

SB 1174: Assessment Of Transmission Project Delays

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Transmission Development Forum

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California Public
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SB 1174 (Hertzberg, 2022)

Legislative Report on Transmission Delay Impacts on Interconnection

Required Legislative Report

- Incorporated into annual RPS report, Dec 2024 [published on CPUC website](#).
- [SB 1174](#) requires... *“a report on any changes to previously reported in-service dates of transmission and interconnection facilities necessary to provide transmission deliverability to eligible renewable energy resources or energy storage resources that have executed interconnection agreements, and to identify the reason for any changes to the status of in-service dates.”*

Motivation

- Concerns about Interconnection delays of clean energy projects raised by multiple stakeholders.

Synergistic with other efforts

- Staff analysis to understand & address interconnection and transmission project delays through the TED Task Force, CAISO's Transmission Development Forum, Transmission Project Review Process (TPR), and other initiatives.

Focus of SB 1174 Reporting and Analysis

- Formalize data and narrative reporting that crosswalks interconnection queue (and delays) with transmission project timelines, and the impact on RPS compliance

SB 1174 Analysis

Analysis Objectives

- Identify how many gigawatts of generation and storage resources are projected to be delayed or “at risk” of becoming delayed due to delayed transmission projects that these resources depend on.
- Identify specific transmission projects of concern (that are holding up the largest number of GW of resources).
- Understand the median delay time for each delay reason.

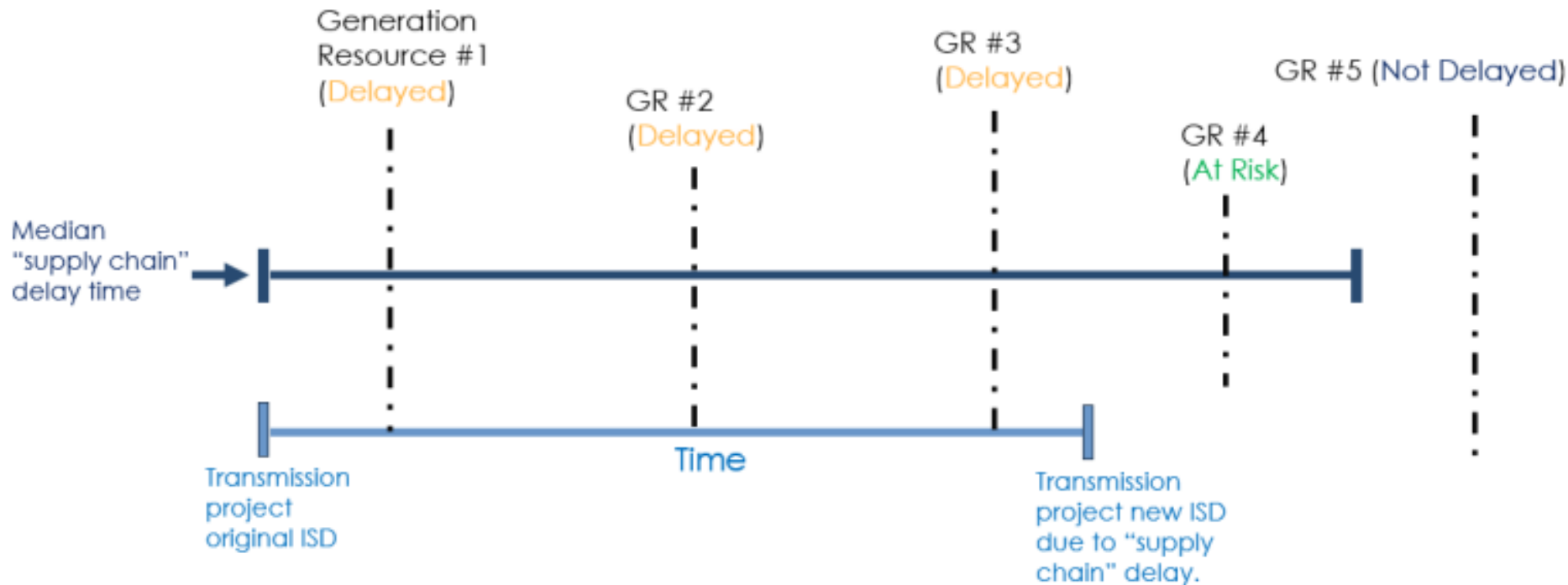
Uses

- Identify reasons for transmission delays that have the highest impact on generation and storage resources, and that are associated with the largest changes to in-service dates.
- Help CPUC, TED Task Force, developers, utilities, and the legislature to focus their attention on specific problem projects, and general areas for process improvements.

