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July 9, 2015

Karen Douglas
Commissioner and Presiding Member
California Energy Commission
1516 Ninth Street
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RE: Coastal Commission's 30413(d) Report for the Proposed AES Southland, LLC Redondo Beach Energy Project – Application for Certification #12-AFC-03

Dear Ms. Douglas:

On July 8, 2015, the Coastal Commission, at public hearing, approved forwarding the attached report for the California Energy Commission's ("CEC's") consideration. The report assesses the proposed Redondo Beach Energy Project ("RBEP") for conformity to the Coastal Act's Chapter 3 resource protection and use policies and the policies of the City of Redondo Beach's certified local coastal program ("LCP"). The project, proposed by AES Southland, LLC ("AES"), involves demolishing the existing Redondo Beach Generating Station and replacing it with the new RBEP that would produce up to 496 megawatts of electricity. This new facility would end the existing facility's reliance on its "once-through cooling" 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-megawatt capacity, including those located in the coastal zone. Nonetheless, section 30413(d) of the Coastal Act expressly authorizes the Coastal Commission to participate in the CEC's proceedings and provide findings and recommended specific provisions needed to bring a proposed 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 the CEC finds that they are infeasible or would cause greater adverse environmental impacts. Staff of the two Commissions have developed a Memorandum of Agreement (included as Attachment B of the report) that describes the manner in which the two Commissions will coordinate their respective reviews and the process for the CEC to consider the Coastal Commission's findings and recommended specific provisions. The Coastal Commission has relied heavily on information provided and docketed as part of the CEC's Application for Certification ("AFC") proceedings for this proposed project, including the analyses contained in the July 2014 Preliminary Staff Assessment ("PSA").

The proposed RBEP is located within a site that, in the 1980s, both the Coastal Commission and the CEC designated as suitable for energy facility expansion. At the time, that designation was meant to allow for reasonable expansion of existing facilities like this along the coast. With time, the state's electrical grid has developed reliance on having some of these facilities located at or near these coastal locations. For the proposed RBEP, however, we have reviewed new information and changed circumstances developed after issuance of the aforementioned PSA that

12-AFC-03 AES Redondo Beach Energy Project

suggest there may be feasible and available alternative sites that would avoid significant impacts and would have greater relative merit as compared to the proposed project.

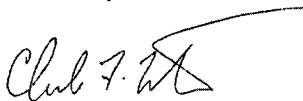
Therefore, our primary recommended specific provision at this time is that the CEC revise and supplement this AFC proceeding's alternatives analysis and needs assessment (which are provided with the PSA) by incorporating this new information and changed circumstances. These include reviews and determinations by the California Independent System Operator ("CAISO"), the California Public Utilities Commission ("CPUC") and Southern California Edison regarding the lack of need for electricity generated from the proposed RBEP or from this proposed site. These determinations suggest that other existing power plant locations within the same Local Reliability Area may be suitable for the electricity generation now being proposed from the RBEP and could result in fewer adverse environmental impacts, including avoidance of wetland fill. As noted in the attached report, the Coastal Commission will need a revised and supplemented alternatives analysis to allow a full determination of whether the proposed RBEP will conform to relevant Coastal Act and LCP policies, including the requirement that wetland fill be allowed for this type of project only if there are no feasible and less environmentally damaging alternatives.

Nonetheless, should the CEC determine it would be infeasible or would result in greater adverse environmental impacts to prepare the recommended revised analyses, we have also included other recommended specific provisions meant to allow the project as currently proposed to conform to several Coastal Act and LCP policies. Along with the recommended provision regarding project alternatives, the Coastal Commission has focused its Coastal Act section 30413(d) review on the project's potential adverse effects in four key issue areas: (1) the proposed project's potential non-conformity with LCP land use provisions, (2) additional recommended provisions to ensure that the proposed fill of Commission-jurisdictional wetlands is adequately mitigated pursuant to Coastal Act and LCP requirements, and (3) additional recommended provisions to allow conformity with Coastal Act and LCP requirements regarding coastal and geologic hazards associated with seismic events, tsunamis, and sea level rise.

As noted in the aforementioned Memorandum of Agreement, Coastal Commission staff will sponsor the report into the Energy Commission's evidentiary record and be available for any questions you may have. We also plan to prepare a revised report upon the CEC's completion of the recommended revised alternatives analysis and needs assessment and will provide additional recommended specific provisions as needed to ensure the proposed project conforms to relevant Coastal Act and LCP requirements.

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

Sincerely,



CHARLES F. LESTER
Executive Director

Attachment

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**Coastal Commission Report
to
California Energy Commission
on
Application for Certification 12-AFC-03
– AES Redondo Beach Energy Project –**

**Reviewed pursuant to
Coastal Act Section 30413(d)**

**12-AFC-03
AES Redondo Beach Energy Project**

TABLE OF CONTENTS

FINDINGS AND RECOMMENDED SPECIFIC PROVISIONS..... 3

- A. PROJECT DESCRIPTION 3
- B. REGULATORY FRAMEWORK AND STANDARD OF REVIEW..... 4
- C. ALTERNATIVES..... 7
- D. LAND USE..... 15
- E. WETLANDS 21
- F. COASTAL HAZARDS – SEISMIC, FLOODING, TSUNAMI, AND SEA LEVEL RISE..... 29

ATTACHMENTS

- Attachment A – Substantive File Documents
- Attachment B – Memorandum of Agreement regarding the Coastal Commission’s Statutory Role in the Energy Commission’s AFC Proceedings, April 2005.

EXHIBITS

- Exhibit 1 – Area Map
- Exhibit 2 – Aerial View: Existing Facility
- Exhibit 3 – Existing Project Site Plan with Proposed Project Overlay
- Exhibit 4 – Conceptual Aerial View: Proposed Facility
- Exhibit 5 – Map of Western Los Angeles Basin Local Reliability Area
- Exhibit 6 – Wetland Sampling Locations

FINDINGS AND RECOMMENDED SPECIFIC PROVISIONS

A. PROJECT DESCRIPTION

The Redondo Beach Generating Station is an electrical generating facility located in the City of Redondo Beach (see **Exhibit 1 – Area Map**). It is owned and operated by AES Southland Development, LLC (hereafter, either “Applicant” or “AES”). The power plant site covers about 50 acres adjacent to the City’s King Harbor area near the City’s border with the City of Hermosa Beach (see **Exhibit 2 – Aerial View: Existing Facility** and **Exhibit 3 – Existing Project Site Plan with Proposed Plan Overlay**). The site is relatively flat and ranges from about three to 20 feet above mean sea level. Adjacent land uses include residential areas to the north, a storage facility and office buildings to the east, residential and commercial uses to the south, and King Harbor Marina to the west. The entire site is within the City’s coastal zone.

The existing facility includes four steam-generating units that are cooled using a “once-through cooling” process, which requires AES to pump in up to several hundred million gallons per day of seawater from an open intake located about 1600 feet offshore. As the seawater is pumped through the facility, it removes excess heat from the generating units and is then discharged back into the Pacific Ocean through an outfall pipe. Pursuant to the State Water Resources Control Board’s 2010 adoption of a policy to retire or re-tool most of the coastal power plant generating units that use once-through cooling, the existing facility is scheduled to shut down by 2020. The facility also includes four already-retired generating units, several bermed areas formerly occupied by fuel oil tanks that were retired in the 1990s and removed in 2006, and other associated infrastructure. A switchyard within the site is owned and operated by Southern California Edison.

Proposed Redondo Beach Energy Project

In November 2012, AES submitted an Application for Certification (“AFC”) to the California Energy Commission (“CEC”) proposing the decommissioning and removal of the existing power plant and construction and operation of a new facility on the same site (see **Exhibit 4 – Conceptual Aerial View: Proposed Facility**). The new facility, the Redondo Beach Energy Project (“RBEP”) would cover about 10.5 acres of the site and would include a single power block with three natural gas-fired generators, one steam turbine generator, an air-cooled condenser, and other associated equipment and facilities. The new facility would generate a total of 496 megawatts (“MW”). The new facility will be air-cooled and will therefore no longer rely on using seawater for cooling. Visually, the new facility will have an overall lower profile than the existing facility – for example, the existing facility has five prominent five exhaust stacks up to about 220 feet tall while the proposed facility would have three approximately 140-foot tall stacks. The existing facility also includes a large mural known as the Wyland Whaling Wall, which faces north and blocks much of the industrial interior of the site. AES has proposed dismantling the mural and reconstructing it in front of the RBEP’s new power block and facing the shoreline. The proposed project does not require new or modified offsite components, such as power lines or gas lines. The proposed RBEP is more fully described in the CEC’s Preliminary Staff Assessment (“PSA”), available here:

http://docketpublic.energy.ca.gov/PublicDocuments/12-AFC-03/TN202833_20140728T160702_Redondo_Beach_Energy_Project_Preliminary_Staff_Assessment.pdf

The proposed project includes demolition of the existing generating units and construction of the new RBEP over approximately 60 months. AES plans to construct the RBEP using about 17 acres of the site for construction laydown and parking, and anticipates no need for offsite parking or equipment storage. The CEC's review anticipates an expected power plant design life of 40 years, which would extend to about 2060.

Background

The site has been at least partially developed for industrial uses since the 1800s. The northeast half of the site is the location of what was known as the "Old Salt Lake," a saline, spring-fed lagoon that was used for salt production, first by Native Americans and then in the late 1800s by the Pacific Salt Works. Other parts of the site included habitat in the form of lagoon fringe, an alluvial plain, and sand dunes (See PSA, Section 4.4, Cultural Resources). The first power plant at the site was constructed in 1905. Starting in 1917, Southern California Edison owned and operated the various power plants that were built on the site until 1998, when the current facility was purchased by AES.

