater Sciences (2011). *Santa Clara River Parkway: Levee Setback Assessment of the Lower Santa Clara River, Ventura County, California*. Prepared for the California State Coastal Conservancy, September 2011, 72 pp.

Conservancy's model of a 100-year flood event on the Santa Clara River under existing conditions suggests that the project site could be subject to inundation (**Exhibit 9c**; see also Stillwater Science 2011, Fig. 6b). The greater extent of flooding projected in the Conservancy analysis is attributed to the use of a two-dimensional hydrodynamic model which more accurately represents the hydraulic effects of low-lying topography and lateral berms or levees.

Based on the available evidence, Commission staff believes that the PSA may underestimate existing, site-specific flood hazards at the project site, including flooding that could occur during a 100-year (1% annual chance of exceedance) or greater event.

Sea Level Rise

The project site is within an area of the Ventura County coastline that has been identified as being susceptible to sea level rise. It has a wide range of major infrastructure, including the existing power plants and proposed P3, which will eventually be affected unless significant effort is taken to protect, replace, or remove it. Recent studies found that the Ventura County coastline has structures worth more than $2.2 billion (in 2000 dollars), including the power plant, that are vulnerable to a 4.5-foot rise in sea level, which is a level expected before the end of this century.[13]

California has adopted the 2013 *State of California Sea-Level Rise Guidance Document* ("*State Guidance Document"*), and more recently, the Coastal Commission adopted the August 2015 *Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits*. Both guidance documents recommend the 2012 National Research Council (NRC) Report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*,[14] as the current best available science on sea level rise. The NRC Report anticipates sea level rise of up to two feet by 2050 and up to 5.5 feet by 2100 along this part of the Ventura County shoreline.

Both the *State Guidance Document* and the Commission's *Sea Level Rise Policy Guidance* caution that current sea level rise projections may underestimate the actual amount of increase and that uncertainties about these projections increase as planning timeframes increase – i.e., they are likely to be more accurate for the next several decades and less so for subsequent decades in the latter part of the century. Both guidance documents also note that the rate of sea level rise is expected to be non-linear, with accelerating rates of increase later in this century. The guidances recommend that state agencies during project evaluation consider the projected lifespan of the facility, its cost, and the impact or consequence of damage or loss of the facility.

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[13] Heberger, Matthew, et al., *The Impacts of Sea-Level Rise on the California Coast*, prepared by the Pacific Institute for the California Climate Change Center – California Energy Commission, California Environmental Protection Agency, Metropolitan Transportation Commission, California Department of Transportation, the California Ocean Protection Council, March 2009.

See also Coastal Resilience Ventura website: http://coastalresilience.org/project-areas/ventura-county-challenges/ Accessed August 22, 2016.

[14] For more information on the NRC Report, go to http://www.nap.edu/catalog.php?record_id=13389 and on the OPC Guidance, go to: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013_SLR_Guidance_Update_FINAL1.pdf .

They also recommend that consideration be given to the project's adaptive capacity, impacts, and risk tolerance for projects with an expected timeframe beyond 2050.[15]

Importantly, and as noted in both guidance documents, the expected increases in water levels are likely to occur not at some point several decades in the future, but as gradual increases over time, accompanied by larger, temporary rises during short-term events, such as storm waves, or during recurring events like El Nino. The *State Guidance Document* notes that, "[w]here feasible, consideration should be given to scenarios that combine extreme oceanographic conditions on top of the highest water levels projected to result from SLR over the expected life of a project." It also states that water levels during these large, short-term events along some parts of the coast have already exceeded sea level rise levels projected for 2030 and have reached levels projected for 2050.

Future Flooding from Sea Level Rise and Storms

The PSA evaluates the proposed project based on a 30-year operating life, which would extend until approximately 2050. Under the "high" scenario contained in the 2012 NRC Report, the project vicinity could experience to up to two feet of sea level rise by 2050. This projected level of sea level rise is then added to present-day high tide elevations to arrive at a first-order estimate of the flooding hazard in 2050 under "still water" conditions. With two feet of sea level rise, the MHHW level in 2050 would be approximately +7.4 feet NAVD88; a future "king tide" (maximum high tide occurring a few times a year) could reach +9 feet. These projected water levels would remain below the project site elevation of about +14 feet, and well below the tops of the dunes fronting the project site. In order to estimate the combined flooding hazard created by sea level rise in conjunction with storms, the PSA uses model output from a preliminary version of the USGS Coastal Storm Modeling System (CoSMoS 3.0) for Southern California. Soil and Water Resources Figure 12 (PSA page 4.10-56) shows the extent of inundation expected during a "100-year Total Water Level" event (taking into account tides, storm surges, wave setup and runup and other sea level anomalies) combined with 100 cm (3.3 feet) of sea level rise. As shown in **Exhibit 10a**, under this projection, the MGS and P3 site remain entirely free of flooding. Accompanying cross-sections indicate that wave runup would reach an elevation of approximately +16 feet on the line of dunes west of the MGS (see PSA page 4.10-57).

Commission staff notes that this projected maximum wave runup elevation with over 3 feet of sea level rise is lower than the *present-day* coastal base flood elevation (+20 feet NAVD88) shown on the 2016 draft FEMA flood map (**Exhibit 9b**). If two feet of sea level rise are added to the 2016 coastal base flood elevation, the 100-year flood zone in 2050 could reach +22 feet, which would almost certainly result in overtopping of the dunes and at least some flooding of the project site, even without accounting for erosion.[16]

[15] See also California Emergency Management Agency, California Natural Resources Agency, and Federal Emergency Management Agency, *California Adaption Planning Guide: Planning For Adaptive Communities*, September 2012.

[16] A simple method recommended by FEMA for modifying existing flood maps for future sea level rise conditions is the "Base Flood plus 1, 2, 3" or the simple addition of some amount of sea level to the current flood levels. More rigorous methods often yield more defensible future flood levels and these methods are often necessary for complex

Accounting for Coastal Erosion

The preliminary version of CoSMoS 3.0 used in the PSA does not account for long-term shoreline change or storm-driven erosion. The PSA states that CEC staff will refine its assessment of future flooding risk after the full version of CoSMoS 3.0, including long-term coastal evolution projections, becomes available. In the meantime, the PSA contains an extensive discussion of historical trends in beach width and sediment supply in the vicinity of the project, and concludes as follows:

> *Based on staff's research, this section of shoreline does not appear to be at high risk of erosion. A comparison between two aerial photographs taken in 1947 and 2014, show an increase in beach width that is conservatively estimated to be 200 feet ... The site-specific characteristics of the beach (e.g. wide, dune backed, relatively low exposure to southern swells, and downcoast from a large sediment source, the Santa Clara River) supports this long-term shoreline accretion. In addition, there was no recorded damage to the MGS facility during the two strongest El Niño cycles on record (occurring 1982/83 and 1997/98) … Sediment supply is not expected to decrease during the project lifetime.* (PSA page 4.10-58; see also discussion beginning on PSA page 4.10-39)

The detailed discussion of sediment supply and long-term shoreline evolution contained in the PSA highlights a crucial point: The vulnerability of the project site to flood hazards, now and in the future, will be determined in part by the status of the coastal dunes immediately west of the MGS, and by the condition of the artificial berm along the site's northern boundary. Based on the large (though highly variable) sediment loads carried to the shore by the Santa Clara River and a history of sand dredging and bypassing activities at Ventura Harbor up coast of the site, the PSA concludes that the risk of significant long-term shoreline erosion at the site is slight and can essentially be discounted in projecting the effects of future sea level rise.

This conclusion, however, does not take into account the uncertainty surrounding future sand bypassing. On average, sediment discharge from the Santa Clara River has comprised the majority of the shoreline sediment supply in the project vicinity, with sand bypassing from Ventura Harbor a secondary source. This balance of sources, however, does not mean that the bypassed sand is insignificant. The construction of Ventura Harbor in 1963 disrupted longshore sand transport in the Santa Barbara littoral cell, leading to impoundment of sand north of the harbor and beach erosion at downcoast locations, including in front of the MGS (Adams 1976; Revell 2015). Since dredging and sand bypassing in the harbor began in 1966, the beach width at the MGS has, on average, increased. While not the only factor involved, sand bypassing from Ventura Harbor appears to be important for maintaining beach widths at locations to the south. Annual sand bypassing volumes have been highly variable, ranging from less than 200,000 cubic yards to nearly 2.5 million cubic yards, and are dependent on funding for dredging activities. In recent years, Army Corps of Engineers funding for dredging at Ventura Harbor has been inconsistent, and future levels of funding for harbor dredging remain uncertain.

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terrains; however, the simple additive process often provides a decent first-order projection of the changes to the flood level and flood extent for future sea level rise. *See* Executive Order 13690, "Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input," January 30, 2015.

Furthermore, even a long-term trend toward shoreline accretion does not eliminate medium-term fluctuations in beach width that could leave the project site more vulnerable than average to erosion and flooding during a major storm event. As noted in the PSA (see page 4.10-44), sediment yield from the Santa Clara river is highly episodic, and the past record includes multiple periods of two to five years during which little or no sediment discharge occurred (typically during drought). During such periods, and/or when harbor sand bypassing is at a minimum, beach widths near the project site may be reduced, leaving the site more vulnerable to the next large coastal storm.

The risk of future flooding at the project site will also be related to the degree of wave-driven erosion of the protective dunes during a major storm event. Large storm waves reaching an elevation of +16 feet NAVD88 at the project site would be expected to result in significant dune erosion, reducing both the height and width of the dune crest; the degree of erosion would likely be greater for waves reaching an elevation of +22 feet (2016 FEMA coastal base flood plus two feet of sea level rise, see above). The City of Oxnard's flood hazard vulnerability assessment (Revell 2015) attempts to account for both erosion and temporary increases in water level related to an extreme storm event. The modeling in this analysis assumes water levels and wave conditions observed during the historical "storm of record" (wave heights up to 25 feet NAVD88 during a January 1983 storm) and extreme dune erosion, qualitatively similar to what might occur during a series of storms with no time for dune recovery. The modeling also assumes that sediment supply (riverine + sand bypass) will remain unchanged from the present. The results of this analysis, shown in **Exhibit 10b**, suggest that the P3 site could be essentially surrounded by floodwaters during an extreme storm in 2030 (8 inches of sea level rise), and that most of the project site would be vulnerable by 2060 (25 inches of sea level rise). The hazard maps presented in the City's analysis represent extreme, but plausible, scenarios, approximating the potential effects of a 500-year storm under future sea level rise conditions.

Long-term Sea Level Rise

The 2012 NRC Report projects that sea level along the Southern California coast could increase by 5.5 feet by 2100; alone or in combination with severe storms, an increase of this magnitude would pose serious threats to coastal structures in the Oxnard area, including on the project site. After 2050, the MGS would become increasingly vulnerable to flooding during winter storms, and by the latter quarter of the century, could begin to experience flooding under "still water" conditions, that is, without accounting for the effects of storm waves. For example, a "king tide" event during an El Nino year in 2080 could produce still water levels in excess of +12 feet NAVD88, at which point the banks of the Edison Canal would be overtopped and the lower portions of the MGS inundated. The greater amounts of sea level rise projected for the later decades of the century could also increase groundwater levels (which are tidally-influenced at this location) potentially affecting the foundations of the remaining facilities and increasing susceptibility to seismic hazards such as liquefaction and lateral spread.

In summary, sea level rise would exacerbate existing coastal hazards at the project site, and increase the likelihood that the site could be flooded during the 30-year project life. Assuming a coastal base flood elevation of +20 feet NAVD88, two feet of sea level rise would likely lead to breaching or overtopping of the protective dunes during a 100-year storm event, resulting in some degree of flooding at the MGS. Moreover, high waves and fast-moving water during a

major storm event are also likely to result in erosion of the protective dunes adjacent to the MGS, which would increase the extent and severity of flooding at the site. The potential for long-term changes in shoreline sand supply (related to variable riverine sediment input and sand bypassing at Ventura Harbor) add an additional element of uncertainty to future flooding projections.

Tsunami Hazards

Available evidence suggests that the MGS and P3 site could also be subject to inundation from a large tsunami during the proposed 30-year project life, particularly in conjunction with sea level rise.

