PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
Objectives				
1	PEA Section 2.4	PEA Checklist section 2.2; section V(10) of the Information and Criteria List	**State what current utility standards the proposed project is intended to meet and describe how the proposed project would meet the standards.** PG&E lists "update equipment to meet current utility standards" as a project objective. More detail is needed as to what the utility standards are, how the current Sanger Substation does not meet those standards, and how the proposed project would meet the utility standards. Page 3.8-11 of the PEA states the proposed project would be implemented in part to maintain conformance with the Institute of Electrical and Electronic Engineers' safety standards. State whether these are the "current utility standards" and whether there are other "current utility standards" the proposed project is designed to meet.	The project is being initiated to improve 115kV substation/ bus reliability and replace aging assets, since a majority of the equipment being replaced is between 20 and 70 years old, and therefore does not meet current utility standards due to age. Any new work and equipment will need to meet current utility standards. Current utility standards include conformance with the Institute of Electrical and Electronic Engineers' safety standards as well as PG&E internal substation design standards, which are based upon industry best practices.
2	PEA Section 2.4	PEA Checklist section 2.2; section V(10) of the Information and Criteria List	**Provide additional detail on what reliability standard(s) the proposed project is intended to meet.** PG&E lists "build a more reliable substation" as a project objective. Reliability is in general dictated by NERC, WECC, and CAISO. State whether there are particular reliability standards or planning guidelines the project is meant to address. Describe how the proposed project would meet the reliability standard(s).	NERC (North American Electric Reliability Corporation) Reliability Standards address system performance under various contingency (emergency) operating conditions in its Standards TPL-001, TPL-002, TPL-003 and TPL-004. Each of these standards shares a common table (Table 1) that identifies various contingencies. The standards state how the bulk electric system is to perform under each type. N-1 contingencies are referred to as Category B and N-2 contingencies are referred to as Category C and D. The requirements of these standards, particularly for Category C, further restrict the ability to clear elements and busses for maintenance. NERC Reliability Standard FAC-011 is also relevant in that the System Operating Limits must provide certain bulk electric system performance under various conditions. Also, the Regional Difference for the Western Interconnection, also included in FAC-011, lists additional contingencies that must be taken into consideration when planning and operating the bulk

PG&E Sanger Substation Expansion Project PEA Deficiencies				
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				electric system. The breaker and a half (BAAH) design is the optimal balance of increased reliability, cost, and efficient land usage. Similar to the ring bus, the BAAH configuration allows double sources to each load circuit. Maintenance and relay changes can be accomplished without loss of service through simple switching operations. The BAAH configuration will help address today's operating environment of critical buses, where the N-2 criteria and other system performance compliance requirements must be met and clearances for maintenance cannot disrupt the system.
Project Description				
3	N/A	PEA Checklist sections 3.4, 3.7.1.1, 3.7.1.2, 3.7.1.3, 3.7.1.5, 3.7.2.1, 3.7.2.2; section V(11) of the Information and Criteria List	**Provide additional detail in the project GIS (or equivalent) data layers.** The provided data layers are limited in scope. Additional layers are needed. Provide layers, as applicable, for: • New access roads for construction • Overland routes for construction • New access roads for operation and maintenance • New driveways for construction • Driveways for operation and maintenance • Existing access roads to be used for construction • Poles that would be shortened and left in place • Temporary shoo-fly pole locations • Temporary work areas outside of "substation expansion footprint" shown in Figure 2-2 • Staging area within substation area • Permanent disturbance areas around poles and	PG&E will provide preliminary GIS data confidentially per PUC Section 583 for the following: • Estimated permanent disturbance areas around poles and outside of "substation expansion footprint" • Estimated permanent driveways for construction, and operations and maintenance • Estimated pull and tension sites No new driveways are proposed for construction, with the exception of substation driveways that will be used for both construction and operations and maintenance. For the pull and tension sites, the data provides an example of the general areas that could be used, as design is still preliminary and subject to change. No GIS data has been created for the following, although they are described generally in the PEA: • New and existing access roads for construction

