

## DOCKETED

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## **INTERVENOR CITY OF OXNARD**

### **EXHIBIT \_\_\_\_**

#### **Supplemental Testimony of James H. Caldwell**

##### **Introduction**

Staff's analysis of a "small inland peaker" as an alternative to Puente,<sup>1</sup> concludes that there is no material difference in either thermal plume hazard to aviation,<sup>2</sup> or emissions of criteria pollutants.<sup>3</sup> These findings are misleading and inaccurate because the analysis ignores the very significant difference in operations required to meet the identified LCR need among the alternatives. Either the LMS 100 or the LM 6000 alternatives at either the Ormond Beach or the Del Norte/Fifth Street sites will operate significantly less often and at significantly lower combustion levels than the Puente Project. Furthermore, significant gas combustion will be limited to times of high ambient temperature, likely in excess of 85 degrees Fahrenheit further reducing the thermal plume impact on aviation. This simply demonstrates, once again, that Puente is an expensive, brittle and inferior solution to mitigation of the identified LCR need in the Moorpark area.

##### **The Size of the Inland Peaker**

The City previously submitted testimony regarding the need for the Puente project and the feasibility of a smaller inland alternative, which was struck from the record. CAISO is currently evaluating the feasibility of preferred resource alternatives to the Puente project. I am confident this study will show that it is possible to mitigate the LCR need without the need for new gas combustion. If any new gas-fired power plant is

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<sup>1</sup> Staff's Supplemental Testimony Filed in Response to the Committee's March 10, 2017 Order For the Puente Power Project, June 13, 2017

<sup>2</sup> Id p. 29

<sup>3</sup> Id p. 63

necessary, at most, it will be a small peaker plant, which could be located at any number of inland sites.

However, even if the CAISO study to assess alternatives were not underway, and no further LCR procurement were to occur, there are already enough incremental non-gas fired resources on line or in construction within the Moorpark area to reduce the LCR need below 200 MW. Between approved and in-construction hybrid solar/storage projects, storage projects to partially mitigate the Aliso Canyon issue, and the proposed retrofit of the McGrath peaker with EGT technology, all financed by means other than the Puente LCR PPA, the LCR need has already been reduced to less than 200 MW,<sup>4</sup>.

Under this very conservative scenario, the remaining need can be met with, at most, four LM 6000s or two LMS 100s, reducing costs, emissions and thermal plume impacts by 20% and 33% respectively. Yet the large, single shaft Puente project cannot be downsized in tandem, forcing ratepayers to pay twice for the same reliability requirement.

#### **Operation of the Inland Alternative.**

The supplemental staff testimony fails to account for the use of nominally-priced, factory-supplied clutches, which allow the LM 6000s or LMS 100s to operate as synchronous condensers. Also, when equipped with factory supplied EGT technology, the LM 6000s or LMS 100s can also provide spinning reserve without gas combustion. As a result, , the remaining (if any) small inland peakers will combust natural gas significantly less often than Puente. Because the N-1-1 contingency that causes the LCR need is voltage collapse, which can be mitigated by increasing the reactive margin in the

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<sup>4</sup> These projects include recent DRAM awards, third party solar/storage hybrid projects at Port Hueneme and Oxnard, a CPUC approved Aliso Canyon mitigation storage project at the Wakefield substation, and SCE's proposed McGrath EGT retrofit. Together they constitute over 50 MW of LCR qualified non-combustion resources that will be approved and permitted in the Moorpark area with on line dates before 12/20.

area, operation of one or more of the remaining LM 6000s or LMS 100s will normally be in synchronous condenser mode—meaning they will not be creating a plume at all. This significantly reduces the LCR need, costs, and emissions of criteria pollutants and greenhouse gas.

David Vidaver acknowledged that the LCR need is designed to address demand on the hottest day of the decade.<sup>5</sup> As a result, the ability to meet much of the LCR need without combustion means that the small inland peaker(s) will only be called upon for combustion of natural gas during high load summer peak load hours when actual LCR need is highest and ambient temperatures are high (roughly 85 degrees F or higher). This means that any thermal plume created will have a much lower critical height due to the lower buoyancy of the stack exhaust.

Finally, the small inland peakers (if any) equipped with EGT technology have an effective minimum load (Pmin) of zero while Puente has an effective Pmin of roughly 90 MW. Therefore, the small inland peaker reduces the system “Pmin burden.” This means lower curtailment of renewable resources in light load spring/fall hours, lower costs and lower emissions of criteria pollutants and greenhouse gases.

All of these advantages (lower costs, lower emissions, lower aviation impacts, better land use) grow proportionally as procurement of preferred resources in the Moorpark area increases. The CAISO Preferred Resource Option Study<sup>6</sup> whose results are due on August 16 will allow precise quantification of these advantages. The City of Oxnard strongly believes that the study results will conclusively demonstrate that the entire LCR need can be met with preferred resources. At most, any small inland peaker

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<sup>5</sup> Transcript of February 10, 2017 evidentiary hearing, TN 216593, p. 283.

<sup>6</sup> TN 219815

alternative will be limited to one LM 6000, equipped with a clutch and EGT technology options, and which, if appropriately located, will allow the retirement of older and less efficient facilities such as Ellwood and Mandalay 3.

910208.3

Declaration of Jim Caldwell

1. I am a consultant with V. John White & Associates and the Center for Energy Efficiency and Renewable Technology. A copy of my qualifications was previously docketed as TN 215438-1.
2. I am personally familiar with the facts and conclusions related in the testimony attached to this declaration, and if called as a witness could testify competently thereto. It is my professional opinion that my testimony is valid and accurate with respect to the issues presented therein.

I declare under the penalty of perjury that the foregoing is true and correct.

Executed July 14, 2017 at Sonoma, California.

  
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Jim Caldwell