The 2009 California Geological Survey (CGS) *Tsunami Inundation Map* for the Oxnard area shows the project site as lying just inland of the tsunami runup zone, apparently protected by the dunes to the west of the MGS (see **Exhibit 11**). As reported in the PSA, the map indicates that land within the project vicinity situated at elevations of less than seven feet above mean sea level (+9.75 feet NAVD88) could be inundated by a tsunami. In contrast to the FEMA flood hazard maps, the 2009 CGS Map is based not on 100- or 500-year probabilities, but on the maximum expected inundation an area could experience from either far-field tsunamis (i.e. those tsunamis that are generated far from Oxnard) and from locally generated or near-field events.[17] For each mapped area of the coast, the CGS identified expected inundation levels for every 30-meter grid within the modeled runup zone. The site's tsunami risk and its expected tsunami runup elevations are also based in part on nearby seafloor bathymetry and other offshore characteristics. [18]

In a related 2013 study, the USGS determined, based on modeling of a dozen distant and local tsunami sources, that the Oxnard area could be subjected to a high incoming tsunami wave elevation of 9.51 feet (related to the local-source Goleta Landslide slide No. 2 scenario) and a maximum onshore runup elevation of 10.17 feet (Wood 2013). If such a tsunami were to occur at Mean High Water (MHW) conditions, the modeling indicates runup would extend to 16 feet NAVD88 along the dunes at the project site (CGS 2009). At higher water levels, such as MHHW or during a king tide, the tsunami inundation and runup could extend several feet higher.

A more recent modeling study, based on a broader consideration of potential local offshore earthquake sources than in previous studies, projects an area of tsunami inundation along the Oxnard coastline that significantly exceeds the tsunami inundation zone shown in the 2009 CGS Map (Ryan et al. 2015). The modeling suggests that a large (MW 7.3 – 7.8), multi-segment earthquake offshore of Ventura could result in a tsunami causing inundation at the project site. The PSA notes that the scale of the mapping in the study is not well-suited to assessing site-specific inundation hazards. Nonetheless, the findings of this study highlight that tsunami

[17] Tsunami inundation analyses used in land use planning often refer to 100-year and 500-year events, based on FEMA's methods for floodplain mapping. For several reasons, however, determining tsunami probabilities is significantly more difficult than predicting flood events. Tsunamis occur less frequently than floods, their historic and prehistoric records are often less exact, and the events that generate them can occur over a much larger area. The CGS is in the process of developing probabilistic tsunami hazard maps for the California coast, but maps covering the Oxnard area are not yet publically available.

[18] See Legg, Borrero, and Synolakis, *Evaluation of Tsunami Risk to Southern California Coastal Cities*, Federal Emergency Management Agency and Earthquake Engineering Research Institute, January 2003.

hazards along the Southern California coastline remain incompletely understood, and that inundation and runup greater than anticipated in the 2009 CGS Map are plausible.

Effects of Sea Level Rise
The PSA also considers the potential for future sea level rise to exacerbate the risk of tsunami flooding (see Geology and Paleontology, pp. 5.2-33 to 5.2-35). The PSA describes the future risk of tsunami inundation as follows:

> *[I]f sea level rises as projected (4.9 feet above NAVD88), and the maximum tsunami (9.51 feet) occurs during MHW (+2 feet MSL) at the end of the project's design life, the leading edge of tsunami derived water inundation could approach an elevation of approximately 16.4 feet.*
>
> *The top of the dunes to the west of the P3 site range from approximately elevation 21 to32 feet (NAVD88). An artificial berm was constructed along the northern and eastern edges of the property in the early 1970s to protect the facility from flooding. The top of the engineered berm is at an elevation of approximately 17 to 20 feet (NAVD88).*
>
> *The major portions of the project are designed to be constructed at elevations of approximately 14 feet above NAVD88. Without the protection of the dunes and flood control berms, the site could be subject to inundation by as much as 2.4 feet of water following the "worst case" tsunami. However, based on the elevations of the protective dunes and flood control berm, the site would not be subject to impacts from inundation. Using these estimates with sea level rise rates as they are accepted today, there is less than a one foot of vertical separation between the low point on the site flood control berm protecting the site and the tsunami inundation area which extends to the project boundary. Since these estimates are not precise and, in an abundance of caution, staff concludes there is potential for flooding that could impact worker safety.*
>
> …
>
> *Given the current planning scenarios that show the project site is bounded by the tsunami inundation zone (CGS 2009) and protected by a flood control berm with less than one foot of vertical separation, staff is concerned there may be a threat of impact to worker health and safety from site flooding. Since the science behind estimating sea level rise is evolving, it is also possible rates could change during the life of the project and project design would not adequately incorporate mitigation for potential site inundation. In addition, recent fault studies and tsunami modeling that are currently being evaluated by the scientific community could also indicate additional potential for tsunami impacts at the site. Staff concludes that it would be appropriate for the project owner to be prepared to respond to a potential tsunami event and ensure that all workers and site visitors would be safe from an event similar to the nearby areas of the city of Oxnard that are located in a tsunami evacuation zone.*

To address this concern, the PSA recommends **Condition GEO-1**, which would require NRG to prepare and implement a Tsunami Hazard Mitigation Plan (THMP), which would "include among other things a discussion of the Ventura County Hazard Mitigation Plan and City of

Oxnard Tsunami Evacuation Plan and how they apply to the project. It would also include discussion of criteria for a response to ensure worker safety for a tsunami event and show where on- and offsite refuge can be accessed, and evacuation routes that are recommended by the applicable Ventura County and city of Oxnard tsunami hazard response plans. The THMP would also include a training program for visitors and workers. The purpose of training would be to inform workers and visitors on how to respond to tsunami hazards and where they may obtain refuge in the event it is determined it is necessary to evacuate the project site."

Commission staff believes that, in a number of respects, the analysis contained in the PSA may underestimate the tsunami flooding hazard at the P3 site. First, the analysis of the combined hazard from a "maximum" tsunami (based on the 2009 CGS Map) and sea level rise considers only consider "still water" tsunami inundation without accounting for the substantial amount of runup that would be associated with a large tsunami wave. The height of the tsunami wave (9.51 feet) is simply added to the projected MHW level with two feet of sea level rise, yielding an inundation height of 16.4 feet. For comparison, the CGS and USGS modeling efforts predict a present-day runup elevation of 16 feet. With future sea level rise, the tsunami runup elevation in 2050 could be two feet higher, at approximately +18 feet NAVD88. In this scenario, the tsunami runup would exceed the height of low points along the artificial berm and dunes.

Second, and perhaps more critically, a large tsunami reaching an elevation of 16 feet (NAVD88) or more would likely result in significant erosion as it impacted the dune field and/or berm. Once one wave breached the dunes, subsequent smaller waves could then add to the site flooding. Additionally, future sea level rise and storms may weaken and reduce the height of the dunes (see above), increasing site vulnerability to a tsunami event.

Third, the project site may also be vulnerable to tsunami flooding via the Edison Canal along the southern margin of the MGS. The Canal is directly connected to the ocean via Channel Islands Harbor, and its banks on the MGS site near the existing cooling intake are at an elevation of approximately 12 feet NAVD88. As a result, the project site may be subject to tsunami-driven seiches running up the canal. [19] Although modeling for such an event is apparently not available, it is conceivable that sustained in-flow (tsunami waves typically have a 20 to 30 minute wave period that would result in about 10 to 15 minutes of sustained inflow) a 9.51-foot tsunami wave proceeding up the Edison Canal at high tide could overtop the banks of the channel and flood the MGS site, either at present or in the future.

As evidenced by recent tsunami events worldwide and in California, a 9- to 10-foot tsunami can cause significant adverse impacts. At this site, it could result in partial inundation and possible damage to below-grade facility components. It is also possible that damaged structural components could contribute structural debris to the tsunami and worsen the damage at the facility or nearby structures and properties. A tsunami of this size could also result in significant threats to life safety for any plant personnel or members of the public on the site at the time the tsunami struck.

[19] A seiche is a wave generated by the same types of events that cause a tsunami, but that occurs within an enclosed water body such as a bay, reservoir, or, in this case, a flood control channel.

Tsunami mitigation
Other than locating proposed facilities outside of tsunami runup areas, the simplest approach to preventing or reducing tsunami-related hazards is to elevate structures above expected runup levels. However, elevating the facility's proposed structures would require significant amounts of fill and would have the potential to redirect tsunami energy away from the facility and towards other nearby structures and properties. Additional fill could also be used to create berms around the structures while keeping the structures at the same proposed elevation; however, this approach could similarly redirect tsunami energy towards other nearby properties.

Other possible mitigation approaches include incorporating tsunami-resistant design features into structures that are subject to inundation. These features include enclosing below-grade structures within reinforced concrete walls to resist tsunami forces, protecting tanks against uplift due to tsunami buoyant forces, and others.[20] Another standard approach for facilities in tsunami-prone areas is to develop and implement a safety plan that includes on-site signage, training for facility personnel to know how to recognize tsunami watches and warnings that may be issued, and identifying an evacuation site. As a general matter, the Commission agrees with the tsunami hazard mitigation approach that would be required under **Condition GEO-1**. However, when combined with the significant present and future flooding hazards at the project site from storms, sea level rise, and wave-driven erosion, the Commission believes that the most prudent response to the tsunami hazard would be to select an alternative project location outside the tsunami hazard zone.

Discussion
The available site-specific evidence, including that contained in the PSA and other relevant sources, indicates that the MGS, including the P3 site, could flood under certain conditions. A coastal base flood level of +20 feet NAVD88, combined with erosion of the fronting dunes, has the potential to result in some site flooding during a present-day 100-year flood event, and sea level rise is expected to exacerbate this hazard during the proposed 30-year life of the project. The single most important determinant of flooding risk at the site, at least in the near-term, appears to be the status of beach and fronting dunes. However, unlike a seawall, these natural features are subject to change in response to natural and anthropogenic processes. The Commission's Senior Coastal Engineer has concluded that "[l]oss of the protective beach and dune system, while not highly likely, is nevertheless possible. Without the fronting dunes, the proposed site would be at significant risk of flooding, even under current sea level conditions." (See **Appendix B**). At this location, a vulnerability analysis that does not account for dune erosion must be considered incomplete.

Flooding at the project site could cause significant adverse impacts. For example, ground-level or below grade facility components could be subject to complete inundation, potentially resulting in plant outages. Additionally, debris carried by a flood could damage above-grade components of the facility, or conversely, structural debris from the facility could damage nearby structures or property. Potential risks include temporary or permanent loss, or reduction, of electricity production to the area, damage to adjacent properties, and increased public costs to provide

[20] See, for example, the 2008 Federal Emergency Management Agency's (FEMA's) *Guidelines for Design of Structures for Vertical Evacuation from Tsunamis*.

measures that would protect the facility from these flood events. These flood risks will increase with the expected increase in sea level rise during the project's operating life.

The PSA states that the proposed P3 would not represent a "critical facility" in the context of the electricity generation and distribution system, and on this basis concludes that a higher tolerance for flooding risk is appropriate. However, the Commission notes that the proposed facility would remain an important component of the regional system [insert evidence from PSA), and that electrical generating stations are typically classified as critical facilities for purposes of natural hazards and emergency planning. FEMA guidance indicates that the planning and siting of facilities such as police and fire stations, hospitals and electrical facilities should be based on avoiding risks from the 500-year flood event.[21] Previous Coastal Commission decisions and recommendations on the siting of major energy and industrial infrastructure have included requirements that the proposed facilities be sited and designed to avoid flood hazards at the 500-year (0.2% annual chance of occurrence) level.[22] In the present case, the available evidence suggests that the project site may be vulnerable to both 100-year and 500-year flood events. Flood events of these magnitudes and their associated risks are reasonably foreseeable, since during the project's four years of construction and its 30-year operating life, it would have about a 2 in 7 chance of experiencing the 100-year flood and a 1 in 15 chance of experiencing the 500-year flood event.[23]

Ultimately, in spite of the uncertainty surrounding the exact degree of risk, there is substantial evidence that the project site could be exposed to flooding during its proposed 30-year operating life, and that over the long-term, this possibility would become a certainty. In this situation, Coastal Act Section 30253 requires that risks to life and property be minimized, and the stability and structural integrity of new development be assured, without resorting to the construction of shoreline protective devices. The Commission believes that the requirements of this policy can best be met through risk avoidance, that is, by the selection of an alternative inland site that is free of flooding hazards. The PSA indicates that one such site, the Ormond Beach Area Alternative, may exist.

The PSA also evaluates several other off-site alternatives, but for a variety of reasons, finds them to be infeasible and eliminates them from further consideration. Among these off-site alternatives is the Calpine Mission Rock Energy Center, a proposed 274-MW natural gas-fired generating station that would be located on an industrial site in inland Ventura County, near Santa Paula. An AFC for this project (15-AFC-02) is currently under CEC review. The PSA assumes that, as a proposed power plant location owned by another developer, the Mission Rock

[21] See, for example, *Design Guide for Improving Critical Facility Safety from Flooding and High Winds*, FEMA Publication 543, January 2007, as well as CalEMA criteria described at: http://hazardmitigation.calema.ca.gov/plan/local_hazard_mitigation_plan_lhmp

[22] See, for example, the adopted findings on the SCE Oxnard Peaker Plant (Appeal No. A-4-OXN-07-096) and the 30413(d) Report for the AES Huntington Beach Energy Project (Application for Certification #12-AFC-12).

