

Transmission Project Review (TPR) Process

CPUC Energy Division Staff Comments on Southern California Edison Company's (SCE) June 2025 TPR Process Data

October 31, 2025

Introduction

On June 2, 2025, Southern California Edison (SCE) provided the CPUC and Stakeholders with the Project Spreadsheet (TPR PS) of transmission projects and programs included in the TPR Process. The spreadsheet and accompanying documents were provided pursuant to the California Public Utilities Commission (CPUC) Resolution E-5252, which established the TPR Process effective January 1, 2024.

SCE included a cover letter detailing all the materials provided as part of the Project Spreadsheet, also noting thirty-four projects removed from the spreadsheet as of June 2, 2025, and why they were removed.

There are a total of 484 individual projects and programs listed in the TPR PS, up from 451 in the December 2024 spreadsheet, with a total incremental value decrease of \$415,924, a -4.1% change in actual and forecast expenditures. The TPR PS presents capital expenditures for the 2020-2029 period, the same period presented in the December 2024 submittal.

In reviewing the 2020-2024 actual spending, the actual annual average expenditures across all project types were approximately \$415 million. In comparison, when reviewing the 2025-2029 projected spending, the projected annual average expenditures across all project types was nearly twice that amount at around \$825 million.

Of note is the 43% jump in forecast spending for projects that are categorized as wildfire, emergency, or seismic-related, from approximately \$139 million to \$199 million. This increase is mostly (approximately \$36 million) in the 2025-2029 projected capital expenditures compared to the same period in the December 2024 TPR PS.

During this TPR Review Period, CPUC Staff requested, and SCE provided, detailed information on several individual projects and programs, including Mesa-Del Amo-Serrano 500kV Upgrade¹, Brightline West, Riverside Transmission Reliability Program, competitively bid transmission projects², Substation Seismic Mitigation Program, Substation Preventative Maintenance Work, and Transmission Line Rating Remediation. CPUC Staff also asked

¹ SCE also refers to this project as "Del Amo – Mesa – Serrano."

² The forthcoming "North of SONGS-Serrano 500kV" project, discussed in the August 28, 2025 Stakeholder Meeting and in Data Request response "02-01_ED-SCE-TPR-Cycle 3-2025-002 Q. 02-01 Answer", does not show up in the June 2025 TPR PS but is expected to be put into the December 2025 TPR PS.

questions designed to understand SCE's process in areas such as incorporating AACE Class Estimates and Cost-Benefit Analysis into project planning.

Summary of the June 2025 TPR Process Project Spreadsheet

The overall 4.1% (\$415 million) decline in total actual and forecast expenditures appears to be largely driven by the removal of the aforementioned 34 projects, which represented approximately \$408 million in "current projected total or actual final cost" in the TPR PS.

In terms of average overall actual and forecast expenditures, when compared to the December 2024 TPR PS (\$435 million annual average actual and \$803 million annual average forecast), the current TPR PS overall actual and forecast expenditures (\$415 million average actual and \$825 million average forecast) have held relatively flat at -4.5% and +2.8%, respectively. Looking deeper than averages, the expenditures by year also generally reflect this degree of consistency from December 2024 TPR PS to the June 2025 TPR PS, with two exceptions.

The first exception is the 2024 actual expenditures. The 2024 actual expenditures were shown as \$411 million in the December 2024 TPR PS, while the number fell to \$276 million in June 2025 TPR PS, a difference of \$135 million, or nearly 33%. It was surprising to CPUC Staff that historical recorded costs changed significantly between the December 2024 PS and the June 2025 PS.

The second exception is the 2027 projected expenditures. The 2027 projected expenditures were shown as \$1,039 million in the December 2024 PS, while the number fell to \$899 million in the June 2025 PS, a difference of \$140 million, or nearly 13%. It is expected that projected expenditures will vary as projects progress, new information is discovered, and project scope may change. CPUC Staff will continue to monitor the projected costs for all future years.

