State of California

M e m o r a n d u m

Date: September 24, 2019

To: Igor Grinberg, PG&E
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From: Energy Division

Subject: Questions and Data Requests Related to 2019 DPAG/DIDF

#	Category	Question / Data Request
		PG&E
1	2018&2019 GNA/DDOR, Defining the Grid Needs	Why weren't the following four reliability/other needs included in the **2018 GNA or DDOR**? 1. Cholame Between X14 and R96; Emergency line loss; Reliability / Other 2. Cholame Sub DA (day ahead); T-line clearance; Reliability / Other 3. Cholame Sub RT (real time); T-line emergency; Reliability / Other 4. L/S R78 - Templeton 2109; Emergency line loss; Reliability / Other
2	2018&2019 GNA/DDOR, Defining the Grid Needs	**Describe** the following four reliability/other needs in detail. See also the Reference Map, below. Identify the high-side voltages involved and include the specific reliability requirements associated with the needs. 1. Cholame Between X14 and R96; Emergency line loss; Reliability / Other 2. Cholame Sub DA (day ahead); T-line clearance; Reliability / Other 3. Cholame Sub RT (real time); T-line emergency; Reliability / Other 4. L/S R78 - Templeton 2109; Emergency line loss; Reliability / Other For each need, include the specific **planning standard** that results in the reliability issue. If no planning standard applies, justify the 2019 GNA's/DDOR's identification/inclusion of the reliability needs and the 2019 DDOR's determination that the needs would be addressed by the Estrella planned investment. Please note, it is our understanding that up to 75 MW of load are allowed to be shed following a N-1 (P1) contingency per the NERC/CAISO planning standards. Additionally, PG&E stated, "PG&E is aware of no distribution planning standard

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		that determines whether a feeder is too long to provide reliable service" in Proponent's Environmental Assessment (PEA), Appendix G, on p. UG-32.
3	2018&2019 GNA/DDOR, Defining the Grid Needs	The need following the Cholame 70-kV N-1 is quite large (95% overload; see Table 1 below), it exists now, and we assume it has been there for quite some time given the magnitude. How long has PG&E had a Cholame N-1 need (anything above 0). Provide a table showing the **historical** facility rating (MW) and annual % deficiency of the three Cholame needs and the Templeton need over time going back at least to 2009.
4	2018&2019 GNA/DDOR, Defining the Grid Needs	Based on comments made at the 2019 PG&E DRP DPAG, our understanding is that the cause of the Cholame reliability issues is an N-1 outage of the 70-kV line that powers Cholame (from Arco Substation). To what extent would Estrella Substation as currently described in the PTC Application solve the entire Cholame 70-kV N-1 need. Be specific about the amount of **any remaining need**, if it would exist. For example, according to the June 2018 filing for the Formal Application (PEA, Appendix G, Table 7), Estrella Substation as proposed would unload Cholame Substation by 2.10 MW, but the N-1 need per the 2019 GNA would be closer to 12 MW. Furthermore, PEA Appendix G states, "The proposed project provides a future opportunity to add an **additional transmission line to Cholame Substation** to create a looped circuit to improve reliability and operational flexibility on the 70 kV system. This line would likely be constructed within 2 to 3 years after Estrella Substation is built" on p. UG-27. Hence, to solve the Cholame N-1 contingency, a new 70-kV line would be required (17 miles long). If this need is real as of 2019 (and prior to that) and directly linked to completion of Estrella Substation, it seems that it should have been part of the original project description for Estrella Substation. However, we believe that the CAISO would also need to validate the Cholame N-1 need, possibly through their annual transmission planning process (p. UG-40). Please discuss how (<u>and when</u>) this need will be addressed by PG&E and the CAISO. A battery solution to the Cholame N-1 need is also discussed (p. UG-28), but if the need is in fact 24 to 48 hours in duration per the 2019 GNA, this does not appear to be feasible. This also appears to be PG&E's finding, see p. UG-39. In any case, a new 70-kV line is not the same as building out the distribution system. Hence, decoupling the Cholame-N-1 need from the 2019 DDOR Estrella Planned investment should be considered. The capacity needs could be addressed by battery storage and should be considered by PG&E in the 2019 DDOR separately than the Cholame N-1 reliability needs.
5	2018&2019 GNA/DDOR, Defining the Grid Needs	To what extent could **distribution system back-ties** be activated/installed to solve the Cholame N-1 need via existing PR DPA or other DPA distribution infrastructure. If not, what would be the remaining deficiency (MW and duration).
6	2018&2019 GNA/DDOR,	If the proposed **Estrella Substation is not constructed**, identify ways in which

