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Boris Sanchez
California Public Utilities Commission
Energy Division - Infrastructure Permitting & CEQA
505 Van Ness Avenue, 4th Floor
San Francisco, CA 94102

By Email:boris.sanchez@cpuc.ca.gov

**RE: Response to Data Request #1, PG&E Northern San Joaquin 230kV
Transmission Project (A.23-09-001)**

Dear Boris,

PG&E received Data Request 1 (DR 1) on October 2, 2023. On October 25, 2023 PG&E and CPUC Energy Division staff and their consultants had a conference call to discuss DR 1, including the Energy Division's rationale for seeking the information requested and the approaches PG&E might take in responding to it. Following the call, PG&E's understanding is that the Energy Division's rationale for issuing DR 1 is related to PG&E's rejection of Distribution Energy Resources Improvement (DERI) alternatives from detailed consideration in its Proponent's Environmental Assessment (PEA).

PG&E understood from the call, and as indicated in DR 1.1, that Energy Division determined that the level of information provided in the PEA regarding DERI alternatives was not consistent with other alternatives presented in the PEA and did not provide sufficient detail or explanation to justify not including DERI alternatives from detailed consideration in the Environmental Impact Report (EIR) that Energy Division is planning to prepare for this project. PG&E further understood that the information requested in DR 1.2 was predicated on the expectation that DERI alternatives could feasibly accomplish the transmission reliability objectives of the project and that such information would be used to identify and analyze DERI alternatives in the EIR. Our takeaway is that if Energy Division concluded that DERI alternatives could not feasibly accomplish the project's objectives, then Energy Division would consider withdrawing its request for information under DR 1.2.

As discussed below in the response to DR 1.1, PG&E rejected DERI alternatives from detailed consideration in the PEA because they cannot feasibly accomplish the basic objective of the project, which is:

“Address voltage issues and thermal overloads on PG&E’s Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by the CAISO in its 2017-2018 Transmission Plan.” (PEA at 2.10).

As a general matter, a DERI alternative would be inconsistent with the project scope identified by the California Independent System Operator (CAISO), which is to bring a new 230 kV source into the City of Lodi. In addition, DERI alternatives cannot achieve sufficient load reduction to rectify the voltage issues and thermal overloads occurring on PG&E’s 60 kV system during Category P1 and P6 contingency scenarios. Moreover, even if DERI alternatives could achieve the necessary load reduction to mitigate current voltage issues and thermal overloads, a significant portion of the load reduction that would need to be achieved by DERI alternatives would have to be implemented by a third party, the City of Lodi. Given that the City of Lodi is not subject to PG&E’s control, and that the City of Lodi Electric Utility (LEU) is not subject to the CPUC’s jurisdiction, there is no legal mechanism available in this CPCN proceeding to mandate that the City of Lodi or LEU implement DERI alternatives.

Accordingly, PG&E respectfully requests that Energy Division withdraw its request for information in DR 1.2.

A. Description of DERI Alternatives Considered by PG&E

Data Request 1, Part 1 states:

In PEA Section 4.4.10 "Distribution Energy Resources Improvement", the level of detail is not consistent with the other alternatives described in Sections 4.4.1 through 4.4.9 and 4.4.11. These other alternatives describe the type, size and location of the alternative considered. However, the description in Section 4.4.10 is: "This alternative would implement improvements to reduce electrical system demand (such as distributed generation, energy efficiency, and demand response)." Please provide a description of the size, type and location of distributed generation, energy efficiency, and demand response that comprises this alternative.

The short answer is that the PEA referenced generally the types of DERI alternatives that typically comprise this category, but PG&E did not perform a detailed analysis of DERI alternatives because we determined that they could not meet the project’s basic objective. Moreover, as discussed below, DERI alternatives would have to be implemented for the most part by LEU customers, and LEU is not subject to the CPUC’s jurisdiction, making such alternatives legally infeasible. Therefore, rather than provide a description of those alternatives here, we are providing a detailed basis for our conclusion that DERI alternatives cannot meet the project’s basic objective and should not be carried forward for detailed consideration in the EIR.