Another item that stands out is the downward trend in historical actual costs prior to 2025's projected \$655 million; there is a marked decline in actual costs between 2021 and 2024, with 2025 showing a sharp projected cost increase closer to 2020's actual costs. In reviewing the 2025 projected costs compared to the 2024 actual costs, the largest year-to-year changes are seen in those projects whose primary purposes are described by SCE as "Other," "Policy," "Reliability," and "Generator Interconnection."

Further analysis of these four project types shows they account for \$314 million of the \$378 million increase between 2024 actual and 2025 projected costs. Considering 2025 costs are partially actual and partially projected, and since the TPR PS is provided mid-year, it's not immediately clear what actual costs will be. It will be important to compare these year-over-year changes in subsequent TPR PS reviews, to see if these amounts hold or end up being recorded as actuals are lower costs, consistent with previous year levels.

Table 1 below shows the actual capital expenditures by category, while Table 2 shows the projected capital expenditures by those categories for future years.

Table 1: Actual Capital Expenditure by Year, Category, and Primary Purpose (\$000)

Category and Primary Purpose	2020	2021	2022	2023	2024
Poles/Wires					
Address Results of Power Flow Analysis	201,134	52,341	5,038	7,743	4,369
Asset Condition	1,100	9,882	4,346	1,699	5,805
Emergency Event	2,113	147	-	154	26,952
Load Growth	1,817	1,493	1,362	768	2,868
Local Capacity Requirement	30,937	19,242	1,143	10,200	27,004
Other	106,750	84,777	94,616	56,773	41,077
Policy	33,245	61,860	38,053	24,594	37,205
Reliability	858	4,077	8,444	6,697	5,571
Safety	2,475	1,519	9	-	42
Work Requested by Others	26,108	6,469	8,410	873	3,383
Poles/Wires Total	406,538	241,806	161,421	109,501	154,276
Substation					
Age/End of Life	34,405	13,646	20,579	29,009	19,634
Asset Condition	1,053	3,367	357	2,739	10,303
CAISO Transmission Planning Standards	123,605	86,023	49,133	25,054	11,326
Emergency Event	1,685	6,398	2,307	124	24
Generator Interconnection	188	293	325	184	629
Load Growth	1,369	119	95	160	190
Local Capacity Requirement	(2)	-	-	8	1,269
Location, Environmental Conditions	2,800	1,258	1,762	345	23
Other	2	203	568	969	643
Physical Security	-	11	1,237	3,734	160
Policy	-	-	-	-	96
Reliability	25,881	26,146	22,378	25,503	31,980
Safety	41	539	219	263	2,552
Wildfire Mitigation	211	635	1,412	301	432
Substation Total	191,240	138,638	100,372	88,392	79,261
Other					
Age/End of Life	15	-	-	-	-
Asset Condition	-	-	-	-	0
CAISO Transmission Planning Standards	-	-	-	-	-
Emergency Event	18,830	8,212	13,962	5,898	19
Generator Interconnection	-	-	-	7	9

Category and Primary Purpose	2020	2021	2022	2023	2024
Location, Environmental Conditions	68	-	-	-	-
Other	28,219	12,202	6,554	9,220	5,663
Physical Security	18,353	8,407	16,448	13,518	12,751
Reliability	31,816	20,720	6,976	4,820	5,525
Safety	1,300	4,320	277	2,272	9,106
Work Requested by Others	18,009	2,065	369	238	614
Other Total	116,610	55,926	44,587	35,974	33,689
GIDAP Total	19,807	45,991	14,026	29,313	9,116
Grand Total	734,196	482,360	320,407	263,179	276,342

Table 2: Projected Capital Expenditures by Year, Category, and Primary Purpose (\$000)