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	Defining the Grid Needs	PG&E would solve the Cholame 70-kV N-1 issue? To what extent would PG&E violate a NERC/CAISO standard if they do not resolve the issue, and the outage occurred, resulting in load shedding? Describe the penalty for this violation and provide an estimated dollar amount.
7	2018&2019 GNA/DDOR, Defining the Grid Needs	Was the **Cholame 70-kV N-1 considered in the 2013 TPP** process that resulted in CAISO's approval of the Estrella project? Was this N-1 discussed with the CAISO any time prior to or since their approval of the Estrella project? Does PG&E plan to present the Cholame 70-kV N-1 to the CAISO in the current TPP or a future TPP? If not, why not?
8	2018&2019 GNA/DDOR, Defining the Grid Needs	a. Table 2, below, shows a screen capture from the draft, updated PG&E 2019 GNA/DDOR filing (not yet refiled). The draft update still has discrepancies. For example, The GNA indicates that **San Miguel Bank 1** need reaches 1.68MW (2023) in the five-year planning window, not 3.6MW. b. In addition, **Templeton Bank 3** exceeds it's rating by only 0.12 MW (2022) and not 1.1MW. Based on this low exceedance, which does not occur in 2023, it appears that Templeton Bank 3 should not be included as an Estrella Planned Investment capacity need at all.
9	2018&2019 GNA/DDOR, Metrics and Prioritization	Please break out the 7 grid needs into their relative grid-need components, consider only the three capacity components for deferral (e.g., Paso Robles 1104, San Miguel Bank 1, and Templeton Bank 3, which are the three **remaining capacity-driven components**) and how that impacts the need and scoring metrics of the total project. Show all calculations and the new Tier ranking. *Remove Templeton Bank 3 as well, depending on PG&E's position regarding Item 8b. above.
10	2018&2019 GNA/DDOR, Metrics and Prioritization	The "need date" is identified as 2024, but two of the capacity needs first occur in 2019. Since the need date appears to be based on the operational date of a potential new Estrella Substation (and somewhat arbitrary), please assume a 2022 need date, which would be optimal for DER considerations. For comparative purposes, recalculate the **Forecast Certainty** metric with 2022 instead of 2024. Show all calculations.
11	2018&2019 GNA/DDOR, Metrics and Prioritization	Clearly explain why the LNBA Value ($/KW-yr) is $558 for the Planned Investment listing for Estrella but only $51 for the Candidate Deferral Listing. Show all calculations. For comparative purposes, Recalculate the **Cost-Effectiveness** metric with $558 instead of $51. Show all calculations.
12	2018&2019 GNA/DDOR, Scope of Distribution Work	Assuming the Estrella Substation is constructed as proposed, provide the full **scope of both the distribution AND transmission work (itemized)** that would be necessary to address the four new Cholame and Templeton reliability/other