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
			outside of "substation expansion footprint" • Soil stockpile area(s) • Guard structures, if applicable • Guy poles, if applicable • Telecom locations, if applicable • Designation of which poles are TSP and which are LDSP • Pull and tension sites	• Overland routes for construction • New access roads for operation and maintenance (none proposed) • Staging area within substation area, soil stockpile area(s) • Telecom locations For temporary work areas outside of "substation expansion footprint" shown in Figure 2-2, disturbance areas were estimated using general assumptions (TSP installation= 50 foot radius; wood pole removal= 50 foot radius; lattice tower removal= 60x60 feet; temporary access roads= 12 feet wide). No GIS layers were created for any particular site. The following will be provided when preliminary design information is available: • Temporary shoo-fly pole locations • Guard structures (see Attachment A) • Designation of which poles will be TSP and which will be LDSP, to the extent known Design information is not yet available to determine whether the following items will be required: • Poles that would be shortened and left in place • Guy poles
4	PEA page 2-11	PEA Checklist section 3.5.1; section V(11) of the Information and Criteria List	**Identify where distribution lines would remain in place and where they would be moved onto new infrastructure.** The PEA states that some structures would be shortened to allow existing distribution to remain in place. The PEA	The requested information will not be available until further detailed engineering has been completed. All distribution lines and associated modifications are planned to be confined to existing easements.

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
			and the GIS data do not identify where distribution would remain in place and where it would be moved to structures installed as part of the proposed project. Provide additional detail on distribution line realignment.	
5	PEA page 2-11	PEA Checklist section 3.5.2; section V(11) of the Information and Criteria List	**Confirm that the PEA describes all poles and types of poles that would be installed as part of the proposed project.** The PEA describes TSPs and LDSPs as the proposed pole structures. Confirm that no other pole types or additional poles are needed, including wood, guy pole, or tangent pole.	The requested information will not be available until further detailed engineering has been completed. At this time, we are assuming that all poles will be TSPs. If LDSPs are used, they will not be identified until later in the design process.
6	N/A	PEA Checklist section 3.5.3.1; section V(11) of the Information and Criteria List	**State whether there would be a telecommunications component of the proposed project.** The PEA does not mention telecommunications work, though telecommunications are often included in transmission and substation projects. Clarify whether telecommunications work would be completed as part of the proposed project. If telecommunications work would be completed, describe the scope of the work, the construction methods, and the operation and maintenance required.	See bottom of page 2-10 of the Project Description in the PEA.
7	APM GHG-2, PEA page 3.7-8	PEA Checklist section 3.5.4; section V(11) of the Information and Criteria List	**Specify which equipment would utilize SF_6.** APM GHG-2 requires minimization of SF_6 leakage and states a standard for maximum SF_6 leakage from gas insulated switchgear. The project description does not describe the circuit breakers as containing SF_6, though the greenhouse gas section analysis states that there would be 23 new SF_6 circuit breakers. Specify whether any other equipment used for the proposed project would contain SF_6.	The only equipment that uses SF_6 is the circuit breakers.
8	PEA Section 2.4.4	PEA Checklist section 3.7.1.1; section V(11) of the	**Verify the staging area described in the PEA is sufficient in size and configuration for the proposed project.**	PG&E believes the staging area is sufficient.

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
		Information and Criteria List	The PEA states that all staging, parking, and lay down will be located on the eastern portion of the graded pad. Provide a diagram that shows the portion of the graded pad that will be used for staging. Confirm the space will be adequate to serve staging area needs for the entirety of the project construction period and that no additional staging areas will be needed, including staging while the graded pad is being constructed. If additional space for staging, parking, and lay down may be needed, identify where additional space will be located and provide GIS data that describes this additional space.	
9	N/A	PEA Checklist section 3.7.1.4; section V(11) of the Information and Criteria List	**Confirm helicopters would not be used during construction.** The PEA does not mention helicopter use during construction. Confirm that helicopter would not be used for any activities, including line stringing and pole installation, during construction. If helicopters would be used, describe the scope of activities helicopters would be used for.	PG&E does not plan to use helicopters for any project activities.
10	PEA Section 2.5.9.2, page 2-19, and section 2.5.8	PEA Checklist section 3.7.2.2 and 3.7.4; section V(11) of the Information and Criteria List	**Identify the source of imported backfill and the maximum quantity of imported material.** The PEA states that PG&E would use soils from on site to backfill and grade, but that some supplementation of soils may be needed. Identify the source of imported soil or other backfill material as well as a maximum volume of material to be imported.	Imported soil backfill and engineered base materials are provided by the contractor awarded the work. PG&E specifies the backfill requirement but does not specify the source/ supplier. Projects in the Fresno area generally procure such materials from "Vulcan Materials Co. /Sanger, CA"; however, the contractor awarded the work is under no obligation to procure from this source. The maximum import material volume will not be available until detailed civil engineering work is complete. A rough estimate (+/- 50%) assuming an overall site grade height increase of 2 feet would be approximately 30,000 cubic yards.
11	PEA Section 2.5.9.3	PEA Checklist section 3.7.2.5; section V(11) of the Information and	**State what methods would be used for stringing conductor and removing conductor over roadways.** PEA Figure 2-2 shows eight locations where conductor	See Attachment A, which provides supplemental information concerning guard structures.