More recently, the site and facility have been the subject of two City initiatives. In 2012, an initiative known as Measure A would have rezoned the site and required the existing power plant to be removed. In March 2013, the City's voters defeated the initiative. In July 2014, AES sponsored an initiative known as Measure B that would have provided for removal of the existing power plant and development of the site for mixed residential, commercial, and open space uses instead of the proposed RBEP. In March 2015, the City's voters defeated Measure B.

B. REGULATORY FRAMEWORK AND STANDARD OF REVIEW

Pursuant to the Warren-Alquist Act, the Energy Commission 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.¹

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

¹ The CEC does not review or issue NPDES permits, and the power plant operator must still obtain those permits from the State or Regional Water Quality Control Boards, which have been delegated that authority by the federal Environmental Protection Agency.

Environmental Quality Act (CEQA). The Preliminary Staff Assessment (“PSA”) and Final Staff Assessment (“FSA”) provide analyses similar to those normally provided in a draft and final Environmental Impact Report (EIR). The CEC staff analysis examines engineering, environmental, public health, and safety aspects of the facility, considers the proposed project’s conformity with applicable laws, ordinances, regulations, and standards (known as “LORS”), and develops 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 provisions 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 Redondo 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. Staffs 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 (see **Attachment B – Memorandum of Agreement**).

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 policies of the City of Redondo Beach certified LCP. The City of Redondo Beach has a certified LCP consisting of a coastal land use plan and implementation plan. The Coastal Commission initially certified the City's LCP in 1981, followed by several major amendments. For this proposed project, the Coastal Commission has focused on the following issue areas: (1) alternatives, (2) land use, (3) wetlands, and (4) coastal and geologic hazards – seismic, flood, tsunamis, and sea level rise. The Coastal Commission's analysis relies largely on the information contained in the CEC staff's Preliminary Staff Assessment ("PSA"), the docketed 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.

The above-referenced memorandum calls for the Coastal Commission to participate "as early as feasible after it receives the information necessary" to complete its report, and in time for the parties to prepare for the AFC hearings that occur after issuance of the CEC's Preliminary and Final Staff Assessments.

At this point in the AFC proceeding, the July 2014 PSA represents the most comprehensive assessment of the proposed project. However, there are changed circumstances and new information that have been generated since the July 2014 publication date regarding potential project alternatives and project need that have not yet been assessed as part of the project as proposed and evaluated in the PSA. As described in subsequent sections of this report, these changed circumstances and the new information are necessary components for the Coastal Commission's determination of whether and how the proposed project conforms to relevant provisions of the Coastal Act and LCP. The Coastal Commission therefore recommends several analyses be revised and supplemented to incorporate the changed circumstances and new information to allow the required determination of conformity. Nevertheless, and even with the incomplete existing analyses, we have provided a number of specific recommended provisions necessary for the RBEP as currently proposed to be consistent with several of the relevant Coastal Act and LCP policies.

C. ALTERNATIVES

Coastal Act Section 30233 and LUP Section VI, Subsection D – Land Use, Policy 21 state, 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...

Coastal Act Section 30264 states:

Notwithstanding any other provision of this division except subdivisions (b) and (c) of Section 30413, new or expanded thermal electric generating plants may be constructed in the coastal zone if the proposed coastal site has been determined by the State Energy Resources Conservation and Development Commission to have greater relative merit pursuant to the provisions of Section 25516.1 than available alternative sites and related facilities for an applicant's service area which have been determined to be acceptable pursuant to the provisions of Section 25516.

Summary

The Coastal Act and LCP require consideration of feasible and less environmentally damaging alternatives for a proposed project like the RBEP. As noted elsewhere in this report, this particular proposal would involve the fill of Coastal Commission-jurisdictional wetlands. Applicable policies of the Coastal Act and LCP allow wetlands to be filled for energy facilities such as the RBEP, but only if there are no feasible less environmentally damaging alternatives and where feasible mitigation measures have been provided to minimize the adverse environmental impacts. Additionally, Coastal Act Section 30264 allows new or expanded thermal generating plants such as the RBEP to be constructed at a coastal zone site that has been deemed suitable for power plant expansion if the CEC determines the proposed site has greater merit than available alternative sites that have also been determined suitable for power plant expansion.

Although the PSA includes an analysis of potential alternatives, changed circumstances and new information generated since the PSA publication in July 2014 suggests that the PSA's alternatives analysis should be revised and expanded to allow the Coastal Commission to determine whether the proposed project is the least environmentally damaging alternative. Without a revised alternatives analysis, it is also unclear whether this project has greater relative merit than a project at an alternative site. The new information and changed circumstances indicate both that 1) the Redondo Beach site is not a necessary location for electricity generation, and 2) other sites owned by AES and already determined by the CEC as suitable for power plant expansion may provide feasible and less environmentally damaging alternatives to the proposed project.

Required Alternatives Analysis

As the equivalent to the CEQA lead agency for the proposed project, the CEC is to consider reasonable alternatives to the project that would feasibly meet most of the project's basic objectives while avoiding or lessening any of its significant impacts. To summarize the project objectives as stated in the PSA, the proposed RBEP is meant to:

- Provide an efficient, reliable, and predictable generating capacity to support the local capacity requirements of the Western Los Angeles Basin Local Reliability Area without requiring new transmission facilities;
- Provide 496 MW of generating capacity with rapid-start and steep ramping capability to allow operational flexibility and efficient integration of renewable energy sources into the electrical grid; and,
- Develop on a brownfield site using existing infrastructure – e.g., without a need for new electrical, natural gas, transmission facilities, etc.

Background – Electrical Generation Planning and Need

The project is meant in part to respond to identified needs of the state's electricity grid and transmission system as determined by the California Independent System Operator ("CAISO") and the California Public Utilities Commission ("CPUC"), as well as the CEC. CAISO conducts regular assessments of the state's grid and transmission needs and identifies the expected amount and location of electrical generation and transmission capacity needed within different areas of the state known as "Local Reliability Areas" ("LRAs"). The RBEP would be located within the Western Los Angeles Basin LRA, which is within the service area of Southern California Edison (see **Exhibit 5 – Map of Western Los Angeles Basin LRA**). As noted in the PSA, CAISO's 2012 assessment evaluated the effects on the grid resulting from two recent major changes – first, the expected retirement or re-tooling of coastal power plants required pursuant to the 2010 State Water Quality Control Board's Once-Through Cooling policy; and second, the 2011 shutdown of the San Onofre Nuclear Generating Station (SONGS), which removed about 2,200 MW from Southern California Edison's service area.² CAISO's projections identified a need for about 10,000 MW of generating capacity in the Los Angeles and identified a total of 11,789 MW of generation either existing or under construction – i.e., CAISO projected about 1,800 MW more potential generating capacity than the expected need.³

In February 2013, and after further review of electricity generating options, the CPUC approved a Long Term Procurement Plan authorizing Southern California Edison to procure between 1,900 and 2,500 MW of electrical capacity in the Western Los Angeles Basin LRA, which was to include minimum procurements of 1000 MW of gas-fired generation, along with 550 MW of "preferred resources," (i.e., renewables), 50 MW of energy storage, and 300 MW from any source (see CPUC Proceedings at D.13-02-015).

² See CAISO's *Year 2021 Long-Term Local Capacity Requirements*, 2012.

³ CAISO's projections were based in part on up to 2,370 MW of existing local generation remaining available or being replaced with similar sources and also noted that up to 3,741 MW of alternative local generation would be needed if the expected new generation could not be located near existing sources.

During this same period, AES filed its Applications For Certification (“AFCs”) with the CEC proposing modifications to all three of its power plants within the Western Los Angeles Basin LRA:

- Redondo Beach: In its November 2012 AFC to modernize the Redondo Beach facility, AES proposed reducing its generating capacity from its current 1,392 MW capacity to 496 MW. In recent years, the existing facility has operated at levels of less than 10% of its rated capacity.
- Alamitos: In its December 2013 AFC, AES proposed upgrading its existing 1,975 MW Alamitos facility with a new facility having a similar capacity of 1,936 MW.⁴
- Huntington Beach: In its June 2012 AFC, AES proposed upgrading its Huntington Beach facility from 474 to 939 MW.

The three proposals together represented a reduction from 3841 MW to 3371 MW, which was nonetheless still greater than the CAISO-identified need of 2,370 MW and the CPUC authorization of up to about 1300 MW of gas-fired generation.

July 2014 PSA Alternatives Analysis

AES’s November 2012 AFC application for the RBEP did not include consideration of alternative sites for the proposed project. AES stated that “...because RBEP will have a strong relationship to the existing industrial site and will provide needed electric reliability service in a densely populated load pocket, and because no suitable and available alternative sites have been identified for RBEP, no alternative sites are analyzed in this AFC...” (see Docket #201423). Nonetheless, CEC staff requested that AES provide additional information about specific onsite and offsite alternatives. AES provided some of the requested information about onsite alternatives, but objected to, and did not provide, additional offsite information, stating that it was neither relevant nor necessary (see Docket #201881). CEC staff therefore conducted its own alternatives analysis, based on available information.

The PSA’s consideration of alternatives includes:

- **“No Project” Alternative:** The PSA evaluated a “no project” alternative that consisted primarily of shutting down the existing power plant. The PSA noted that this alternative would not meet the project objective of providing any expected new generating capacity for the Western Los Angeles LRA.

Another key point of the PSA’s “no project” analysis is that it assumed this alternative would not result in timely demolition of the existing facility or potential re-use of the site. This resulted in the PSA identifying the “no project” alternative as having greater adverse effects than the proposed RBEP due to the adverse visual effects that would result from the continued presence of a non-operating power plant remaining on the site and due to the potential adverse effects on human health and the environment resulting from any existing soil or water contamination remaining on site.

