



Together, Building
a Better California

Transmission Development Forum

Generation Interconnection Project (GIP) Upgrades
and Transmission Planning Process (TPP)
Upgrade Status

July 29, 2022



Presentation Summary

- PG&E workbooks capturing Generator Interconnection Projects (GIP) and Transmission Planning Process (TPP) project statuses.
- This presentation provides updates and the opportunity for discussion on the status of GIP and TPP projects that are highest priority to immediate generation interconnection. This is a technical discussion on the projects.
- PG&E requests that stakeholders save questions until the completion of each slide. Projects have been grouped to enable efficient and productive discussion.



Recurring Updates

- PG&E fully supports the Transmission Development Forum to share Generation Triggered Reliability and Deliverability project status to all stakeholders.
- The Excel Workbook will contain projects that have been triggered by Interconnection Agreements while it may not show upgrades not yet triggered by an interconnection agreement.
- PG&E Interconnection Managers and Assigned Project Managers in the future will ask that Interconnection Customer Teams focus requests on status of triggered upgrades through the Development Forum each quarter as we align to support this process.
- Where in-service dates are more eminent within the current Quarter, a more reactive method to push updates as needed. PG&E will want the Forum to address this question at length before making a change.



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PG&E Projects Status Summary

Projects with Planned In-Service Date Improvements

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Christie-Sobrante 115 kV Line Reconductor	Initiating	Q1-2025	Q4-2028	Q2-2028	Improved ISD due to reprioritization
TPP	Cottonwood 115 kV Bus Sectionalizing Breaker Replace Cottonwood Transformer Banks 1 & 4, replacement of six circuit breakers, addition of bus parallel circuit breaker, and upgrade the aging protection and control equipment at the Cottonwood substation.	In-Flight	Q3-2024	Q1-2025	Q4-2024	Earlier ISD due to ISD used on specific order and not T.Dot
TPP	East Shore 230 kV Bus Terminals Reconfiguration Reroute Russell City-East Shore and San Mateo-East Shore 230 kV lines at PG&E's East Shore 230 kV Substation	Initiating	Q4-2024	Q4-2026	Q4-2025	Improved ISD due to reprioritization
TPP	Metcalf-Piercy & Swift and Newark-Dixon Landing 115 kV Upgrade	Initiating	Q4-2026	Q2-2029	Q4-2027	Improved ISD due to reprioritization
TPP	Tyler 60 kV Shunt Capacitor	Initiating	Q4-2025	Q4-2026	Q2-2026	Improved ISD due to reprioritization
TPP	Vaca-Dixon Area Reinforcement (INSTALL (2) CAPACITOR BANKS)	In-Flight	Q1-2025	Q3-2026	Q3-2025	Improved ISD due to reprioritization
TPP	Weber-Mormon Jct 60 kV Line Section Reconductoring Project	Initiating	Q2-2025	Q2-2027	Q2-2026	Improved ISD due to reprioritization

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PG&E Projects Status Summary

TPP Projects with Delays due to Reprioritization

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Atlantic 230/60 kV transformer voltage regulator	Initiating	Q1-2025	Q1-2026	Q2-2026	Delay due to reprioritization, project not initiated yet
TPP	Clear Lake 60 kV System Reinforcement	Initiating	Q4-2027	Q1-2027	Q4-2028	Delay due to reprioritization, project has not been initiated yet
TPP	Cooley Landing 60 kV Substation Circuit Breaker No #62 Upgrade	Initiating	Q2-2026	Q1-2026	Q4-2026	Delay due to reprioritization, project has not been initiated yet
TPP	Coppermine 70 kV Reinforcement Project	Initiating	Q4-2026	Q2-2027	Q4-2027	Delay due to reprioritization, project has not been initiated yet
TPP	Jefferson 230 kV Bus Upgrade Construct the third 230 kV BAAH bay at Jefferson and connect the Jefferson-Martin Line into the new bay	Initiating	Q4-2024	Q2-2026	Q4-2026	Delay due to reprioritization, project has not been initiated yet

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TPP Projects with Delays due to Reprioritization

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Lakeville 60 kV Area Reinforcement	Initiating	Q4-2027	Q4-2027	Q4-2028	Delay due to reprioritization, project has not been initiated yet
TPP	Maple Creek Reactive Support One previously approved project, Maple Creek Reactive support, is recommended to be relocated to Willow Creek 60kV due to infrastructure limitations at the Maple Creek Substation. Since Willow Creek is an adjacent station and would address the need in the area for a lower cost, it is recommended that a 10 MVA STATCOM be installed at Willow Creek 60kV substation.	Initiating	Q4-2026	Q3-2026	Q4-2027	Delay due to reprioritization, project has not been initiated yet
TPP	Metcalf 230 kV Substation Circuit Breaker #No 292 Upgrade	Initiating	Q2-2025	Q1-2025	Q4-2025	Delay due to reprioritization, project has not been initiated yet
TPP	Moraga 230 kV Bus Upgrade	Initiating	Q4-2027	Q4-2027	Q4-2028	Delay due to reprioritization, project has not been initiated yet
TPP	Moss Landing – Las Aguilas 230 kV Series Reactor Project	Initiating	Q2-2025	Q1-2026	Q4-2026	Delay due to reprioritization, project has not been initiated yet