Category and Primary Purpose	2025	2026	2027	2028	2029
Poles/Wires					
Address Results of Power Flow Analysis	18,947	80,908	50,719	56,000	-
Asset Condition	6,854	3,335	3,677	3,930	3,962
Emergency Event	20,538	27,288	-	-	-
Load Growth	4,737	17,117	70,261	53,734	9,084
Local Capacity Requirement	14,497	12,863	8,813	18,050	23,694
Other	133,845	146,370	353,813	281,661	269,386
Policy	106,404	39,547	54,004	77,719	123,092
Reliability	25,599	29,751	2,475	2,478	1,529
Safety	(0)	0	0	-	(0)
Work Requested by Others	62,624	170,355	73,569	45,460	20,967
Poles/Wires Total	394,046	527,534	617,331	539,033	451,714
Substation					
Age/End of Life	12,757	10,019	11,358	11,119	10,779
Asset Condition	11,702	10,981	10,853	11,873	11,990
CAISO Transmission Planning Standards	7,148	28,566	10,000	-	-
Emergency Event	-	-	-	-	-
Generator Interconnection	3,884	29,682	34,480	3,938	25,401
Load Growth	1,159	153	188	1,569	1,152
Local Capacity Requirement	1,442	22,121	43,663	14,441	32,063
Location, Environmental Conditions	-	-	-	-	-
Other	125	-	-	-	-
Physical Security	1	-	-	-	-
Policy	6,852	20,905	18,844	18,952	-
Reliability	87,146	83,437	162,404	101,138	37,337
Safety	2,827	1,755	3,995	16,390	14,301

Category and Primary Purpose	2025	2026	2027	2028	2029
Wildfire Mitigation	308	-	-	-	-
Substation Total	135,351	207,619	295,786	179,419	133,023
Other					
Age/End of Life	-	-	-	-	-
Asset Condition	13	15	719	469	-
CAISO Transmission Planning Standards	4,833	5,265	3,177	16,605	16,101
Emergency Event	-	-	-	-	-
Generator Interconnection	54	981	-	-	-
Location, Environmental Conditions	-	-	-	-	-
Other	22,491	23,507	17,431	15,486	11,930
Physical Security	46,505	56,651	44,083	30,048	14,046
Reliability	7,106	11,620	5,502	17,995	9,492
Safety	17,979	19,186	20,309	20,754	14,710
Work Requested by Others	3,836	18,272	7,799	19,722	9,906
Other Total	102,818	135,497	99,021	121,079	76,184
GIDAP Total	22,584	33,063	24,291	16,012	11,761
Grand Total	654,798	903,713	1,036,429	855,542	672,682

June 2025 New and Removed Projects

Changes from the previous reporting period include:

- 67 new Projects, including:
 - 1 CAISO GIDAP generator interconnection project.
 - A relay coordination study for an interconnection customer, with a cost of ~\$1 million
 - 7 Substation projects
 - A mixture of replacing aging equipment like switches and breakers, installing new MEERs, and upgrading metering and relaying equipment, with a cost of \$19.2 million
 - 7 Transmission projects, including:
 - Three projects to repair damaged towers, with a cost of \$4.6 million
 - One new planned maintenance program for switch replacement across all transmission assets
 - None are CAISO TPP-approved projects
 - 17 Wildfire/Emergency/Seismic projects with a cost of \$41.4 million:
 - 29 Other projects, including:
 - Several civil works projects supporting substations and adjacent facilities
 - One new “concrete” building adjacent to the Lugo substation, with a cost of \$20.9 million

- Several physical security projects at various sites

In SCE’s TPR PS transmittal letter, they indicated that 34 projects had been “off-boarded” from the December 2024 TPR PS, amounting to \$408 million, for the following reasons:

- 6 projects due to (not meeting the) \$1 million threshold
- 3 projects due to (not meeting the) \$1 million threshold and added to AB970 addendum
- Two projects due to project cancellation
- 23 projects due to project completion and no spend in recorded or forecast reporting period

Largest Projects

SCE identifies 13 projects with capital spending over \$100 million, with a combined value of \$5.8 billion. For scale, this means that 13 of the 484 (or 2.7%) projects listed in the TPR PS have \$5.8 billion of the total actual and expected expenditure of \$9.7 billion, or nearly 60%. These are mostly from the 15 projects identified in the December 2024 Cycle, although the order of greatest spending has slightly changed. Of note, Mesa – Del Amo – Serrano 500kV Upgrade is now the largest project, with a potentially significant increase in expected spending as reported by SCE in the August 28, 2025 TPR Stakeholder Meeting³. Of the 13 largest projects, four are operational, one is currently under construction, one is in the engineering phase, with the rest in the planning stage. Table 5 identifies projects with over \$100 million in spending.