B. CAISO's Identification of the Cause and Solution to Voltage issues and Thermal Overloads on PG&E's Existing 60 kV System

CAISO approved a 230 kV transmission project to address voltage issues and thermal overloads that can only be achieved through reducing load on PG&E's 60 kV transmission system serving the northern San Joaquin County/Lodi area, which is depicted on the Existing System Single Line Diagram in the PEA, and provided below as Figure 1.

The CAISO's 2017-2018 Transmission Planning Process (TPP) identified this NERC compliance issue as a result of its reliability assessment on the 230/60 kV system in the northern San Joaquin area. CAISO studied normal system and various outage conditions for peak loading over a 10-year planning horizon and identified thermal overload and voltage issues resulting from NERC Category P1¹ contingencies on the PG&E 230/60 kV systems between PG&E Lockeford and LEU Industrial substations (CAISO 2017-2018 Transmission Plan). Additional CAISO assessment identified several NERC Category P6² outage scenarios that could result in thermal overloads on the 60 kV power lines in the area. CAISO's assessment also showed that if the recorded 2017 peak load for LEU was modeled in its study, overloads for P1 outages would have been identified on the PG&E Lockeford-Industrial 60 kV line (CAISO 2017-2018 Transmission Plan, Appendix B). After 2018, CAISO identified Category P1 outages in the Northern San Joaquin area on four PG&E 60 kV lines—Lockeford-Industrial, Lockeford-Lodi No. 2, Lockeford-Lodi No. 3 and Sutter Home SW STA-Lockeford-Lodi—as peak loads are anticipated to increase annually. Therefore, the 230/60 kV system in the area was not in compliance with NERC standards, obligating CAISO to identify a solution.

LEU customers comprise the majority of the load on PG&E's 60 kV transmission system in the area, making LEU the primary target for solving the peak loading issues causing the thermal overloads and voltage issues. LEU receives power from three connections to PG&E's 60 kV system: the Lockeford-Industrial, Lodi-Industrial, and Industrial Tap 60 kV lines. Currently, LEU can also obtain local generation that is dispatched under emergency conditions from the Northern California Power Agency (NCPA) 25 megawatt (MW) Lodi Combustion Turbine (Lodi CT) within the City of Lodi through its connection at LEU Industrial Substation (CAISO 2017-2018 Transmission Plan, Appendix B). CAISO indicated that Lodi CT was modeled as offline in the 2017-2018 study cases in response to comments from City of Lodi and NCPA (2017-2018 TPP Stakeholder Comments – CAISO Responses). Demand by LEU customers is forecasted to increase, as discussed in Section C below, adding to existing reliability issues.

Accordingly, CAISO determined that resolving the thermal overload and voltage issues on PG&E's 60 kV transmission system under P1 contingency scenarios required shifting LEU's load off of the 60 kV system. In its final 2017-2018 Transmission Plan, CAISO called for

¹ A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2014).

² NERC Category P6 contingency, or outage, is defined as two overlapping single outages (transmission circuit, transformer, shunt device, or single pole of a direct current line) (NERC 2014).

constructing a new 230 kV transmission line to provide power directly to LEU and enable PG&E to disconnect its three existing 60 kV connections to LEU's transmission grid. CAISO showed the solution graphically in a figure included in Confidential Exhibit B to its 2017-2018 Transmission Plan (Figure B2.4-8: Alternative 1 solution – Brighton-Bellota 230 kV loop in to Lockeford, p. B-79) which we have not included here, but which Energy Division has access to. Instead, for ease of reference, PG&E has provided below as Figure 2 the System at Project Completion Single Line Diagram from the PEA, which is essentially the same as CAISO's confidential figure.

Figure 1.