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		needs in the 2019 GNA/DDOR. We note that the distribution work alone adds up to $18.5 million per the 2019 DDOR filing.
		SDG&E
13	2019 GNA	SDG&E's 2019 GNA included only 10 planned investments with in-service dates of 2020 and 2021. a. Were any of these planned investments showing as needed in the 2018 GNA and if yes what were their in service dates? Are there any other patterns of changes between the 2019 and 2018 GNA that warrant further examination. b. Why are there no planned investments beyond 2022? What explains this? Will the next SDG&E GRC likely see a drop in Distribution capital funding levels being requested? c. IPE can you validate that there are no grid needs beyond 2022? d. IPE can you validate that none of the 10 planned investments are viable as DER deferrals? e. IPE what is your view of SDG&E's prioritization ranking methods compared with the equivalent methods used by PG&E and SCE?
		SDG&E and PG&E
14	2019 GNA	SCE's 2019 GNA has a unique project ID for each grid need/planned investment to help cross walk to GRC. Does PG&E and SDG&E have the same?
		All 3 IOUs
15	2018&2019 GNA/DDOR, Defining the Grid Needs	For each category of planned investment (capacity, voltage, reliability, back-tie, capacity) please quantify: • The capacity of need in the 2019 GNA • The capital cost estimated in the 2019 GNA/DDOR, or provide the capital cost if not included in the GNA/DDOR • The capital cost in the most recent GRC for the category of investment.
16	2018&2019 GNA/DDOR, Defining the Grid Needs	How does PV and other DER penetration affect voltage rise in planning assumptions that inform the voltage-related planned investments in your 2019 GNA/DDOR? How do smart inverter functions (e.g. volt/var, volt-watt etc) required by all inverter-based DERs affect voltage impacts of DER penetration in this GNA/DDOR and in the future.
17	2018&2019 GNA/DDOR, Defining the Grid Needs	For any of the planned investments that have in-service dates of 2021 or sooner, has the IOU considered if a DER solution initiated by the IOU is the lowest cost way to address the need? Please provide details of all examples where DERs were considered. If DERs were not considered explain why.
18	2018&2019 GNA/DDOR,	IPE, for each IOU please offer your analysis of whether you agree with the

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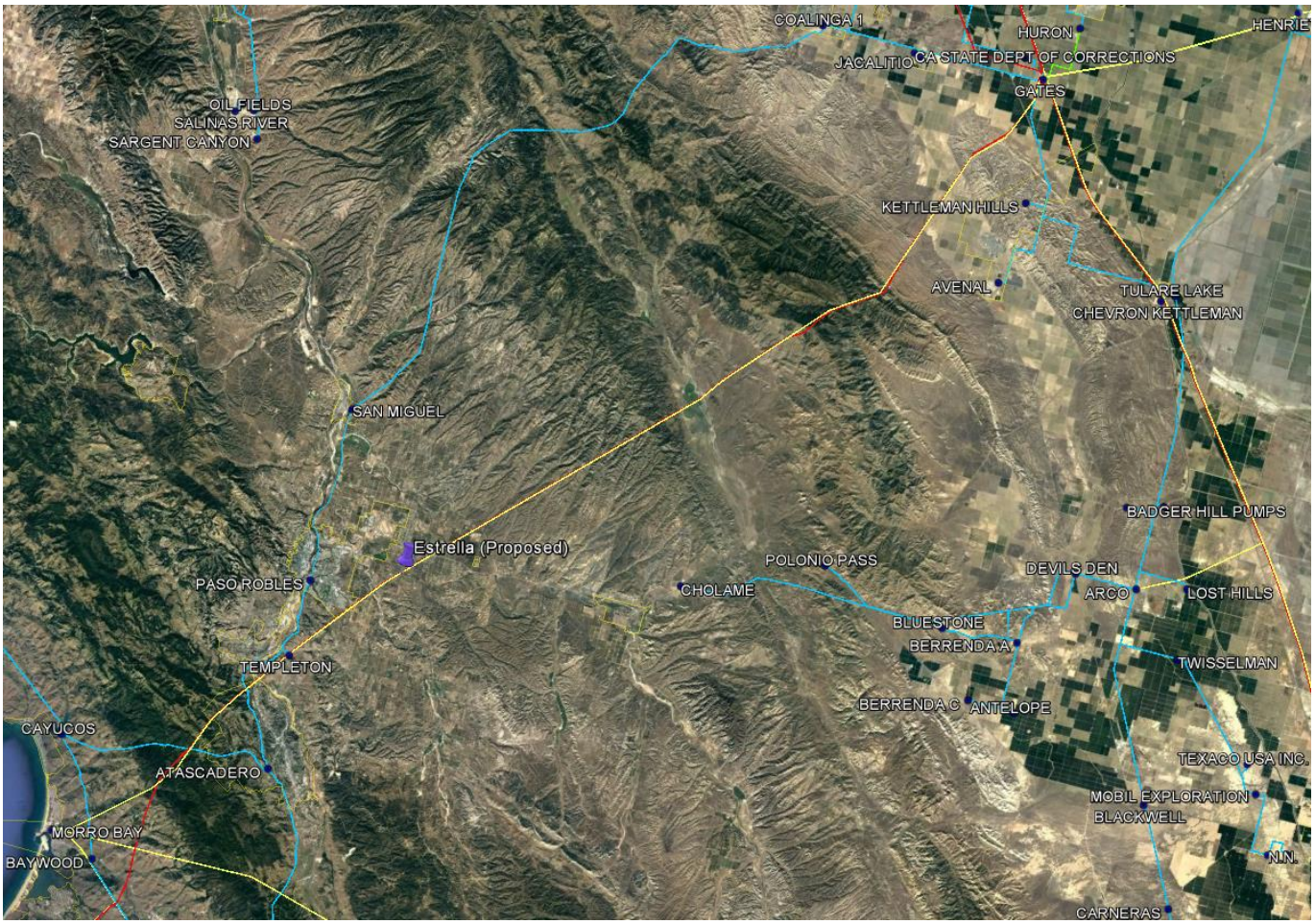
	Defining the Grid Needs	ranking criteria of which DDOR projects will be included in an RFO. Please comment if you think any projects should be added or subtracted from the Tier 1 category.