Table 3: SCE Projects with Value over \$100 million

Row/Line Number	Project	Status	Current In-Service Date	Total Actual or Projected Cost Dec 2024	Total Actual or Projected Cost Jul 2025	Change
SP-157	Mesa - Del Amo - Serrano 500 kV Upgrade	Planning	11/2/2033	1,109,089	1,109,736	0.06%
SP-25	Ivanpah-Control TLRR Remediation	Planning	8/10/2033	1,165,731	1,040,679	-10.73%
SP-03	West of Devers Conductor Upgrade	Operational	5/14/2021	756,085	750,738	-0.71%

³ This project is discussed in greater detail in the “Issues of Note” section

SP-10	Riverside Transmission Reliability Project	Planning	10/31/2029	587,217	588,349	0.19%
SP-06	Mesa Substation Expansion	Operational	5/31/2022	481,437	481,820	0.08%
SP-05	Eldorado-Lugo-Mohave RPS Upgrade	Construction (over 75%)	6/30/2026	331,838	400,586	20.72%
SP-101	Tehachapi Renewable Transmission Project (TRTP) - Segment 11 System Upgrades: New Mesa-Vincent T/L (Via Gould) 500/230 kV	Operational	4/29/2015	276,336	276,336	0.00%
SP-26	Control-Silver Peak TLRR Remediation	Planning	2/13/2034	254,167	255,831	0.65%
SP-04	Alberhill Substation Loop-In	Planning	12/31/2029	217,217	242,817	11.79%
SP-23	Eldorado-Pisgah-Lugo TLRR Remediation	Planning	1/31/2030	235,282	238,235	1.26%
SP-154	New Serrano 4AA 500/230 kV Bank and 230 kV GIS Rebuild	Engineering more than 50% complete	12/30/2027	212,034	212,107	0.03%
SP-09	Sylmar Converter Station AC/DC Filter Replacement	Operational	6/10/2020	127,172	127,163	-0.01%
SP-170	Lugo-Victor 230 kV Line Reconductor	Planning	12/31/2027	112,000	112,041	0.04%

Data Quality

The data provided by SCE was generally clear and accurate. Information was provided and broken out clearly, in accordance with the requirements of Resolution E-5252. In addition,

communications from the utility were timely and clear. Specifically, the transmittal⁴ letter gave greater clarity than previous submissions by summarizing all materials provided. Additionally, the TPR PS was highlighted to show which projects were added in the June 2025 cycle.

In addition to the Project Spreadsheet, SCE provided 173 additional authorization documents related to specific projects. These documents included presentation decks and meeting minutes for projects that were approved during meetings, as well as work initiation forms and project summaries.

AB 970 Addendum

Decision (D.) 25-01-040 suspended SCE's requirement in D.06-09-003 to submit quarterly reports on transmission projects ("AB 970 Report"), so long as SCE fully complies with Resolution E-5252 and the TPR Process. D.25-01-040 also requires SCE to submit an addendum to its TPR data submittal for those projects that would have been captured in its AB 970 Report but are excluded from the TPR because they are less than \$1 million. SCE included this information as Addendum A to its June 2025 TPR Process Project Spreadsheet submission.

Data Request Responses

As of October 13, 2025, CPUC Staff submitted three sets of data requests comprising 78 individual questions to SCE. Most responses to the TPR data requests were received by October 28, 2025, with two outstanding as of October 29, 2025.

The responses to the first set of requests, received August 6, 2025, had several incomplete or non-responsive answers to the requests; 22 of the 43 responses to this set were either partially or completely non-responsive. The responses to the second set of requests included 10 (of 21) questions that were partially or completely non-responsive. The responses to the third set of requests included six (of 14) questions that were partially or completely non-responsive. The total number of incomplete or non-responsive responses is 38 out of the 78 questions asked. for the June 2025 TPR review.

