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STATE OF CALIFORNIA

ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the matter of: Application for Certification of the **PUENTE POWER PROJECT**	DOCKET NO. 15-AFC-01 **CITY OF OXNARD'S BRIEF REGARDING THE CAISO STUDY, ALTERNATIVES, AND COMPLIANCE WITH THE REQUIREMENTS OF PUBLIC RESOURCES CODE SECTION 25525**

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Introduction

The California Independent System Operator's study of preferred resource alternatives confirms the Puente Power Plant is an oversized, inefficient, and unnecessary response to the Local Capacity Requirements identified for the Moorpark subarea. The identified need as it exists today can be met with a much smaller solicitation of resources and a much broader range of technologies. Had an analysis of Puente's environmental impacts, its reliability challenges, and feasible project alternatives been conducted before the Puente contract was approved by the California Public Utilities Commission, Puente would not even be under consideration today. The project directly violates the City's coastal land use policies, and is an affront to coastal planning and adaptation efforts of the City and the state Coastal Conservancy. It would destroy wetlands and sensitive habitat on the project site, and impose additional recreational and air quality impacts on Oxnard's environmental justice community. At its core, Puente threatens to prolong a legacy of environmental injustice that has burdened Oxnard residents for decades.

As the record unequivocally demonstrates, a feasible alternative to Puente exists. In addition to the preferred resource alternatives described by CAISO and discussed below, multiple options exist to meet the LCR need. These include the Mission Rock facility or a combination of preferred resources and, if necessary for local reliability, a small (e.g. 50 MW) peaker. Any of these alternatives would avoid Puente's inconsistencies with state and local laws and its significant environmental impacts. Because the Commission cannot make the findings necessary to override the sovereign

jurisdiction of the City of Oxnard or the mandates of state law, it may not approve the Puente project.

I. The Energy Commission Cannot Make the Findings Required to Override State and Local Laws Under Public Resources Code Section 25525 and It Cannot Approve the Project Under The California Environmental Quality Act.

Two independent legal requirements preclude approval of the Puente Project. First, the Warren-Alquist Act generally prohibits the Commission from certifying a new energy facility that does not conform with applicable state, local, or regional laws or standards ("LORS").[1] The Commission may only override violations of LORS and issue a certification for a new facility if the Commission finds *both* "that the facility is required for public convenience and necessity," *and* that "there are not more prudent and feasible means of achieving public convenience and necessity."[2]

Here, as explained in the City's opening and reply briefs, Puente directly conflicts with multiple State and City LORS that would apply absent the Commission's jurisdiction. These conflicts trigger the requirement for override findings before the Commission may issue a certification. But the record before the Commission does not support either of the two override findings. Consequently, the Commission cannot approve the project. Moreover, the Commission should act with great caution in this case where Puente would violate express protections provided by state statute (most significantly, California's Coastal Act and fully-protected species statute). The

[1] Pub. Res. Code § 25525.
[2] Pub. Res. Code § 25525.

Commission's override authority should not be interpreted to allow the Commission to effectively waive legislatively-adopted protections.[3]

Second, CEQA prohibits approval of a project where feasible alternatives are available to reduce the project's significant environmental impacts. As acknowledged by CEC staff in its brief, the Puente project is inconsistent with Policy 52 in the City's Local Coastal Plan.[4] This conflict is a significant environmental impact under CEQA.[5] Puente will also conflict with policies in the City's General Plan designed to prevent the construction of large energy facilities in areas subject to environmental hazards, it poses risks to air transportation, it will disproportionately burden an environmental justice community, and it will violate policies designed to protect environmentally sensitive habitat areas. Pursuant to Public Resources Code section 21002, an agency may not approve a project where feasible alternatives exist that would reduce or avoid its significant impacts.[6] Moreover, CEC staff conducted no environmental review of these feasible alternatives, even though such analysis is required by CEQA.[7] Finally, if it

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[3] *See Kugler v. Yocum* (1968) 69 Cal.2d 371, 375 ("The power . . . to change a law of the state is necessarily legislative in character, and is vested exclusively in the legislature and cannot be delegated by it").

[4] Staff Br. at 5-6.

[5] *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 929.

[6] Pub. Res. Code § 21002; *Pesticide Action Network North America v. California Dept. of Pesticide Regulation* (2017 Cal. App. LEXIS 803) ___Cal.App.5th___ at *26-27) (construing CEQA's alternatives requirements for certified regulatory programs).

[7] CEQA establishes the independent obligation to evaluate the environmental impacts of feasible project alternatives that would reduce or avoid a project's significant environmental impacts. *See Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1304-05. As explained in the City's opening brief, the FSA, with its focus only on sites in Oxnard and only on the exact same technology as Puente, does not come close to analyzing a reasonable range of project alternatives. City's Opening Br. at 17-19.

rejects any alternative, an agency must explain why the rejected alternative does not satisfy the project's goals, does not offer substantial environmental advantages, or cannot be accomplished.[8] The explanation for rejecting an alternative must be "sufficient to enable meaningful public participation and criticism."[9] It may not consist of unsupported conclusions or unanalyzed theories.[10]

Here, the CAISO study and related testimony unequivocally demonstrate that the Local Capacity Requirement driving the procurement of additional resources in the Moorpark subarea can be met through preferred resources. These resources are "cost competitive"[11] and can be procured in a timely fashion. Moreover, as detailed below, the CAISO study likely overestimated the peak load for the hottest day in ten years in the Moorpark subarea. But, even with CAISO's peak load estimate of 1723 MW, all that needs to happen between now and December 31, 2020 is the construction of a new stand-alone synchronous condenser or the conversion of the existing units at Mandalay 1 and 2. CAISO specifically found Mandalay 3 can operate in the short term and therefore can supply power while additional preferred resources are procured.[12] Given the availability of an alternative that meets the LCR need, the Commission may not approve the Puente project.

