The ISO received comments on the topics discussed at the July 31, 2024 stakeholder meeting from the following:

[1. Clearway Energy Group 2](#_Toc175560562)

[2. CPUC 4](#_Toc175560563)

[3. Nextera Energy 5](#_Toc175560564)

[4. Calpine 6](#_Toc175560565)

[5. San Jose Clean Energy 7](#_Toc175560566)

Copies of the comments submitted are located on the Miscellaneous Meetings Page under Transmission Development Forum at:

[https://www.caiso.com/library/transmission-development-forum](https://www.caiso.com/library/transmission-development-forum-jul-31-2024-900-am)

The following are the ISO and PTO’s responses to the comments.

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| Clearway Energy Group |
| **No** | **Comment Submitted** | **Responses** |
| **a** | Can the network upgrade’s in-service date published in the TDF be the source to adjust LGIA milestone dates for cases where such in-service date is pacing queued generator project’s COD? If not, is the upcoming December reassessment report correct source to do such changes? | The information provided in the TDF are the in-service dates at the time of the meeting. The dates may change between then and the next TDF. With respect to the LGIA, these will continue to be updated per the existing processes.  |
| **b** | Panoche 115 kV Circuit Breaker Replacement and 230 kV Bus Upgrade project has ISD of April 2028. Per the ‘Note’ column, this is being implemented under New Manning 500 kV substation. New Manning 500 kV substation has ISD of Dec-27. * Can you clarify why then “Panoche 115 kV...” has ISD different from “New Manning...”?
* Which one is correct for each of the projects?
 | In the July 2024 TDF, PG&E aligned the in-service date for Manning Substation project with that of LS Power since we are continuously coordinating with LS Power on the ultimate in-service date for PG&E’s scope and LS Power’s scope. The December 2027 in-service date provides ample time in the event additional time is needed to get the substation online by the CAISO expected in-service date of June 1, 2028.The New Manning Substation and other associated upgrades, such as Panoche, will require careful coordination and sequencing to bring the many components operational by the required in-service date. Panoche is a standalone line item in the TDF workbooks because it was approved separately but not all New Manning Substation components will be completed at the same time. |
| **c** | Is it correct that information about C14 triggered upgrades will be published in next TDF forum so long as generators responsible sign LGIA? | The PTOs are to update the network upgrades with changes, included newly triggered upgrades. |
| **d** | It will be helpful to understand nomenclature used in the ‘ID’ field of Generator Interconnection (“GI”) driven upgrades for all the upgrades across various PTOs. For example - in PG&E tab, what does FGR06 in “C14P2-FGR06’ and FPN02 in ‘C14P2-FPN02’ stand for, so on? | C14P2 nomenclature communicates when the upgrade was identified. The “-FGR06” and similar nomenclature are internal identifiers used to track network upgrades. |
| **e** | Upgrade description in LGIA does not match 1:1 against the TDF published description. Can you provide point of contacts for each PTO for resolution on such issues? | Questions can be sent to the project specialists related to this. |
| **f** | Many policy driven upgrades approved in recent TPP (specifically southern CAISO) are not present in the network upgrades worksheets. Would next TDF include them? | The ISO is working with the recently approved project sponsors to include the information in the TDF. |
| **g** | Certain upgrades in PG&E GI upgrades spreadsheet have ‘Type of upgrade’ field as TPP (or TPP-Approved). Can you explain how an upgrade is both GI and TPP driven? | Once a project is nominated and approved in the TPP, it will be designated as TPP in the list but it still may hold a value in the network upgrade ID field indicating it is generation impacting. |
| **h** | Many PG&E upgrades in GI worksheet are triggered in reassessment, is it typical of the interconnection studies to identify new upgrades during reassessment? | Powerflow and short-circuit duty cases are updated based on system wide model updates. CAISO's Annual Generation Reassessment process will take the updated basecase assumptions and reassesses the need for the not in-flight Reliability and Deliverability upgrades. The need for upgrades can change based on various updated assumptions including project withdrawals , downsizing, rescoping, newly approved TPP projects, change in Deliverability and Reliability assumptions. |