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
		Criteria List	stringing would take place over South McCall Avenue and East Jensen Avenue as well as several locations where conductor would be removed from over roadways. State how PG&E would ensure motorist safety during stringing operations, such as through use of guard structures or netting. Clarify whether any methods would be used when conductor that crosses roadways is temporarily transferred onto shoo-fly structures.	
12	PEA Section 2.5.1	PEA Checklist section 3.7.4; section V(11) of the Information and Criteria List	**State whether North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) requirements in CIP-014-2 affect the proposed project** State whether Sanger Substation is subject to CIP-014-2 (Physical Security). If so, verify that the height and design of the fence as proposed is consistent with potential NERC CIP 14 requirements.	According to PG&E Corporate Security, Sanger Substation is not one of the six substations that fall under CIP-014-2.
13	PEA Sections 2.5.6 and 2.5.13, Table 3.16-3	PEA Checklist section 3.7.5; section V(11) of the Information and Criteria List	**Provide a schedule by phase for the proposed project.** Provide durations of each phase of construction described in section 2.5.13 and in Table 3.16-3. Provide descriptions of each phase, including designating which activities in 2.5.6 would occur in each phase in section 2.5.13.	See Attachment B, which provides estimated construction equipment and schedule by phase. Note that the Project Manager has increased the estimated construction schedule by 2 months.
14	PEA Table 2-1, section 2.5.13	PEA Checklist sections 3.7.1.3, 3.7.1.5, 3.7.2.1, 3.7.2.2, 3.7.5; section V(11) of the Information and Criteria List	**Provide more detail about equipment used during construction.** PEA Table 2-1 provides a list of equipment that would be used during construction. Specify which equipment and the quantity of equipment that would be used for ***each phase*** of construction described in PEA section 2.5.13.	See Attachment B, which provides estimated construction equipment and schedule by phase.
Air Quality				
15	PEA Appendix C	PEA Checklist section 5.3; section V(14) of the Information and	**Update air quality emissions calculations to use the most recent EMFAC and OFFROAD emissions factors. Provide spreadsheets to facilitate CPUC review.**	The proposed Project's construction emissions were quantified using the revised construction equipment and phase duration information provided in previous responses (#'s 13 and 14) and the California Emissions

PG&E Sanger Substation Expansion Project PEA Deficiencies				
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		Criteria List	Air quality emissions provided in the PEA use OFFROAD 2013 and EMFAC 2007 emissions factors. Updated emissions factors are available and generally required by air districts. Provide air quality emissions calculations with updated emissions factors. The air quality emissions calculations should be provided in Excel spreadsheet format.	Estimator Model (CalEEMod), Version 2013.2. CalEEMod uses the most recently approved EMFAC 2011 and OFFROAD 2011 emission factors to quantify emissions. Compared to the emissions thresholds as discussed in the air quality section of the PEA, the proposed Project's construction emissions are well below these thresholds. Therefore, impacts will be less than significant, consistent with the findings in the PEA filed with the CPUC in September 2015. Attachment C contains the CalEEMod air quality emissions spreadsheet, along with the air quality emissions summary reports.
Biological Resources				
16	PEA Pages 3.4-19 and 3.4-24	PEA Checklist section 6.1; section V(14) of the Information and Criteria List	**State which PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan (HCP) measures PG&E would implement during operations and maintenance.** The PEA specifies that the HCP does not cover the construction of the proposed project but states it would implement HCP measures during operation of the proposed project. Identify measures of the HCP that PG&E would adhere to during operation of the proposed project to comply with HCP.	As indicated in Section 2.7 of the PEA, there will be no change in Operations and Maintenance (O&M) as a result of the proposed project. Routine maintenance work that could have an impact on species or habitat would continue to be covered by the San Joaquin Valley O&M Habitat Conservation Plan (HCP). This is part of the existing baseline under CEQA, and not part of the proposed project. A copy of the HCP can be viewed at the following link: https://sps.utility.pge.com/sites/HCP/SHARED%20DOCUMENTS/HCP%20WEB%20LINKS%20DON'T%20MOVE/PGE_SJV_HCP_FINAL_WITH_BOOKMARKS.PDF. The HCP contains a list of "covered activities" in Chapter 2. PG&E regularly maintains its substation facilities, occasionally replacing equipment or poles, repairing fences and walls, and undertaking vegetation management and other routine activities that could potentially cause ground disturbance. If the maintenance activities are "covered activities" under the HCP and PG&E could impact a species or resource covered by the HCP, PG&E will utilize the HCP to provide federal and/or state take coverage for the work