[8] *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.
[9] *Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1458.
[10] *Id.* at 1465.
[11] 9/14/17 Transcript, 115:16-17; 119:10-12.
[12] Ex. 9000, p. 6.

A. The CAISO Study and Testimony at the September 14 Evidentiary Hearing Conclusively Demonstrates That the LCR Need Can Be Met With Preferred Resources.

Intervenors argued strenuously before the California Public Utilities Commission that the request for offers process leading to the Puente contract did not give adequate weight to preferred resources and the contract should not be approved until an analysis of the environmental impacts and preferred resource alternatives to Puente had been conducted.[13] In response, NRG and Edison urged the CPUC to approve the contract without any environmental review and the analysis of alternatives it requires.[14] The CPUC denied any obligation to evaluate the environmental impacts of the Puente project or alternatives to it, and instead, explicitly deferred that analysis to the CEC.[15] In doing so, the CPUC was clear: approval of the contract should not in any way prejudice the CEC's consideration of the Puente project.[16]

Notwithstanding this directive, the FSA improperly dismissed the potential for preferred resources to satisfy all or a portion of the Moorpark LCR need. Rather, it asserts that the CPUC's approval of the Puente contract "effectively found" that preferred resources could not feasibly meet the identified need.[17] Although it took almost 20 months for CEC staff to complete the final staff assessment from the time NRG submitted its AFC, staff conducted no independent analysis of a preferred resource

[13] Ex. 7015, p. 19.
[14] Ex. 7015, p. 20.
[15] Ex. 7015, p. 20-22; *see also* Ex. 7015, p. 13-14 (approval of contract should not prejudice consideration of environmental impacts such as flood risks.)
[16] Exhibit 7015, p. 21.
[17] Ex. 2000 at 4.2-14 to 4.2-15.

alternative to Puente.[18] NRG abetted this abdication of staff's obligations under CEQA by repeatedly claiming that the PUC's approval of the Puente contract meant that no feasible alternatives were available.[19]

It was not until over two years after NRG submitted its AFC and after the California Independent System Operator ("CAISO") offered to prepare an assessment of the feasibility of a preferred resource alternative, that the Committee requested such an analysis be done. This analysis demonstrates what intervenors have argued all along: Puente is not necessary because the LCR need can be met through a combination of preferred resources that are cost competitive, will eliminate the air quality and greenhouse gas emissions of Puente, and do not implicate the land use inconsistencies and other environmental impacts posed by Puente.

1. Preferred Resources Are Both Technologically and Financially Feasible.

The LCR need driving the procurement of additional resources in the Moorpark subarea stems from the retirement of the older, once-through-cooling generating stations at Mandalay and Ormond Beach. Once these facilities are retired there will be a small deficit between the amount of energy available in the Moorpark subarea and that needed to avoid a specific contingency—the loss of both the single Moorpark-Pardee transmission line, followed by the loss of two transmission lines along that same

[18] 2/07/2017 Transcript 222:17-223:9.
[19] Ex. 1023, p. 5-2, 5-12-13.

corridor.[20] This loss is only of concern on the hottest day in 10 years, when electricity use peaks above the capacity of existing local resources.[21] Estimates of the LCR need range from 215 MW at the low end of the PUC-directed procurement to 264 MW in CAISO's most recent analysis.[22]

Meeting the LCR need does not require resources sufficient to generate 215-264 MW of actual power. Instead, the LCR need is driven solely by the need to avoid voltage collapse in the event that all three Moorpark-Pardee lines go down on the hottest day in ten years.[23] This fact means that meeting the LCR need does not require the generation of 215-264 MW of real power. Instead, as the CAISO study establishes, voltage collapse can be avoided through a combination of both reactive and real power.[24]

The CAISO study evaluated three scenarios designed to meet the LCR need. Each of these scenarios started with a "base case" of 135 MW of preferred resources, consisting of a combination of behind the meter demand response, photovoltaic solar, and storage enabled slow demand response.[25] Edison testified that this base case was its "reasonable estimate of what we could expect in the Goleta area or the Moorpark area."[26] CAISO then evaluated 2 different options to close the gap between its calculated LCR

[20] Ex. 9000, p. 6.
[21] Ex. 7015, p. 2-3. Again, as the recent load data from CAISO demonstrates, these estimates appear to be too high.
[22] Ex. 9000, p. 6.
[23] Ex. 9000, p. 6, 9.
[24] Ex. 9000, p. 9.
[25] Ex. 9000, p. 8.
[26] 9/14/17 Transcript, 131:11-12; 163:23-164:13.

need of 264 MW and the 135 MW base scenario.[27] A third scenario provided for the replacement of the Ellwood facility with preferred resources. As CAISO testified at the hearing, its

> study does demonstrate that there are technologically feasible alternatives relying on preferred resources that could meet the need otherwise met by the proposed Puente Project. These alternatives meet the relevant planning standards the ISO considers in our studies of grid reliability.[28]

With respect to the cost of the alternatives, CAISO stated it "does not believe that the capital costs identified in the ISO studies render the preferred resource alternatives infeasible."[29]

2. CAISO Likely Overestimated the 1 in 10 Peak Load.

Not only is a broader range of resources available to fill the LCR need, CAISO's estimates of the 1 in 10 peak load, appear to overstate actual demand. For example, the hottest day in ten years in Oxnard was September 26, 2016, which corresponds to the peak load data used in the CAISO study.[30] On that date, peak load in the Moorpark subarea was 1467.2 MW at 5:00 p.m.,[31] which is 256 MW lower than the 1723 MW peak load estimated by CAISO. If CAISO's estimate was designed to scale up to a hypothetical 1 in 10 year hottest day, it was not necessary because September 26, 2016