⁴ AES’s December 2013 Alamitos AFC acknowledged that the CPUC confirmed the need for only about 1,000 to 1,200 MW of new conventional gas-fired generation capacity.

- **Alternative On-site Configurations:** In its AFC, AES stated that onsite alternatives were limited because the existing power plant could not be shut down until the replacement generating capacity from the RBEP was available, thereby making the existing power plant footprint unavailable for the new power plant. The PSA's analysis considered several modifications to the proposed on-site configuration to determine whether there were feasible alternatives that would avoid or reduce significant impacts. This analysis acknowledged on-site limitations, such as the presence of the existing Southern California Edison switchyards, and noted that while some alternative configurations of project components might lessen impacts, the impacts were not considered significant – for example, some modified project layouts would move noise-generating equipment further from nearby residences and other receptors and thereby reduce project-related noise effects, but CEC staff had already identified mitigation measures that would reduce noise impacts to less than significant levels.
- **Alternative Sites:** During the AFC proceedings, CEC staff received numerous comments regarding the need to consider possible offsite alternatives. These included requests that the PSA evaluate whether AES could produce the needed electrical generation from its other two facilities located within the Western Los Angeles Local Reliability Area – the Alamitos Generating Station and the Huntington Beach Generating Station – and also included documentation from the Coastal Conservancy noting that local reliability requirements identified by CAISO did not require a power plant at the Redondo Beach site.

The PSA's alternatives analysis considered several offsite alternatives that could have met the primary project objectives. It conducted a two-tiered screening analysis to identify existing brownfield sites of at least 50 acres within the Western Los Angeles Basin Local Reliability Area that were zoned for industrial uses and were within a reasonable distance of necessary transmission, natural gas, and other utility infrastructure facilities. Seven sites made it to the Tier 2 screening step, but were eliminated for various reasons, such as unavailability of the site or proximity of nearby conflicting uses.

The PSA also considered having AES provide the expected increase in generating capacity at its Alamitos and Huntington Beach facilities, both of which are currently going through their own AFC processes. It noted, however, that this approach would require new analyses and studies for both AFC processes, which would delay those reviews to some unknown degree, and that increasing the proposed generation capacity at either site could require development of new electrical transmission capability from those sites. The PSA also re-emphasized that the proposed RBEP has a strong relationship to the current RBGS site, which led it to provide additional weight to considering on-site, rather than off-site, alternatives. It concluded that no feasible alternative sites within the Western Los Angeles Basin LRA met the project objectives and resulted in similar or fewer environmental impacts.

Significant Changes and New Information Since Publication of the July 2014 PSA

Since publication of the PSA, there have been at least two major areas of new information or changed circumstances related to the components of the PSA's Alternatives Analysis. The first major change involves the identified need and expected generating capacities for the Redondo

Beach, Alamitos, and Huntington Beach proposals, and the second relates to Redondo Beach's Measure B, an initiative that would have resulted in non-power plant redevelopment of the proposed site. These are described in more detail below.

- **Change in Project Need:** As noted above, at the time of the July 2014 PSA publication, AES anticipated that it would be upgrading all three of its nearby facilities – Redondo Beach, Alamitos, and Huntington Beach – to provide a total of about 3400 MW of generating capacity. Shortly thereafter, in October 2014, the CEC approved AES's Huntington Beach AFC for a 939 MW facility.

In November 2014, however, in response to the 2013 CPUC Long Term Procurement Plan and more recent modeling projections, Southern California Edison determined that it would focus its new electricity procurement in the southern portion of the Western Los Angeles Basin LRA where Alamitos and Huntington Beach are located, not the northern portion, which is the location of Redondo Beach.⁵ It did not contract for generation from Redondo Beach, but instead awarded contracts to AES to provide approximately 640 MW of gas-fired generation from both its Alamitos facility and its Huntington Beach facility for a total of about 1280 MW (along with several hundred megawatts of energy storage). This is about 1600 MW less than what AES had proposed be developed at those two sites, and, in the case of Huntington Beach, is about 300 MW less than would be generated by the CEC-approved project.

As noted in the RBEP PSA, a key reason the Alamitos and Huntington Beach sites were not fully evaluated as possible alternative locations was that such an evaluation would likely delay their AFC processes and would require new analyses and studies. However, with this recent Southern California Edison contract decision, the two sites are likely to require those analyses and studies anyway, as the smaller projects would need to be reconfigured and their impacts and mitigation measures re-evaluated. AES has noted that it expects future solicitations for procurement may allow it to provide additional capacity at both Alamitos and Huntington Beach,⁶ however, absent those currently speculative solicitations, and based on currently available information, both projects are likely to require a revised AFC review. Additionally, and with regards to Redondo Beach, CAISO in 2014 started modeling future generating needs in the area that assume the existing Redondo Beach facility will be shut down in 2020 and will not be replaced.⁷

- **City of Redondo Beach "Measure B" Initiative:** In September 2014, AES requested the CEC suspend its AFC proceedings until after the City could vote on an initiative sponsored by AES that would have resulted in a Master Development Plan for the power plant site. The initiative, "Measure B," proposed removing the power plant and rezoning the parcel to allow for AES's proposed "Harbor Village," a mixed development that

⁵ See, for example, Southern California Edison, *Testimony of Southern California Edison Company on the Results of its 2013 Local Capacity Requirements Request for Offers (LCR RFO) for the Western Los Angeles Basin*, CPUC Proceeding U-338-E, November 21, 2014.

⁶ See November 5, 2014 AES Corporation press release.

⁷ See, for example, CAISO's March 27, 2014 report and presentation to State Water Resources Control Board.

would have included 600 residential units, 85,000 square feet of commercial uses, and 10 acres of open space.⁸ During the campaign, AES stated it could use other sites for electricity generation, though it acknowledged that defeat of the initiative would result in AES re-starting the AFC process and continuing to propose the RBEP. On March 3, 2015, the City's voters rejected the initiative and in a March 20, 2015 letter to the AFC Committee, AES requested the re-start of the AFC process.

After the AFC suspension ended in April 2015, the AFC Committee requested the various parties and interveners report on the status of their AFC review for the proposed RBEP. In its March 20, 2015 letter, AES stated that it was unaware of any changes in conditions or circumstances that would require it to supplement its application or would require that the PSA be updated (see Docket #203925). The City objected and recommended the new information and changed circumstances identified above be incorporated into a revised PSA or in the follow-up Final Staff Assessment (FSA) (see Docket #204108).

Coastal Commission Analysis and Recommended Specific Provisions

To determine whether the proposed project conforms to relevant Coastal Act and LCP requirements, the Coastal Commission recommends that the alternatives analysis provided in the July 2014 PSA be revised and supplemented to include a needs assessment that incorporates the new information and changed circumstances described above. This new information suggests feasible alternatives may exist that would not require filling wetlands at the RBEP site and that would have greater relative merit than the proposed new facility. As described below in Sections D and E of this report, the Coastal Commission has determined that the proposed project is not yet shown to be consistent with several policies of the Coastal Act and LCP, including Coastal Act Sections 30233 and 30264. In such instances, and pursuant to Warren-Alquist Act Section 25525, the CEC may override a proposed project's inconsistencies with "Laws, Ordinances, Regulations, and Standards" ("LORS") and approve a project, but only upon finding the project "is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity."

As noted above, Southern California Edison determined in November 2014 that it would not need to procure electricity generation from Redondo Beach. This raises questions about AES's project objectives and about the current analyses in the PSA that are based on a need for generation at this site. Additionally, and as noted previously, CAISO's current modeling efforts assume no generation from the Redondo Beach site after 2020, and AES has identified alternative uses for the site that do not involve electricity generation.

⁸ In 2013, the City voted against another initiative, "Measure A," which would have required a phase-out of power generation by 2020, removal of the existing plant by 2022, and changed the zoning to allow other uses, including commercial, industrial, and open space.

The new information and changed circumstances affect each component of the current PSA's alternatives analysis:

- **Regarding the “no project” alternative:** The PSA's analysis is based primarily on the existing power plant stopping operations; it did not evaluate the effects of demolishing that facility or redeveloping the site. We recognize that it is unrealistic for the PSA to evaluate specific redevelopment proposals at the site, since possible uses are, at this point, almost entirely undefined and any analysis would be speculative. However, although defeated, the campaign for Measure B demonstrated that there may be viable redevelopment options at the site, given its proximity to the City's harbor area and to nearby existing residential and commercial uses. In addition, during the campaign supporting Measure B, AES stated that it was interested in other uses for the site should it not build the RBEP. Thus, we recommend the PSA's “no project” alternatives analysis and needs assessment be revised to at least include an analysis of the environmental effects of the “no project” alternative if the existing power plant is demolished and the adverse effects resulting from its continued presence at the site – i.e., visual and contamination – are eliminated.
- **Regarding onsite alternatives:** The PSA determined that some alternative configurations might be feasible and could reduce impacts of the RBEP as proposed, but also stated that these configurations were not fully considered because the impacts were not considered significant. However, the PSA assessed only those impacts associated with noise and visual effects. We recommend the PSA's onsite alternatives analysis be revised to also include the loss of 5.93 acres of Coastal Commission-jurisdictional wetlands, which the Coastal Commission considers to be a significant adverse effect. As noted above, this type of wetland loss cannot occur without a finding by the CEC that alternative locations or configurations are infeasible or would cause greater adverse environmental impacts.