Next Steps

- Improve the SB 1174 data request and narrative request to apply in 2025, based on feedback received from PTOs and other stakeholders.
- Look for opportunities to use the SB 1174 data request to complement other CPUC and statewide Transmission tracking efforts.
- Identify concrete actions that CPUC, PTOs, developers, CAISO, and TED Task Force can take to reduce the types of transmission project delays identified in this analysis.

Explaining Delayed, At Risk, Not Delayed Resources



Delayed: A generation or storage resource is delayed because a transmission (Tx) project it depends on has been delayed. The Tx project's In-Service Date (ISD) is now beyond the ISD of the resource that depends on it.

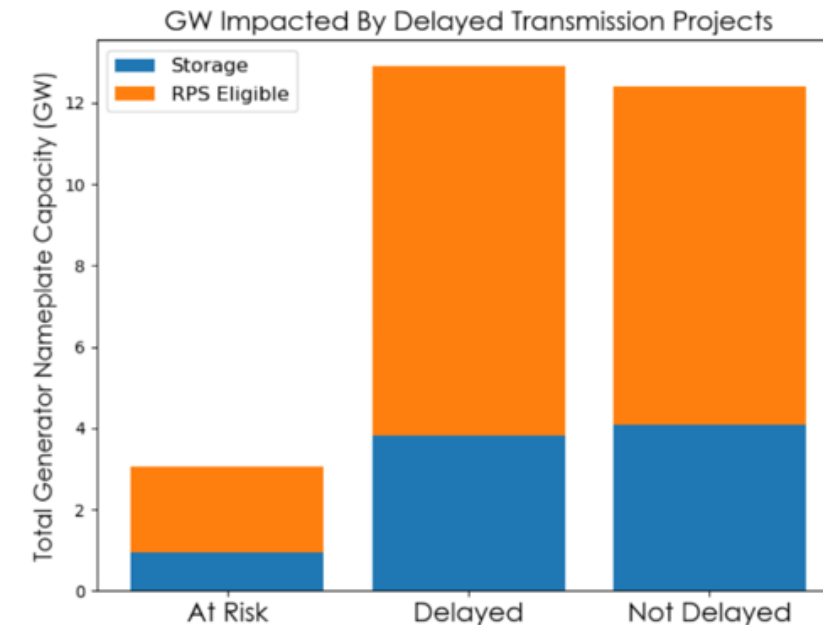
At Risk: A generation or storage resource is at risk of becoming delayed based on its expected ISD, the original ISD of the Tx project, and the median delay time associated with this type of Tx delay.

Not Delayed: A generation or storage resource is not delayed based on its expected ISD, and the Tx project's currently expected ISD.