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[27] Ex. 9000, p. 8.
[28] 9/14/17 Transcript, 13:9-15.
[29] 9/14/17 Transcript, 15:17-19.
[30] The FSA uses meteorological data from the Oxnard Airport in its Air Quality analysis. Ex. 2000 at 4.1-32. This data is also publicly available at https://www.ncdc.noaa.gov/cdo-web/ and shows the temperature in Oxnard that day was 103 degrees. The CEC may take official notice of matters not reasonably subject to dispute, such as climate data. 20 Cal. Code Regs. § 1212(b)(1)(C); Evid. Code § 452 (h).
[31] Ex. 9000, p. 11, Table 3-2.

was the hottest day in 10 years in Oxnard.[32] If scaled number was designed to account for future development and therefore load growth, the number cannot be squared with the CEC's own forecasts for the Big Creek/Ventura area, which show decreases in load through 2022.[33]

Moreover, data released by CAISO on September 27, 2017 provide actual loads during the "unprecedented" heat storm that occurred on September 1, 2017.[34] This data also shows that the 1 in 10 forecast load of 1723 MW used by CAISO is too high. In fact, the actual Moorpark load for that day which "blew through the one-in-ten expectation,"[35] was 1596 MW.[36] Using this number, the LCR deficit in the Moorpark subarea in the event of an N-1-1 contingency is 137 MW. With Mandalay 3 operating or acquisition of the base case scenario only, that deficit all but disappears.

This data indicates that the number being used to drive the LCR procurement is likely too high. Nonetheless, even with this higher number CAISO's study confirmed the feasibility of preferred resources to meet the projected LCR need.

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[32] While inland temperatures would sometimes exceed the 103 degree temperature on September 26, 2016, peak load was recorded on that date. Ex. 9000, p. 11, Table 3-2. Moreover, even using the 2014 or 2015 peak loads would show a substantially lower LCR need than the 1723 MW estimate used by CAISO.
[33] Ex. 4050.
[34] TN 221327. The City requests that this document be entered as an Exhibit in this proceeding. NRG's witness invoked the "unprecedented" nature of this heat storm as a cause for concern about reliability. 9/14/17 Transcript, 339:3, 20-23. He also agreed data about actual numbers would be relevant to understanding the need at issue. 9/14/17 Transcript, 338:23-339:9.
[35] 9/14/17 Transcript, 339:22-23.
[36] TN 221327, p. 6.

3. The CAISO Study Overestimated Costs of Preferred Resources.

a. 2014 Capital Costs for All-Battery Solutions Do Not Reflect the Cost That Ratepayers Would Pay in 2021.

Although it testified that the cost of a preferred resource alternative would not make it infeasible, CAISO attempted to provide "high level" estimates of the costs of its alternatives. CAISO, who developed its estimates based on publically available information about capital costs,[37] did not check its estimates with Edison and agreed that they likely overstated costs.[38] CAISO's costs for battery storage in particular overstate the actual cost that ratepayers would pay if the resources were procured today. First, CAISO's estimates were based on data from 2014. Although it debated the extent, Edison agreed that battery storage prices have declined since 2014.[39] Edison also testified that, even in 2014, when the RFO that led to the Puente contract was conducted, the bids for energy efficiency and solar PV, were "very cost effective" and "cost competitive" with Puente.[40]

Testimony from Stem, based on reliable studies of storage costs, confirmed that the CAISO estimates are too high. Although CAISO estimated the cost of battery storage at 1.94 million per megawatt for 4-hour storage, more recent estimates put that number as low as $277 per kilowatt hour, or $1.108 million/MW for 4 hour battery storage—which

[37] Ex. 9000, p. 24.
[38] 9/14/17 Transcript, 15:6-9.
[39] 9/14/17 Transcript, 133:21.
[40] 9/14/17 Transcript, 115:16-17.

is less than 60 percent of the estimate used by CAISO.[41] Tesla also cited industry reports estimating that the costs of battery packs had declined by between 70-80 percent between 2010 and 2016, and that costs would be even lower in the 2020-2021 timeframe at issue here.[42]

Both Tesla and Stem also testified that the actual cost passed on to ratepayers could be even lower because their products generate multiple value streams which enable the companies generate revenue from other uses of the products.[43] Edison agreed that for a strictly "capacity-only product" the only price paid by the rate payers is the "reliability value stream in terms of capacity,"[44] not necessarily the entire cost of the product.[45]

Importantly, Edison is already under an obligation to procure additional energy storage. First, under the PUC's Phase II Order Instituting Rulemaking on Storage, Edison must procure an additional 260 MW of energy storage.[46] Any storage procured as part of a preferred resource alternative to Puente would count toward this existing obligation.[47] Under AB 2868, passed just last year, utilities have a further obligation to procure up to

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[41] 9/14/17 Transcript, 183:23-184:2 (discussing Greentech Media report placing costs at just a fraction of the CAISO estimate of $1.94 million/MW); Ex. 3090, p. 4 (citing utility scale storage costs as low as $150/kWH).
[42] 9/14/17 Transcript, 185:14-186:6.
[43] 9/14/17 Transcript, 184:11-185:5; 186:7-187:2.
[44] 9/14/17 Transcript, 121:1-4.
[45] Although Mr. Theaker complained that operation and maintenance costs weren't accounted for in the CAISO cost projections for batteries, he could not identify those costs for Puente. 9/14/17 Transcript, 307:7-9. Nor could Ms. Gleiter.[45] 9/14/17 Transcript, 307:23-24. In fact, no one would identify the cost of Puente.[45] 9/14/17 Transcript, 115:15-16. All we know is that it is a 20-year, resource adequacy contract that requires payments to NRG for the next 20 years regardless of whether the resource is used.
[46] 9/14/17 Transcript, 187:5-17.
[47] 9/14/17 Transcript, 187:18-23.

an additional 500 MW of energy storage and to indicate how they plan to do so in their 2018 procurement plans.[48] This additional procurement should give priority to investments and programs in disadvantaged communities—like Oxnard.[49]

b. The Availability of Other Resources to Meet the LCR Need Would Reduce the Cost of All-Battery Solutions.