The PSA's onsite alternatives analysis was additionally limited by assuming that the existing power plant would have to remain in place until the RBEP was generating electricity. With the recent Southern California Edison contract, this does not appear to be the case. The current contract for the existing power plant runs just until 2018 and its recent operations have been overall curtailed to less than 10% of its capacity. These factors suggest that the existing on-site power plant footprint could be available for the RBEP, should it be built, and could result in avoidance of wetland fill.

- **Regarding off-site alternatives:** The PSA provides two key reasons why it did not fully evaluate the Alamitos and Huntington Beach sites as possible alternatives – first, that both facilities were going through their own AFC processes and that such an evaluation would likely delay those AFC decisions; and second, the need for increased generation capacity at either site could require new transmission capabilities. With the recent CAISO, CPUC, and Southern California Edison decisions regarding the need, amount, and location of gas-fired electrical generation in the Western Los Angeles LRA, it now appears that both Alamitos and Huntington Beach will need to go through revised AFC review. In addition, the amount of procurement at the two sites is within their existing transmission capabilities, so is not likely to require new transmission lines.

Based on the above, the Coastal Commission recommends as a specific provision that the PSA's current alternatives analysis be revised to include a needs assessment that incorporates the above-referenced new information and changed circumstances. In the absence of a revised alternatives analysis, the Coastal Commission is unable to determine that the proposed wetland fill is the least environmentally damaging alternative or that constructing the new facility on this site has greater relative merit than available alternatives. Thus, it cannot find that the proposed project is in conformity with the requirements of Coastal Act Sections 30233 and 30264 and the LCP's Land Use Policy 20.

Nevertheless, should the CEC find that it would be infeasible to revise the PSA's alternatives analysis or that revising it would cause greater adverse environmental effects, we have reviewed the PSA and other docketed documents describing the currently proposed project and have provided in subsequent sections of this report additional Recommended Specific Provisions needed to allow conformity to other provisions of the Coastal Act and LCP.

D. LAND USE

Coastal Act Section 30250 states, in relevant part:

a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.

b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.

City of Redondo Beach, Land Use Element, Coastal-Related Land Uses:

Goal: It shall be the goal of the City of Redondo Beach to:

1C Provide land uses which reflect and capitalize on the City's location along the Southern California coastline.

Objective: It shall be the objective of the City of Redondo Beach to:

1.7 Accommodate coastal-related recreation and commercial uses which serve the year-long need of the residents and visitors and are attractive and compatible with adjacent residential neighborhoods and commercial districts.

Policies: It shall be the policy of the City of Redondo Beach to:

1.7.4 Allow for the continued use of the City's public beaches for coastal recreational uses.

City of Redondo Beach, Land Use Element, Public Infrastructure states, in relevant part:

Goal: It shall be the goal of the City of Redondo Beach to:

1D Provide for the development of public infrastructure to support existing and future residents, businesses, recreation, and other uses.

Policies: It shall be the policy of the City of Redondo Beach to:

1.82 Allow for the continuation of utility corridors, easements, and facilities (sewer, water, energy, storm drainage, telecommunications, and other) to provide for existing and future land development in areas classified as Public ("P") on the Land Use map.

1.84 Develop plans and programs for the reuse of infrastructure and utility properties and easements should they no longer be required for their intended operations.

City of Redondo Beach, Land Use Element, Public and Institutional Uses states, in relevant part:

The Public and Institutional (“P”) designation is comprised of lands that are owned by public agencies, special use districts, and public utilities...”

Goal: It shall be the goal of the City of Redondo Beach to:

1K Provide for public uses which support the needs and functions of the residents and businesses of the City.

Objective: It shall be the objective of the City of Redondo Beach to:

1.46 Provide for the continuation of existing and expansion of governmental administrative and capital, recreation, public safety, human service, cultural and educational, infrastructure, and other public land uses and facilities to support the existing and future population and development of the City.

Policy: It shall be the policy of the City of Redondo Beach to:

1.46.1 Accommodate governmental administrative and maintenance facilities, parks and recreation, public open space, police, fire, educational (schools), cultural (libraries, museums, performing and visual arts, etc.), human health, human services, public utility and infrastructure (transmission corridors, etc.), public and private secondary uses, and other public uses in areas designated as “P” (II.1).

1.46.2 Allow for the reuse of public and utility properties and facilities for private use ... with the type and density/intensity of use to be permitted on the site determined by:

- a. their compatibility with the type, character, and density/intensity of adjacent uses;*
- b. objectives for the area defined by the General Plan;*
- c. contribution of public benefits (e.g., affordable housing);*
- d. revenue contribution to the City; and*
- e. formulation and approval of a specific or development plan (II.5, II.6, II.7).*

The LCP’s Harbor/Civic Center Specific Plan, Catalina Avenue Corridor sub-area policies include:

5.6.1 Goals and Objectives:

- Establish a distinctive district of the City which accommodates a mix of light industrial, automobile related, coastal/harbor related and supporting commercial uses.*
- Ensure that the scale and mix of the various land uses, building densities, and design styles permitted and encouraged within the corridor are appropriate and compatible, both internally (i.e., within the corridor itself) and externally (i.e., to other areas in the Specific Plan area which are adjacent to the corridor), and promote effective use and patronage.*
- Ensure that the physical and environmental (relative to noise, light and glare, and traffic) integrity of the larger, intact, and established lower-density residential areas along the corridor (particularly on the eastern side of the Avenue between Beryl Street and Garnet Street) are respected, maintained, and protected.*
- Recognize the various and significant adverse environmental impacts which the Southern California Edison Company Electricity Plant creates in the local area.*

- *In anticipation of the end of its useful economic and physical life and activity, undertake and pursue (as appropriate and environmentally viable) planning and feasibility studies leading to the ultimate future recycling of the SCE site into a more attractive, modern, and compatible alternative land use.*
- *Work with the Southern California Edison Company during the remainder of the electricity plant's useful economic and physical life, in order to pursue specific, implementable, and enforceable means of mitigating entirely, or reducing, as much as possible, the range of significant environmental impacts that are created and generated upon the community by the day-to-day operation of the facility.*

This section evaluates two distinct elements of the proposed project related to land use. The first element addresses the RBEP's conformity to relevant land use policies of the Coastal Act and LCP and the second addresses land use requirements related to open space.

Project conformity to Coastal Act and LCP policies

Both the CEC and Coastal Commission have identified the proposed RBEP site as being suitable for reasonable expansion of an energy facility. That designation results from studies and mapping conducted by both Commissions to identify areas within the state's coastal zone that were suitable or unsuitable for locating or expanding power plants due to the absence or presence of sensitive coastal resources.⁹ For this RBEP site, the identified expansion area includes the approximately 50 acre site, excluding the existing switchyard.

The proposed RBEP site is within the City's coastal zone and is subject to the City's certified LCP. The site is also within the area covered by the City's Harbor/Civic Center Specific Plan, which was incorporated into the City's LCP in 2010. The Specific Plan encompasses about 355 acres of harbor, pier, shoreline, and adjacent properties. The Plan states that it is the City's "fundamental community development policy document that will govern and determine the development and character of the Harbor/Pier and Civic Center areas of the City..." and that it is to supplement both the City's General Plan and its Local Coastal Program. The Plans overall acknowledge the presence of the existing power plant but also anticipate re-use of the site for non-power plant purposes. For example, both the City's Land Use Element (see for example, Infrastructure Policy 1.84) and the Specific Plan call for different uses of infrastructure and utility sites when they are no longer needed for their intended operations, and the Specific Plan additionally establishes that the power plant site is meant to be developed into a "more attractive, modern, and compatible alternative land use." The RBEP site is also within the Specific Plan's Catalina Avenue Corridor sub-area, which the Plan states is meant to be recycled and upgraded from its present mixed industrial/older commercial uses to more attractive and marine-oriented uses. Therefore, even with the Plans' existing designation of the site for power plant use, the proposed RBEP creates several areas of concern related to conformity to applicable elements of the City's LCP, as described below:

⁹ See Coastal Act Section 30413(b), the Coastal Commission's, *Designation of Coastal Zone Areas Where Construction of an Electric Power Plant Would Prevent Achievement of the Objectives of the California Coastal Act of 1976*, adopted September 1978, revised 1984, re-adopted December 1985, San Francisco, CA, and the CEC's *Opportunities to Expand Coastal Power Plants in California*, Staff Report P700-80-001, June 1980, Sacramento, CA.

- **Potential non-conformity of proposed use:** The LCP designates the proposed RBEP site as “Public and Institutional.” Goal 1K of the LCP states that this designation is meant for public uses that support the needs and functions of the City. Its allowable uses include public utilities and infrastructure, along with open space, parks, schools, libraries, and similar uses.¹⁰ The City’s Land Use Element states that land under the “Public and Institutional” designation is meant for areas owned by public agencies, special use districts, and public utilities. The City defines “public utility” as an entity subject to regulatory oversight by the California Public Utilities Commission.¹¹ As noted above, the existing power plant was formerly owned by Southern California Edison, which is a public utility that still owns the on-site switchyard. However, in 1998, however, Southern California Edison sold the facility to AES, which is not a “public utility” and therefore does not fall within this designation. Under this “Public and Institutional” designation and “public utility” definition, the existing power plant would represent an existing, non-conforming use and the proposed RBEP would be non-conforming.¹²

Nonetheless, the City’s Land Use Element Policy 1.46.2 allows for the reuse of such properties for private use when the proposed use is compatible with the type, character, and density/intensity of adjacent uses, meets objectives of the General Plan, contributes public benefits, and other considerations. However, as noted above in Goal 1K, such uses are to support the needs of the City, which suggests that the PSA’s current needs assessment be revised and supplanted as described in Section C of this report to help determine whether the proposed project conforms to this LCP requirement.