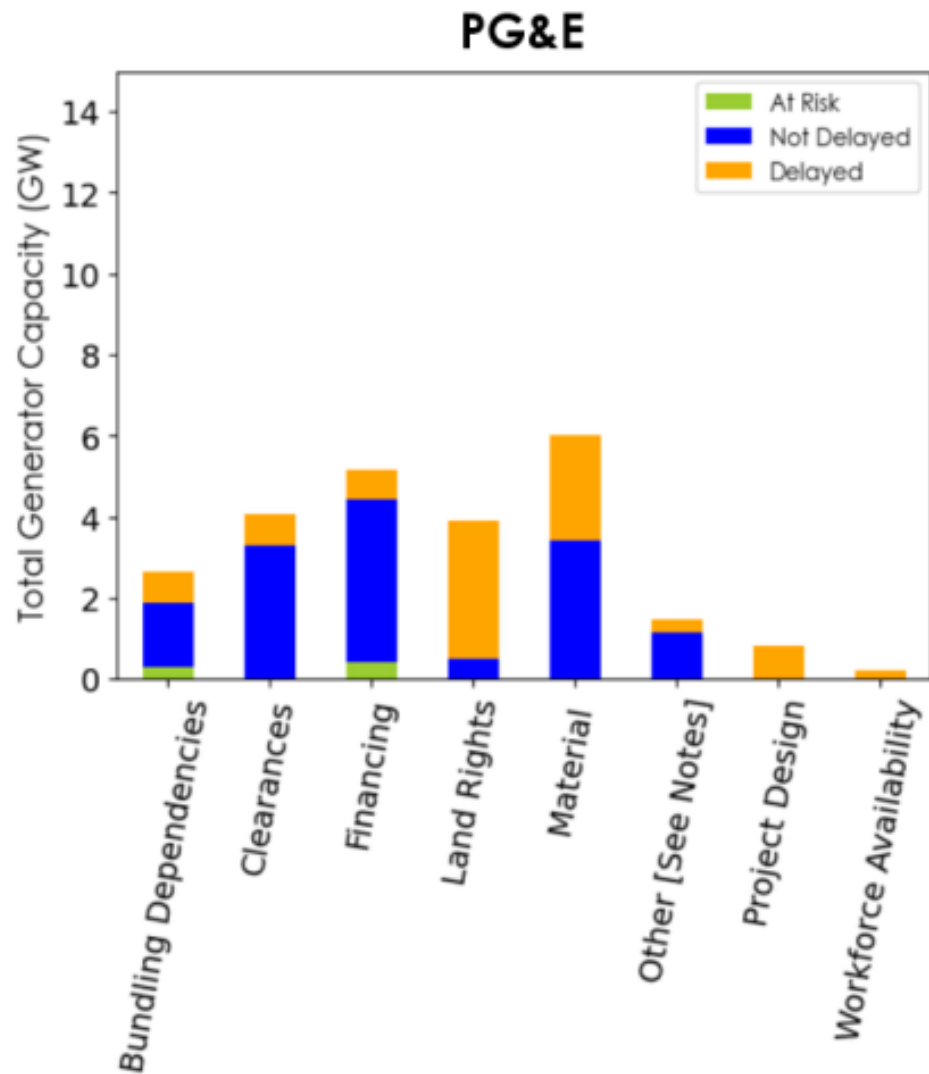
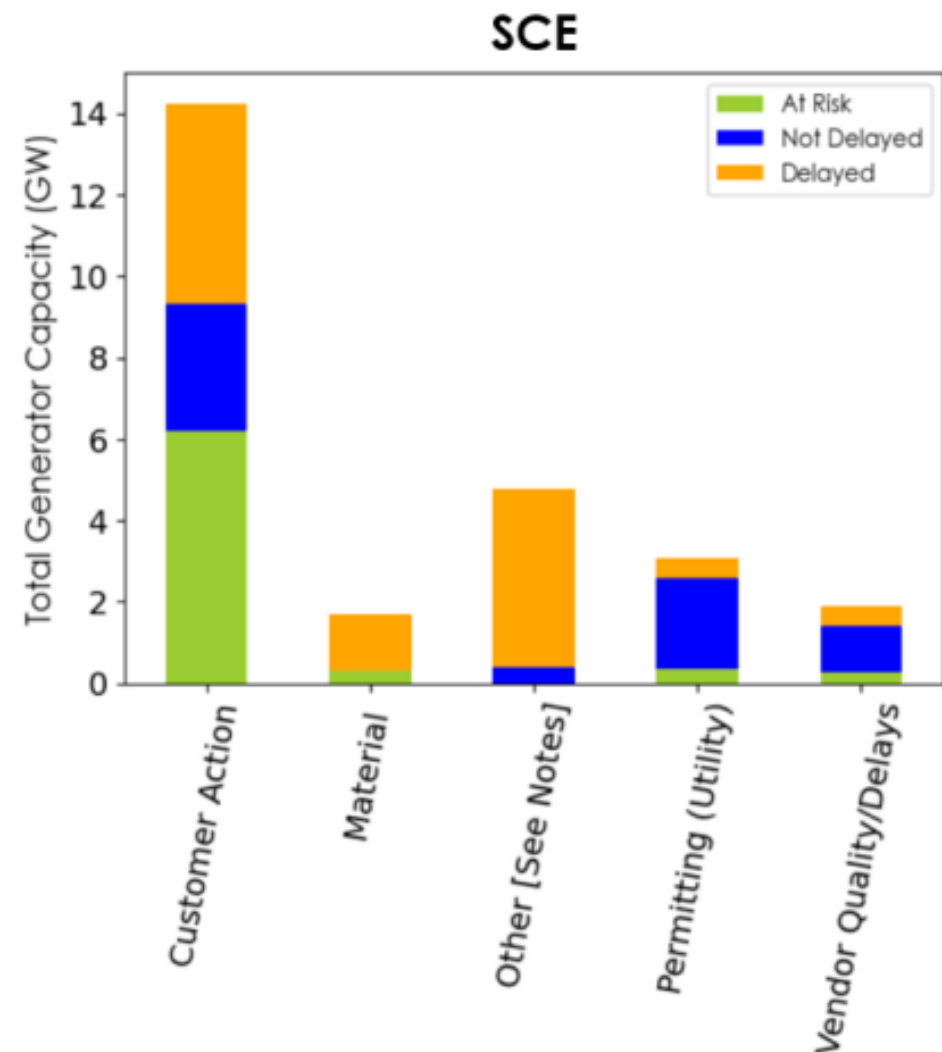
Total Resources Impacted By Delayed Tx Projects