Even with all of the cost reductions that have occurred in the past 4 years, the all-battery solutions that underlie the base case scenario are "expensive" when compared to other much more cost effective preferred resources, such as demand response and energy efficiency.[50] Although the CAISO study identifies the high end of a preferred resource alternative, it did not—and could not within the time constraints imposed by the Committee—evaluate the various combinations of preferred resources that would meet the LCR need and reduce costs below that estimated by CAISO.[51] For example, the CAISO study did not take into account the Lawrence Berkeley National Laboratory estimates of demand response that are available in the Big Creek/Ventura area at one-tenth the cost of Puente.[52] Nor did the study consider energy additional energy efficiency improvements required by SB 350.[53] As Mr. Caldwell testified, providing resources that generate energy or reduce load during the contingency event—such as solar PV, demand response, and energy efficiency—would shorten the amount of time that batteries are

[48] 9/14/17 Transcript, 187:24-188:7.
[49] 9/14/17 Transcript, 188:8-15.
[50] 9/14/17 Transcript, 195:8-9 (noting that 9 hour battery solutions—all of which arise under Scenario 1 or 3 would be expensive.)
[51] 9/14/2017 Transcript 16:7-10.
[52] 9/14/17 Transcript, 201:7-11; : Ex. 3079, p. 61 (810 MW of demand response available in Big Creek Ventura subarea at $400/MW).
[53] 9/14/17 Transcript, 199:15-200:14.

required to discharge and significantly reduce the number of batteries and cost of the preferred resource solution.[54] Both CAISO and the City's expert agreed that an RFO would establish the actual set of resources and costs, but the overwhelming weight of the evidence suggests that at a minimum, preferred resources will be "cost-competitive" and likely will be cheaper than Puente.

c. Changes in Peak Demand Will Affect the Amount of Battery Storage Required.

Because of solar generation, the peak demand on system is now later in the day than it would be with conventional generation.[55] Mr. Theaker claimed that proper accounting for the shift in peak demand would not affect the duration of battery discharge required.[56] Because the LCR contingency event is heat driven, shifting the peak later in the day shortens the amount of energy and time during which additional energy is needed, because once the sun goes down, the heat also diminishes, and along with it, the need for additional energy. Plus, the additional energy generated before the sun goes down actually lowers the demand on the system and can be used to charge batteries. As Mr. Caldwell pointed out, although the demand is essentially the same, the duration of the peak event is now shorter and therefore the time period during which battery energy is required is also shorter—and therefore, less expensive.[57]

[54] 9/14/17 Transcript, 194:9-25.
[55] 9/14/17 Transcript, 78:6-18.
[56] 9/14/17 Transcript, 225:13-14.
[57] 9/14/17 Transcript, 207:8-23.

4. NRG's Attempts to Discredit the Reliability of Preferred Resource Alternatives Are Not Credible.

NRG's witnesses, Mr. Theaker and Ms. Gleiter, raised a number of concerns regarding preferred resource alternatives to Puente. The key theme in their testimony was that the resources may not be as reliable as conventional gas generation, such as Puente. The following section responds to their specific assertions. However, the primary flaw in NRG's claim is the failure to recognize that the additional resources, such as the demand response, energy efficiency, and solar PV proposed by Mr. Caldwell, Mr. Owen, Mr. Schwartz, and Mr. Karpa meet the reliability standards set by CAISO. NRG adopts a standard of perfection for preferred resources that neither reflects CAISO's already very conservative standards nor acknowledges the liabilities inherent in the Puente project.

For example, both Mr. Theaker and Ms. Gleiter expressed concern over demand response fatigue and whether customers would actually show up.[58] However, the vast majority of the demand response modeled in the CAISO scenario is behind the meter battery-supported demand response.[59] This resource does not actually require customers to cut back on demand but allows them to switch to battery supplied power. Moreover, Edison developed the base case scenario for CAISO's analysis based on its projection of what could reasonably be procured in the Moorpark area.[60] As is clear from the transcript, Edison is hardly a cheerleader for preferred resources. If Edison thinks this demand response is available and able to meet LCR need, it is available. Finally, CAISO already

[58] 9/14/17 Transcript, 216:17-217:1; 271:7-272:11.
[59] Ex. 9000, p. 8.
[60] 9/14/17 Transcript, 104:24-105:1.

recognizes demand response whereby consumers actually cut their energy consumption as a reliable LCR resource.[61] For good reason. Companies that actually specialize in providing preferred resources such as Tesla and Stem testified to the reliability of these products.[62]

In contrast to the standards CAISO and Edison applied to find demand response is a viable resource to meet LCR need, both Mr. Theaker's and Ms. Gleiter's comments regarding the reliability of demand response lack sufficient foundation. When questioned, neither witness could provide any specifics about the basis of their opinion. Ms. Gleiter had no direct knowledge of NRG's contracts for demand response nor had she supervised any analysis of demand response capability.[63] Although Mr. Theaker claimed that demand response might not be effective in responding to the LCR need, he had not actually witnessed a reduction in performance in his own experience and could not cite to a single document supporting his assertion.[64]