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| CPUC |
| **No** | **Comment Submitted** | **Responses** |
| **a** | **Circuit Breaker Component Delays and Acquisition Issues**In its presentation, PG&E reported that circuit breaker components have been difficult to acquire on a timely basis, which has led to project delays. Other utilities have also reported similar situations resulting in project delays. PG&E indicated that suppliers are expanding manufacturing capacity, but the production increase is not expected until 2028-2029. This is a concern, particularly with hundreds of new circuit breaker projects (for PG&E alone) in the pipeline. Staff appreciate CAISO’s working with the utilities participating in the TDF to answer the following questions:1. Are the supplier expansions anticipated in 2028-2029 expected to meet the demand from utilities in the CAISO region for the level of scheduled circuit breaker-related projects?
2. Additionally, are there any measures that the CAISO and/or utilities intend to employ to minimize impacts on ratepayers from the cost increases resulting from the delays of these circuit breaker-related projects?
3. If the “reprioritization/recalibration” efforts for these circuit breaker-related projects are part of the cost management measures, Staff request that the utilities further describe how such efforts minimize the cost increases due to delays. Two examples of PG&E’s several projects reportedly impacted by circuit breaker component delays include the “Vaca Dixon Substation” project (GIP C12P1-NPT04) and the “Banta 60kV Bus Voltage Conversion” TPP project.
 | PG&E is forecasting some catch up on circuit breaker deliveries in the 2028-2029 period. While PG&E is exploring and vetting other manufacturers of circuit breakers, we are not in a position to opine whether supplier expansions will materialize as forecasted. PG&E consistently seeks to negotiate with suppliers to get the best possible pricing for equipment, with the interests of our customers being a priority. PG&E must manage its workplan and overall costs based upon many factors, including decreasing risk on the electric system. As previously indicated, during 2022 – as PG&E updated its plans for 2023, PG&E allocated capital toward public safety and wildfire risk reduction to meet our Wildfire Mitigation Plan commitments. At that time, we had already started seeing inflation and supply chain impacts that increased the cost to execute. PG&E thus reprioritized projects to ensure it had sufficient capital to complete our highest priority safety work while at the same time managing our overall costs. |
| **b** | **Cielo Azul 500kV Switchyard (DCRT/TWL Project)** During its DCRT/TWL presentation, Ten West Link (a joint venture led by Lotus Infrastructure Partners) provided information regarding the Cielo Azul Switchyard. The Cielo Azul project is located in Arizona, approximately 39 miles east of Delaney Substation, and is being constructed to “interconnect generation projects in the CAISO LGIP.” Although the CAISO-approved DCRT/TWL project was included in the TPP-Approved Workbook, the Cielo Azul Switchyard was not included in the Network Upgrades/Generator Interconnection Workbook. Cielo Azul is described as an important generator-related network upgrade. To meet the intended purpose of the TDF, Staff request that Cielo Azul, and all other relevant network upgrades, be included in the Network Upgrades/Generator Interconnection Workbook to provide appropriate transparency for stakeholders | The information included in the workbooks and presented are intended to be the TPP approved projects and the network upgrades (RNU & DNU) and not including individual interconnection facilities or IRNUs. The Cielo Azul Switchyard information was presented with the DCRT project information as it was occurring at the same time. |

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| Nextera Energy |
| **No** | **Comment Submitted** | **Responses** |
| **a** | PG&E’s Tesla 500 kV circuit breaker 642 & 542 overstress upgrade has been delayed once more from June 2025 to August 2025; this upgrade was initially set to be in-service in June of 2024 but was delayed due to supply chain issues delaying the breakers. PG&E confirmed the breakers have been delivered and that work is planned to begin in November, so why is the in-service date pushed another two months? | The information provided at the TDF reflects the expected in-service date (ISD) at a point in time and PG&E is consistently re-assessing project schedules to see how improvements can be achieved. We will relay any changes to the ISD for the Tesla 500 kV circuit breaker upgrades at the next TDF. |