PG&E Sanger Substation Expansion Project PEA Deficiencies				
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				rather than seeking separate permits. Substation projects greater than 0.5 acre are not "covered activities" under the HCP, which is why PG&E's PEA indicates that the HCP would not apply to the expansion project. The substation will continue to be within the boundary of the HCP, however, and PG&E will continue to be able to utilize the HCP for any future O&M activities needing take coverage – so long as they fall within the HCP's definition of "covered activities".
Cultural Resources				
17	PEA Pages 3.5-5 through 3.5-6	PEA Checklist section 5.5; section V(12) of the Information and Criteria List	**Provide information about any follow ups with or responses from Tribes contacted via letter on September 17, 2015.** PG&E contacted 15 individuals and organizations on the Native American Heritage Commission contact list via letter on September 17, 2015. The PEA does not contain any responses or information about attempted follow ups and states that no responses were received as of September 21, 2015. It is unlikely that PG&E would have received responses or conducted follow ups by September 21, 2015, four days after letters were sent. The CPUC requests PG&E's records of attempted follow ups and responses to complete PG&E's documentation of Native American consultation.	Additional contact has been made since filing of the PEA. Correspondence logs are included as Attachment D to this submittal.
18	PEA page 3.5-4	PEA Checklist section 4; section V(12) of the Information and Criteria List	**Provide GIS data that shows areas surveyed for cultural resources.** The PEA describes the areas surveyed for cultural resources. Provide a GIS (or equivalent) layer that shows the areas that have been surveyed for cultural resources.	To be provided confidentially per PUC Section 583.

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
Noise				
19	PEA Section 3.12.3	PEA Checklist section 4; section V(12) of the Information and Criteria List	**Provide baseline noise measurements for the project area.** The PEA does not provide current baseline noise measurements for the project area. Provide noise measurements that are representative of noise conditions at Sensitive Receptors 1, 2, and 6 (shown on PEA Figure 3.12-1). Noise levels should be provided in L_{dn} and L_{eq} (1 hour).	The only source of noise above the existing baseline for the project would be construction noise. Given that the project is located within an agricultural area where heavy machinery operates at various times of the year, background noise levels in the project vicinity fluctuate day to day as well as season to season. Therefore, baseline noise data that would be collected would not be representative of the area. As a result, PG&E used the maximum construction noise levels from construction equipment to assess impacts. See Section 3.12.5.3 and Table 3.12-7, which summarizes typical usage factors, and maximum noise levels, for representative construction equipment expected to be used during project construction. No increase in permanent noise is expected from the expansion of Sanger Substation. As shown in Table 3.12-8 of the PEA section, noise levels for the worst-case scenario at sensitive receptor 1 would be an L_{max} of 74 dBA, which results in an L_{eq} of 71 dBA; at sensitive receptor 2 would be an L_{max} of 73 dBA, which results in an L_{eq} of 70 dBA; and at sensitive receptor 6 would be an L_{max} of 56 dBA, which results in an L_{eq} of 53 dBA. These sensitive receptors are located in an area zoned for agriculture. As such, and shown on Table 3.12-5, the conditionally acceptable noise level range is from 70 to 80 dBA for that zone. The maximum noise levels from project construction at sensitive receptors 1, 2, and 6, are all within the conditionally acceptable range. Additionally, construction noise associated with the project will be temporary, intermittent, and as stated in Section 3.12.5.3 of the PEA, the incorporation of APMs NOI-1 through NOI-6 will result in less-than-significant noise impacts. The Noise APMs included address construction schedule limits, construction