[23] The calculation used to determine these probabilities is $r = 1-(1- 1/T)^N$, with T = the return period (i.e., the 100- or 500-year event), N = the expected life of the facility (i.e., eight years construction and 30 years operation), with r equal to the probability that the event will occur at least once in N years. During a 38-year facility life, there is about a 32% probability it would experience a 100-year event and about a 7% probability it would experience a 500-year event.

site is unavailable to NRG for development of the P3 project. Without endorsing the Mission Rock proposal specifically, the Commission notes more generally that, regardless of the specific project proponent, the development of a comparably-sized project at another location could obviate the need to develop new generating capacity at the MGS, potentially avoiding the resource impacts and coastal hazard vulnerabilities associated with this site. Most critically, evidence suggests that the MGS site could be subject to flooding within the 30-year project time frame, and that the likelihood of flooding would only increase beyond 2050. As a result, the proposed project cannot provide a long-term solution to regional power generation needs. The Commission urges the CEC to consider a broader range of alternatives, including locations or projects which would allow for the safe siting of power generation capacity over the long term, beyond 2050, and which would eliminate the need to locate a new generating facility at the MGS site in an area susceptible to current and future coastal hazards.

Coastal Commission Recommended Specific Provisions
To address hazards presented by flooding, sea level rise and tsunamis, and their associated risks to the proposed facility, and to allow consistency with relevant provisions of the Coastal Act and LCP, the Commission recommends the CEC develop a new condition of certification achieving the following:

- **Relocation of Project to Minimize Risk of Flooding:** In order to ensure that the proposed project minimizes risks to life and property, assures stability and structural integrity, and remains inland of the 100-year flood zone over the full life of the project, as required by Coastal Act Section 30253 and LCP Policies 40 and 56, the Commission recommends that the CEC require NRG to relocate the proposed project to an alternative site that is (a) outside the current 100-year and 500-year flood zones, and (b) would not be at risk of flooding related to high water levels, storm waves or coastal erosion, including the effects of sea level rise, over the full 30-year project term.

If the CEC determines that there is no feasible site meeting these criteria to which the project could be relocated, the Commission recommends the following new and modified conditions are necessary allow consistency, to the extent feasible, with relevant Coastal Act and LCP policies:

- **Flood Damage Prevention:** In order to minimize risks to life and property from flooding within the confines of the MGS site, the Commission recommends the CEC include the following new condition of approval:

  Prior to the start of construction, NRG shall submit for CPM review and approval, certification from a licensed engineer that the proposed facility is elevated above, or protected from, a 500-year flood event at the project site that includes an additional 24 inches of sea level rise. The engineer's determination shall describe the methods and include the calculations used to determine the elevation of the current 500-year flood event at the site and those used to determine the elevation of a future 500-year flood event with the additional 24 inches of sea level rise expected during the facility's thirty year operating life.

> The elevations and proposed changes to the facility design shall be incorporated into the final project design submitted to the CPM.

- **No Shoreline Protective Device:** Coastal Act Section 30253(b) requires that new development "neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area **or in any way require the construction of protective devices** …" To ensure consistency with this policy, the Commission recommends that the CEC include the following new condition of approval:

  > In the event that the approved development, including any future improvements, is threatened with damage or destruction from coastal hazards, or is damaged or destroyed by coastal hazards, protective structures (including but not limited to seawalls, revetments, groins, deep piers/caissons, etc.) shall be prohibited. By acceptance of the CEC approval, the project owner waives any right to construct such protective structures, including any that may exist under Public Resources Code Section 30235.

- **Beach and Dune Monitoring:** Due to the importance of a wide beach and intact dunes for reducing flood hazards at the project site, the Commission recommends that the CEC require NRG to implement a Beach and Dune Monitoring Program to be carried out over the life of the project. The purpose of this monitoring would be to determine if, and at what rate, the beach and/or dunes are eroding. The Program should include triggers for further action based on the degree of beach narrowing and/or dune loss, and measures should be identified that could halt or slow the observed erosion without construction of shoreline protective devices. One such measure could include financial support for dredging and sand bypassing at Ventura Harbor, particularly if a hiatus in sand bypassing is shown to be contributing to erosion at the project site.

- **Facility Removal**. As discussed above, in the second half of the century the MGS is likely to be subject to hazards, including increasingly frequent and severe flooding and shoreline erosion, which will render the facility, including the P3, inoperable. In order to minimize this risk to life and property, and assure that the proposed development does not contribute to the destruction of the site or surrounding area, as required by Coastal Act Section 30253, the Commission recommends that the CEC require NRG to submit a plan, prior to the end of the proposed 30-year life of the P3, for the decommissioning and full removal of the facility.

Conclusion

The Commission finds that the CEC's implementation of the above-recommended Specific Provisions would allow the proposed project to be consistent to the extent feasible with relevant policies of the Coastal Act and LCP.

F. PUBLIC ACCESS AND RECREATION

Coastal Act Section 30210 states:

> *In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resources areas from overuse.*

Coastal Act Section 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act Section 30212 states, in relevant part:

> *(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

LCP Policy 52 states, in relevant part:

> *Energy related development shall not be located in coastal resource areas including sensitive habitats, recreational areas and archaeological sites. All development adjacent to these resource areas or agricultural areas shall be designed to mitigate any adverse impacts.*

LCP Policy 54 states:

> *All new energy related development shall be located and designed to minimize adverse effects on public access to the beach. Where appropriate, an access dedication shall be a condition of approval.*

LCP Policy 72 states, in relevant part:

> *Public access to and along the shoreline and the Inland Waterway shall be required as a condition of permit approval for all new developments between the shoreline and the first public roadway inland from the shore …*

1. *Exceptions may be made when access would be inconsistent with public safety, military security, the protection of fragile coastal resources, or when agriculture would be adversely affected.*

Section 25529 of the Warren-Alquist Act states, in relevant part:

> *When a facility is proposed to be located in the Coastal Zone or any other area with recreational, scenic, or historic value, the* [Energy] *Commission shall require, as a condition of certification of any facility contained in the application, that an area be established for public use, as determined by the Commission. Lands within such area shall be acquired and maintained by the applicant and shall be available for public access and use, subject to restrictions required for security and public safety. The applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public use zone for the benefit of the public, the applicant may dedicate such zone to the state. The* [Energy] *Commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.*

The proposed development, including the construction of the new P3 facility and the decommissioning and removal of the existing Units 1 and 2, would be largely contained within the MGS site, where public access is not available. However, the project, as proposed, would nonetheless affect public access in several ways. First, as part of the P3 development, NRG proposes to discharge process wastewater and storm water runoff directly onto the beach area in front of the plant via an existing wastewater outfall structure, reducing the usable area of the beach, impeding lateral access, and at times creating a public hazard. Second, in order to meet the requirements of Section 25529 of the Warren-Alquist Act, the CEC is expected to require that NRG establish a public access area as a condition of certification of the P3. If carefully selected and planned, this required public access area could also meet Coastal Act and City of Oxnard LCP requirements that new shoreline development provide and enhance public access and recreational opportunities. Third, the proposed construction and demolition activities would generate increased traffic on coastal roadways which could interfere with public access. These issues, and the Commission's recommended provisions to address them, are described below.

Project Setting

The MGS is located between two state beaches -- McGrath State Beach to the north, and Mandalay State Beach/County Park to the south – which are connected by the beach area directly in front of the power plant site (**Exhibit 2**). This NRG-owned beach parcel is a popular beach recreation site and is zoned for Coastal Recreation under the City of Oxnard's Coastal Zoning Ordinance. Although privately owned, the beach parcel has a sustained history of public recreational use. Additionally, the City of Oxnard has discovered in Ventura County public records a June 1933 agreement between the Dominick McGrath Company, the former landowner of the beach parcel and Ventura County permanently granting an 80-foot wide right-of-way at the eastern edge of the parcel to the County for use as a public road (the existing, unimproved "Mandalay Beach Road") to traverse the property.

Wastewater Discharge and Reuse of Outfall Structures

As part of the P3 development, NRG proposes to discharge process wastewater and storm water runoff directly onto the NRG beach parcel via an existing wastewater outfall structure. The outfall consists of a concrete discharge structure and riprap-lined channel cutting across the beach; a chain link fence along the crest of the riprap and behind the concrete discharge point is intended to limit access to the structure. At present, when the existing MGS is operating, large volumes of warm, used cooling water and other wastewaters are discharged across the beach, forming a channel that can be several feet deep (see **Exhibit 12**). The channel is frequently fully or partially blocked by natural sand accumulation, at times causing extensive alongshore ponding in the back-beach area.

The area of beach occupied by the outfall structure, riprap, fence, and discharge channel, and effectively removed from public recreational use, is approximately 275 feet across-shore by 120 feet alongshore, or 33,000 square feet. Even when the outfall is not active, the existing riprap, fence and channel depression impede lateral access in this area. When discharge is occurring, and in particular when back-beach ponding develops, a much larger area of beach becomes inaccessible. At times, the barrier to beach access presented by the discharge channel and/or pond extends onto public lands below the mean high tide line. A previous emergency CDP granted by the City of Oxnard to allow bulldozing to relieve back-beach ponding has noted that maintenance of a free-flowing channel for wastewater discharge is "required for the safe operation of the power plant and to prevent ponding of the discharge laterally on the beach to the north and south … creating a hazard to the public utilizing the beach." (ECDP No. 15-000-17, April 6, 2015).

As proposed, the P3 facility would discharge process wastewater and storm water runoff to the beach through the existing outfall. Although wastewater discharge volumes would be greatly reduced, both the hard structures and discharge channel would remain, and the potential for back-beach ponding of wastewater would persist and possibly increase due to lower discharge volumes. As a result, the proposed wastewater discharges associated with the P3 would have a direct adverse effect on coastal public access, contrary to Coastal Act Sections 30210 and 30211, which require maximum public access to be provided, and avoiding interfering with the public's right of access to the sea, including where acquired by use, and to LCP Policy 54, which requires that all new energy development be located and designed to minimize adverse effects on public access to the beach.

Moreover, the proposed retention and reuse of the existing outfall structures, including the fence and riprap, would, in effect, reauthorize and extend a non-conforming use under the City of Oxnard Coastal Zoning Ordinance, a stated goal of which is to "bring such buildings and uses into conformity with the goals and policies of the Oxnard Coastal Land Use Plan" (CZO Section 37-4.6.1). The reuse of these structures would conflict with the intent of LCP Policy 52, which provides that energy-related development should not be located in coastal recreation areas.

As noted previously, the City of Oxnard has stated that there are several feasible alternatives to the beach discharge of wastewater which would reduce the project's adverse impacts on public access and recreation. These alternatives include the discharge of wastewater into the City's storm or sanitary sewer system or to the Edison Canal to promote water circulation. Other

alternatives that should be evaluated include the treatment and reinjection of wastewater for groundwater recharge (to replace infiltration lost as a result of capture by impervious surfaces on the MGS site), and treatment and recycling for off-site industrial, agricultural or urban use, or other beneficial uses.

> **Coastal Commission Recommended Specific Provisions:**[24]
> To ensure consistency with Coastal Act Sections 30210 and 30211, and LCP Policies 52 and 54, the Commission recommends that the CEC require NRG to develop a Wastewater Reuse and Recycling Plan, including any necessary water treatment, that would maximize reuse of the process wastewater and storm water generated and collected at the MGS following the construction of the P3, and eliminate the discharge of wastewater to the beach. In the event that full wastewater reuse and recycling is determined to be infeasible, the Commission recommends that the CEC require that the Wastewater Plan include measures that would prevent the recurrence of back-beach ponding, avoid the creation of public hazards and other impacts to public access and recreation, and eliminate the need for repeated excavation of a discharge channel on the beach.

With the discontinuation of once-through cooling, the volume of wastewater generated at the MGS would be greatly reduced, increasing the feasibility of alternative approaches for the handling and disposal of wastewater at the site. With the implementation of the Wastewater Reuse and Recycling Plan, the large existing wastewater outfall structures, including the concrete outfall, riprap groins, and chain-link fence, would no longer be necessary. The full or partial removal of these structures during the decommissioning and demolition of Units 1 and 2 would be consistent with the goals and policies of the Oxnard LCP, and would significantly improve coastal access and recreation opportunities on the beach in front of the plant. As discussed in greater detail below, the Commission recommends that the CEC include the removal of the outfall structures as a part of the required project's required public access component.