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| Calpine  |
| **No** | **Comment Submitted** | **Responses** |
| **a** | At today’s Transmission Development Forum, SCE and PG&E identified delays in virtually every transmission project that included the need for breakers.  PG&E specifically identified the need for nearly 400 breakers in the next couple years, and that particularly 230 and 500 kV breakers are showing lead times as long as 4.5  years.  These delays frustrate the ability of LSEs and suppliers to meet aggressive MTR and other resource targets established by the CPUC.Can you please summarize the efforts that the CAISO and each LSE has initiated to address supply chain restrictions, the allocation of scarce equipment and work with vendors, both approved and prospective?  Specifically, processes such as recalibration, reprioritization and repurposing were mentioned.  Please explain, with as much detail as possible, how projects are being prioritized.   | The CAISO continues to work with the PTOs related to supply chain issues and impacts on various projects. |
| **b** | Has the CAISO or LSEs sought assistance from regulators (for example, to allow cost recovery for early ordering of breakers), from vendors (for example, for detailed estimates of order lead times, manufacturing upgrades and facility status) or from the Governor’s office (similar to earlier efforts to track shipments of storage, etc.)   | The PTOs have been seeking alternatives to mitigate the supply chain issues through various means. |
| **c** | SCE’s Project SCE-10P2-E-R3 (line item 10 on the LGIA table, CRAS) now shows as “closeout” and that it was in-service in April.  One of our projects (Queue #1645, Menifee) has received Interim Deliverability pursuant to a Limited Operation Study.  We are curious as to when / FCDS will be granted to each phase of this project?  | Since Deliverability falls under the CAISO’s purview and individual interconnection concerns are out of scope of the CAISO’s TDF and shouldn’t be addressed there, we suggest Calpine follow up with the CAISO outside of the TDF process for the update.The LOS mentioned in question 4.c concluded that the Project, or any of its Phases, may achieve its COD as scheduled provided that the WoCR CRAS Inland/Devers Extension is in-service, and the Project has been added to both WoCR CRAS and WoCR CRAS Inland/Devers Extension. SCE has sent multiple PTO notices to both the CAISO’s New Resources Implementation Group and Calpine/Nova Power, confirming that the Menifee project has been added to the Inland/Devers Extension CRAS. Therefore, the CAISO should address Calpine’s key question regarding when FCDS be granted for each phase of this project.  |

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| San Jose Clean Energy  |
| **No** | **Comment Submitted** | **Responses** |
| **a** | A deferred upgrade project at the Lugo – Victorville 500 kV Transmission Line is negatively impacting thousands of electric customers, multiple entities, and the State’s clean energy goals. Specifically, as a direct result of the overdue transmission upgrade:* Over 10 Maximum Import Capability branch groups are unable to be expanded
* Numerous renewable energy and storage projects integral to load serving entities now have uncertain deliverability dates, increasing the risk of missing critical reliability requirements
* San José Clean Energy is experiencing a multi-year delay for a long-term storage project
* The State’s progress towards its renewable and zero carbon goals is stymied

The upgrade project was approved in the 2016-17 Transmission Planning Process with an estimated in-service date of December 31, 2018. Six year later, the upgrade remains unfinished, with no clear revised in-service date. Finalizing this transmission work is vital to the State, its residents, and business. As such, San José Clean Energy respectfully requests CAISO confirm a completion date of or 2027 or sooner. | The ISO continues to coordinate with SCE and LADWP on the in-service date for the Lugo-Victorville 500 kV transmission line upgrade. LADWP indicated at their December 19, 2024 transmission planning stakeholder meeting that the current in-service date for their work on the project is November 2027. |