¹⁰ Section 10-2.1100 of the City’s Zoning Code identifies the specific purposes of the Public and Institutional Zone as: “*In addition to the general purposes listed in Section 10-2.102, the specific purposes of the P Public and Institutional zone regulations are to:*

- (a) *Provide lands for park, recreation and open space areas, schools, civic center uses, cultural facilities, public safety facilities, and other public uses which are beneficial to the community;*
- (b) *Establish appropriate and flexible development standards for the development of necessary public uses and facilities;*
- (c) *Allow the Planning Commission and City Council to consider the most appropriate use of a site following discontinuance of a public or utility use without the encumbrance of a pre-determined zoning designation that may or may not provide appropriate regulations for the development of the site;*
- (d) *Ensure that public buildings and uses are designed to be compatible with other buildings and uses on the site and with the neighborhood in which they are located. (Ord. 2756 c.s., eff. January 18, 1996)”*

The City’s Zoning Code further designates the site as “Public – Generating Plant” and requires a conditional use permit for proposed development at the site.

¹¹ Section 10-2.402(128) of the City’s Zoning Code defines “public utility facility” as “*a building or structure used or intended to be used by any public utility including, but not limited to, any gas treatment plant, reservoir, tank or other storage facility, water treatment plant, well, reservoir, tank or other storage facility, electric generating plant, distribution or transmission substation, telephone switching or other communications plant, earth station or other receiving or transmission facility, any storage yard for public utility equipment or vehicles and any parking lot for parking vehicles or automobiles to serve a public utility. The term “public utility” shall include every gas, electrical, telephone and water corporation serving the public or any portion thereof for which a certificate of public convenience and necessity has been issued by the State Public Utility Commission.*”

¹² The PSA (at page 4.2-11) acknowledged a similar situation at one of the sites evaluated in its alternatives analysis. The analysis identified a site in the City of Pico Rivera that is designated for public utility facilities. The PSA noted the RBEP is a private facility that, while similar to a public utility, was not considered a permitted use in that City’s zoning regulations.

- **Resolving conflict among Land Use Element policies:** The proposed project is subject to several potentially-conflicting LCP policies that must be resolved. For example, the above-referenced Policy 1.82 allows for continuation of existing energy facilities while Policy 1.84 anticipates reuse of those types of facilities when they are no longer needed. Similarly, the Specific Plan's Section 5.6.1 anticipates reuse of the site in anticipation of the end of the existing power plant's useful economic life. As detailed above in Section C of this report, recent modeling by CAISO and contracts by Southern California Edison raise questions about whether the RBEP is needed at this location and whether alternative locations or projects might be feasible and less environmentally damaging. At this point in the AFC review, the potential conflict between these LCP policies can be resolved through the alternatives analysis and needs assessment recommended in Section C above.

Coastal Commission Recommended Specific Provision: As noted above, the proposed RBEP's conformity with the site's "Public and Institutional" designation is not supported by the current analyses and the project requires resolving conflict among several policies. Where a proposed facility does not conform to relevant Laws, Ordinances, Regulations, and Standards ("LORS"), Section 25525 of the Warren-Alquist Act allows the CEC to nonetheless approve the proposal, but only upon finding that the facility "is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity." As described in the previous Alternatives section of this report, new information and changed circumstances suggest the RBEP may not be "required for public convenience and necessity," and that there may be feasible alternatives to the facility. Because the proposed project does not conform to elements of the City's LCP, the Coastal Commission recommends the CEC conduct a needs assessment as required pursuant to Section 25525 of the Warren-Alquist Act. The Coastal Commission additionally recommends that this needs assessment be applied to resolve the potential conflict among LCP policies noted above.

Required Open Space

Section 10.5-1100 of the City's LUP states that specific purposes of the Public-Institutional designation include providing land for park, recreation, and open space and other public uses that are beneficial to the community and visitors to the coastal zone. As noted in the PSA, Warren-Alquist Act Section 25529 additionally requires the CEC to provide public access, either on site or nearby, as part of approving a facility to be located in the coastal zone.¹³

¹³ Section 25529 states: "When a facility is proposed to be located in the coastal zone or any other area with recreational, scenic, or historic value, the 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 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."

As currently proposed, the RBEP and the existing Southern California Edison switchyard would occupy about 13 of the site's approximately 50 acres. The PSA notes that AES's AFC describes these 37 acres as "open space," though it does not propose specific uses for that space. The PSA acknowledges that there are many potential uses for all or part of this relatively large area located adjacent to the City's shoreline and states (on page 4.6-8) that "[s]ince the project as proposed would result in such a large open area, opportunities may exist to utilize a portion of the site, which is already under the control of the applicant, rather than acquiring additional lands to meet the public use area requirement. Staff will continue to work with the applicant, the city of Redondo Beach, and the California Coastal Commission to determine how the project would comply with the Warren-Alquist Act requirement to establish an area for public use." Given the site's location within the coastal zone and its proximity to the shoreline, any of several types of development could occur within the site or nearby that would further other provisions of the LCP and Coastal Act that emphasize visitor-serving uses, public access to the shoreline, or coastal-dependent or coastal-related uses.

Coastal Commission Recommended Specific Provision: The PSA includes four recommended Land Use Conditions of Certification that address on-site parking, facility signage, and lot line adjustments. As noted previously, these conditions are subject to change should the PSA's Alternatives Analysis be re-evaluated to incorporate new information and changed circumstances. However, should the CEC approve the current proposal at this site, we recommend adding the following condition to ensure the LCP's open space policy is implemented in a manner consistent with other applicable policies of the LCP and Coastal Act:

"Condition LAND-5: Upon Energy Commission approval of the AFC, the project owner, in coordination with the Energy Commission Compliance Project Manager, the Coastal Commission, and the City of Redondo Beach, shall develop a proposed open space plan that is consistent with the requirements of Warren-Alquist Act Section 25529 and with relevant policies of the City's LCP and Coastal Act. The Plan shall include:

- a) A description of the location and size of the proposed open space as related to the shoreline, public accessways, and components of the RBEP; and,**
- c) A detailed description of proposed development of the open space, including proposed uses, supporting facilities, improvements, and other features.**

The project owner shall also identify all measures to be implemented to ensure timely construction of the proposed development and shall identify measures needed to legally protect the proposed development and its associated uses. The Compliance Project Manager may approve the proposed plan after consultation with the Coastal Commission to determine its conformity to relevant Coastal Act and LCP policies."

Conclusion

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

E. WETLANDS

Coastal Act Section 30231 and LUP Section VI, Subsection D – Land Use, Policy 20 state:

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 and LUP Section VI, Subsection D – Land Use, Policy 21 state, 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.*
- (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (6) Restoration purposes.*
- (7) Nature study, aquaculture, or similar resource-dependent activities.*

Applicable Coastal Act and LCP provisions require generally that biological productivity in wetlands be protected and allowable uses in or near wetland areas be limited. While much of the RBEP site has been developed for more than a century, it contains areas of Coastal Commission-jurisdictional wetlands. Based on wetland data provided by AES, observations made during a site visit by the Coastal Commission ecologist, and review of historic information by both Energy and Coastal Commission staff, project construction would result in fill and removal of about 5.93 acres of Coastal Commission-jurisdictional wetlands (the Commission's *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone* is available at: <http://www.coastal.ca.gov/wetrev/wettc.html>).

Background: The northern and eastern areas of the site include bermed retention basins that formerly held fuel oil tanks and associated infrastructure used by the power plant. The tanks were retired in the 1990s and were removed in 2006. As noted above, this northeastern part of the project site was known previously as the “Old Salt Lake.” Despite over a century of industrial development at the site, parts of the site have apparently continued to exhibit wetland characteristics during that time. As noted in the PSA, the current power plant was built on fill ranging in thickness from about one to 12 feet, with the thinnest fill at the bottom of the retention basins. With the minimal amount of fill at the retention basins and their location atop the former lakebed, the area has continued to exhibit wetland characteristics despite this previous development.

Wetland Determination: The determination that wetlands are present within the RBEP footprint is based in part on information derived from January 2013 wetland data sheets provided by AES and during a follow-up site visit by the Coastal Commission staff ecologist in January 2014 (see **Exhibit 6 – Wetland Sampling Locations**). Coastal Commission staff has also reviewed several documents describing the history of the site, including those provided as part of the PSA’s Cultural Resources section.

As shown on **Exhibit 6**, the AES wetland survey included samples taken at 12 locations within the proposed RBEP footprint. That survey did not include a wetland delineation – i.e., it did not include paired sampling locations to identify wetland boundaries – so the acreage determination is based on a combination of data from the sampled sites and observations made by the Coastal Commission’s biological staff during the site visit and from aerial photos. A February 5, 2014 letter from Coastal Commission staff to CEC staff (Docket #201639) notes that the data from AES’s wetland data sheets and the field conditions at the time of the site visit indicate that the site includes several areas totaling between five and six acres that exhibit one or more of the three parameters used to determine the presence of Coastal Commission-jurisdictional wetlands (see also Docket #202334, which provides the Coastal Commission ecologist’s notes from the site visit). Those areas exhibited ponded water, showed evidence of hydric soils, or presented a preponderance of hydric vegetation, any one of which could serve as the basis for determining the area met the Coastal Commission’s wetland definition.¹⁴ The letter further notes that Coastal Commission staff provided guidance to AES should it wish to conduct a wetland delineation to better identify some of the wetland areas. As described in the PSA, CEC staff later provided more detailed review and estimated that areas with evidence of Coastal Commission-jurisdictional wetlands total approximately 5.93 acres, as described below:

- **Former Tank 1 (location of Sampling Points 03 and 04):** This former tank location was almost entirely surrounded by water, and areas without standing water had saturated soil. There were several large patches of wetland plants in the area, including floating mosses, creeping bentgrass (*Agrostic gigantea*), and variable flatsedge (*Cyperus difformis*). The entire former tank footprint had evidence of hydrology including several primary indicators such as

¹⁴ Coastal Commission staff also concluded that certain sampled areas within the site were not Coastal Commission-jurisdictional wetlands. These included the two holding areas in the North Retention Area, which is lined and has no connection to the underlying substrate or groundwater table, the South Retention Basin, which remains in use for stormwater collection, and the Former Tank 5 area, which is at a slightly higher elevation than the other former tank areas and showed no evidence of wetland characteristics.

surface soil cracks, salt crust, and aquatic invertebrates. The AES data sheet for Sampling Point 03 describes evidence for all three wetland parameters along the perimeter at Sampling Point 03, while the data sheet for Sampling Point 04, near the center of the former tank site, describes evidence for wetland hydrology. The area was also being used by several waterfowl species, including ducks and a snowy egret. Based on the data and the Commission ecologist's observations, about 1.35 acres are considered Commission-jurisdictional wetlands.