Public Access Improvements

As noted in the PSA, NRG's application for certification includes no public access component that would meet the requirements of Section 25529 of the Warren-Alquist Act. The PSA identifies several potential options for satisfying the public access requirement in the vicinity of the MGS, including both on- and off-site alternatives (see PSA Land Use section, pages 4.6-9 to 4.6-10). The PSA concludes that improving access on the NRG-owned beach parcel, encompassing 1,800 feet of beach frontage immediately in front of the MGS, is "the most practicable and feasible of the potential options," and acknowledges that improving lateral access and enhancing the safety of pedestrian travel in this area is a goal of the City of Oxnard's LCP. The PSA summarizes options for improving public access in the beach parcel as follows:

> *In light of the foreseeable relocation and enhancement of McGrath State Beach (located north of P3) and the expansion of the Beach Walk at Mandalay (formerly named North Shore) development (located south of P3) pedestrian traffic along the beach would most likely increase and a boardwalk or pedestrian path linking McGrath Beach with recreation facilities to the south would be a welcome amenity for recreational use. Enhancement*

[24] This same recommendation was made in the marine resource section above to address the adverse impacts of the proposed wastewater treatment system on marine resources and its inconsistency with LCP Policy 64.

opportunities for a public use area include, but are not limited to, providing a public use easement or dedication of land to the city of Oxnard; implementation of a pedestrian path or boardwalk linking both McGrath State Beach and Mandalay Beach City/County Park; secure MGS outfall area; provide trash cans; and signs delineating sensitive habitat areas.

The PSA's **Condition LAND-1** would require NRG to establish an area for public use consistent with PRC Section 25529, but stops short of identifying a specific location and the form or manner in which the public access enhancements would be implemented.

The Commission agrees that the NRG-owned beach parcel fronting the MGS would be an appropriate location for the establishment of a public access area pursuant to Section 25529. The Commission also notes that evidence exists suggesting that the public's right of access to this beach area may have already been established through many decades of recreational use, although this has not yet been adjudicated. Recreational use of the area is recognized in the City's LCP Coastal Zoning Ordinance, which designates this parcel as a coastal recreation area. As mentioned above, a 1933 agreement between the McGrath Company (former landowners) and Ventura County demonstrate that an 80-foot wide right-of-way at the eastern edge of the beach parcel was granted to the County for use as a public road (the existing, unimproved "Beach Road"), which is currently used by the public for access to the beach. In addition, this stretch of beach is used by the public as a segment of the California Coastal Trail (CCT).[25]

In light of the evidence of public uses of the beach parcel, merely declaring this area open to recreational use or installing signs would not alter the existing situation or materially enhance public access in the area. Similarly, the "provision of a boardwalk or pedestrian path across the beach parcel," as suggested in the PSA, would to a large degree duplicate the existing public use of the Beach Road, but would not fulfill the requirement to maximize access under the Coastal Act and the LCP.

Among the public access enhancement options at the site mentioned in the PSA, only "the provision of a public use easement or dedication of land to the city of Oxnard" and/or the securing of the MGS outfall area would materially improve upon the public access rights and opportunities that already exist on the beach parcel. A public access land dedication or easement would permanently secure the public's right to use the land, and would prevent future private development that could interfere with public access. The removal or reduction of the outfall structures, as discussed above, would eliminate a recognized, significant barrier to access along the shoreline. Moreover, dedication of the land to the City would meet the requirements of LUP Policy 54, which requires that, "where appropriate," a public access dedication be a condition of approval for all new energy-related development.

Coastal Commission Recommended Specific Provisions:
To address the public access requirements of Section 25529 of the Warren-Alquist Act as well as the relevant provisions of the Coastal Act and LCP, the Commission recommends that **Condition LAND-1** be modified to require the full removal, partial removal, or down-

[25] For example, see the CCT Ventura County Section 6 map produced by Coastwalk California, accessed August 18, 2016, at: http://californiacoastaltrail.info/hikers/hikers_main.php?DisplayAction=DisplaySection&CountyId=16&SectionId=88.

sizing of the existing outfall structures (including riprap and fence), to eliminate or minimize impacts to public access.

Facility Abandonment

As discussed at length in Section I.E, above, the project site is currently subject to flooding and erosion hazards which are expected to increase in the future. On-going wave action and future sea level rise ensure that at some point in the future, likely in the decades following 2050, the project site will be subject to increasingly frequent flooding and higher rates of coastal erosion that will accelerate shoreline retreat. If portions of either the existing MGS or the proposed P3 are allowed to be abandoned in place, they have the potential to become safety hazards and barriers to shoreline access on what will eventually be public tidelands below the MHTL. For example, the erosion-driven exposure of below-grade components of the MGS and/or P3 would degrade the quality of the beach, present hazards to beach goers, and otherwise restrict public access and recreation on a portion of the future beach.

Coastal Commission Recommended Specific Provision:

In order to avoid foreseeable public access impacts from any future abandonment-in-place of the MGS and/or P3, and to allow consistency with Coastal Act and LCP policies requiring maximum public access and requiring that energy-related development be designed to minimize adverse effects on public access, the Commission recommends that the CEC include a new condition of approval requiring that NRG develop decommissioning plans which include the removal of all MGS and P3 structures and facilities, including below-grade components, at the end of the operating lives of the respective facilities.

Project-Related Traffic

Project-related traffic during approximately four years of construction, decommissioning and demolition activities at the facility site will occur along several thoroughfares which provide public access to the shoreline. These include the Harbor Boulevard, West Gonzales Road, Victoria Avenue, and West 5th Street. The PSA indicates that average daily construction traffic would include about 210 one-way trips, with most (180) due to the workers' commutes and the remainder due to truck deliveries. However, only 69 (33%) of the total one-way trips are expected to occur during peak commute hours, when traffic is typically heaviest. Average daily project-related traffic during demolition activities would be similar (214 one-way trips), but with a greater proportion (66 trips) as truck traffic. The PSA identifies relatively minor increases in delays at nearby intersections during peak construction and traffic periods, but in all but one case does not predict any declines in Traffic Levels of Service (LOS).[26] Peak construction traffic would increase delays and degrade LOS to Level E at the intersection of Harbor Boulevard with the MGS entrance. However, this intersection is controlled by a stop sign at the MGS exit driveway, with Harbor Boulevard uncontrolled and free-flowing, so delays are expected to affect only traffic exiting the project site, not the general public. To address this issue and minimize adverse impacts on traffic safety along Harbor Blvd., the PSA proposes **Condition TRANS-2**,

[26] The Level of Service refers to a method used to quantify existing baseline traffic conditions and the level of traffic congestion that may be present at certain times of day or under certain conditions. Levels of Service range from Level A, which allows the free flow of traffic, to Level F, which produces jammed conditions and significant delays.

which would require NRG to prepare a Traffic Control Plan governing the ingress and egress of vehicles to and from the MGS site and requiring signage along Harbor Blvd. warning drivers of construction traffic exiting the project site.

Elsewhere, the PSA indicates that certain phases of P3 construction could include work seven days a week. The PSA does not, however, describe the levels of project-related traffic that would be generated during these periods, nor whether construction traffic outside of the normal work-week could adversely affect recreational traffic, and thus public access, along the Harbor Boulevard corridor.

Coastal Commission Recommended Specific Provision

To ensure consistency with Coastal Act and LCP policies protecting public access to the coast, the Commission recommends that **Condition TRANS-3** be modified to require NRG to include in its Traffic Control Plan any measures necessary to minimize construction traffic on weekends and holidays, and to avoid delays and degraded LOS during these key recreational periods.

Conclusion

The Commission finds that the CEC's implementation of the above-recommended Specific Provisions would allow the proposed project to be consistent to the extent feasible with relevant policies of the Coastal Act and LCP.

APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

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August 23, 2016

TO: Dr. Joe Street, Environmental Scientist

FROM: Lesley Ewing, Ph.D. PE, Sr. Coastal Engineer

SUBJECT: Puente Power Plant Project, Oxnard, CA

At your request, I have reviewed the following materials related to the potential flooding and inundation risks identified for the Puente Power Plant Project at the Mandalay Generating Station.

- California Energy Commission. 2016. Preliminary Staff Assessment (the following sections)
  - Jon Hilliard, AICP. Project Description.
  - Marylou Taylor, PE. Soil & Water Resources.
  - Paul Marshall, CEG. Geology and Paleontology
  - Site Plan
- Pacific Institute. 2009. California Flood Risk: Sea Level Rise, Oxnard Quadrangle.
- California Coastal Commission. 2009. Adopted Finding on Appeal De Novo Review, A-4-OXN-07-096 (Southern California Edison Peaker Plant)
- FEMA 2010. Flood Insurance Rate Map for Oxnard/Puente Site.
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- David Revell, Ph.D. 2014 (Docketed Date 6/8/2015). Testimony of Dr. David Revell on behalf of the City of Oxnard on Sea Level Rise Submitted, Submitted to for CPUC Case A 14-11-016.
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NRG has proposed to construct a new power plant, the Puente Power Plant (Puente), within the boundary of the existing Mandalay Generating Station (MGS). The MGS site fronts on the Pacific Ocean, protected from ocean waves by a broad sand beach and some sand dunes. Several areas of undeveloped land exist on the MGS site and the proposed location for the Puente project is on the northwest portion of the site. This portion of the MGS site is slightly higher than the rest of the site, and

due to the vegetation found at this location, a part of the proposed Puente site may be characterized as a wetland area. Due to the potential concerns with habitat disruption for development on the northwest portion of the MGS site, this summary of hazard concerns will cover the bulk of the MGS site and not examine only the proposed Puente site.

Current or Near-term Flooding Risks to the MGS SIte

The MGS is an existing industrial site that fronts the Pacific Ocean. The examination of flood and erosion risks for the PSA relied primarily upon existing sources. While the California Energy Commission does not require an examination of future risks associated with changing sea level or climate conditions the PSA did include analysis of potential future changes to storm and riverine flooding risks, based on available resources. In addition, the City of Oxnard provided several studies of vulnerability of the MGS site to sea level rise, flooding and tsunamis. Neither the PSA nor the City reports provide the level of site-specific detail that would be required if this project were to be a Coastal Commission permit review; nevertheless, the provided materials do present a good indication of the current and future vulnerabilities of this coastal site.

The identification of current flood vulnerabilities has relied primarily upon the flood maps from FEMA. FEMA flood maps identify several types of flood risks. Along the coast, the three most frequently mapped zones are the VE Zone, areas with a 1% probability of flood occurrence (the 100-year flood risk, often called the A-zone) and the 0.2% probability of flood occurrence (the 500-year flood risk, often called the X-zone). The VE zone is used to characterize locations of fast-moving water where the water is 3 feet or deeper over the land. The VE zone has been separated from the other flood zones because the fast moving water can be a threat to people and it has the potential to cause erosion or structural damage. Because of the erosive potential of these flows, FEMA regulations do not allow the use of grading as a way to protect structures in this flood zone.

The 2010 FEMA map[1] shows a VE zone offshore of the MGS, with an identified elevation of +13' NAVD88 and it also shows that portions of the MGS site are now at risk from a 0.2% probability of occurrence flood. The Commission rarely relies solely upon the FEMA flood maps for coastal risk. One reason is that the current map products often focused on inland and riverine flooding and they often did not provide adequate characterization of the wave conditions that drive coastal, non-riverine flood events. Also these maps only portray the flood risks represented at the time of the mapping, and these maps do not identify changes to flood risk that could result from rising sea level or changing coastal conditions. FEMA is in the process of updating the coastal flood maps for the entire state of California. The maps for Ventura and Oxnard are still in preparation; however, the PSA included a 2016 draft FEMA map of the VE zone, that shows the potential for fast-moving water to reach +20'NAVD88 and that the VE zone

[1] The PSA calls the existing FEMA flood map, the 2010 map, where 2010 refers to the year that the maps were revised and/or provided as digital map products. Much of the data was developed in the 1980s, with locational updates through Letters of Map Revision added to the maps as appropriate. The draft coastal mapping effort that is currently in process is the first comprehensive examination of coastal flood risk since the initial flood maps were prepared.

could be up to 230-feet closer to the MGS than shown on the 2010 map[2]. The dunes at the MGS site are between +17' and +23' NAVD88. The draft 2016 FEMA map does not show that the VE zone extends inland of the dunes; however, under conditions when fast moving flood water reaches +20' NAVD88, there is the potential for erosion of the fronting dunes and overtopping some of the dunes in some locations. Also, the 2016 draft FEMA map does not show the resulting modifications to the A or X zones that would accompany these changes to the VE zone.

If the MGS site were to flood from the coastal side, it could occur in one of two ways, either through a low area or breach in the dunes or overtopping of the dunes. If there is a breach in the dunes, much of the flood water could leave the site through the same breach. However, since the main MGS site is lower than the dunes, water that enters the site through overtopping will not be able to return seaward by the same path. Overtopping water will be contained on the site, similar to storm water. While storage capacity has been examined for storm water, the analysis has not taken overtopping water into account.