TABLE 1: PG&E 2019 GNA

Appendix 6.6: GNA Results - Reliability / Other Needs

Distribution Planning Region	Division	Facility Type	Facility Name	Primary Driver	Distribution Service Required	Anticipated Need Date	2019 Facility Rating (MW)	2019 Deficiency (%)	2020 Deficiency (%)	2021 Deficiency (%)	2022 Deficiency (%)	2023 Deficiency (%)
Central Coast	Los Padres	Substation	Cholame Between X14 and R96	Emergency line loss	Reliability / Other	2024	12.40	10%	10%	10%	10%	10%
Central Coast	Los Padres	Substation	Cholame Sub DA	T-line clearance	Reliability / Other	2024	12.35	95%	95%	95%	95%	95%
Central Coast	Los Padres	Substation	Cholame Sub RT	T-line emergency	Reliability / Other	2024	12.35	95%	95%	95%	95%	95%
Central Coast	Los Padres	Substation	L/S R78 - Templeton 2109	Emergency line loss	Reliability / Other	2024	21.62	25%	25%	25%	25%	25%

Table 2. 2019 PG&E DPAG Screenshot, 9/19/19

Candidate Deferral Opportunity	Proposed Work	In-Service Date	Expected performance and operational requirements								
			GNA Facility Name	Distribution Service Required	Real Time (RA) or Day Ahead (DA)	Grid Need	Grid Need Unit	Month	Calls/ Year	Hours	Duration (Hours)
Estrella Substation	Construct Estrella Substation - 45 MVA transformer and fully populated switchgear enclosure	2024	PASO ROBLES 1104	Capacity	DA	1.2	MW	Jul-Aug	21	2PM-10PM	8
			SAN MIGUEL BANK 1	Capacity	DA	3.6	MW	Jul-Sep	122	6AM-10PM	9
			TEMPLETON BANK 3	Capacity	DA	1.1	MW	Jul-Aug	23	12PM-3PM	3
			Cholame Between X14 and R96	Reliability / Other	RT + Islanding	1.2	MW	Apr-Oct	8	12AM-12AM	4
			Cholame Sub DA	Reliability / Other	DA + Islanding	11.8	MW	Apr-Oct	1	12AM-12AM	48
			Cholame Sub RT	Reliability / Other	RT + Islanding		MW	Apr-Oct	8	12AM-12AM	24
			L/S R78 - Templeton 2109	Reliability / Other	RT + Islanding	5.4	MW	Apr-Oct	8	12AM-12AM	4

Reference Map