

Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Tesla Inc. (Tesla) appreciates the opportunity to provide these brief comments on the CAISO's proposed approach and scope to evaluate potential resource portfolio alternatives to the Puente Power Plant to meet the local resource adequacy needs identified in the Moorpark area. In these comments, Tesla offers high level support for this initiative as well as some specific technical recommendations to ensure the modeling appropriately reflects the capabilities of energy storage systems. Overall, Tesla believes the CAISO's approach is sufficiently inclusive, especially in light of the very short timeline that has been established for this effort by the California Energy Commission.

Given the amount of time that has passed since the CAISO's 2012/2013 assessment of local capacity requirements for the Moorpark Subarea, and the CPUC's determination of need in Track 1 of the 2012 LTPP, it is reasonable and appropriate for the state to reevaluate this project recognizing the scope of resource alternatives that might be deployed in lieu of a new gas plant. Over the past several years, the state and its Investor-Owned Utilities have gained valuable experience soliciting and deploying energy storage. For example, in 2016, AES, Greensmith and Tesla collectively deployed 70 MW of battery storage, all within 6 months, to shore up reliability concerns that emerged in the wake of the Aliso Canyon Gas Storage Facility leak. In 2014, SCE procured over 250 MW of energy storage in its Local Capacity Resource solicitation for the Western LA area, which was well beyond the minimum amounts they were obligated by the CPUC to procure. These and other examples highlight the evolution of storage from an emerging technology to a fully commercialized and robust solution fully capable of addressing a range of critical grid needs. Tesla submits that energy storage can contribute not only toward meeting the local reliability needs identified for the Moorpark subarea, but can also provide the type of flexibility that will be needed to integrate the state's increasingly ambitious renewable energy targets. As the state considers increasing the renewables target to 100% via Senate Bill 100, and more generally as California looks to an energy system that is much more reliant on renewable resources like wind and solar, it is important to deploy resources that fit with and support that vision. In this way, the portfolios being evaluated in this study are more consistent with the state's ongoing efforts to transition to a low or no-carbon energy future.

We note that a course correction based on updated factors is not without precedent. Notably, in 2016, the CAISO canceled 13 transmission projects that had been planned in Pacific Gas & Electric's service territory recognizing that the load growth on which these projects had been largely premised had been reduced significantly owing to energy efficiency and the deployment of rooftop solar. While the circumstances in this instance are different – no one is contesting that there is a core reliability requirement that needs to be addressed in this area, given the scheduled closure of conventional facilities serving this region – Tesla believes that the notion of flexibility in the face of evolving circumstances is equally applicable here.

Specific Feedback on Study Inputs

In terms of more specific feedback on the proposed study parameters themselves, although Tesla is comfortable with the proposed resource scenarios the CAISO has identified, we believe some adjustment in the approach may be necessary to ensure that storage and its efficacy in addressing the needs in the area is being modeled appropriately. Specifically, based on the information provided in the slides and as part of the webinar held on June 30, it appears that the Moorpark area is estimated to require up to 240 Mvars of reactive power support in addition to the 264 MW of active power. This reactive power need is partially based on the assumption in the power flow studies that the resources operate at 0.9 lagging Power Factor (PF), and the assumption of 0.9 lagging PF for resources is based on the capabilities of synchronous generators. Notably, however, inverter-based resources are capable of providing power at a much wider power factor ranges. For example, Tesla Powerpack systems are capable of supplying and absorbing power at any leading or lagging power factor. Changing the PF of the storage resource from 0.9 lagging to 0.9 leading in the power flow simulations can effectively eliminate the need for more than 100 Mvar reactive power from other resources such as the proposed 240 Mvar synchronous condenser in scenario 2, without affecting the MVA sizing or MW capabilities of the storage resource.

To ensure a level playing field for all types of resources, we recommend decoupling the active and reactive power requirements for the Moorpark area in power flow studies. This can be achieved, for example, by using $PF = 1$ for resources that supply active power only, and adding another device to supply the reactive power to this area. The combined active and reactive power requirements resulted from these studies can be provided by a single resource that is capable of meeting both of these requirements at the same time under the current interconnection rules, or they can be provided by separate resources capable of providing each service individually.

These assumptions could be particularly relevant for Scenarios 2 and 3, where a tradeoff appears to exist between energy storage and other devices or generators. In the case of Scenario 2, the amount of storage is reduced in some way given the presence of a 240Mvar device. In Scenario 3, the amount of storage is increased based on the retirement of the 54MW Ellwood facility. We request that the CAISO provide transparency with respect to how the tradeoffs are being made in those scenarios, how the

active and reactive power capabilities of storage are being modeled in these scenarios, and provide stakeholders the specific changes in the amount of storage being modeled.

Again, Tesla wants to thank the CAISO for its efforts to model resource alternatives to the proposed Puente Power Plant, and we look forward to continued engagement on this important matter.