Mr. Theaker also attempted to dismiss the value of solar PV in meeting the LCR need by pointing to statewide data showing that on some days, high demand was not necessarily correlated with high solar production.[65] Again, solar PV is an accepted

[61] 9/14/17 Transcript, 285:8-9.
[62]9/14/17 Transcript, 174:7-18, 177:5-15. Mr. Owens, whose company has substantial experience providing demand response resources to serve energy reliability needs, testified that his customers are enthusiastic about the sustainability element of their participation in the demand response market. 9/14/17 Transcript, 173:6-21.
[63] 9/14/17 Transcript, 300:21-301:3.
[64] 9/14/17 Transcript, 332:13-333:1.
[65] Ex. 1051, p. 8, fn. 14.

resource to serve LCR need.[66] And, as Mr. Caldwell correctly noted, the LCR need is a local need related to heat. Therefore, statewide numbers are irrelevant to show whether local solar power is available when local temperatures hit peak levels.

Mr. Theaker expressed concern about the load shedding that might occur under Scenario 2.[67] As detailed above, the peak load under the "unprecedented" heat event of September 1, 2017 would require procurement of only the base case scenario and therefore would not result in load shed at all. Even if this new data had not come out and the 1723 MW projection were accurate, CAISO testified that load shedding is only a concern when the N-1-1 contingency is actually triggered on that hottest day in ten years.[68] In other words, it not only needs to be an extremely hot day, all three Moorpark-Pardee transmission lines must go down at the same time. CAISO testified during the LTPP that this scenario has not actually occurred in the last 10 years.[69] Likely for this reason, load shedding in this scenario is an infinitesimal risk that the CAISO standards explicitly permit.[70]

Mr. Theaker's testimony on this issue is patently unreliable. Although he claims load shedding is not permitted in "dense urban areas,"[71] CAISO does not identify

[66] Ex. 9000, p. 7-8.
[67] 9/14/17 Transcript, 219-220.
[68] 9/14/17 Transcript, 33:17-34:3.
[69] Ex. 1121, Joint Expert Declaration of Brian Theaker and Sean Beatty, Exhibit B, p. 39.
[70] 9/14/17 Transcript, 282:21-23 (load shedding is permitted in the Moorpark area under the CAISO criteria).
[71] Ex. 1151, p. 6.

Moorpark subarea as a dense urban area.[72] Moreover, even if Puente is operating, load shedding may also be required during the N-1-1 contingency.[73] Finally, if it is a risk at all, load shedding is, at most, a short-term concern that will be alleviated as energy efficiency standards are implemented and additional resources are procured.[74]

Mr. Theaker also raised the specter of denial of a long term contract for the Ellwood facility.[75] This concern is overstated and based on inaccurate reporting of the facts. First, Mr. Theaker failed to attach the proposed decision that the PUC was actually considering with respect to the Ellwood refurbishment.[76] The current proposed decision, which was adopted by the CPUC on September 28, 2017, orders Edison to consider options for reliability in the Goleta/Santa Barbara area that may include Ellwood.[77] In addition, the Ellwood facility can be available for short-term contracting, and if CAISO found Ellwood were necessary for reliability purposes, it could require the facility to continue to operate.[78]

Finally, NRG's criticisms rest on a false comparison that assumes Puente is perfect. It is not. Mr. Caldwell testified convincingly to the fact that no resource,

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[72] Ex. 3091, p. 16 (identifying dense urban areas, which do not include the Big Creek/Ventura area). This document was admitted into evidence at the September 18 committee conference and assigned exhibit number 3091. Mr. Theaker repeatedly cites to that section of the CAISO standards for load shedding in dense urban areas without revealing that the Big Creek/Ventura area is not subject to these standards.
[73] 9/14/17 Transcript, 284:7-13.
[74] 9/14/17 Transcript, 283:20-24.
[75] 9/14/17 Transcript, 217:17-19.
[76] TN 221189. The Sierra Club offered this document as an exhibit at the September 18 Committee Conference. It is also subject to official notice. 20 Cal. Code Regs. § 1212(b)(1)(C); Evid. Code § 452 (b).
[77] TN 221189, p. 29.
[78] 9/14/17 Transcript, 72:7-9 .

including gas, is perfect. Factors such as the closure of Aliso Canyon, storms interrupting gas supplies, hot temperatures that affect the efficiency of the turbine, or simple breakdowns in equipment also affect gas plants and their ability to respond when an LCR contingency is triggered.[79] As discussed in greater detail in Section B, *infra.*, Puente is subject to reliability concerns not implicated by preferred resources that undermine its effectiveness during an LCR contingency.

5. A Preferred Resource Alternative Can Be Brought on-Line Before December 31, 2020.

CAISO's study establishes an upper end for preferred resource scenarios that are feasible and cost competitive. Scenario 2, which requires the procurement of the 135 MW base case and the installation of a stand-alone synchronous condenser, clearly provides a path forward as an alternative to Puente. Both elements of this solution can be brought on-line before December 31, 2020. First, synchronous condensers do not need to go through the RFO process. Instead, as Edison testified, "Synchronous condensers are considered transmission assets and they're basically approved via the ISO process for transmission planning [process]."[80]

Alternatively, the reactive support needed to avoid voltage collapse could be provided by converting the Mandalay 1 and 2 units to synchronous condensers as occurred with the Huntington Beach generating station in response to the sudden closure

[79] 9/14/17 Transcript, 315:16-318:13.
[80] 9/14/17 Transcript, 145:1-4. Although CAISO may sometimes use a bidding process for a synchronous condenser, it may also simply provide for its installation at a utility substation to address reliability needs. 9/14/17 Transcript, 156:12-157:18.