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PG&E Projects Status Summary

TPP Projects with Delays due to Reprioritization

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Newark-Milpitas #1 115 kV Line Limiting Facility Upgrade	Initiating	Q1-2024	Q2-2023	Q4-2024	Delay due to reprioritization, project has not been initiated yet
TPP	Ravenswood 230/115 kV transformer #1 Limiting Facility Upgrade	Initiating	Q4-2025	Q4-2024	Q4-2025	Delay due to reprioritization, project has not been initiated yet
TPP	Reconductor Delevan-Cortina 230kV line	Initiating	Q4-2027	Q1-2028	Q4-2028	Delay due to reprioritization, project has not been initiated yet

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PG&E Projects Status Summary

TPP Projects with Delays due to Reprioritization

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Reconductor Rio Oso–SPI Jct–Lincoln 115kV line	Initiating	Q4-2028	Q1-2028	Q4-2029	Delay due to reprioritization, project has not been initiated yet
TPP	Salinas-Firestone #1 and #2 60 kV Lines	Initiating	Q4-2025	Q4-2025	Q4-2026	Delay due to reprioritization, project has not been initiated yet
TPP	South of San Mateo Capacity Increase	Initiating	Q1-2026	Q1-2027	Q2-2027	Delay due to reprioritization, project not initiated yet
TPP	Table Mountain Second 500/230 kV Transformer	Initiating	Q4-2025	Q1-2027	Q4-2027	Delay due to reprioritization, project has not been initiated yet

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PG&E Projects Status Summary

TPP Projects

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Kasson – Kasson Junction 1 115 kV Line Section Reconductoring Project Reconductor the Kasson -Kasson Junction 1 (~0.08 miles) 115 kV line section with larger conductor and replace structure, if necessary. Replace limiting terminal equipment at Kasson sub.	In-Flight	Q1-2026	Q4-2025	Q2-2026	Reason for delay - Reprioritization, awaiting project kick off
TPP	Manteca #1 60 kV Line Section Reconductoring Project Reconductor ~1.13 miles of the Manteca #1 60 kV Line with larger conductor and remove any limiting component as necessary.	In-Flight	Q2-2026	Q1-2026	Q2-2026	Reason for delay - Reprioritization, awaiting project kick off
TPP	Manteca-Ripon-Riverbank-Melones Area 115 kV Line Reconductoring Project Reconductor 2.4 miles between Manteca and Ripon Jct and 1.8 miles between Riverbank SW STA and Valley Home Tap.	Initiating	Q2-2025	Q2-2028	Q2-2026	Improved ISD due to reprioritization
TPP	Midway – Kern PP #2 230 kV Line This project proposes to reconductor approximately 42 circuit miles of the Midway - Kern No. 1 230 kV Line, and split the No. 1 line into Midway - Kern No. 1 and No. 2 230 kV Lines, and remove crosstie connections to split the Midway - Kern No. 1 230 kV Line. Remove the Stockdale Nos. 1 and 2 230 kV Tap Lines from the Midway – Kern 230 kV lines and relocate directly to the Kern PP 230 kV bus.	In Flight	Q4-2018	Q3-2025	Q2-2026	The change in ISD is due to delays on the Midway Section D Bus Upgrade project that's impacting our ISD schedule. The Midway-Kern #2 230kV depends on the Midway Section D Bus Upgrade project to provide a new open terminal position for the new 230kV line.

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PG&E Projects Status Summary

TPP Projects

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
TPP	Moraga-Castro Valley 230 kV Line Capacity Increase Project The project scope of work involves upgrading the limiting substation equipment (jumper conductors and wave traps) on the Moraga-Castro Valley and Castro Valley-Newark 230 kV lines to utilize their full conductor ratings.	In-Flight	Q4-2023	Q4-2023	Q1-2024	Reason for delay: Due to reprioritization and execution risks (supply chain issues, resource constraints, etc.).
TPP	Vierra 115 kV Looping Project Loop the Tesla-Stockton Co-Gen Junction 115kV Line into Vierra Substation, convert the Vierra 115kV bus into a 4-bay breaker-and-a-half (BAAH) bus configuration, add a Howland Road Co-Gen Radial Feed, install a 115kV Sustainable Modular Protection (SMP) / Modular Protection Automation and Controls (MPAC), and install battery buildings.	In-Flight	Q3-2024	Q1-2027	Q3-2025	The current expected in-service date is July 2025. There was a reprioritization in 2021 that moved the expected in-service date into 2027, however, this was reversed after discussion with the CAISO.