- There are approximately 28.4 GW of new renewable generation and storage resources with signed interconnection agreements in SCE and PG&E's area, and about 12.9 GW of those resources are expected to be delayed due to transmission delays.
- SDG&E reported no delayed transmission projects, so they weren't included in this analysis.

PTO	Total Generation & Storage Resources (GW)	Resources Not Delayed (GW)	Resources Not Delayed (%)	Resources Delayed (GW)	Resources Delayed (%)	Resources "At Risk" (GW)	"At Risk" (%)
SCE	16.1 GW	5.3 GW	33 %	8.1 GW	50 %	2.7 GW	17 %
PG&E	12.3 GW	7.1 GW	58 %	4.8 GW	39 %	0.4 GW	3 %
Total	28.4 GW	12.4 GW	44 %	12.9 GW	45 %	3.1 GW	11 %



Quantity Of Resources Delayed For Each Reason (by number of impacted GWs)

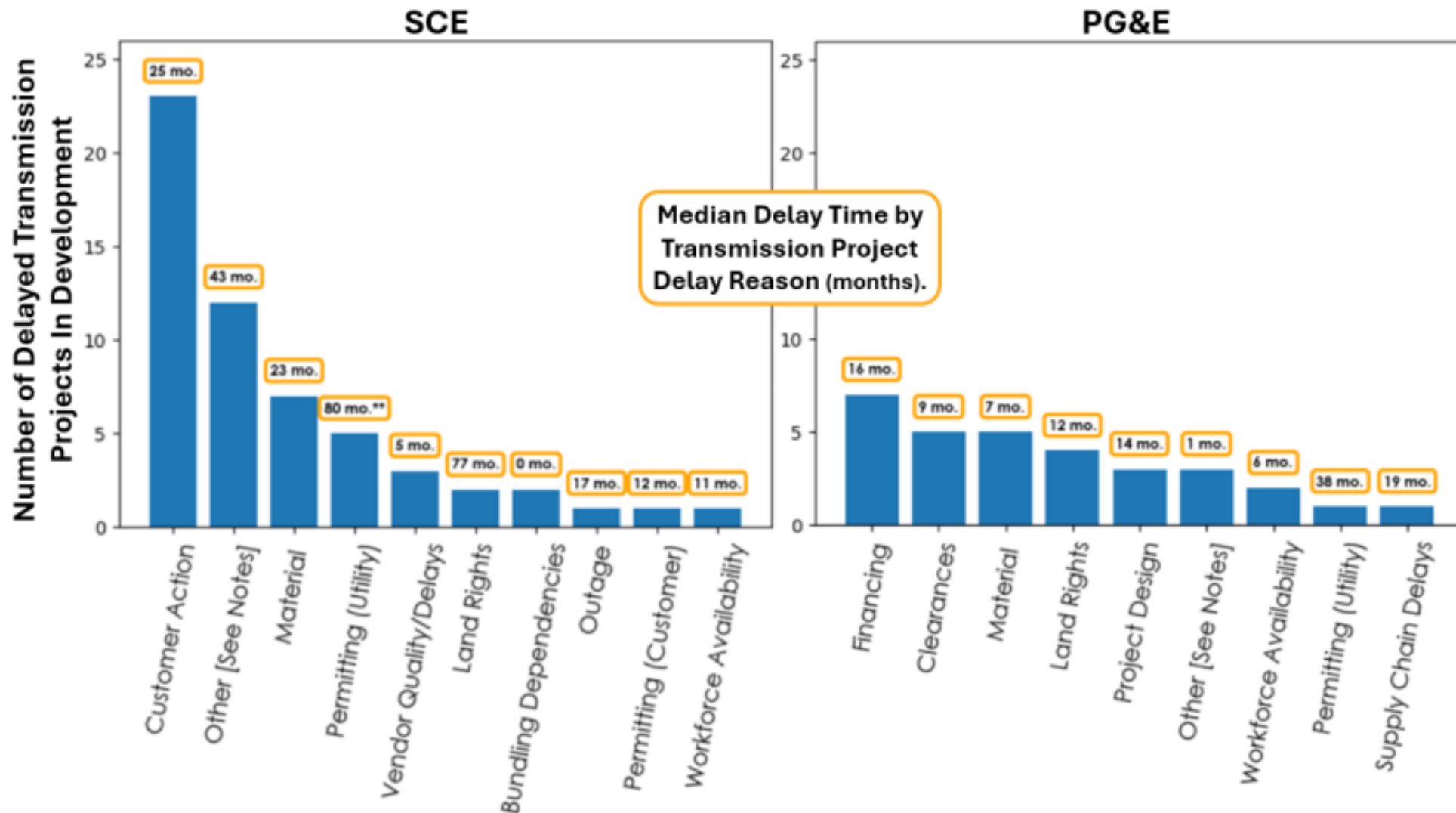


- **SCE:** Projects delayed by “Customer Action” and “Other” are the most significant.
- **PG&E:** Projects delayed by “Land Rights” and “Material” are the most significant.
- *Note: These plots count generators impacted by multiple Tx projects multiple times, showing the relative impact of each delay reason.*

Interpreting Delay Reasons

- For SCE the majority of GW delayed or at risk of delay are due to “Customer Action” and “Other (prioritization, scope change, third party builder)”. SCE described Customer Action as follows:
“Customer Action includes generation projects suspending their projects and also phasing or pushing out their in-service dates through the CAISO’s Material Modification Assessment (“MMA”) process. Furthermore, Customer Action can also include Municipal Utilities putting approved transmission projects on hold to explore alternatives, such as additional undergrounding.”
- For PG&E the largest number of GW are behind projects delayed due to “Land Rights” and “Material” where PG&E described Material as:
“material delivery issues and associated delays were a key source of delay from our suppliers.”
- High prevalence of transmission project delays being attributed to “Customer Action” and “Other” indicate that these two delay reasons should be redefined to more accurately describe the core reason(s) for each transmission project delay. “Permitting” delays are another example where the delay reason is insufficient; when permitting is used as a delay reason it is unclear if CPUC permitting/CEQA or other federal, state, and local permitting, or encroachment permits (after CPUC permitting/CEQA) are associated with the delay.

Median Delay Times For Each Reason (by number of generation and storage projects)



Between PG&E and SCE, the median delay time varies significantly in general, but also between the various delay reasons.

** Total delay times for PG&E and SCE Tx projects associated with "permitting" are not equivalent to CPUC permitting times.

SCE High Impact Transmission Projects

- **3.69** GW of SCE resources are projected to be delayed behind reliability upgrades to the Lugo-Victorville 500 kV line.
- **5** GW of delayed and at risk resources are associated with Centralized Remedial Action Schemes (CRAS), especially Tehachapi CRAS projects which are causing **3.38** GW of resources to be delayed or at risk.