of the San Onofre Nuclear Generating Station.[81] CAISO explained that the conversion of the Huntington Beach generators to synchronous condensers "took place under the development of a reliability must-run contract with the ISO."[82] In other words, the ISO determined the project was needed from a reliability standpoint and the owner of that unit was paid the capital cost of the conversion plus an annual fee for making the resource available. The resource was then available on a year to year basis as a stop gap until additional resources were brought online and the synchronous condenser was no longer needed.[83] The conversion acted as "a bridge to when further resources came online."[84] Although he could not confirm the time to convert Huntington Beach to a synchronous condenser was 9 months, Mr. Millar testified "the conversion was done very quickly."[85]

The base case procurement of 135 MW of preferred resources can also be procured in a timely fashion. As testified by Edison and CAISO, the 135 MW represents the amount that Edison believes can be procured in the Moorpark area.[86] Moreover, evidence from preferred resource providers confirmed the range of products they offer and the ability to bring them online rapidly. Tesla, in particular, testified that it and other companies have been able to bring its battery storage products online in six months from the date of the solicitation.[87] Tesla also testified that over 200 MW of demand response

[81] 9/14/17 Transcript, 197:19-25; 26:13-17; Ex. 3087, p. 11 (SACCWIS report).
[82] 9/14/17 Transcript, 158:19-159:6.
[83] 9/14/17 Transcript, 159:7-14.
[84] 9/14/17 Transcript, 26:24-27:2.
[85] 9/14/17 Transcript, 27:8-10
[86] 9/14/17 Transcript 19:15-17; 113:9-20.
[87] 9/14/17 Transcript, 176:22-127:4.

projects were picked up in the last demand response auction mechanism, with delivery dates of 2018-19—or just 1 to 2 years from the date of contracting.[88] Stem also testified that the adoption of AB 546 will streamline the permitting of energy storage facilities and could halve permitting costs for these projects.[89]

If there were any doubt about the ability to procure the 135 MW in preferred resources that comprise Scenario 2 by December 31, 2020, Mandalay 3 can serve as a bridge to allow that procurement to occur. Although CAISO did not model the availability of Mandalay 3 as part of a preferred resource alternative, it noted that "if Mandalay 3 remains in service, the local capacity requirement deficiency in the Moorpark subarea would be reduced by 130 MW in the near term."[90] Mandalay 3 is not currently under contract, but NRG has expressed its interest in pursuing financial opportunities for the facility[91] and has stated that Mandalay 3 will continue to operate and will not be affected by Puente.[92] Even if NRG were not interested in economic opportunities for Mandalay 3, CAISO must review any plan to retire a facility and may require it to keep operating if necessary to meet local reliability needs.[93]

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[88] 9/14/17 Transcript, 177: 5-15.
[89] 9/14/17 Transcript, 181:10-13.
[90] Ex. 9000, p. 6.
[91] Ex. 1092, p. 2-1.
[92] Ex. 1004, p. 2-2.
[93] 9/14/17 Transcript, 72:7-9 (Neil Millar stating "there is a review before a facility retires and we do have mechanisms to seek to retain that facility.") Although long-term operation of Mandalay 3 is not desirable, keeping the resource available to bridge any time gap between the retirement of Mandalay 1 and 2 and the procurement of preferred resources is a viable option for ensuring local reliability and procuring resources that are consistent with the City's land use regulations and state law.

Edison noted some of the challenges to procuring preferred resources—all of which also apply to the procurement of gas projects.[94] But, Edison also described how it attempts to protect against these contingencies, including an assessment of the bidder's reliability and the procurement of additional resources as a hedge in the event some projects do not come through.[95] Edison's witness also complained that issues regarding the preferred resource procurement should have been brought up during the PUC's consideration of Edison's application for approval of the Puente contract and that it would take additional time to procure preferred resources.[96] Of course, all of these issues were raised at that time, including concern about the failure to make an adequate effort to procure preferred resources, the reliability of the Puente project due to concerns over inconsistency with City land use regulations, sea level rise, and permitting difficulties, and the need to evaluate project alternatives. Edison resisted consideration of these issues in front of the PUC and, like NRG, argued these issues should be addressed by the CEC.[97]

Edison selected the Puente project in the face of strong local opposition and without considering any of its environmental impacts. Any delay in consideration of the issues now before the CEC is entirely the fault of Edison and NRG. This delay cannot now be used as a weapon to avoid the Commission's legal obligation to evaluate project

[94] 9/14/17 Transcript, 143-44.
[95] 9/14/17 Transcript, 149:6-25.
[96] 9/14/17 Transcript, 238-39.
[97] Ex. 7015, p. 19-22.

alternatives and to reject the Puente project because there are feasible, environmentally superior alternatives that avoid inconsistency with state and local land use regulations.

6. If Necessary, the OTC Deadline May Be Extended to Accommodate a Preferred Resource Alternative.

As established in section 4 above and assuming the higher 1723 MW driving the LCR procurement, all that needs to happen to ensure local reliability between now and December 31, 2020 is the installation of a synchronous condenser capable of providing 240 mVAR at a transmission station in the Moorpark subarea. While the real power resources that comprise the base case scenario are procured, Mandalay 3 can be called upon if necessary when needed for reliability. Even if it were not possible to install a synchronous condenser prior to December 31, 2020, the deadline established by the State Water Quality Control Board for retirement of Mandalay 1 and 2 is not set in stone. Instead, there is a process by which the OTC compliance dates may be extended for specific facilities "if needed to 'bridge the gap' between the expected online date of new resources and an existing OTC facility's compliance date."[98] Such an extension was recently granted to the Encina power plant in Carlsbad to allow sufficient time for the Carlsbad Energy Center to become operational.[99] If the OTC deadline can be extended to