Future Flood Risks to the MGS Site

The current, 2010 FEMA map and the 2016 draft FEMA map consider only current water level conditions. Site flood risks will be expected to increase with several changes in climate conditions. If river flow increases with climate change, risks of riverine flooding would also increase. The PSA found a medium to high likelihood that the site would experience riverine flooding; however, since the site is not considered to be a critical facility, the risks to the site are low to medium. The PSA did examine climate related flood risks, following the direction of the State OPC Guidance for the examination of risks related to sea level rise. The coastal flooding analysis relied upon draft results from Version 3.0 of the USGS Coastal Storm Modeling System (CoSMoS 3.0). The analysis examined concerns with 3.3 feet of sea level rise, but no change in the beach conditions are included in the initial CoSMoS modeling. The 30-year proposed project life would use the range of sea level projections for 2050, which are from 0.39 feet to 2.0 feet. The CoSMoS 3.0 modeling shows the site to be safe from flooding from a 100-year storm event with 3.3 feet of sea level rise. The 3.3 feet of sea level rise is more than a foot higher than the Commission's Adopted Sea Level Rise Guidance would recommend for 2050. As a result of this modeling, the PSA found that the project site has a low flood risk for the 30-year project life. The PSA did recognize that the draft CoSMoS results do not take site erosion or shoreline change into account and proposed to re-examine the potential flood risks once the CoSMoS modeling is upgraded this fall or winter to include shoreline change.

[2] Based upon personal communication with Darryl Hatheway, coastal scientist with AECOM and project manager for the FEMA mapping in southern California, the main explanation for changes to the VE zone is due to the new, peer-reviewed coastal analysis and mapping guidance. The updates to the VE zone were undertaken in compliance with FEMA's 2005 Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States and FEMA's 2015 Guidance for Flood Risk Analysis and Mapping: Coastal Floodplain Mapping, and, as such, are not likely to be revised in further iterations of the draft FIRM maps or during the next phase and development of the preliminary FIRM maps. However, the coastal study also has a statutory 90-day appeal

The Resilience Ventura study mapped vulnerability of the current and 2100 (high sea level rise scenario) flood plain of the Santa Clara River area. The MGS site is on the border of the area of interest; however, this 2013 vulnerability study shows the MGS site to be just outside of the current and future flood plain. Revell Coastal mapped a combination of erosion, flooding and wave impacts for 2030, 2060 and 2100, for various increases in sea level and these maps show that most of the MGS site could be subject to flooding with a rise in sea level of only a few inches. Due to the higher topographic relief of the proposed Puente site, it is one of the last portions of the MGS site to be affected by flooding. Based on the analysis from Revell Coastal, the current Mandalay Power Plant and the transmission yard are both within the identified flood areas and by 2060, of the Puente site could also be at risk from the 1% probability of occurrence event. Beach erosion and dune loss appear to be critical elements that differentiate the Revell Coastal mapping results from other studies. The MGS site, inland of the dunes, is fairly low and most of the flood analyses assume that the dunes will protect the inland area from most flood conditions. However, as indicated by the Revell Coastal analysis, a long-duration storm or a series of storms could erosion much of the beach and dune system under current conditions. Revell Coastal and Everest Consultants also both identify changes to the sediment supply that could lead to greater erosion. Reductions in sediment supply to the beach seaward of the MGS site, either by an extended period of low flows in the Santa Clara River or by a reduction in harbor by-pass dredging at Ventura Harbor, could trigger a reduction in beach width, greater wave attack of the dunes and deflation or loss of the protective dunes on and adjacent to the MGS site.

Revell Coastal identifies changes in the by-passing practices at Ventura Harbor as one of the more likely causes for a major reduction in sand supply. Dredging volumes from Ventura Harbor vary greatly, with a high of almost 2,400,000 cy in 1972, to multiple years with volumes of approximately 150,000 cy. Over the 44 year record from 1964 to 2007, inclusive, dredge volumes were less than 500,000 cy in 21 years and more than 500,000 cy in 23 years. Low by-passing volumes at Ventura Harbor have occurred in the past. There is no assurance that future dredging will maintain the 600,000 cy average volumes that has been typical of this harbor; nor is there any evidence of plans to cease by-passing. The recent interruption in dredging at the Channel Islands Harbor was due to a funding shortage, and if Ventura Harbor has funds available for dredging, it is highly likely that they will continue harbor dredging and sediment by-passing.

The PSA notes that the Santa Clara River is a far more significant source of sediment for the MGS site than by-passing at Ventura Harbor. In reality sand is a fungible commodity and the width of the beach seaward of the MGS site is due to sand from all the upcoast littoral sources. Since transport can be bi-directional, some of the sand at the MGS beach site may also be from the downcoast area. A health beach, however, is important to the flood safety of the project site, and the concerns about beach and dune erosion identified by Revell Coastal are important to the current and future flood analysis of the site.

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process and community adoption period to pass through before the preliminary FIRM can be considered as final and used as regulatory FIRM base flood elevations and hazard zones.

A final source of potential MGS site flooding is the Edison Canal which has a direct connection to the ocean through Channel Islands Harbor. The Canal is a constructed, concrete-lined channel that, among other things, brings ocean water to the MGS site. Under present conditions, water levels in the Canal are contained within the channel; however, as sea levels increase or as the driving forces from storm waves increase, water levels in the Canal can be expected to increase. Due to the length of the Canal there is a drop in water level along the Canal, so that the water level at the plant would be slightly lower than the ocean level unless the pumping system is drawing water into the MGS site and to the far end of the Canal. With a rise in sea level, the Canal level would increase and with a rise in the forcing conditions, as noted in the change between the 2010 and draft 2015 FEMA maps where the VE zone has been changed from 13' NAVV88 to 20' NAVD88. Neither the PSA nor the draft FEMA maps identify the amount of increase that might occur. An identical increase between harbor water level and Canal water level is not likely to occur, however, the general result would be an increase in water level and an increase in the duration of high water that will occur at the inland extent of the Canal.

Flood Risks, Key Flood Issues and Flooding Unknowns

The PSA analysis acknowledges that the MGS Site could flood under certain conditions. The designation of the flood risk as 'low' or 'medium' are based on the exposure of the site to flooding and the identified insensitivity of the electrical system to the loss of this facility if the site is flooded. Looking strictly at the flood exposure, this is not an ideal site for a power plant. The precautionary principle would push for a site that minimizes risk through hazard avoidance rather than minimizing the source sensitivity. Alternative inland sites are available and would avoid any concern about flood risk or increased risk due to rising sea level or beach and dune erosion.

Loss of the protective beach and dune system, while not highly likely, is nevertheless possible. Without the fronting dunes, the proposed site would be a significant risk of flooding, even under current sea level conditions. With the dune system intact, this site may be generally safe from most flood threats. The full development of the updated FEMA maps, including the 1% and 0.2 % probability of flood occurrence would greatly increase our understanding of flood risk of this site for current flood conditions. The CoSMoS modeling of storms and long-term erosion would greatly increase our understanding of flood risk for future sea level rise and shoreline changes conditions. Under the normal Coastal Commission application process, the applicant would have been required to do some of these analyses, rather than rely solely upon other studies and work from other groups. It is clear that that the site is at risk from flooding, however, the full flood risk cannot be established with the available analyses.

Some of the flood analyses show that the proposed Puente plant location might be high enough to avoid flooding, much of the rest of the MGS site, including the transmission yard and access roads, could be at risk from storm flooding. The proposed project is part of a system and site access and power distribution are both important to the power system. As noted previously, alternative inland sites could avoid any concerns about losses of plant access or power distribution due to flooding.

Elevation is a way to protect development from flood risk and elevation of the proposed plant site has made this one of the more flood safe portions of the MGS site. Unfortunately the proposed Puente site supports wetland vegetation so that the more safe site for flood purposes is also the most damaging site for habitat purposes. Since most of the MGS site has been disturbed already by grading or construction activities, there are portions of the MGS site that could be graded to provide a comparable level or flood protection that what is available at the Puente site. If the MGS site is found to be an appropriate site for the future Puente Power Plant, alternative locations could be considered, where an equivalent flood safe elevation could be achieved through site grading of already disturbed areas.

Recommendations concerning Flooding

Since the best way to deal with hazards is through avoidance, the relocation of this proposed project at a different and more inland site could avoid or greatly reduce flood risks.

If avoidance or relocation from the MGS site is not possible, development of an elevated site, away from the sensitive habitat areas, would provide for an environmentally preferable, moderately safe option for the 30 year proposed project.

Use of this site for power generation beyond 2050 should be strongly discouraged. Flood risks at this site would be expected to increase substantially during the second half of the 21st century and large areas of the entire MGS site, even with elevation, could be at risk.

Due to the importance of the dunes for flood protection, a Beach and Dune Monitoring Program should be established. The purpose of this monitoring would be to determine if and by how much the beach or dunes are eroding. Triggers for dune loss should be established, and efforts should be identified that could halt or slow this erosion. A possible effort could be to support Ventura harbor dredging financially to increase sand bypassing to the MGS site; or if by-passing stops and beach erosion or dune erosion is identified by monitoring.

Despite all efforts to reduce flood risk at this site, there will remain a concern for flood risk and possible erosion impacts. This project should be required to commit to avoid any future shoreline armoring to protect this development. Also, if pre-existing armoring is discovered on this site, as occurred at Hueneme and at several beaches in New Jersey that were hit by Hurricane Sandy, there should be no expectation that any relict armoring might be rebuilt or maintained.

GEOLOGY AND PALEONTOLOGY - FIGURE 1

Puente Power Project (P3) - Regional Vicinity Map

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: NRG 2015a

Exhibit 1
Application for Certification No. 15-AFC-01
NRG Puente Power Project
Project Vicinity

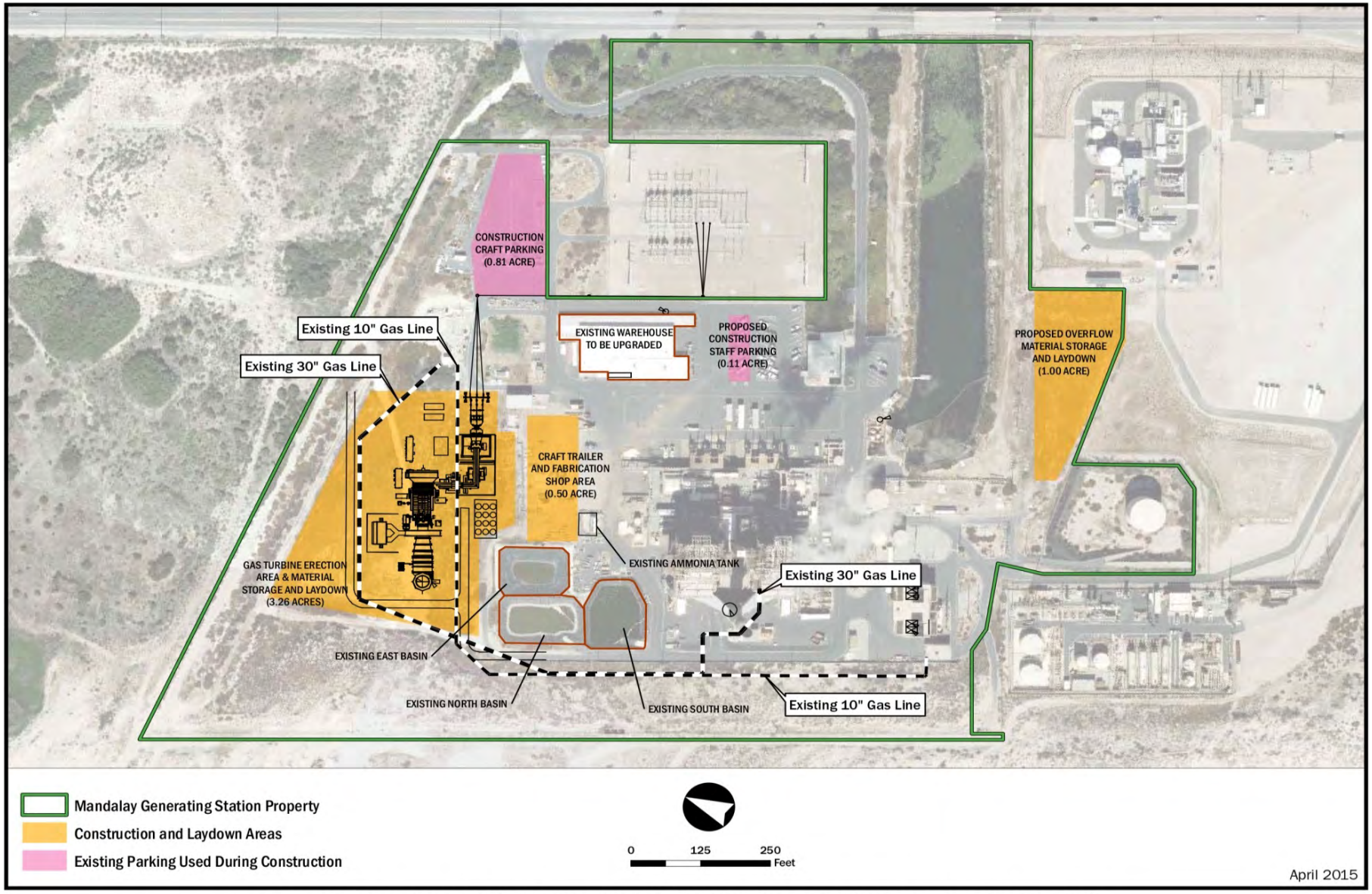
PROJECT DESCRIPTION - FIGURE 2
Puente Power Project - Project Location

