

**Data Request No. 3 (May 21, 2019) for the
Estrella Substation and Paso Robles Area Reinforcement Project (A.17-01-023)
Information Requests for Commenting Parties on the Draft Alternatives Screening Report**

#	Responsible / Commenting Party (PG&E, HWT, or CAISO)	Data Request Item	Request Date	Reply Date	Status	Follow-Up Request
1	Pacific Gas & Electric Company (PG&E)	PG&E contends that the restoration time for a 70 kV line outage is a minimum of 24 hours. The Draft ASR accounted for this possibility, but our assumption is that this would be an extensive and unlikely outage duration. The California Independent System Operator (CAISO) suggests that the restoration time typically might be closer to 10 to 12 hours (see attached CAISO comments). Please provide evidence supporting PG&E’s restoration time estimate of a “minimum” of 24 hours to restore a 70 kV line outage. Evidence should include a record of local (Paso Robles Distribution Planning Area) and system-wide restoration times for 70 kV facilities along with description of the outages.	5/21/19			
2	PG&E	PG&E agrees with the Draft ASR analysis of energy storage in megawatts (MW) and megawatt-hours (MWh) needed to address reliability criteria per North American Electric Reliability Council (NERC) TPL-001-4 P1 requirements (PG&E comments on pdf p. 21) but suggests that a transmission-level battery storage solution is not an adequate alternative to the Proposed Project. PG&E bases this on the potential for a second 70 kV outage occurring subsequent to the restoration of an initial 70 kV outage that impacts the same Paso Robles Substation, with both outages lasting at least 24 hours. We assume that PG&E would agree that sequential, transmission-level outages, impacting the same substation are rare occurrences. Please provide evidence supporting PG&E concerns about the risk of not only one but two 24-hour outages occurring with the second occurring before the battery can sufficiently recharge. The response should include a record of similar historical outages within PG&E’s service area that impacted the same substation, which would have eliminated the ability to charge a battery.	5/21/19			

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3	PG&E	<p>PG&E has implemented an undervoltage load-shedding (UVLS) scheme within the Paso Robles DPA. This scheme, as we understand, is designed to shed non-consequential load in the event of unacceptably low voltages on the distribution system. Please verify the intent and functions of the UVLS.</p> <p>In addition, please provide the historical record, since UVLS installation, of the (UVLS) operating. The record should include date, time, duration, cause, and impacted customers for every time the UVLS was initiated.</p>	5/21/19			

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4	Horizon West Transmission (HWT) / formerly NEET West	HWT states that they performed a preliminary assessment of Alternative Battery Storage (BS)-1: Battery Storage to Address the Transmission Objective and concluded it would not solve the reliability problems identified by the CAISO. This conflicts with PG&E's comments that "PG&E agrees with ZGlobal's analysis of the MW and MWh sizing of the transmission connected [battery energy storage system] BESS at the Paso Robles Substation in order to meet the NERC TPL-001-4 P1 requirements" (PG&E comments on pdf p. 21) HWT, please provide your preliminary assessment report, including assumptions, methodology, and results as well as the power flow models used for the assessment.	5/21/19			
5	CAISO	CAISO states there is no support for Alternative BS-1 to meet actual operating requirements. Please specify the specific operating requirements that CAISO feels a battery storage solution cannot meet assuming a 10 to 12-hour duration outage involving one of the three contingencies that would be solved by the Proposed Project. These outages are (1) Paso Robles-Templeton 70 kV Power Line (P1 contingency), or (2) Templeton 230/70 kV #1 Transformer Bank (P1 contingency); (3) both the Morro Bay- Templeton and Templeton-Gates 230 kV transmission lines (P6 contingency).	5/21/19	6/13/19		The operating conditions that the CAISO is referring to relate to the battery being able to charge to be available for an extended outage or for a subsequent contingency after the facilities have been restored to satisfy the NERC Reliability Standard requirements.

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6	CAISO	Please clarify the CAISO planning criteria for P6 “multiple contingencies.” Per NERC TPL-001-4, it is permissible to shed non-consequential load for P6 events. Consequently, the need to mitigate for the P6 contingency involving the Morro Bay-Templeton and Templeton-Gates 230 kV transmission lines with physical upgrades included in the Proposed Project are not mandated by reliability standards. To the extent that CAISO applies a more restrictive criteria, such as not allowing consequently load loss, for P6 category outages, please provide explanation and justification of the application of more restrictive planning criteria than that specified by NERC.	5/21/19	6/13/19		The CAISO is required to assess the P6 contingencies and have corrective action plans for constraints that are identified. Controlled load shedding, based upon the ISO Planning Standards and NERC TPL-001-4 may be a possible alternative for the corrective action plan to mitigate the constraint for a P6 contingency

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7	CAISO	<p>CAISO’s comments suggest that the typical restoration time for a single 70-kV outage is 10 to 12 hours. CAISO also states that a 70-kV outage could last longer than this and subsequent outages could also occur. Hence, the CAISO states that the battery system would need to recharge but also states that the battery system could not be recharged in time to address subsequent outages or outages of a duration longer than 10 to 12 hours.</p> <p>It can be inferred, then, that a longer duration battery could solve the issues identified by CAISO. Therefore, regardless of cost, in the CAISO’s view, what would be a sufficient battery duration to address the 70-kV reliability need?</p>	5/21/19	6/13/19	<p>The request is in error, and the CAISO’s comments make no such suggestion. The CAISO’s comments considered the transmission capability into the area and the load profile requirements, and clarified that an outage longer than that duration would result in insufficient recharge capability. For clarity, the ISO notes the inference is the CPUC’s, not the CAISO’s.</p> <p>The request in effect asks the CAISO how many days need to be accommodated, presumably given at least some amount of recharge capability each night. The CAISO will turn to PG&E to provide an estimate of reasonable worst-case timelines for returning facilities to service, recognizing that transmission lines and transformers are expected to have different reasonable worst case requirements.</p> <p>After the battery has been discharged to mitigate the constraint associated with the contingency, as indicated in response to #5 the battery needs being able to charge to be available for an extended outage or for a subsequent contingency after the facilities have been restored to satisfy the NERC Reliability Standard requirements.</p>
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						<p>Note that this also assumes that the batteries are not required to be “pre-dispatched” ahead of the first contingency, in which case the period the daily cycling would be required would increase, albeit with a somewhat higher - but not sufficient - recharge capability each night.</p>
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