The incompleteness of responses is an impediment to the analysis of the TPR PS data and gaining a complete understanding of supporting project materials. In order for the Stakeholder engagement process to be effective, and to meet the expectations of Resolution E-5252, responses to data request are to be both timely and complete.

⁴ See 01_SCE TPR Process June 2025 Cover Letter

Stakeholder Meeting

SCE held a TPR Stakeholder meeting on August 28, 2025 to answer questions and provide clarifications on several overarching topics and specific programs and projects. Below are some key takeaways:

1. Competitively Bid Projects

- a. The relevant project is the North of SONGS – Serrano 500 kV Line Project, it was submitted for competitive bids by the CAISO as part of the 2022-2023 Transmission Plan. The estimated cost for the project is \$503 million per the CAISO 2022-2023 Transmission Plan. Per the CAISO, the project must be in service by June 1, 2034.
- b. The CPUC asked whether the \$503 million cost estimate had changed and SCE said it's still the cost. CPUC also asked about the specific divisions of responsibilities, the parties involved, and what makes up the \$503 million cost, SCE stated it was the transmission portion. The CPUC also made note of the impediment created by no chat feature. CPUC also asked about the \$292 million competitively bid portion mentioned in the CAISO selection report and whether that was part of the \$503 million.
- c. Follow-ups include: SCE to follow up with construction start dates, putting the applicable portions of the project into the TPR, and the specific amounts of the \$503 million that were subject to competitive bidding.

2. Wildfire Impacts

- a. SCE is currently not aware of any damage to SCE Transmission facilities or lines related to the January 2025 wildfires in SCE's service area.
- b. Cal Advocates asked to confirm, since media reports suggested otherwise, that there were no transmission facilities damaged, SCE confirmed there was not.
- c. No follow-ups or takeaways from this item.

3. Project Updates

- a. Unlike previous Stakeholder Meetings, SCE did not prepare individual discussions or updates on individual projects, instead they presented a single set of slides with some relevant information about each project.
- b. The CPUC commented that not having individual SME's and project updates was an unreasonable oversight. SCE assumed Stakeholders just wanted data and that they thought all relevant data could be gleaned from the TPR PS.
- c. No follow-ups, but the takeaway is that in subsequent cycles, the Stakeholder Meeting Agenda needs to explicitly request project updates, with individual slides, and SME's available to discuss.

4. Project Update – SP-157 Mesa-Del Amo-Serrano 500kV Upgrade

- a. This project was approved and awarded to SCE by CAISO in May 2023 in the 2022-2023 TPP as a "Policy-Driven Project" to address multiple deliverability constraints across multiple service areas. Cost is much higher than previously

expected; it was originally reported as \$1.125 billion in the June 2025 TPR. SCE went on to say the costs were going to go even higher than the \$1.125 billion as scope continues developing.

- b. The CPUC asked what lessons had been learned in the project development and estimating miss. SCE stated they learned to be more conservative, that more field investigations, and more time to perform the feasibility study once the project is announced by CAISO.
Follow-ups include: SCE to inform the CPUC on any innovations they come up with to build on a smaller footprint.

5. Transmission Line Rating Remediation (TLRR)

- a. As mentioned previously, SCE revealed some very useful information in this topic, namely that they do not count any discrepancies as remediated until all of the discrepancies on a given circuit are remediated. Additionally, the most critical deficiencies were corrected by 2024, those remaining have operations limits in place until remediation is completed, total costs are coming in lower, and they believe the system can be operated safely.
- b. CPUC asked about the percentage that is left to complete, SCE stated 20% is remaining.
- c. Follow-up includes: CPUC to follow up on remaining remediations to get more detail.