[98] Ex. 3087, p. 12.
[99] Ex. 3085; 9/14/17 Transcript, 35:20-25. This extension was granted notwithstanding the fact that one of the reasons cited for approval of the Carlsbad Energy Center was the speedy retirement of the OTC facility.

accommodate the schedule for a gas-fired power plant, it certainly can be extended to accommodate the acquisition of preferred resources.[100]

In the absence of a request for extension of the OTC deadline, the CEC may not claim that its timing renders a preferred resource alternative infeasible. For example, in *City of Marina v. Board of Trustees,* the court found California State University could not find mitigation for its campus expansion plan to be infeasible where it had not first requested from the state legislature funds to cover the cost of that mitigation.[101] Because the CSU had the power to make such a request, but had failed to do so, it could not find the mitigation measure infeasible. This determination was reaffirmed in *City of San Diego v. Board of Trustees.*[102] As the California Supreme Court found,

> In mitigating the effects of its projects, a public agency has access to all of its discretionary powers and not just the power to spend appropriations. (Pub. Resources Code, § 21004.) Those discretionary powers include such actions as adopting changes to proposed projects, imposing conditions on their approval, adopting plans or ordinances to control a broad class of projects, and choosing alternative projects.[103]

Here, the CEC has the power to request, along with CAISO and the CPUC, an extension of the OTC deadline. Having failed to even make this request, it cannot claim that such an extension is infeasible or that a preferred resource alternative is infeasible because it cannot be brought online before December 31, 2020.

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[100] In fact, given NRG's testimony about the length of time it needs to bring Puente online indicates it may need to request an extension of the OTC deadline. NRG asserts it will take 28-30 months from the issuance of a final, nonappeable decision. 4/28/17 Transcript, 37:16-24. The PUC approval of the Puente contract is currently on appeal and, of course, the AFC approval is subject to judicial review.
[101] (2006) 39 Cal.4th 341, 367.
[102] (2015) 61 Cal.4th 945.
[103] 61 Cal.4th at 959.

B. The Commission Cannot Find That the Puente Project Is in the Public Convenience and Necessity.

The public necessity driving procurement in the Moorpark subarea is the LCR need, which, as shown above, can be met through multiple alternatives with fewer environmental impacts. Of these alternatives, Puente is the most environmentally damaging, least consistent with state policies for procurement of renewable resources, and least reliable solution. In contrast, distributed energy resources, such as demand response, solar PV, and battery storage will be able to meet the LCR need without gas combustion and associated emissions of greenhouse gases and criteria pollutants. Preferred resource alternatives also avoid inconsistencies with state and local law, including the Coastal Act and the City of Oxnard's LCP and General Plan. The Mission Rock project would also minimize air quality impacts and greenhouse gas emissions as compared to Puente.[104] That facility also avoids inconsistencies with local and state law, exposure to coastal hazards, and impacts to sensitive biological resources and Oxnard's environmental justice community. Finally, a preferred resource alternative in combination with a small 50 MW turbine could avoid the numerous impacts discussed above.

Because there are feasible alternatives to Puente which meet the LCR need, the CEC cannot find that the project is necessary, as required by Public Resources Code

[104] *See* Section II.B1. In fact, as CEC staff noted, CAISO now recommends that the default for all gas combustion projects should include the clutch/synchronous condenser technology. Ex. 2000, p. 4.2-17.

§ 25525. Nor can the CEC find that Puente offers any unique advantages in terms of reliability or economic value.

1. Puente Is Not the Most Reliable Solution to Meeting the LCR Need.

NRG's witness acknowledged that if Puente could not respond during the LCR contingency, "the region would go into voltage collapse."[105] However, Puente is not a particularly reliable response to the LCR need. The GE Frame 7 model to be used by Puente is untested in commercial use and has no track record.[106] If Puente is approved, the ability to meet the LCR need would rest entirely on reliable operation of this single shaft.[107] Mr. Theaker was not able to give a forced outage rate for Puente and Ms. Gleiter likewise could not provide the number. Although Ms. Gleiter thought Puente would be available anywhere from 98 to 99.5 percent of the time,[108] NRG's own submissions put the availability number at 94-98 percent,[109] which is much closer to the industry average forced outage rate and which also assumes that this new, untested model will perform to the industry standard.[110] And, according to NRG, in its first year, Puente is only expected to be available 85-89 percent of the time.[111]

[105] 9/14/17 Transcript, 309:14-22.
[106] Ex. 2020 at pdf p. 44 ("The turbine selected for this project is a new model and has no operating history"); TN# 206724 at 3-4 ("the proposed turbine is a new model with no commercial operating experience").
[107] Ex. 3090, p. 7.
[108] 9/14/17 Transcript,
[109] Ex. 1004, p. 2-5.
[110] /8/17 Transcript, 89:20.
[111] Ex. 1004, p. 2-33.

Even if operational, Puente will not operate at full efficiency when it is hot outside, which is, of course, when the LCR need is triggered.[112] Puente is designed to operate at 82 degrees Fahrenheit,[113] and General Electric only guarantees operation of its turbine for ambient temperatures ranging from 38.9 to 82 Fahrenheit.[114] However, the temperature on the hottest day in Oxnard in the 10 years between 2007-2016 was 103 degrees on September 26, 2016.[115] Yet, NRG has provided no information as to the production capacity or reliability of its project when it will be most needed.