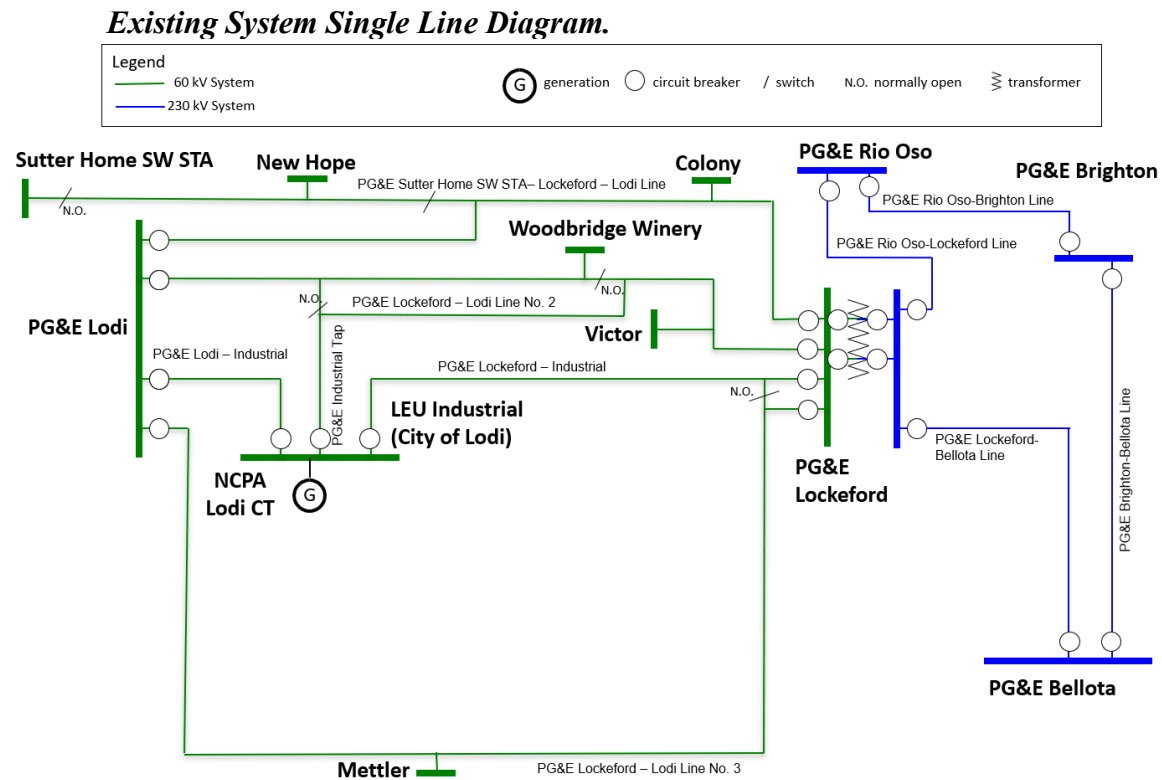
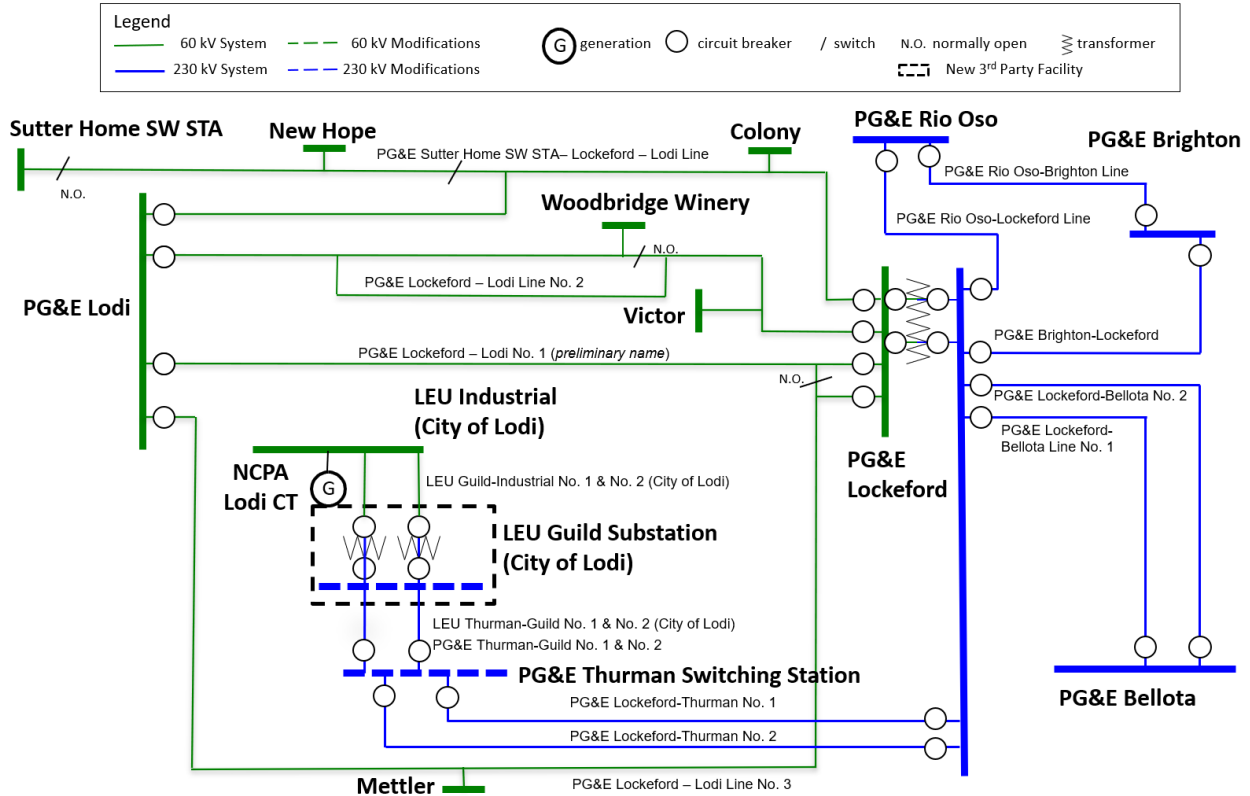