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PG&E Projects Status Summary

Generation Interconnection Project Upgrades

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
GIP 20rsmt-7b	Tesla 500 kV circuit breakers 542 and 642 overstress Replace Tesla 500 kV circuit breakers 542 and 642 with 63 kA interrupting capability	In-Flight	Q4-2023	Q3-2023	Q2-2024	CB542 & CB642 by Q2-2024, CB612 Q3-2024 Construction Sequencing. Dates subject to change.
GIP 21rsmt-1	Henrietta Substation 70kV CBs 12 and 72 Overstress Henrietta Sub: Replace 70kV CB 12 & 72 and switches.	In-Flight	Q4-2023	Q2-2026	Q1-2025	Construction Sequencing. Dates subject to change.
GIP 21rsmt-5	Palo Alto 115 kV circuit breakers 412 and 442 overstress Replace Palo Alto 115 kV circuit breakers 412 and 442 with 63 kA interrupting capability	In-Flight	Q2-2025	Q1-2025	Q2-2026	Construction Sequencing. Dates subject to change.
GIP C12P1-GCR01	Moraga 115 kV circuit breakers 582, 612, 622, 642 and 712 overstress Replace Moraga 115 kV circuit breakers 582, 612, 622, 642 and 712	Not Triggered	Q3-2028	Q1-2027	Q4-2028	Triggering Interconnection work
GIP C12P1-NPN02	Lodi Substation 60 kV circuit breakers 12 and 22 overstress	In-Service	Q3-2020	Q4-2022	Q2-2022	ISD May 2022
GIP C12P1-NPT03	Rio Oso Substation 115 kV circuit breakers 412, 422, 482, 522 and 542 overstress Replace Rio Oso Substation 115 kV circuit breakers 412, 422, 482, 522 and 542 and associated switches/relays	In-Flight	Q2-2021	Q4-2024	Q4-2023	Sequencing subject to change
GIP C12P1-NPT04	Vaca-Dixon Substation 230 kV circuit breakers 442, 452 and 462 overstress Replace Vaca-Dixon Substation 230 kV circuit breakers 442, 452 and 462 and associated switches/relays	Initiating	Q2-2023	Q2-2024	Q4-2024	Sequencing subject to change

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Generation Interconnection Project Upgrades

Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
GIP C11P2-FC01	Midway 500kV CB's 722 Overstress Midway Sub: Replace 500kV CB's 722, SW's and Relays	In-Flight	Q3-2022	Q4-2025	Q3-2022	Q3-2022 unless inspection fails then Q4-2025
GIP C11P2-FP01	Midway 500 kV circuit breakers 732, 802, 832 and 842 overstress Replace Midway 500 kV circuit breakers 732, 802, 832 and 842 and associated switches/relays	In-Flight	Q4-2022	Q4-2025	Q3-2022	CB732/832 - 4/1/22; CB 802 Jul-2022; CB 842 Aug-2022 unless inspection fails then Q4-2025
GIP C12P2-KC01	Midway Substation 500kV CB 722 Overload mitigation Replace Midway 500 kV CB 722 to achieve 3600 A emergency rating	In-Flight	Q4-2022	Q4-2025	Q3-2022	Sep-2022 unless inspection fails then Q4-2025
GIP C8P2-3	QC8RAS-08 RAS (Deliverability Triggered RNU) QC8RAS-08 RAS to trip Generation offline for outage AND overload of either Gates 500/230 kV Transformer Bank 11 or 12	In-Flight	Q3-2022	Q1-2023	Q4-2023	Delaying to Late 2023 due to 500kV STATCOM construction sequencing for Bank 12. Both Banks required to utilize RAS.

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Project No.	Scope	Status	Planned * Const. Start	Q2 Report Dated	Planned ** In-Service	Comments
GIP C11P2-NP01	Contra Costa 230kV SW's 601, 603 overload Contra Costa PP: Replace 230kV SW's 601 & 603 and jumpers.	n/a	n/a	n/a	n/a	n/a See below
GIP C11P2-NP02	Contra Costa 230kV Bus Sections D, E and F and circuit breaker 820 overload Contra Costa PP: Reconductor Bus Sections D, E and F. Replace circuit breaker 820.	n/a	n/a	n/a	n/a	n/a See below
TPP C11P2-NP02 C11P2-NP01	Contra Costa PP 230 kV Line Terminals Reconfiguration Project Replaces need for: Contra Costa 230kV Bus Sections D, E and F and circuit breaker 820 overload Contra Costa 230kV SW's 601, 603 overload	In-Flight	Q1-2025	Q4-2025	Q3-2025	Reason for improvement: iterative schedule refinement as more information is gathered as the project progresses
GIP C9P2-N02	Re-conductor Fulton-Hopland 60 kV Line (Geysers Jct-Cloverdale Jct-Hopland) Re-conductor 24.21 mi Fulton-Hopland 60 kV Line (Geysers Jct 016/003A-Cloverdale Jct 026/002-Hopland) with 715 AAC and upgrade any limiting equipment	In-Flight	TBD	Q1-2027	Q4-2027	Kickoff August 2022

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