CALIFORNIA ENERGY COMMISSION-SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 2.4-1

Exhibit 2
Application for Certification 15-AFC-01
NRG Puente Power Project
Project Location

PROJECT DESCRIPTION - FIGURE 1

Puente Power Project - Site Plan

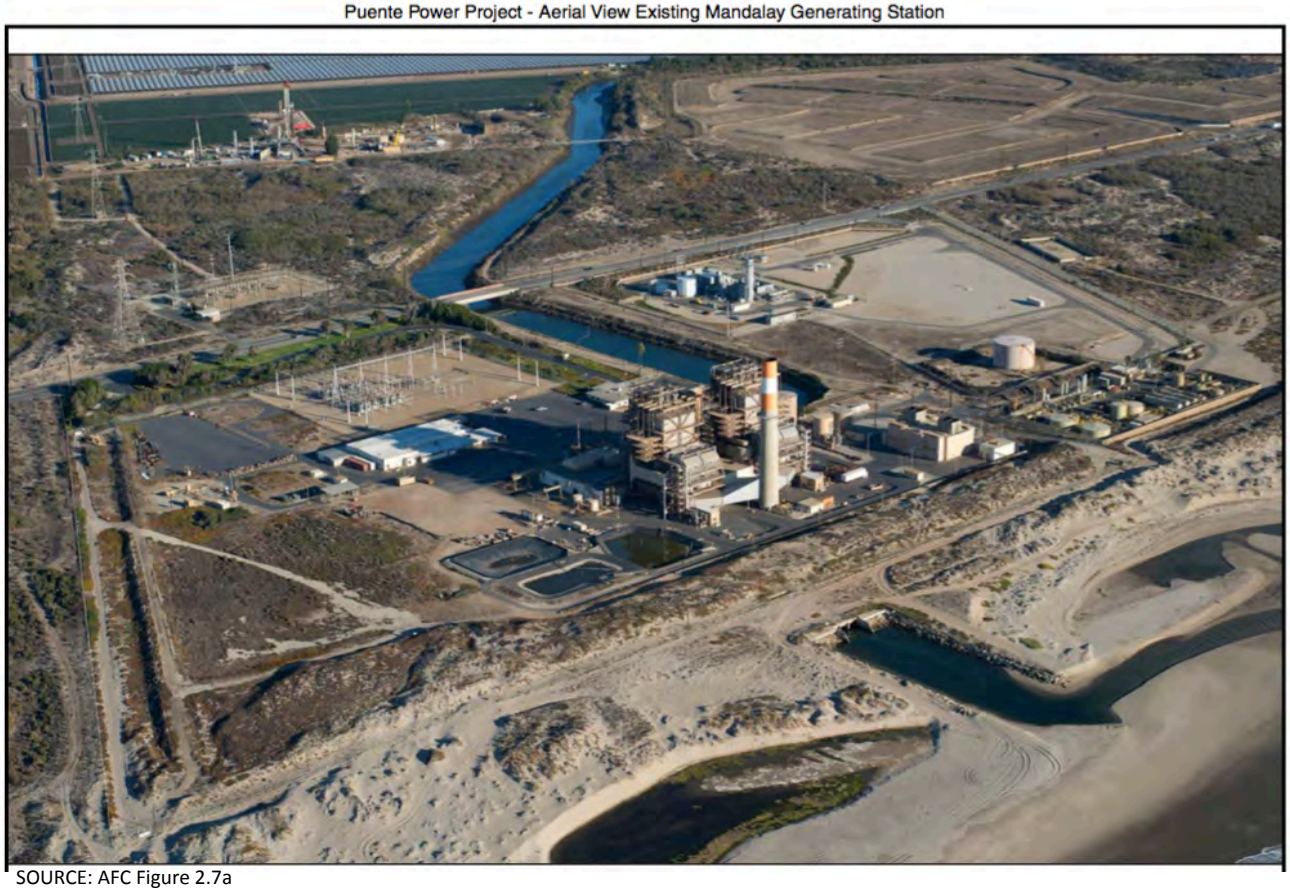


CALIFORNIA ENERGY COMMISSION-SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: AFC Figure 2.1-1

Exhibit 3
Application for Certification 15-AFC-01
NRG Puente Power Project
Site Plan

Puente Power Project - Aerial View Existing Mandalay Generating Station



SOURCE: AFC Figure 2.7a

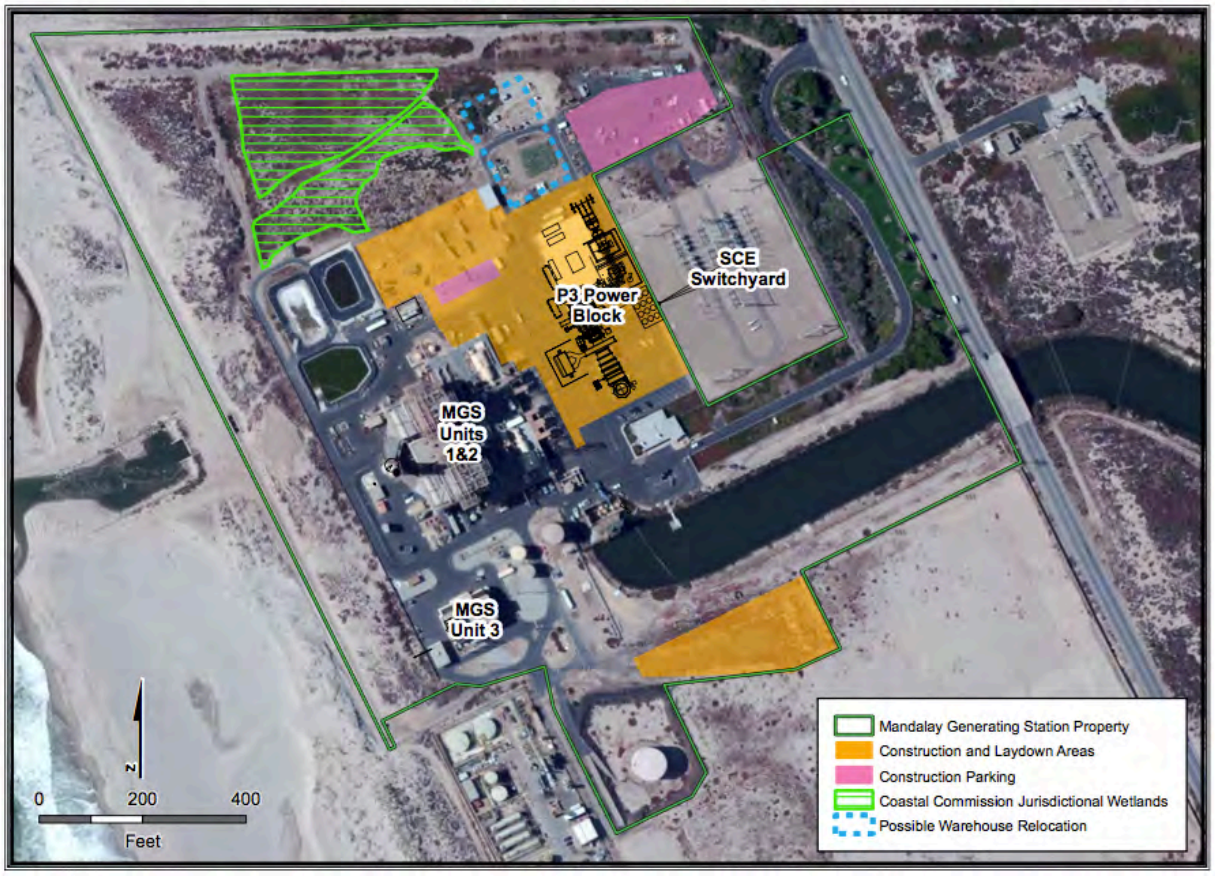
Puente Power Project - Aerial View of Simulation of the Puente Power Plant with removed MGS units 1 and 2 in 2022

SOURCE: Puente Power Project, Project Enhancement and Refinement, Demolition of Mandalay Generating Station Units 1 and 2 (TN 206698), Figure 1-1

Exhibit 4
Application for Certification 15-AFC-01
NRG Puente Power Project
Site Aerial Views - Existing & Simulated

Puente Power Project - Conceptual Site Reconfiguration 1

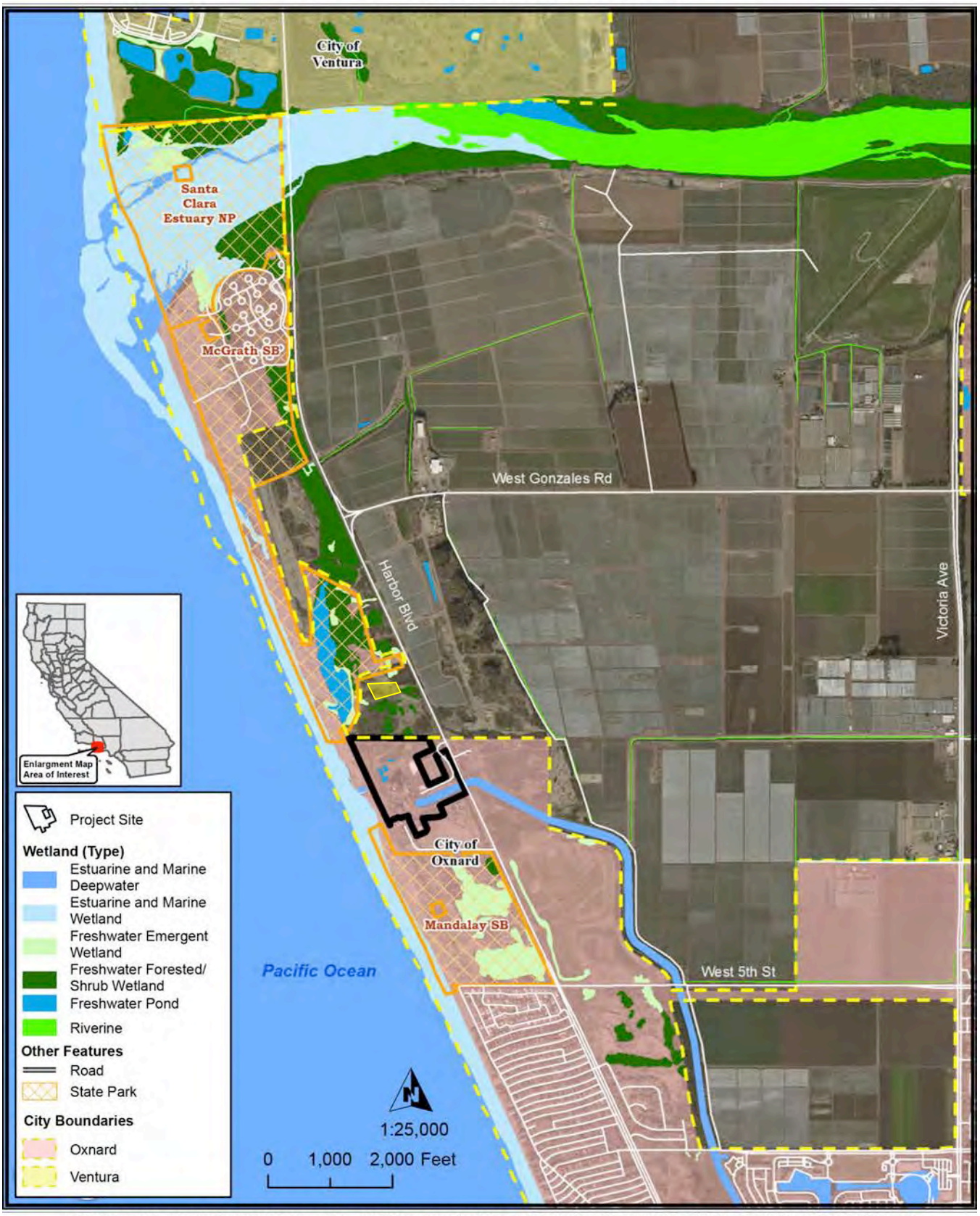
Puente Power Project - Conceptual Site Reconfiguration 2