- **Constructed Pit (location of Sampling Point 06):** This area was dry at the time of the site visit, but exhibited evidence of wetland hydrology, including several primary indicators such as surface soil cracks, salt crust, and biotic crust. The wetland data sheet describes evidence for all three wetland indicators – hydrology, hydric soils, and hydric vegetation. This area includes about 0.08 acres of Commission-jurisdictional wetland.
- **Former Tank Area 2 (location of Sampling Points 07 and 08):** This former tank location was completely surrounded by water. There were several large patches of wetland plants growing within this area, including areas of floating moss, creeping bentgrass (*A. gigantea*), and variable flatsedge (*C. difformis*). Although not able to access the former tank footprint in the center of the site, the Commission's ecologist was able to observe primary indicators of hydrology, including surface soil cracks and salt crust. The data collected at Sampling Points 07 and 08 describe evidence of wetland hydrology and hydric soils. Further, and similar to the Former Tank 1 area, there were several waterfowl, including ducks and snowy egrets using the area. Based on the data and observations, about 1.42 acres of the area are considered Commission-jurisdictional wetlands.
- **Former Tank 3 (location of Sampling Points 09 and 10):** The former Tank 3 footprint was almost entirely surrounded by water, and included a row boat in one corner of the area. Wetland vegetation included patches of moss in and on the water and creeping bentgrass (*A. gigantea*). The Commission staff ecologist observed primary indicators of hydrology in the former tank footprint in the form of surface soil cracks and salt crust. The data collected from Sampling Point 09 indicated evidence of wetland hydrology and the data from Sampling Point 10 indicated evidence of both wetland hydrology and hydric soils. The Commission ecologist determined that the entire area, about 1.59 acres, met the definition of Commission-jurisdictional wetlands.
- **Former Tank 4 (location of Sampling Point 12):** At the time of the site visit, there was no standing water or vegetation in the area; however, much of the area showed evidence of wet soil and there were several indicators of primary wetland hydrology, including water marks, salt crust, and surface soil cracks. The data from Sampling Point 12, at the perimeter of the area, did not show evidence of wetland hydrology or vegetation, or hydric soils; however, the Commission ecologist's observations suggest a majority of the area – about 75% – would map as Commission-jurisdictional wetlands. This represents approximately 1.49 acres of Commission-jurisdictional wetlands.

In May and June 2015, AES submitted requests that CEC and Coastal Commission staffs reconsider their determinations that the area contained wetlands (see Docket #204609 and #204902). AES stated that there are no Commission-jurisdictional wetlands on site and that any wetland characteristics within the site were artificial hydrologic features resulting from water moving to the site from a series of injection wells located from about one-half mile to a mile from the site and operated by the West Basin Water District. The Water District has operated the injection wells since the 1960s to provide a salt water intrusion barrier. AES stated that this injection well program created an artificially high groundwater table, which led to AES installing and operating a dewatering system at the site meant to keep groundwater about three to five feet below the ground surface. AES stated that, in 2012, it determined its dewatering system was underperforming and allowing wetland hydrology and hydric soils to develop at the site. AES replaced one pump in December 2014 and plans to replace another in June 2015. AES did not indicate that it had conducted the wetland delineation Coastal Commission staff had recommended AES conduct in its February 2014 letter.

In June 2015, the City submitted comments (Docket #204908) on the PSA, including its perspective on the PSA's wetland description and recommended conditions. The City concurs with the PSA's conclusion that about 5.93 acres of Commission-jurisdictional wetlands are present at the site and would be adversely affected by the RBEP. It recommends that AFC Committee reject AES's contention that the site contains no wetlands and to require the mitigation as described in the PSA. The City states that AES's claim that there are no wetlands on the site is "not based on any substantial data and is speculative at best."

Commission staff re-examined the wetland data along with additional available data about the site, including information in the PSA's Cultural Resources section describing the "Old Salt Lake," and historic aerial photos of the site.¹⁵ Portions of the site appear to have exhibited wetland characteristics at numerous times during the past century, including before the Water District's injection well pumping system was installed and during power plant operations. It appears that, instead of the injection well system creating artificial hydrology, the power plant's dewatering system has acted to sometimes mask existing wetland characteristics within the site and these characteristics appear to be present even when the system is apparently functioning as intended. The PSA also notes (at page 4.3-27) that the water in these areas consists of not only the treated water from the Water District's system but also includes salt water, which suggests a continuing hydraulic connection between the remnants of the Old Salt Lake and/or underlying seawater. The long-term presence of the existing wetlands is additionally supported by the presence of hydric soils, as noted on several of the Wetland Data Sheets.

Although Coastal Commission staff initially suggested that AES may wish to conduct a wetland delineation and the PSA states that AES may wish to conduct a follow-up survey to confirm or modify this current wetland determination, AES's recent proposal to install and operate new pumps would likely further mask or remove the wetland features already identified on the site. The City, too, suggested that AES collect additional data over no less than one year and preferably two years to better establish baseline wetland conditions in the area, and that it follow

¹⁵ See also, for example, documentation on <http://www.oldsaltlake.org/> and photos of the site (from 2004 – current) on Google Earth.

the data collection with a formal wetland delineation (see Docket #204908). However, while an extensive sampling effort may more accurately define the presence and extent of wetlands on site, it would require the AFC Committee to allow for a substantial extension of the AFC schedule. Absent such an extension, the Commission is basing its determination on the available “on-the-ground” data already provided.

Coastal Commission Recommended Specific Provision: The proposed project would result in filling and loss of approximately 5.93 acres of Coastal Commission-jurisdictional wetlands. Coastal Act Section 30233 allows for this type of fill for expanded energy facilities such as this proposed project, but only if there are no feasible less environmentally damaging alternatives and where feasible mitigation methods are provided to minimize adverse environmental effects. Coastal Act Section 30230 additionally requires that the biological productivity of wetlands be maintained and restored.

The Coastal Commission is unable to make the determination required pursuant to Section 30233 that there are no feasible and less environmentally damaging alternatives to the wetland fill because the available evidence does not currently demonstrate that this project represents the least damaging alternative. To make its determination, the Coastal Commission recommends that the new information and changed circumstances described in Section C of this report be incorporated into a revised alternatives analysis and needs assessment. As the available evidence does not demonstrate that the project is the least environmentally damaging alternative, the proposed project, as currently described, is inconsistent with Coastal Act Section 30233.

Should the CEC not provide the recommended revised alternatives and needs assessment or otherwise determine the proposed project is the least environmentally damaging and feasible alternative, Sections 30230 and 30233 also require that the project maintain biological productivity and to mitigate adverse impacts to the extent feasible. The PSA partially addresses these requirements through its recommended **Condition BIO-9**, which is meant to address the project’s adverse impacts to wetlands. **Condition BIO-9** would require AES to fund a compensatory mitigation project that restores or enhances nearby wetlands. CEC staff propose that the resulting mitigation be based on a 3:1 acreage ratio – that is, AES would be required to fund the restoration or enhancement of 17.19 acres of wetlands nearby to make up for the loss of 5.93 acres of onsite wetlands.

For several reasons, however, the Coastal Commission generally requires a 4:1 replacement ratio for these types of restoration and enhancement projects. For instance, these projects usually involve some degree of temporal loss of wetlands – between the times the wetland is filled and the restoration or enhancement site meets performance standards and replaces the lost wetland functions and values. The higher required ratio also recognizes the partial or full lack of success for many proposed restoration or enhancement projects, due to inadequate hydrology, planting failure, or other reasons. Further, the Coastal Commission generally does not recognize funding alone as an adequate compensatory mitigation measure, as funding does not in and of itself ensure biological productivity or ensure successful mitigation. To allow a mitigation project to be fully consistent with the Coastal Commission’s wetland policies and requirements, the Commission usually requires submittal of a mitigation plan that includes adequate performance criteria, monitoring requirements, and contingency measures that help ensure wetland impacts

are fully mitigated. The Commission has determined these measures are both feasible and necessary to provide conformity to the above-referenced policies, and we have modified **Condition BIO-9** below to include these requirements. We therefore recommend that **Condition BIO-9** be modified as shown below:

“BIO-9: Prior to the start of project operation construction the project owner shall provide funding to support an existing or soon to be established salt marsh or estuary habitat restoration project to fully mitigate for impacts to Coastal Commission wetlands. Permanent impacts shall be mitigated at a ~~3:1~~ **4:1** ratio. Mitigation shall occur as close to the site of impact as possible. Mitigation shall be in kind and consist of at least ~~17.79~~ **23.72** acres of salt marsh or estuary habitat restoration.