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
				equipment reduction devices, minimization of unnecessary idling, and resident notification, all of which are intended to reduce temporary construction effects to nearby sensitive receptors. L_{dn}, which is a measure of a receiver's cumulative noise exposure from all noise events over a 24-hour period, was not calculated for the PEA. Instead L_{eq}, which is a measure of a receiver's cumulative noise exposure from all events over a one-hour period, was used for the sensitive receptors identified in the PEA. L_{eq} is believed to be representative of project conditions, since construction will be intermittent and nighttime construction is not anticipated for this project. As stated in APM NOI-1, PG&E will limit construction hours so that construction will occur between 6:00 a.m. and 9:00 p.m. on weekdays, further reduced on Saturday or Sunday, when construction will occur between 7:00 a.m. and 5:00 p.m. If nighttime work is needed because of clearance restrictions on the power line, PG&E will take appropriate measures to minimize disturbance to local residents, including contacting nearby residences to inform them of the work schedule.
Utilities and Service Systems				
20	PEA page 3.17-6	Section V(14) of the Information and Criteria List	**Provide information detailing how much water will be used during construction and operation of the project and where water for those activities will come from.** The PEA states that that water will be used for dust control and worker needs during construction, and that the existing water supplies will be sufficient to serve the project's needs. PG&E does not expect to need new or expanded entitlements. Provide more information regarding the project's water needs including: • Potential sources of water in addition to the City of	The amount of water to be used for soil compaction and dust control within the substation and for the various transmission line work outside the substation is highly variable and difficult to quantify. Based on past projects, average water usage through the construction phase of the project is approximately 150 GPD/ acre. The average water usage for the Sanger project over the construction phase of the project for compaction and dust control would be 1,500 GPD. For construction, the total water usage estimate would be 750,000 – 1,000,000 gallons of water over the

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
			Sanger • How water will be transported to the project site • A commitment letter from the local water authority or well owner confirming their ability to meet the project's water needs.	construction phase of the project. Potential water sources include: the City of Sanger, local farmers or other local water purveyors. All project construction water (dust control and compaction) will be delivered to the site by water trucks.
21	Page 3.17-6	CPUC PEA Checklist 5.16	**Describe how treated wood poles would be disposed of after removal.** PG&E details that 24 wood poles would be removed as part of the project. The CPUC requests information regarding the location and capacity of disposal facilities that may accommodate treated wood poles.	The treated wood poles are disposed of by a PG&E hazardous waste disposal contractor (currently "PSC"). Only disposal facilities licensed to accept treated wood poles would be utilized. PSC is currently using "Forward Landfill/ Manteca, CA"; however, there may be other options that PG&E may use during construction. There is also a chance that the wood poles may be salvaged by PG&E for future use at other locations.
Traffic and Transportation				
22	PEA Table 3.16-3, section 3.1.4.3, page 2-22	PEA Checklist section 3.7.5, 5.15; section V(14) of the Information and Criteria List	**Provide more detail regarding trip generation during AM and PM peak hours.** Provide a trip generation table that includes truck trips broken down by types of trucks (e.g., heavy duty), and number of worker and truck trips expected to take place during AM and PM peak hours. Section 3.16.4.3 indicates a maximum of 30 workers would each take 2 trips per day between the substation and surrounding communities. This would equate to 60 daily worker trips; however, Table 3.16-3 shows a maximum of 46 worker trips per day. Please state whether 46 trips per day is correct and provide any assumptions used for trip generation (e.g., carpooling, passenger car equivalent factor for heavy vehicles).	See Attachment E, which provides the requested information and a revised transportation table which also takes into account the revised construction and phasing schedule provided in response #'s 13 and 14. PG&E assumes that worker trips would total 60 daily trips: 30 workers x 1 trip in the AM + 1 trip in the PM. Table 3.16-3 also distinguishes between worker vehicle trips and heavy-duty construction-related truck traffic.
23	PEA Section 3.16.33	PEA Checklist section 4; section v(12) of the Information and	**Provide baseline traffic volumes for McCall Avenue and East Jensen Avenue.** Existing traffic volumes are not provided in the PEA for McCall Avenue and East Jensen Avenue. Provide recent	See Attachment F, which provides the requested information. A table has been created summarizing the baseline traffic volumes immediately adjacent to the Sanger

PG&E Sanger Substation Expansion Project PEA Deficiencies				
No.	***Reference***	***CPUC Requirement***	***Description of Deficiency***	***PG&E Response***
		Criteria List	(2012 or later) AM and PM peak period traffic volumes for Mc Call Avenue and East Jensen Avenue.	Substation, measured at the McCall Avenue/East Jensen intersection. Peak traffic volumes are based on information provided by the Fresno Council of Governments 2015 South East County map.