The natural gas supply itself is also not foolproof. Indeed, many of the alerts regarding stress to the electrical grid arise from problems with the natural gas supply system, including severe weather on the East Coast which caused insufficient gas supplies to interstate pipelines into California and routine maintenance on an interstate pipeline that turned out to take much longer than planned.[116]

Approval of Puente will also concentrate resources in a single vulnerable location. CAISO noted one of the concerns associated with the N-1-1 contingency is the risk that an earthquake would bring down transmission lines into the Moorpark subarea.[117] Ironically, NRG itself identifies damage from earthquakes as one of the reasons why

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[112] 9/14/17 Transcript, 312:9-313:20.
[113] NRG estimates Puente's output, when operating at 82 degrees, "will range from approximately 241 net MW to a peak of 271 net MW." Ex. 1004, p. 2-5, *see also* 2-1. This is the clean and new estimate, and by CAISO's estimate, the lower end of that range (which is more likely to occur as heat rises) will not be sufficient to meet the LCR need.
[114] Ex. 3007, p. 21.
[115] The FSA uses meteorological data from the Oxnard Airport in its Air Quality analysis. Ex. 2000 at 4.1-32. This data is also publicly available at https://www.ncdc.noaa.gov/cdo-web/ and is subject to official notice.
[116] Ex. 3047, p. 6.
[117] Ex. 9000, p. 27.

Puente might suffer a temporary closure.[118] Finally, the City's evidence demonstrates the Puente facility is also subject to risk from coastal and river flooding.[119]

In contrast to Puente, which centralizes energy production in a single, vulnerable location, distributed resources—by their very nature—provide a more diverse array of resources that would not be vulnerable to the reliability risks associated with a single site and a single technology like Puente.[120] These resources could be dispersed throughout the Moorpark subarea and ultimately provide a more resilient solution to the LCR need.

2. Puente Is Not Needed for General System Reliability.

Mr. Theaker also argued that Puente will serve Edison's resource adequacy needs more generally. Of course, this will be true of preferred resources, depending on how the contracts are structured. As Mr. Owens testified, Stem is already under an LCR contract with Edison whereby their product offers both LCR needs and is counted toward resource adequacy.[121] Even if this were not the case, only the LCR need requires generation in the Moorpark subarea itself; there are already sufficient resources—in fact a glut of conventional gas resources—to serve the local area from the larger grid. "Every comprehensive study [of] Western electricity grid flexibility needs has concluded" that existing resources will meet the estimated loads over "at least a fifteen year planning horizon."[122] The only unique concern about adequate resource availability arises when

[118] Ex. 1004, p. 2-30.
[119] City's Opening Br., Section IV; City Reply Br., Section III.
[120] 9/14/17 Transcript, 316:16-320:3; 2/08/2017 Transcript, 89:13-23.
[121] 9/14/17 Transcript, 249:6-250:18.
[122] Ex. 3047 at 2-3; Ex. 3090, p. 6 (citing CAISO 2016-17 of gas resources in California.)

the LCR contingency is triggered and there need to be sufficient resources in the Moorpark area to avoid voltage collapse.[123] The CPUC ordered Edison to procure resources to meet this specific need—and not some general resource adequacy need.[124]

3. Puente Is an Economic Liability.

Although NRG extolled the 20-year contract as a benefit of Puente,[125] it is actually a liability. As mandated energy storage procurement comes online, as efficiency requirements go into effect, as the renewable portfolio standards become more stringent, a 20-year contract for a gas resource that must be paid regardless of whether the resource is used is not a benefit to the public.

And, in fact, because Puente will receive guaranteed fix-capacity prices, it will threaten to displace more efficient and flexible gas plants from the market.[126] As a result, Puente would undermine the electricity grid's broader efficiency and hamper California's effort to decarbonize the grid. Due to the impending retirement of the California's once-through cooling fleet, Puente will be among the state's *least* efficient large gas plants almost from the moment it comes online.[127] Thus, this plant represents a "step backwards" from achieving California's renewable energy goals.[128]

Finally, Puente does not provide any unique economic benefits that would not be served by distributed resources. At its peak, the project will provide just an average of 45

[123] *See* Ex. 9000, p. 6-7.
[124] Ex. 2000, p. 4.2-10.
[125] 9/14/17 Transcript, 294:23-25.
[126] Ex. 3047 at 7; Ex. 3090, p. 6.
[127] Ex. 3047 at 6.
[128] Ex. 3047 at 8.

construction jobs (with a peak of 90 during the height of construction.)[129] Operation of the project will employ only 17 skilled full-time employees—with no net addition of employees over those currently working at the MGS facility.[130] Renewable resources also provide skilled jobs, and Mr. Owens testified to the growth in employment by their company, including its Los Angeles area salesforce and contracts with local electrical contractors.[131] The Governor's Clean Energy Jobs program also recognizes the value of jobs from renewable energy development.[132] In fact, while many union members spoke in favor of the Puente project because of the temporary construction jobs it would provide, many more commenters throughout this process objected to approval of the project and many spoke in favor of the jobs that a green energy economy will provide.[133]

The minimal number of temporary construction jobs that Puente would provide cannot possibly override its inconsistencies with state and local laws or its environmental impacts on a community that has made clear its opposition to the project. The Commission cannot make the findings required by law to approve Puente, and the project must be denied.

[129] Ex. 1016, p. 4.10-10, 4.10-7.
[130] Ex. 1016, p. 4.10-9; Ex. 2000, 4.1-26.
[131] 9/14/17 Transcript, 179:24-180:21.
[132] *See* Ex. 2000, 4.2-13.
[133] A small sampling of these comments includes: 9/14/17 Transcript, 338:25-33, 371:17, 377:11, 387:25-388:1, 398:16-18, 404:20, 410:9-14, 414:21-24; 7/26/17 Transcript, 347:14-18, 393:7-8, 401:16-17, 413:8-9, in addition to thousands of letters and names opposing the project filed on the docket.

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