Mitigation shall occur at up to two sites with an established wetland restoration program such as Huntington Beach Wetlands Restoration Project (includes Magnolia Marsh, Talbert Marsh, and Brookhurst Marsh), Bolsa Chica, Long Beach, and/or the soon to be established Los Cerritos Wetlands or any other wetland restoration program approved by the CPM in consultation with the Coastal Commission.

Verification: At least 90 days prior to the start of project operations, the project owner shall submit the restoration program(s) the project owner wishes to participate in for approval by the CPM (in consultation with the Coastal Commission). At least 60 days prior to the start of project operation the project owner shall submit a Restoration Management Plan or similar plan (used by the land manager) that discusses the details of the wetland restoration program to the CPM. **The Plan shall include:**

- a. **A detailed review of existing physical, biological and hydrological conditions at the site(s), including vegetation present, hydrologic regime of the site(s), known or expected fauna at the site(s), including any known or expected listed sensitive species, known or suspected contaminants that may be present at the site(s), and an analysis of existing ecological functions and values at the site(s). The review shall also identify any known site constraints that may limit successful creation or restoration efforts.**
- b. **A description of legal interests at the site(s), and any landowner approval that the project owner may need to use the proposed site(s) for wetland creation or restoration.**
- c. **Proposed goals, objectives and performance criteria for the proposed mitigation site(s) that identify specific creation or restoration measures to be implemented, including proposed habitat types to be created or restored, grading and planting plans, the timing of the mitigation measures, and monitoring that will be implemented to establish baseline conditions and to determine whether the sites are meeting performance criteria. Monitoring shall be for at least 5 years and final monitoring for success shall take place after at least 3 years with no remediation or maintenance other than weeding. The Plan shall also identify contingency measures that the project owner will implement should any of the mitigation sites not meet performance criteria.**

These goals, objectives, and performance criteria shall include:

- i. **Creation or restoration of habitat types that will support wetland-dependent species and may support rare or endangered species.**
 - ii. **Created or restored areas shall be provided a buffer of a size adequate to ensure protection of wetland functions and values, and at least 100 feet wide, as measured from the nearest upland edge of the transition area. The Plan may propose a lesser buffer width if the mitigation area is sited within existing wetland areas that are protected by a buffer meeting these criteria.**
 - iii. **The Plan shall identify measures to be implemented if soil or groundwater contamination is found at the site(s).**
 - iv. **The Plan shall include a planting program that includes initial and ongoing removal of invasive or non-native species and identifies the vegetation species to be planted, local sources of those plants or seeds, measures needed to protect any existing native wetland vegetation species, timing of planting, plans for irrigation if needed to establish plants, and locations of plants. The Plan shall also identify soil sources and amendments to be used.**
 - v. **The Plan shall include a formal sampling design to assess performance criteria and shall identify the means by which success will be assessed. Where statistical tests are used, the plan shall include a requirement for a statistical power analysis to demonstrate that there will be sufficient replication to enable a robust test with beta equal to alpha.**
 - vi. **Creation and/or restoration shall be completed concurrent with construction of the Redondo Beach Energy Project.**
- d. **Topographic drawings for the final mitigation site(s) and construction drawings, schedules, and a description of equipment to be used in the project.**
 - e. **The Plan shall provide for submittal of "as-built" plans and annual monitoring reports for no less than five years or until the sites meet performance criteria.**
 - f. **The Plan shall include provisions that, if after five years the restoration has not achieved the success criteria, the project owner shall submit within 90 days a revised or supplemental plan to compensate for those portions of the original plan which did not meet the approved success criteria.**
 - g. **The Plan shall identify legal mechanism(s) proposed to ensure permanent protection of the mitigation site(s) – e.g., conservation easements, deed restriction, or other methods.**

No less than 30 days prior to the start of project operation, the project owner shall provide a written verification to the CPM that the endowment has been paid in full to the land manager approved by the CPM (in coordination with the Coastal Commission in accordance with this condition of certification. The project owner shall provide evidence that it has specified that its ~~annual~~ payment from the endowment to the third party(ies) approved by the CPM can be used only to assist in coastal wetland restoration to mitigate the project's effects for the loss of Coastal Commission wetlands. Thereafter, within 30 days after each anniversary date of the commencement of project operation, the project owner shall obtain an annual report from

the land manager administering the restoration program(s), as approved by the CPM. The annual reports will document how each annual payment from the endowment required hereunder was used and applied to assist in **provide** wetland habitat restoration/enhancement at approved locations **and shall describe how implementation of the mitigation conformed to the above goals, objectives, and performance criteria.** The project owner shall provide copies of such reports to the CPM within 30 days of receipt. This verification shall be provided annually for the operating life of the project.”

Conclusion

The Coastal Commission finds that the project as currently proposed and evaluated does not conform to the requirements of the above-referenced Coastal Act and LCP policies.

Should the project’s alternatives analysis and needs assessment be revised and supplemented as recommended above, and they demonstrate that the proposed project is the least environmentally damaging and feasible alternative, then the second part of the Section 30233 test for conformity would be met. With incorporation of the modified Condition BIO-9 above, the project could also be found consistent with the third test of Section 30233.

F. COASTAL HAZARDS – SEISMIC, FLOODING, TSUNAMI, AND SEA LEVEL RISE

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.*

The City's LUP Section VI, Subsection D – Land Use, Policy 13 states, in relevant part:

Hazards

Development in Redondo Beach shall be sited and designed to minimize hazards from wave uprush and from geologic hazards including seismic hazards such as liquefaction.

- a. New development shall minimize risks to life and property in areas of high geologic flood and fire hazard. Development shall assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. Development shall proceed only if the Director of the Department of Building and Safety determines that there is sufficient evidence that the structure may be constructed and maintained safely. All development shall employ earthquake resistant construction and engineering practices.*

...

- d. All structures located on fill or on alluvial deposits shall provide analysis of the potential for seismic hazards including liquefaction. The design of such structures shall include measures to minimize damage and loss of property from such hazards. All earthquake studies shall also comply with the latest recommendations of the California Geological Survey and Geology and the Seismic Safety Commission and shall adhere to all applicable building codes.*
- e. All development located within the tsunami inundation zone as identified by the most recent state or local California Emergency Management maps or, below elevation 15 above mean sea level shall provide information concerning the height and force of likely tsunami run-up on the property. The Director may waive this requirement if he or she determines that accurate maps concerning the extent, velocity and depth of likely tsunami run-up is available in a certified EIR that addresses all pier, harbor, and beach areas of the City. The Director shall require all development located within a possible tsunami run-up zone to install, as appropriate, warning systems and other measures to minimize loss of life due to a tsunami.*

...

The LCP's Land Use Plan Implementing Ordinance Section 10-5.1542 – Geologic hazards states, in relevant part:

- (a) The applicant for any development located below elevation fifteen (15) feet above mean sea level shall provide information concerning the height and force of likely tsunami run-up on the property. The Community Development Director may waive this requirement if he or she determines that accurate maps concerning the extent, velocity and depth of likely tsunami run-up is available in a certified EIR that addresses applicable beach areas of the City. The Community Development Director shall require all development located within a possible tsunami run-up zone to install, as appropriate, warning systems and other measures to minimize loss of life due to a tsunami.*
- (b) ...*
- (c) If the development proposed is located on an existing slope greater than 2:1 or on artificial fill, new construction may be permitted only on the basis of detailed, site specific geologic and soil studies.*
- (d) All structures located on fill or on alluvial-deposits shall provide an analysis of the potential for seismic hazards, including liquefaction. The design of such structures shall include measures to minimize damage and loss of life and property from such hazards. All earthquake studies shall also comply with the latest recommendations of the California Department of Mines and Geology and the Seismic Safety Commission and shall adhere to all applicable building codes.*
- (e) All development located below elevation 15 feet above mean sea level shall provide information concerning the height and force of likely tsunami run-up on the property. The Director may waive this requirement if he or she determines that accurate maps concerning the extent, velocity and depth of likely tsunami run-up is available in a certified EIR that addresses all pier, harbor, and beach areas of the City. The Director shall require all development located within a possible tsunami run-up zone to install, as appropriate, warning systems and other measures to minimize loss of life.*
...
- (f) If the development proposed is located on an existing slope greater than 2:1 or on artificial fill, new construction may be permitted only on the basis of detailed, site specific geologic and soil studies.*

The Coastal Act and LCP generally require that development proposed in the coastal zone assure structural stability and be sited and designed to avoid or minimize hazards resulting from seismic events, floods, tsunamis, and other coastal and geologic hazards. The site of the proposed RBEP is subject to several types of relatively severe geologic hazards, including ground shaking, liquefaction, and tsunami runup, any of which could occur during the project's expected 40-year operating life. In addition, the expected increase in sea level described above will increase the risk from some of these hazards during the project's operating life. The site's setting and its specific hazards are briefly described below, followed by several recommended conditions to allow the proposed facility to more fully conform to relevant Coastal Act and LCP policies.

Site Setting and Associated Hazards

Seismic hazards: The RBEP site is located in a seismically-active region of Southern California. The site is not within a designated Alquist-Priolo Earthquake Fault Zone; however, the site and proposed RBEP could be affected or damaged by a number of regional faults, including the San Andreas, San Jacinto, Elsinore, Whittier, Newport-Inglewood, Palos Verdes, San Diego Trough, and San Clemente fault zones, along with several individual nearby faults.

