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 COMMENTS ON DRAFT MOORPARK SUBAREA LCR ALTERNATIVE STUDY**

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The City of Oxnard submits the attached comments of Jim Caldwell on the California Independent System Operator's Draft Moorpark Subarea LCR Alternative Study. First and foremost, the City of Oxnard compliments the CAISO, Southern California Edison, and the California Energy Commission staff for the obvious and constructive collaborative effort in designing this study and for the transparent way that it has been conducted to date. Oxnard commends the CAISO, SCE and the CEC for conducting this critical study and trusts that the California Public Utilities Commission will join these agencies in thoroughly examining the study results, and, ultimately, making the decision to deny the Application for Construction of the expensive, obsolete before it is open natural gas fired Puente plant. Grid reliability, land use in Oxnard, criteria pollutant emissions in a disadvantaged community, electric ratepayer protections, and State greenhouse gas emission reduction goals simply demand this result.

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Comments of Jim Caldwell

As noted, the City of Oxnard appreciates the process for developing the proposed study and the opportunity to comment on it. As a result, all of my comments—with the exception of my concern regarding transmission upgrades—are not about the study process itself, but, in anticipation of how the study will be utilized, suggestions about the data to be gathered and how they are to be presented.

The Study Should Consider Transmission Upgrades.

My primary concern with the scope of the study is that it does not include the possibility of transmission upgrades to at least partially mitigate the LCR need. With Scenario 2 examining the addition of large amounts of reactive support to the Moorpark area, it seems likely that the voltage collapse limit governing the current LCR need will be replaced with a lower thermal overload limit in at least that Scenario. Furthermore, that new thermal limit may be amenable to at least partial mitigation with a transmission upgrade. Whether this is a sub-transmission/distribution system upgrade analogous to the Santa Barbara County reliability project currently under construction by Southern California Edison, or a "Smart Wires" installation as recently proposed in San Diego, or a traditional 230 kv reconductoring project, this possibility should be explored in this study. This proposal would not extend the study completion date, but simply requests that the CAISO explicitly explore the potential of transmission upgrades as part of the current study plan and report a finding as to whether further study might be warranted along with an estimate of the potential mitigation impact, notional cost estimate, and a study plan to define this potential option for decision. Although transmission reinforcement is technically not listed as a "preferred resource," in this circumstance, it needs to be on the list of non-combustion alternatives to construction of the Puente power plant.

The Study Should Not Understate the Demand Response Potential in the Moorpark Subarea.

Next, I believe that the CAISO significantly understates the quantity of demand response and additional achievable energy efficiency in the Moorpark area. The quantities forecast are based on CEC forecasts of current CPUC authorized programs using cost effectiveness metrics that do not apply in this case. They do not account for the provisions of SB 350 that require restructuring of current programs to double the quantity of energy efficiency by 2030. Perhaps even more importantly, the CEC forecasts ignore the once in a lifetime opportunity to bid against a capacity value of $1000/kw and an energy cost of roughly $40/mwh plus a carbon adder that constitutes the avoided cost of Puente. The quantity of demand response proposed to be modeled in this study is roughly one-half of the technical potential at a cost of one-tenth the Puente avoided cost found by the Lawrence Berkeley National Laboratory in a study for the CPUC.[1]

As a consequence, the study portfolio is likely to overstate the need for four-hour batteries, which at a nominal cost of $250/kwh are almost as expensive as Puente itself. The ability to replace a portion of this default battery storage with less expensive and more resilient demand response/energy efficiency constitutes a superior mitigation strategy. However, the answer is not to change the study inputs and speculate on quantities of additional DR and AAEE, but to conduct a targeted RFO for these resources. The RFO should go outside the strictures of current utility EE and DR programs and specifically target measures that deal with summer peak conditions with cost effectiveness metrics commensurate with the Puente avoided cost. These measures could include, for example, managed charging of electric vehicles, saturation of area housing with blown in attic insulation, hybrid "Ice Bear" air conditioning systems that shift

[1] Demand Response Potential for California SubLAPS and Local Capacity Planning Areas an Addendum to the 2025 California Demand Response Potential Study, April 1, 2017 at 49.

electricity demand off peak, and retrofit of large building complex central utility systems with thermal storage at "campuses" such as UC Santa Barbara, Port Hueneme Naval Air Station, and California State University Channel Islands at Camarillo. None of these potential measures are accounted for in current forecasts of AAEE and DR potential.

CAISO should consult with Tesla and/or other commercial vendors who would be involved in specifying and modeling capabilities of the latest inverter technologies to determine if the default modeling needs to be adjusted.

I agree with the comments of Tesla on the June 30 stakeholder call that the modeling convention for "smart" inverters used to interconnect solar and battery storage projects to the grid understates the ability of these inverters to supply reactive support to the area grid to mitigate the voltage collapse contingency. The consequence is that the size of the stand-alone voltage support device required in Scenario 2 is likely overstated, raising the cost of the preferred resource alternative. At the same time, I agree with the CAISO's initial response to the Tesla comment that inverter size matters given that simultaneous delivery of MW and MVAR is required. Inverter size especially matters since the intention is to use a portion of the incremental battery storage as short duration storage to bridge the time required to activate the "slow response" portion of available demand response. This involves "oversizing" the inverter on some or all of the incremental battery storage installations. This would also include adding both additional batteries and additional inverters to a retrofit of the McGrath peaker to EFG technology that is being considered by Southern California Edison. Further, it should be noted that the current commercial trend is to "undersize" the inverter on solar installations (called raising the "inverter loading ratio") to maximize annual revenues at least cost given today's solar panel vs inverter prices, capacity valuation, and time of use pricing. This practice is not appropriate under the circumstances in Moorpark that should reward output on needle peak hot

afternoons rather than average annual performance. Orientation of solar arrays to be more West facing than "normal" should also be considered. These issues can be dealt with parametrically in the study and specifically accounted for in any subsequent RFO. Therefore, I recommend immediate consultation among CAISO, SCE, and Tesla and/or other commercial vendors who would be involved in specifying and modeling capabilities of the latest inverter technologies to determine if the default modeling needs to be adjusted. This could be accomplished without compromising the study schedule, and, again, specifically dealt with post-study in any subsequent RFO.

The Study Should Consider the Ability to Rely on Mandalay 3 and Synchronous Condensers At Mandalay 1 and 2 As a Short-term Bridge to a Longer-term Low-Carbon Solution.

Oxnard recognizes the State Water Resource Control Board deadline for retirement of Mandalay 1 & 2 and Ormond Beach. However, short term use of the Mandalay site, either through continued short term operation of the 130 MW Mandalay 3 peaking plant or temporary use of Mandalay 1 or Mandalay 2 as synchronous condensers with very significantly reduced ocean cooling flows, is available to allow long lead but cost effective elements of any preferred resource plan to be installed. However, demolition of the existing Mandalay units and remediation of the site to a condition commensurate with redevelopment should be a condition of acceptance of any preferred resource alternative. The appropriate time and place to discuss this plan would be the post study evidentiary hearings in the CEC Puente AFC.

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Finally, although not a part of any alternative to the Puente project, it only makes common sense to simultaneously study alternatives to the long-term use of the Ellwood peaker for reliability of the Goleta sub-area at the same time. The current study design allows for this possibility.

/s/ Jim Caldwell