Source: PSA Alternatives Figures 14 & 15

Exhibit 5
Application for Certification 15-AFC-01
NRG Puente Power Project
Site Reconfiguration Alternatives

Wetland Areas in Project Vicinity

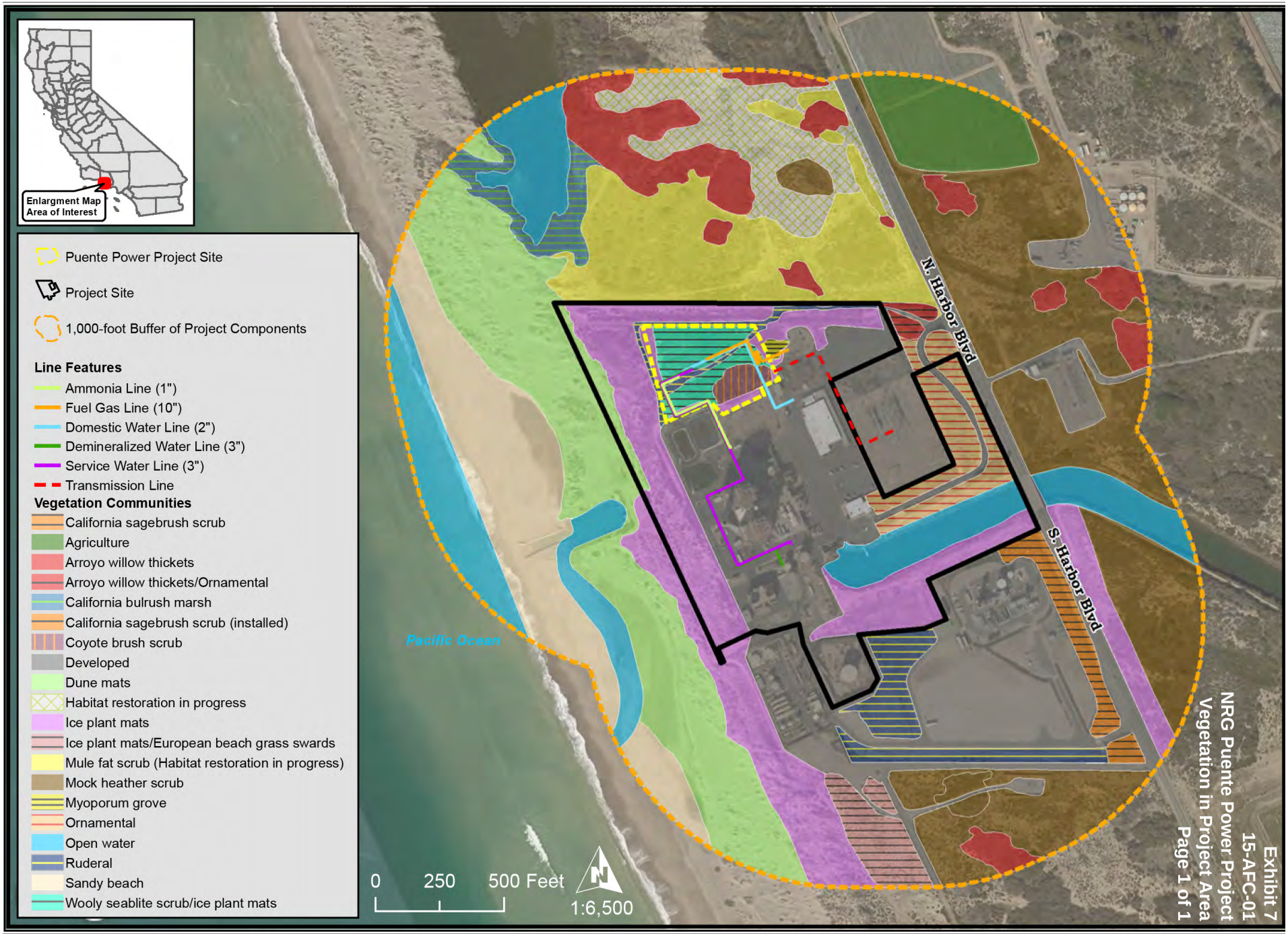


Source: PSA Biological Resources Figure 1

Exhibit 6
15-AFC-01
NRG Puente Power Project
Wetlands in Project Vicinity

BIOLOGICAL RESOURCES - FIGURE 3

Puente Power Project PSA - Vicinity Vegetation



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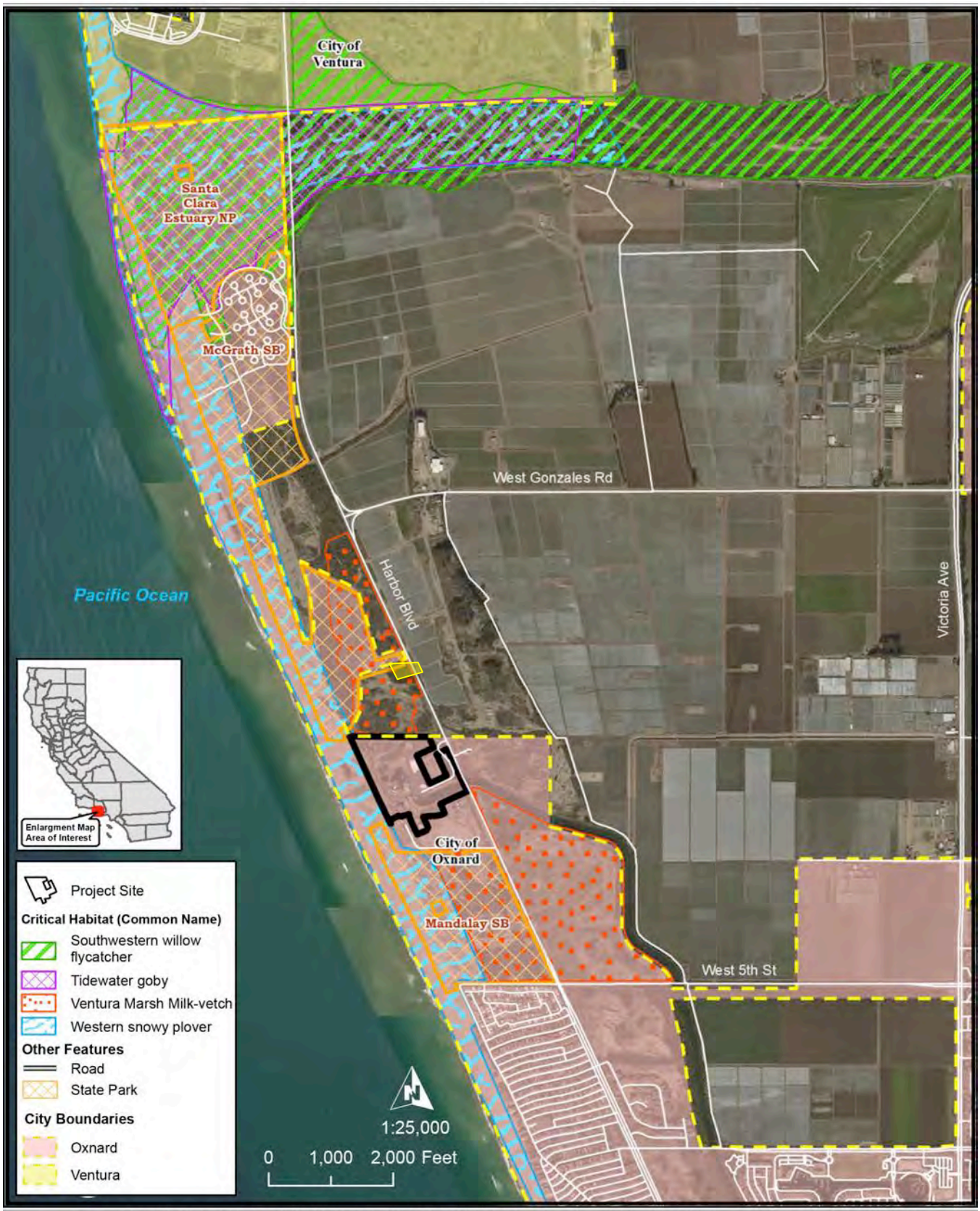
SOURCE: Puente Power Project (P3) 15-AFC-01, Figure 2.7-8 and Figure 4.2-2, Bing Aerial, and ESRI.

Puente Power Project PSA - USFWS Critical Habitat

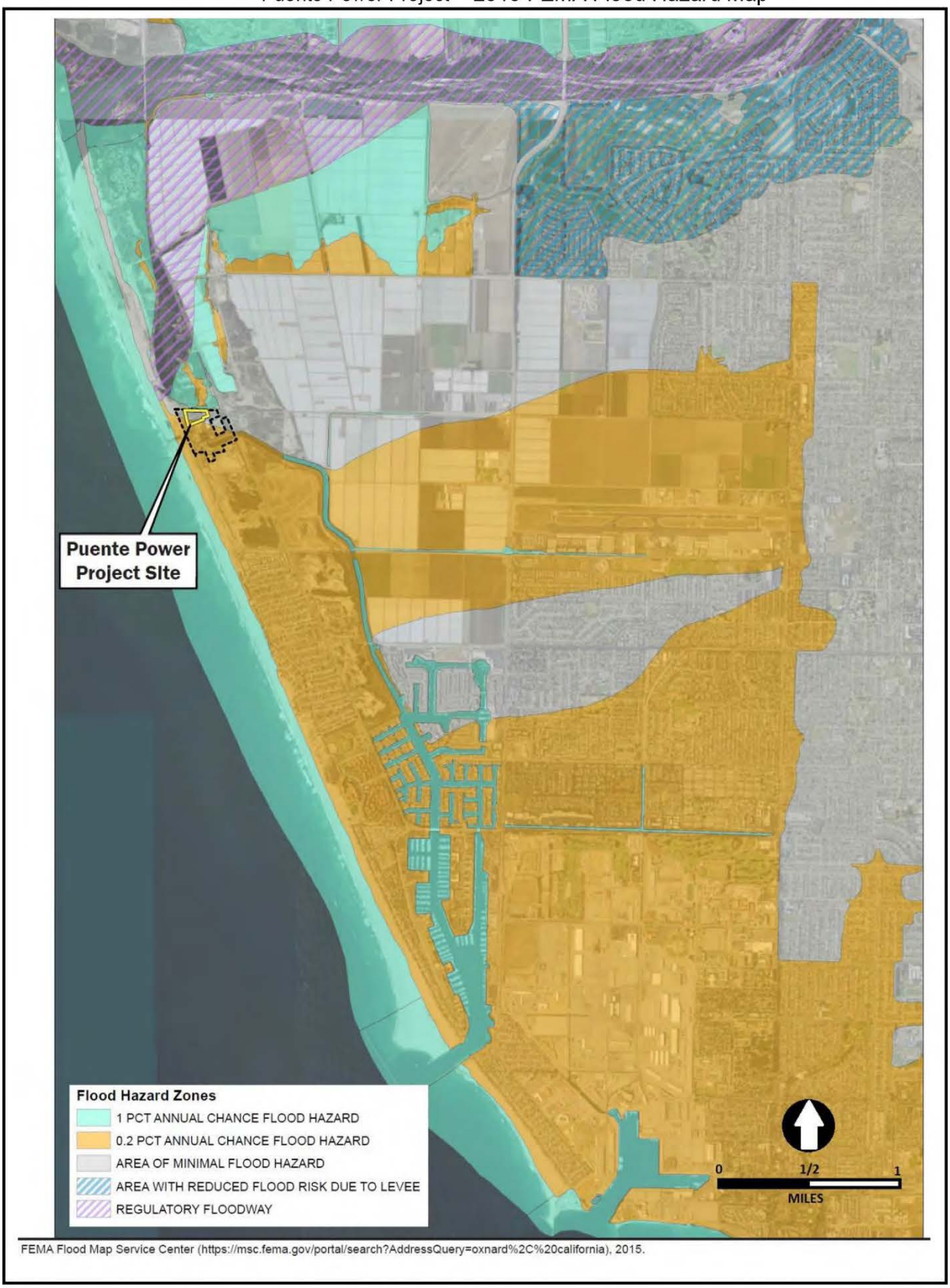


Source: PSA Biological Resources Figure 2

Exhibit 8
15-AFC-01
NRG Puente Power Project
Critical Habitat in Project Vicinity
Page 1 of 1

SOIL & WATER RESOURCES - FIGURE 4

Puente Power Project – 2010 FEMA Flood Hazard Map



FEMA Flood Map Service Center (https://msc.fema.gov/portal/search?AddressQuery=oxnard%2C%20california), 2015.

