The Center for Energy Efficiency and Renewable Technologies (CEERT) makes the following comments on the studies performed on the above project as presented in the stakeholder call of January 11 for consideration in the 2017-2018 TPP. CEERT commends the CAISO for the professionalism shown in the studies and the obvious commitment to transparency and true stakeholder collaboration in this matter.

Given that a primary purpose of the study is to judge the efficacy of the Pardee-Moorpark No. 4 in meeting the Moorpark sub-area LCR need, CEERT believes that the studies conducted to date are sufficient to make a reasonable judgment of that project in the Draft 2017-2018 TPP to be published at the end of January. CEERT has no further comments on the transmission upgrade itself at this time.

A second purpose of the study is, assuming the transmission upgrade project is approved, to define the next largest LCR need in the area. Apparently, the study shows that this LCR need is defined by loss of the Pardee-Santa Clara 230 kv line followed by the loss of the Moorpark-Santa Clara 230 kv line leading to a ~86 MW LCR deficiency. Given that this LCR need is the subject of an RFP for preferred resources about to be issued by Southern California Edison, CEERT believes it is important to more carefully define that need to guide the bidding in that RFP. CAISO should publish:
- the Santa Clara sub-area P-V curve for the critical contingency, the reactive margin available pre and post contingency and any reduction in T&D losses associated with improving that reactive margin.
- the 2022 peak day load shape used for the study that resulted in an estimated 86 MW LCR need. Note that since this need will be met with use limited preferred resources, it will be necessary to publish not only the single point peak hour load, but the entire 24 hr peak day load shape starting with documentation of the historic load shape used, and then the modifications to that load shape to account for load growth to 2022 and the impact of AAEE and BTM solar PV.
- the scaled up 2022 load duration curve for the Santa Clara sub-area so that bidders can estimate the non-LCR value of resources used to satisfy the LCR need on off peak load days.

In addition, there should be a discussion in the Draft TPP about the status of the pending revised CEC load forecast that will endogenously include forecasted quantities and hourly load shapes for AAEE and BTM PV solar. The discussion should include the date when CAISO expects that revised forecast to be available from the CEC, and the process to be used to incorporate that revised forecast in the studies used to affirm that the portfolio of resources proposed for procurement by SCE will indeed mitigate the Santa Clara LCR need. The discussion should affirm that the CAISO will study the storage/preferred resource portfolio as a whole rather than simply sum up individual resource NQC values. The CAISO should confirm that it will also render judgment that the portfolio is dispatchable by grid operations given that the bulk of the portfolio is likely to consist of battery storage configured to supply spinning reserve to cover the N-1 on any day when forecasted Santa Clara load is above the remaining transmission import limit plus committed existing local resources. These new battery storage installations will likely not cover the full duration of LCR need on the peak load day by themselves, but be backed by IFOM solar PV and/or slow response DR. Finally, CAISO should confirm that the DR itself must be “firm” by contract with the SC bidding the battery storage (SCE calls this “Standby DR”) that does not need to be bid into either the day ahead or real time CAISO market and can be dispatched post contingency to “recharge” the batteries during the contingency event.

Ventura County endured 2017 with numerous natural disasters of biblical proportions including two greater than 1 in 10 heat storms in late June and early September, the largest wildfire in California history that caused an area wide blackout with apparently serious black start issues plus numerous smaller fires that threatened other transmission corridors, plus deadly and devestating landslides that compromised both electric and gas infrastructure. Regardless of the TPP recommendation on the

Pardee-Moorpark No. 4 line or the CAISO judgment later this year on the relatively novel SCE RFP results, the electric infrastructure in Ventura County will undergo a very significant make-over in the next few years. This make-over will be judged by the entire population of Ventura County and various interest groups at the state and federal level -- not simply the transmission planning professionals at the CAISO. A forensic analysis of the performance of the existing infrastructure and the likely performance of the new infrastructure if 2023 were to be any thing like 2017 needs to be performed and published. Simply referring to an obscure generic planning standard from NERC or the interpretation of that standard in the CAISO tariff will not be sufficient for this diverse audience. The Draft TPP should commit to making such an analysis.

Finally, CEERT notes that this Moorpark sub-area analysis is hardly unique. The California grid is on the cusp of a veritable revolution where preferred resources plus local battery storage take over a significant share of the LCR duty from conventional gas fired resources. Four pending preferred resource LCR RFPs in PG&E service territory in the Bogue, Pease, South Bay/Moss Landing, and Oakland C sub-areas are on tap for this year. The next wave of OTC retirements is drawing near. The Los Angeles Department of Water and Power has suspended its in basin gas repowering program pending a comprehensive bottom up study of local generation needs for the low carbon grid of the future. The Aliso Canyon gas storage facility is slated for early retirement. San Diego LCR needs will change significantly with the package of resources procured following the closure of SONGS including the proposed S Line upgrade proposed in this TPP coming on line. Most parties have observed that more events such as these are on the horizon as we adjust to a grid that will certainly be majority intermittent renewable resources and potentially as much as 100% carbon free in the planning horizon. The Moorpark sub-area issues, how they are defined, how they are studied, and how they are resolved is a template for the future of the entire grid. The whole world is watching.