6. PB-25 Seismic Mitigation Program – Substations

- a. This question arose because of the sharp increase in seismic mitigation projects in the June 2025 TPR. SCE clarified that these new projects are part of a larger program that has been around since 2016. 17 new projects were added in the July 2025 TPR, with a total projected cost of \$41.4 million (not the 23 new projects and \$57 million estimate in the question submitted).
- b. CPUC asked how many projects and how much is CPUC vs. FERC jurisdictional. SCE stated 40 buildings and \$41.4 million.
- c. Follow-up: SCE to get more information to CPUC on project scope and what else besides control buildings are in scope.

There were two overarching concerns with the SCE Stakeholder meeting process. First was the lack of expected discussion and updates on projects (under “Project Updates”) that were specifically requested in the proposed Stakeholder Meeting agenda provided by the CPUC. The objective of these Stakeholder meetings is to have SCE’s subject matter experts provide verbal project updates and walk through key project information that isn’t otherwise apparent in project documentation and spreadsheets. SCE was not prepared to take advantage of the allocated time and provide these updates, and similar to incomplete data requests this is a hindrance to the intended transparency of the Stakeholder engagement process.

The second concern was that SCE did not enable the chat function in Microsoft Teams during the meeting. The objective of the Stakeholder meeting is to foster a direct dialogue

between SCE and Stakeholders, and disabling this feature reduces the effectiveness of the dialogue.

Issues of Note

During the June 2025 TPR Review period, CPUC Staff focused on several areas that continue to merit close scrutiny. These issues are discussed below.

Competitively Bid Transmission Projects (North of SONGS–Serrano 500 kV):

SCE discussed its involvement in the North of SONGS – Serrano 500 kV Line, one of the competitively bid transmission projects arising from the CAISO planning process. The CPUC notes this project is not in the TPR yet and will be included once the “Approved Project Sponsor Agreement (APSA) between SCE and CAISO is fully executed.”⁵ This file has not been provided since it hasn’t been executed, but subsequent TPR PS and project material reviews will include this once it has been provided.

This project, approved in the CAISO 2022–2023 Transmission Plan⁶ as a policy-driven upgrade, will add an approximately 30-mile 500 kV line linking a planned “North of SONGS” Substation (near San Onofre) to SCE’s existing Serrano Substation. The project’s purpose is to increase transmission capacity into the Los Angeles Basin by creating a new 500 kV source from the south (San Diego area) that will help deliver expected new renewable and zero-carbon resources by 2035.

Notably, CAISO conducted a competitive solicitation for this line. SCE (as part of a team with Horizon West Transmission, LLC, an affiliate of Lotus Infrastructure Partners) was selected to build the line, while Horizon West Transmission, LLC, a CAISO-approved Participating Transmission Owner (PTO), will perform work at the new substation endpoint. The CAISO-estimated cost for the line portion is approximately \$503 million, and CAISO requires the project to be in service by June 1, 2034. During the Stakeholder meeting, SCE answered questions about how this project will appear in the TPR data, stated they would follow up with more information on which portions of the CAISO estimate are the competitively-bid portions, and how it will be coordinated with dependent work at Serrano Substation (which SCE will undertake outside of the competitively bid scope). As of this writing, SCE has not followed up with any of the information stated above.

The North of SONGS–Serrano project is one of the first major competitively bid transmission expansions in SCE’s area. Its successful completion will be important for meeting regional reliability and clean energy goals. CPUC Staff is tracking this project to ensure coordination issues (e.g., timing of SCE’s substation upgrades that must align with the new line) are managed and that the project stays on schedule. CPUC Staff will also be tracking project

⁵ See Response to 02-01_ED-SCE-TPR-Cycle 3-2025-002 Q. 02-01 Answer.

⁶ <https://www.caiso.com/Documents/ISO-Board-Approved-2022-2023-Transmission-Plan.pdf>.

costs once it is provided in the TPR as these costs can differ from CAISO estimates. It is unclear whether these costs will be in the TPR however, if Horizon West is building the line.