Figure 2.

System At Project Completion Single Line Diagram.



This solution would also solve P6 issues identified by CAISO on PG&E’s 230 kV system.

C. Forecast Data Shows that Load on PG&E’s Existing 60 kV Lines Would Need to be Reduced to Zero to Resolve Voltage Issues and Thermal Overloads

As shown in Table 1 below, based on load forecasts that CAISO is using in its 2023-2024 TPP cycle, the load on PG&E’s and LEU’s 60 kV substations in the northern San Joaquin County area is forecasted to grow from approximately 179.1 MW in 2025 to approximately 240 MW by 2035. LEU’s Industrial Substation has the largest amount of load in the area, forecasted by NCPA to be 169 MW in 2035. By comparison, the load on PG&E’s 60 kV substations in the area is forecasted to be 71 MW in 2035.

Based on CAISO’s 2023-2024 TPP model and load forecast data, PG&E estimates that in 2035 approximately 70-84 MW load relief is needed to address voltage issues and thermal overloads on its 60 kV system. This amount is equal to or greater than the forecasted load on its substations in the area. Hypothetically, if PG&E were able to install or cause to be installed, or via some other means, sufficient DERI projects within its service territory to reduce the load on

its 60 kV substations in the northern San Joaquin County area to zero by 2035, that might be sufficient to achieve the magnitude of reductions needed to resolve the voltage issues and thermal overloads on its 60 kV system. However, this is not realistic. Moreover, the 2035 forecast provided in Table 1 includes current forecasts for load reductions and/or increases for distributed generation (DG), additional achievable energy efficiency (AAEE), additional achievable fuel substitution (AAFS) and additional achievable transportation electrification (AATE).