Top 5 High Impact Tx Projects

IOU	Transmission Project Name	Delayed Transmission Project ID	In-Service Date Change Reason	Delayed or At Risk Resource Queue numbers	Delayed or At Risk Generation (GW)
SCE	Lugo Substation Upgrade	8029	Other (Prioritization)	Q1796, Q1636, Q1643, Q1757, Q1761, Q1764, Q1768, Q2042	3.69
SCE	Tehachapi Centralized Remedial Action Schemes: monitoring infrastructure addition	8355	Customer Action	Q1631, Q1632	2.12
SCE	WOCR Centralized Remedial Action Schemes Inland/Devers Extension Additional Monitoring at Wildlife Sub	8381	Customer Action	Q1636, Q1643, Q1757, Q1761, Q1764	1.79
SCE	Sanborn Hybrid 3	8342	Customer Action	Q1632	1.62
SCE	South of Vincent Centralized Remedial Action Schemes	8483	Material	Q1779, Q1782, Q1784, Q1791	1.30

PG&E High Impact Transmission Projects

Top 5 High Impact Tx Projects

- A single **1.15** GW generator (Darden Hybrid Solar, Q1949) is projected to be delayed due to material delivery issues from PG&E's suppliers.
- **0.93** GW of PG&E resources are projected to be delayed behind multiple transmission projects that are having difficulty obtaining new land rights to reroute lines.

IOU	Transmission Project Name	Delayed Transmission Project ID	In-Service Date Change Reason	Delayed or At Risk Resource Queue numbers	Delayed or At Risk Generation (GW)
PG&E	Convert Midway Substation 230 kV Bus D to BAAH	T.0001650	Material	Q1949	1.15
PG&E	Borden-Gregg 230 kV Lines #1 & #2	T.0007056	Land Rights	Q1129, Q1135, Q1158, Q1713	0.93
PG&E	Padre Flat-Panoche 230 kV Line #1	T.0003792	Land Rights	Q1129, Q1135, Q1158	0.90
PG&E	QC8RAS-08 Gates 500/230 kV Transformer Banks 11 and 12	T.0003009	Bundling Dependencies	Q1135, Q1158	0.70
PG&E	Pole Line Switching Station - "aka New 230 kV switching station to loop Dos Amigos – Panoche # 3 230 kV"	T.0009177	Project Design	Q1129, Q1135, Q1713	0.63
PG&E	Dos Amigos-Panoche #3 230 kV	T.0004255	Land Rights	Q1129, Q1135, Q1713	0.63

SCE Delay Mitigation Efforts (July 2023 – July 2024)

- Expanding Centralized Remedial Action Scheme (CRAS) technical (modeling) capabilities and adding two new staff that will potentially shorten the CRAS timeline. This mitigation effort addresses delays related to “customer action”.
- SCE has been recommending that new delayed resources request a Limited Operation Study (LOS) through CAISO to determine the extent their generation may operate prior to the completion of applicable transmission upgrades. *“Over the 12 months (prior to SCE’s 2024 Draft RPS Procurement Plan), the CAISO and SCE have completed 13 LOS, allowing 2.4 GW of the requested 2.9 GW to be generated by the requested in-service dates.”*
- Implementing a new procurement processes to address equipment delays via interconnection forecasting and factory capacity reservations. These mitigation efforts address “Customer Action” and “Materials”.
- Implemented an interconnection tracking dashboard.
- Improved its interconnection work order process which demonstrated an average reduction in the work order phase by 34 percent (approximately 1.5 months).
- Deployed its Grid Interconnection Processing Tool to intake interconnection requests and created a risk matrix for its customers.

PG&E Delay Mitigation Efforts (July 2023 – July 2024)

- Reallocated funds to delayed transmission projects.
- Expanded approved material and equipment vendor list to address supply chain constraints.
- Reallocated materials to at-risk projects. These mitigation efforts aim to address transmission projects delayed by 'Financing' and 'Materials'.
- Continuing previous initiative to identify supplies and place bulk orders of materials and equipment. This effort aims to address 'Materials' delays.

What Comes Next?

- 2025 SB 1174 data request, filings, analysis, and reporting.
- CPUC staff are seeking feedback from TDF stakeholders on further improvements that can be included in the 2026 SB 1174 assessment.
- CPUC staff expect PTOs to use this 2024 analysis, and future SB 1174 assessments to complement how they internally classify and track project delays, leading to further transmission and interconnection process improvements.