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Comments of Calpine Corp on the August 30th Lead Commissioner Workshop

Additional submitted attachment is included below.

Comments of Calpine Corp. on the August 30th Lead Commissioner Workshop on Midterm Reliability Analysis and Incremental Efficiency Improvements to Natural Gas Power Plants

21-ESR-01

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Calpine appreciates the opportunity to offer these comments on the mid-term reliability analysis (“MTR analysis”) presented at the CEC’s August 30th *Lead Commissioner Workshop on Midterm Reliability Analysis and Incremental Efficiency Improvements to Natural Gas Power Plants*.

Calpine owns and operates approximately 6 GW of gas generation in California. In addition, we own and operate the Geysers geothermal plant and recently brought on-line our first battery storage project in California. In addition, we recently agreed to locate two mobile generators procured by DWR at a site that we control. We stand committed to helping the state ensure reliability with whatever technologies we can deploy.

Calpine commends CEC staff for the enormous amount of analysis that it has been able to complete in a very short time. Given the capabilities that the CEC has demonstrated with the MTR analysis, Calpine hopes that this recent effort presages a much more active role for the CEC in California resource planning more generally.

While Calpine believes that the analysis presented at the August 30th workshop is generally sound, Calpine agrees with the workshop presenters that the type of modeling underlying the MTR analysis can be sensitive to assumptions and modeling choices. Given this sensitivity, Calpine offers the following comments on assumptions and modeling choices that may meaningfully impact the results of the MTR analysis and that the CEC and its partners may want to explore further—many of which were acknowledged at the August 30th workshop.

First, as the presentation for the August 30th workshop notes, the analysis does not consider demand outside of CAISO (at 14). This may be particularly problematic in combination with the assumption of relatively unrestricted imports outside of the evening net peak hours (at 21). Together, these two assumptions ensure that there is substantial energy from imports available to fill storage outside of the evening net peak hours so that the storage can address critical reliability problems in those hours. Given increased competition for supply in the West, Calpine is not confident that CAISO could consistently import more than 10 GW of imports outside of the evening net peak hours. It would be helpful to understand the temporal pattern of imports in the simulations and the extent to which import availability assumptions matter. In addition, it might be useful to examine a more restrictive import case, e.g., apply the evening net peak import limits to all hours. (This is related to the issue of energy sufficiency to fill storage that Commissioner Gunda raised at the workshop and staff acknowledged.

Calpine looks forward to the further analyses of energy sufficiency promised by staff, whether they relate directly to imports or address other aspects of energy sufficiency.)

Second, Calpine would like to understand better the results that on slide 32 that purport to show that portfolios of gas are less reliable than portfolios of preferred resources with equivalent NQC. As suggested by staff at the workshop, is this result primarily driven by forced outage rate assumptions? If so, given that forced outage rates assumed for CCGTs appear lower than those assumed for storage (at 22), is the result driven by the higher assumed forced outage rate for CTs? Would portfolios of equivalent *unforced* capacity provide a more meaningful comparison?

Relatedly, while the MTR analysis examined how incremental gas generation might contribute to reliability, it did not explicitly analyze the role of the existing gas fleet. Calpine recommends that the CEC explore the role of the existing gas fleet in additional modeling sensitivities, perhaps by modeling higher retirement scenarios. To fully understand the role of the existing gas fleet in these scenarios, Calpine believes that it is important to address the energy sufficiency issues described above, so Calpine recommends looking at higher gas retirements only in scenarios with lower import availability or other modeling changes to reflect energy sufficiency appropriately. In these new scenarios, it would be particularly interesting to understand whether gas generation allows storage to charge when renewables or other types of generation might not be available. This issue could be particularly important outside of the summer, which the MTR analysis did not model.

Third, while the summaries on slides 32-8 generally show that the expected resource buildouts are reliable in terms of satisfying a 1 event in 10 years reliability standard, the volume of unserved energy in some of the scenarios looks relatively large. To help illustrate the magnitude of potential unserved energy, it would be helpful to report expected unserved energy (EUE) in addition to the “1-in-10 shortfall” values on slide 33.

Fourth, Calpine is concerned that the CEC did not model any correlation between load and renewable generation (at 88-9). For example, it is well known that wind generation in California is generally inversely correlated with heat (and load). Failure to model such a correlation could mask reliability problems associated with high loads and low renewable generation. Calpine looks forward to further explanation of this issue in the documentation for the MTR analysis. Ideally, the modeling would reflect correlation and utilize load and renewable profiles based on the same weather.

With respect to the portion of the workshop that addressed upgrades to existing gas plants, Calpine agrees with the CEC’s characterization of upgrades that have been completed and the potential for additional upgrades. Calpine continues to appreciate the CEC’s leadership in facilitating upgrades.

Again, Calpine greatly appreciates the quality of the analysis that the CEC has produced so expeditiously and looks forward to further development and documentation of the analysis.