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SOURCE: COO 2015m

Exhibit 9a
15-AFC-01
NRG Puente Power Project
2010 FEMA Flood Hazard Map

SOIL & WATER RESOURCES - FIGURE 5

Puente Power Project – DRAFT Work Maps of FEMA Flood Coastal Hazards

The updated hazard boundary near the P3 site, above, is approximately 230 feet closer inland compared to the 2010 Effective FIRM. The additional hazard area is shaded in pink below.

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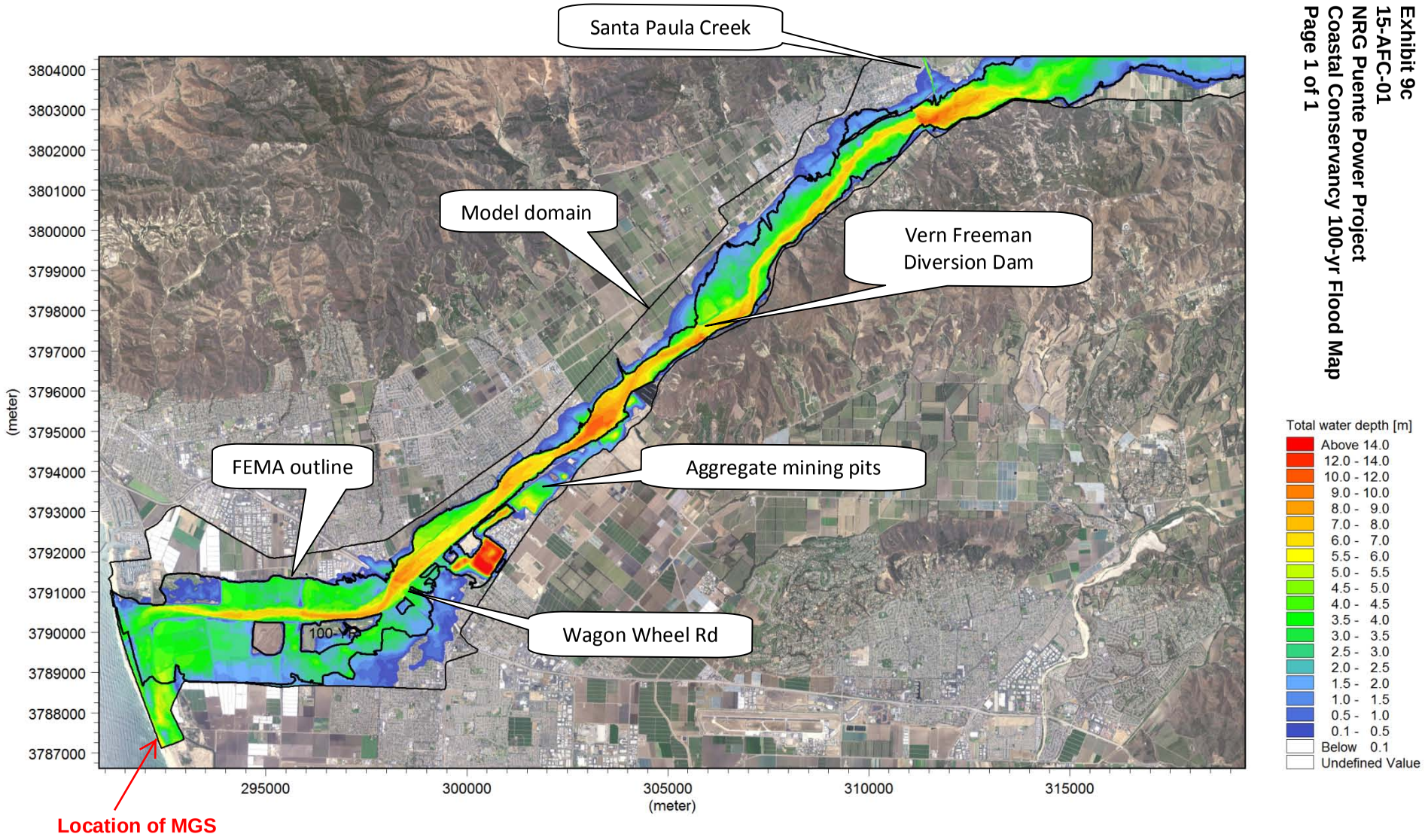
SOURCE: FEMA's Geoplatform (http://arcg.is/1OXJVRc) accessed March 12, 2016



Notes: lower reach; inner black outline denotes the FEMA restudy RAS predicted inundation extents; projected coordinates in WGS1984 UTM11N.

cbec eco engineering

Santa Clara River Levee Setback Assessment

Existing conditions Q100 comparison to FEMA mapping

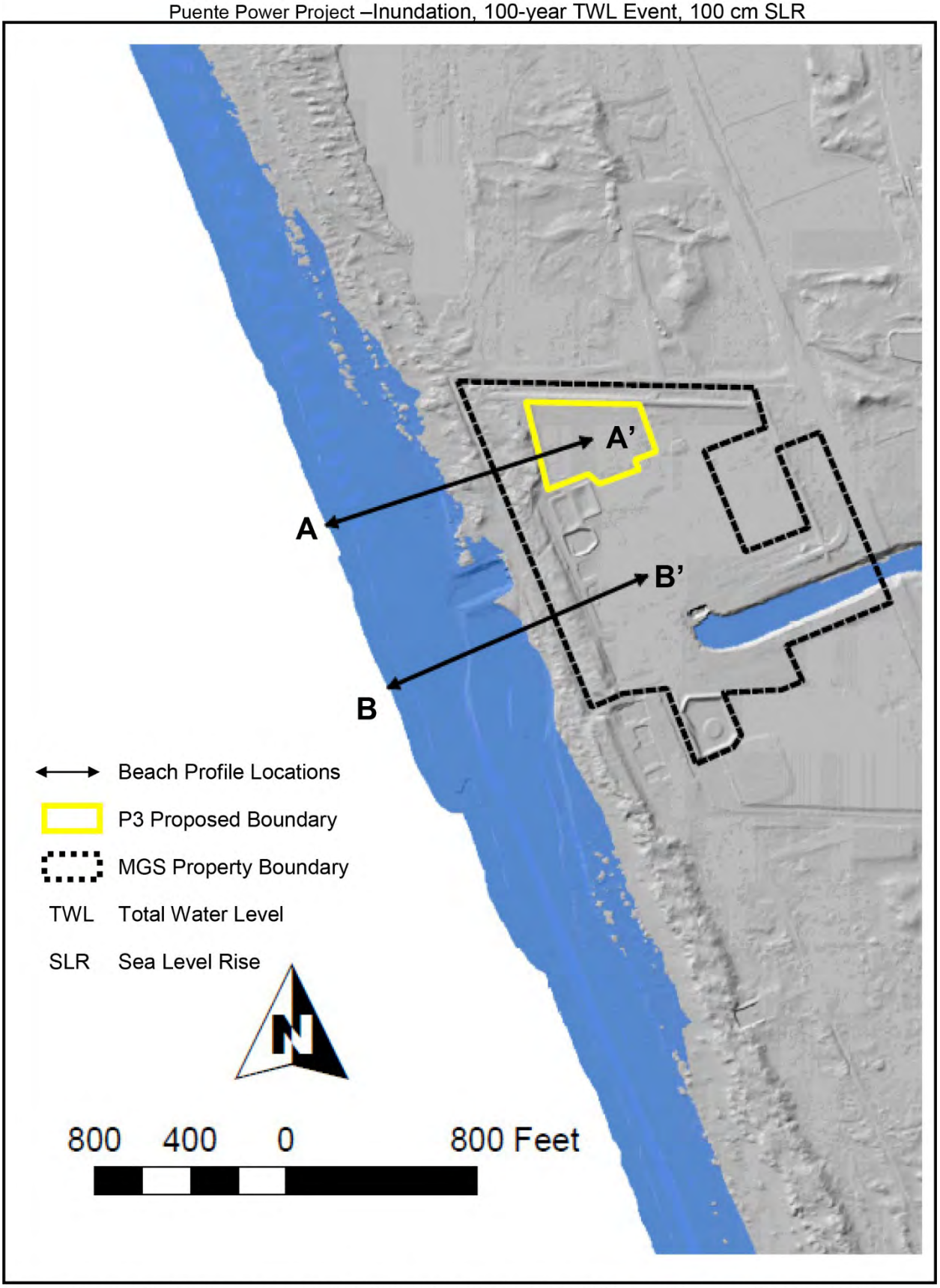
Project No. 09-1005	Created By: AMS	**Figure 6b**

Proposed NRG Site with existing Coastal Flooding Hazards from a Large El Niño Wave Event

Adapted from Revell (2015).

SOIL & WATER RESOURCES - FIGURE 12

Puente Power Project –Inundation, 100-year TWL Event, 100 cm SLR



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: USGS CoSMoS 3.0 (http://walrus.wr.usgs.gov/coastal_processes/cosmos/socal3.0/index.html) accessed March 21, 2016

Exhibit 10a
15-AFC-01
NRG Puente Power Project
PSA (CoSMoS 3.0) Sea Level Rise Map

Combined Coastal Erosion, Flooding and Wave Impact Hazards in 2030

Combined coastal hazards by 2060 for all sea level rise scenarios

Source:
Revell (2015)

Exhibit 10b
15-AFC-01
NRG Puente Power Project
City of Oxnard
Sea Level Rise Maps

GEOLOGY AND PALEONTOLOGY - FIGURE 7

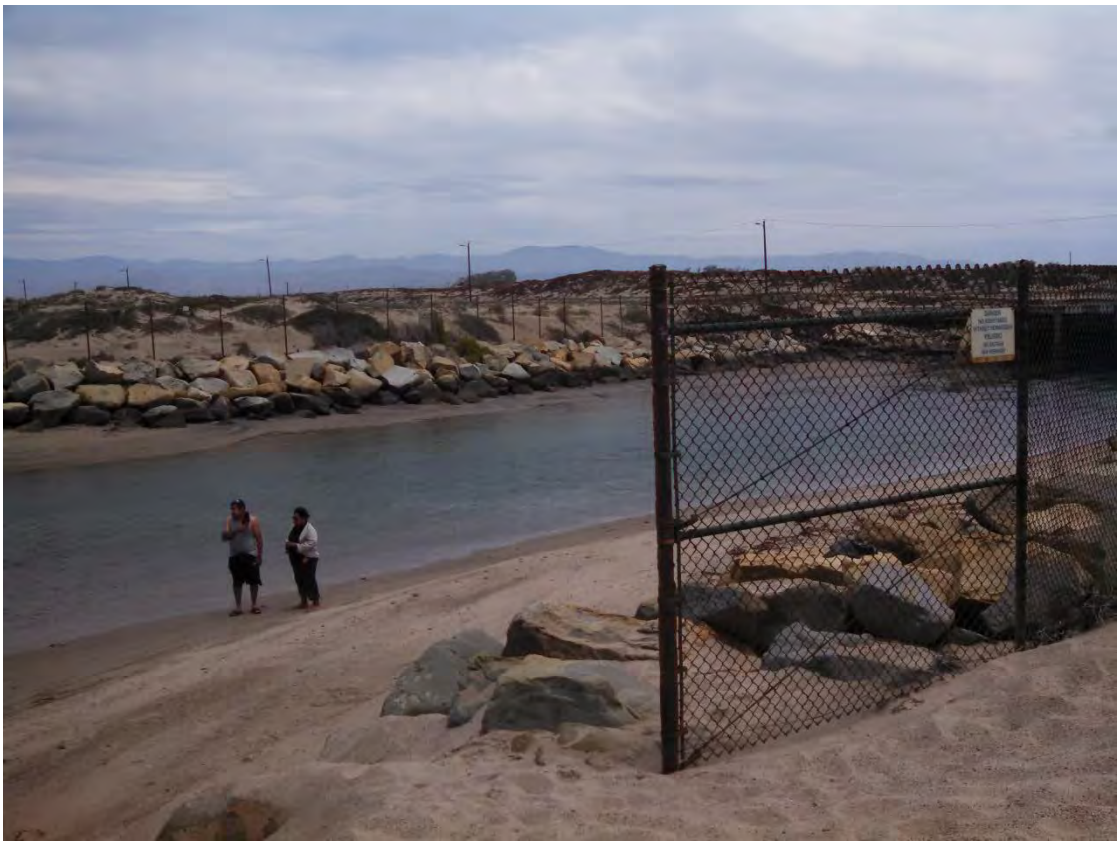
Puente Power Project (P3) - Tsunami Inundation Map

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: NRG 2015a

Exhibit 11
15-AFC-01
NRG Puente Power Project
Tsunami Hazard Map - CGS 2009

Barriers to Lateral Beach Access Due to Wastewater Outfall



Source: C. Williamson, City of Oxnard