Table 1. Load Forecasts CAISO is Using in its 2023-2024 TPP Cycle

60 kV Substations		2025	2028	2035
Victor (PG&E)	Gross	12.57	12.49	11.5
	DG	-2.02	0	0
	AAEE	-0.1	-0.2	-0.3
	AAFS	0.1	0.3	1.2
	AATE	0.1	0.4	1.4
	Net	10.65	12.99	13.8
Lodi (PG&E)	Gross	17.8	16.55	16.33
	DG	-2.28	0	0
	AAEE	-0.1	-0.2	-0.4
	AAFS	0.1	0.3	1.5
	AATE	0.2	0.4	1.5
	Net	15.72	17.05	18.93
Woodbridge Winery	Net	6.54	6.54	6.54
Colony (PG&E)	Gross	3.6	5.06	11.18
	DG	-1.08	0	0
	AAEE	-0.1	-0.1	-0.1
	AAFS	0	0.1	0.5
	AATE	0.1	0.2	0.7
	Net	2.52	5.26	12.28
New Hope (PG&E)	Gross	4.48	4.17	9.79
	DG	-0.62	0	0
	AAEE	-0.1	-0.1	-0.2
	AAFS	0	0.1	0.3
	AATE	0.2	0.5	1.8
	Net	3.96	4.67	11.69

60 kV Substations		2025	2028	2035
Mettler (PG&E)	Gross	6.85	6.36	6.17
	DG	-1.13	0	0
	AAEE	-0.1	-0.1	-0.2
	AAFS	0	0.1	0.6
	AATE	0.1	0.3	1
	Net	5.72	6.66	7.57
Industrial (LEU)		134	143.9	169.3
Total Approximate Net MW		179.1	197	240.1

It is also reasonable to expect that the magnitude of load relief needed will continue to grow as demand increases beyond 2035. For example, there are several rural towns in the Lodi area that are strategically located at the confluence of four major California highways, making them ideal for proliferation of large electric vehicle (EV) charging facilities. Evidence from analogous regions supports the trend toward the adoption of EV infrastructure, suggesting an upcoming increase in load (although PG&E has not received applications for such charging stations yet).

D. DERI Alternatives Cannot Achieve the Load Reduction Required to Solve the Voltage Issues and Thermal Overloads on PG&E’s 60 kV System

Based on how the forecasted load is distributed on PG&E’s and LEU’s 60 kV substations in the northern San Joaquin County area, the only practicable means of achieving sufficient load reduction on PG&E’s existing 60 kV system must include reducing the load on LEU’s Industrial Substation. PG&E does not control LEU and cannot modify LEU’s electrical grid to reduce load on Industrial Substation. Likewise, the CPUC does not have jurisdiction over LEU and cannot require LEU to modify its electrical grid, including to undertake DERI projects, that would reduce load on Industrial Substation. If implementation of DERI projects on PG&E’s 60 kV system cannot solve the current reliability issue as discussed in Section C above, and there is no legal means for PG&E or the CPUC to require LEU to implement DERI projects, then DERI is simply not a potentially feasible alternative to the proposed project.

There are additional reasons to exclude DERI from consideration as a potential feasible alternative to the project. Load relief has to be instantaneous and dependable, and the required amount would depend on the grid’s operating condition at any given moment. Solar generation is time and weather limited. In 2035, the peak demand hour will be 7 pm, which will not coincide with peak solar production unless there is adequate storage to compensate. The proposed new 230 kV source to feed LEU’s Industrial Substation will be instantaneous and dependable.

Conclusion

Based on the information provided above, DERI alternatives cannot feasibly accomplish the basic objectives of the project. They should not be carried forward for detailed analysis in the CEQA process. The large and detailed scope of information requested in DR 1.2 would be used to evaluate potential DERI alternatives to the project. There is not a reasonable nexus between DR 1.2 and potentially feasible DERI project alternatives to justify the significant time and cost that it would take PG&E to produce the data requested and for Energy Division to analyze it. Therefore, PG&E respectfully requests that Energy Division withdraw its request for information under DR 1.2.

Sincerely,

Erin Rice
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