- **Surface Fault Rupture:** The PSA notes that the proposed RBEP site is likely not subject to surface fault rupture, as the nearest known fault is about three miles distant.
- **Ground Shaking:** The PSA identifies a range of potential ground motions at the site expected from several different seismic events and based on different modeling approaches.¹⁶ Possible rates of ground acceleration range from 0.626g (long period) up to 1.636g (short period), which represent relatively severe levels of ground movement. Structural measures needed to respond to ground motions at the upper end of this range could require substantial alterations to the facility as it is currently proposed.
- **Liquefaction:** Liquefaction occurs in certain soils during seismic events. It results in the soil losing its strength and acting similar to a liquid, often resulting in collapse or damage to overlying structures. Liquefaction is more common in saturated, granular, and loosely deposited soils, such as those found beneath the RBEP site. The site is adjacent to a mapped Liquefaction Investigation Zone on the state's California Seismic Hazard Zone Map for this area. These zones are areas where "historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacement such that mitigation as defined in Public Resources Codes Section 2693(c) [Seismic Hazards Mapping Act] would be required." The PSA states that preliminary sampling and testing at the site indicate potentially liquefiable soils are present at depths between two and 38 feet below the ground surface.
- **Lateral Spread:** Lateral spread occurs when soils on flat to gently sloping surfaces above liquefiable soils and adjacent to an unsupported slope move in response to a seismic event – it is essentially a landslide that occurs on nearly flat ground. The PSA notes that preliminary investigations concluded that site hazards from lateral spread are not significant, but that the potential must be investigated further through a project-specific geotechnical report.
- **Compressible Soils and Dynamic Compaction:** These phenomena can occur when unconsolidated, granular soils are vibrated during a seismic event and result in settling of the ground surface and underlying materials.

¹⁶ See PSA's Geology & Paleontology Section 5.2.

Flood and Tsunami Hazards:

- **Flooding:** The PSA describes the proposed project as having final grades of between 13 and 17 feet above current sea level. As mapped by the Federal Emergency Management Agency (“FEMA”), the site is within the Zone X designation, which places it above the current 100-year flood elevation, but within the area subject to a 500-year flood event. The final grades of project components range from between 13 and 17 feet above sea level, while the FEMA flood maps identify the Redondo Beach 100-year flood elevation as seven feet above sea level. Even with a projected three-foot rise in sea levels by 2060 (see below), most of the site and structures would be above the 100-year flood elevation.
- **Tsunami Hazards:** Although most of the site is located several hundred yards inland from the shoreline, portions of it are subject to tsunami hazards. The most seaward portion of the site is within the tsunami runup zone identified in the 2009 California Geological Survey *Tsunami Inundation Map* for the Redondo Beach area. This 2009 Map is based on the maximum expected inundation an area could experience from either far-field tsunamis (i.e. those tsunamis that are generated far from Redondo Beach) and from locally generated or near-field events. For each mapped area of the coast, the CGS identified expected inundation levels for every 30-meter grid within the modeled runup zone. The PSA notes that at this location, expected inundation levels range from up to seven to 11 feet above current mean sea level. As evidenced by recent tsunami events worldwide, an 11-foot tsunami can cause significant adverse impacts. However, at this site, the maximum expected inundation would reach the western property boundary and would not be expected to affect the RBEP located several hundred feet further inland (see also Sea Level Rise below).

Sea Level Rise: California has adopted the 2013 *State of California Sea-Level Rise Guidance Document* (“*State Guidance Document*”), based on guidance from the 2012 NRC Report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*.¹⁷ These documents, considered the current best-available science on sea level rise projections, anticipate sea level rise of up to two feet by 2050 and up to 5.5 feet by 2100 along this part of the Los Angeles County shoreline. These projections are also consistent with the Commission staff’s recently published draft guidance for incorporating sea level rise hazards and projections into LCP and coastal development permit review. The PSA states that the proposed project has an expected 40-year operating life, which would extend to approximately 2060. According to the current projections used by the state, this would subject the facility to hazards associated with up to about three feet of sea level rise.¹⁸

¹⁷ 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.

¹⁸ The results of using the two methods in the *State Guidance Document* to calculate expected sea level rise for years other than 2050 and 2100 show that the Redondo Beach coastal area should expect between approximately 32 and 38 inches of sea level rise by 2060. The PSA cites a lower level of about 17 inches.

The *State Guidance Document* cautions that its sea level rise projections likely underestimate the amount of increase and that uncertainties about these projections increase as planning timeframes increase – i.e., they are likely more accurate for the immediate couple of decades and less so for subsequent decades. It notes that the rate of sea level rise is not expected to be linear and that it is likely to rise faster later in this century. The *State Guidance Document* recommends 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. It also recommends that consideration be given to the project’s adaptive capacity, impacts, and risk tolerance for projects such as the RBEP that have an expected operating life beyond 2050.¹⁹

Importantly, and as noted in the *State Guidance Document*, the expected increase in water levels are likely to occur not just several decades in the future, but also during shorter-term events in the very near future, due to 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.

The project site varies from about three to twenty feet above mean sea level (“msl”). Most of the RBEP footprint would be at a grade of about 17 feet above msl, though the project also includes development that extends several feet below grade. As noted above, the site is underlain by relatively high groundwater levels, which in some locations are just a foot or two below the existing ground surface and about two feet above mean sea level. The combination of below-grade development and the relatively high groundwater table, in association with expected increases in sea level, make those below-grade portions of the RBEP below about five feet msl somewhat susceptible to both direct and indirect effects of sea level rise, such as increased potential for liquefaction, lateral spread, salt water intrusion into foundations, and other similar risks. The approximately three feet of sea level rise expected during the facility’s operating life also increases the risk that portions of the site, though not the RBEP itself, could be adversely affected by tsunami runup – i.e., instead of the currently projected maximum of about 11 feet above mean sea level, runup could reach about 14 feet above current mean sea level. Therefore, although the project site is about several hundred yards from the current shoreline, site conditions and its location make it likely that, unless mitigated, the facility will be affected by the predicted higher water levels during its operating life.

Analysis of Conformity to Coastal Act and LCP Policies

As noted above, the Coastal Act and LCP require proposed development to assure structural stability and not contribute to geologic instability. The LCP further requires that structures such as the RBEP that are proposed to be sited on fill be designed and sited to minimize damage from liquefaction and seismic events.

¹⁹ 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.

Development proposed within a tsunami inundation area, including any development below 15 feet above mean sea level, must be designed and sited to address the potential height and force of possible tsunamis. This includes some below-grade components of the RBEP. Other than locating proposed facilities entirely 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 likely 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 would 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 measure is to locate hazardous materials above the expected runup elevations or within structures that can resist the expected tsunami forces. A 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.

The PSA includes several proposed conditions to address the above-identified risks. They include proposed **Condition GEO-1**, which would require AES to conduct geotechnical engineering analyses and prepare an engineering report that more specifically describes the site's seismicity and anticipated geologic hazards. **Condition GEO-1** would also require that report to include recommended measures to respond to the identified hazards. Proposed **Condition GEN-1** would require AES to design and construct its facility consistent with the requirements of the state's Building Codes, and proposed **Condition GEN-2** would require AES to submit engineering designs consistent with relevant requirements, including those related to storage, containment, or handling of hazardous materials. **Condition GEN-5** requires AES to use licensed engineers, engineering geologists, and other similarly accredited personnel to review the various geotechnical analyses, design the facility plans, and consult as needed during construction. This approach is largely consistent with relevant Coastal Act and LCP policies listed above. However, along with the recommended revised alternatives analysis and needs assessment, we are recommending several modifications to one of the proposed conditions to allow conformity to those policies.

Coastal Commission Recommended Specific Provisions

As noted above, the Coastal Commission recommends that the PSA's alternatives analysis be revised to incorporate new information and changed circumstances, including the potential availability of two other power plant sites – Alamitos and Huntington Beach – that may provide feasible alternatives to this proposed project. With the relatively high level of potential seismic activity at the proposed RBEP site – e.g., ground motion of up to 2.400 g, relatively deep liquefiable soils, potential damage from tsunami runup, etc., we recommend the revised

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

alternatives analysis compare the relative coastal and geologic hazards of the three sites to help determine whether a suitable alternative is feasible.

Should the revised alternatives analysis not be done, or if the CEC determines that the proposed RBEP site is the least environmentally damaging and feasible alternative, we recommend the PSA's proposed Condition GEO-1 be modified as shown below. The modifications are meant to allow conformity with Coastal Act Section 30253's requirement that new development minimize risks to life and property in areas with high risk resulting from the above phenomena and to ensure stability and structural integrity of the proposed project, and to the associated LCP policies noted above:

GEO-1: "A Soils Engineering Report as required by Section 1803 of the California Building Code (CBC 2013), shall specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of seismicity; liquefaction; dynamic compaction; compressible soils; corrosive soils; and tsunami that incorporates the high range of expected sea level rise during the anticipated project life. In accordance with CBC 2013, the report should also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.

Verification: The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for strong seismic shaking; liquefaction; dynamic compaction; settlement due to compressible soils; corrosive soils; and tsunami, and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the Chief Building Official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to the CPM at least 30 days prior to grading."

Conclusion

The Commission finds that inclusion of the above-recommended Recommended Specific Provisions would allow the proposed project to be consistent with relevant policies of the Coastal Act and LCP.

ATTACHMENT A – SUBSTANTIVE FILE DOCUMENTS

California Coastal Commission, *Designation of Coastal Zone Areas Where Construction of an Electric Power Plant Would Prevent Achievement of the Objectives of the California Coastal Act of 1976*, adopted September 1978, revised 1984, re-adopted December 1985, San Francisco, CA

California Coastal Conservancy, *Analysis of the Need for Generating Capacity at the Redondo Beach Generating Station*, October 2011, Oakland, CA.

California Energy Commission, *Opportunities to Expand Coastal Power Plants in California*, Staff Report P700-80-001, June 1980, Sacramento, CA.

California Energy Commission, Preliminary Staff Assessment and associated docketed documents for 12-AFC-03, Application for Certification for AES Southland, LLC Redondo Beach Energy Project, filed prior to June 22, 2015.