Substation Seismic Mitigation Program

SCE's PB-25: Substation Seismic Assessment and Mitigation Program became a focus area during the June 2025 TPR PS review, especially after seventeen new seismic projects were added to the TPR. This program, launched in 2016, centralizes all seismic retrofit work for transmission substations and related structures to ensure consistent prioritization and hardening of critical facilities.⁷

In the June 2025 TPR, SCE added 17 new seismic projects (each over \$1 million) with a total forecast cost of about \$41.4 million. Initial data had suggested 23 projects and \$57 million; SCE clarified⁸ that the correct count is 17 projects and \$41 million. SCE reported that, in total, roughly 40 substation sites have been identified for seismic upgrades since the program's inception (2016 to present) and said that most high-priority seismic risks have now been identified and included as new project scope out under this program.

This cycle's data requests⁹ sought information on how SCE prioritizes sites and manages execution risks. Key execution risks include obtaining outages to perform retrofits, complex permitting (CEQA and local building permits), and potential vendor delays for specialized equipment. At the August 28, 2025 Stakeholder Meeting, SCE described mitigation measures it has implemented: early coordination of outage schedules (including with affected customers), streamlined environmental reviews, and closer vendor engagement to ensure timely engineering and fabrication of retrofit components.

The seismic hardening program is important for safety and resiliency, and CPUC Staff is encouraged that SCE has expanded the scope to all necessary sites, many of which are now appropriately captured in the TPR due to updated cost estimates. Going forward, CPUC Staff will watch for timely execution of these projects, especially given the identified risks of outages and permitting, and will look for SCE to report progress in completing the retrofits on schedule. Any significant inconsistencies or delays, such as large cost swings or new project additions beyond those already identified, will be scrutinized in future cycles to ensure SCE is effectively managing this program.

Substation Maintenance: Preventive (PB-06) vs. Reactive (PB-05) Work

CPUC Staff examined SCE's approach to substation equipment maintenance, distinguishing between proactive upgrades under planned capital maintenance programs and reactive fixes after equipment failures. SCE has two program categories: PB-06 (Substation Planned/Preventive Maintenance) and PB-05 (Substation Unplanned/Breakdown Maintenance). Under PB-06, SCE can schedule like-for-like replacements or upgrades for aging substation

⁷ SCE TPR Stakeholder Meeting - 08-28-2025.

⁸ Ibid.

⁹ See Response to ED-SCE-TPR-Cycle 3-2025-001 Q.01-05 Answer.

components in a controlled manner, perform necessary engineering design in advance, and bundle work efficiently.

At the August 28, 2025 Stakeholder Meeting, SCE gave an example of a PB-06 project: installing upgraded SF₆ gas density monitors at Rancho Vista Substation to replace old gas monitoring systems. This proactive replacement improved reliability and safety (providing better leak detection and reducing SF₆ emissions) and was executed with minimal interruption since it was planned in advance. SCE noted that many such preventive projects address equipment identified through inspections as nearing end-of-life or obsolete, and allow SCE to avoid failures by intervening early.

In contrast, PB-05 covers urgent, reactive replacements when equipment has already failed or is in imminent danger of failing. SCE cited an example where a rodent caused a fault in a substation breaker, requiring an immediate breaker replacement – this type of unforeseeable event falls under PB-05 and must be addressed quickly to restore service and ensure safety. Drivers for PB-05 work include equipment that suddenly deteriorates, extreme weather events, or other unplanned incidents that necessitate rapid repairs.

Despite SCE's explanations of these programs, CPUC Staff found gaps in the information provided. In response to a data request,¹⁰ Staff asked SCE to provide additional examples of recent PB-06 preventive projects (beyond the single gas monitor example) to illustrate the range of proactive work being done. SCE's response did not furnish any specific additional examples, only generally stating that various preventive replacements are ongoing – which did not meet the intent of the question. Likewise, when asked at the Stakeholder Meeting whether SCE is seeing an increase in substation equipment failures as the system ages, SCE could not provide an immediate answer and suggested performing a trend analysis if requested.

These responses indicate that SCE may not be tracking or reporting certain reliability metrics (like failure trends) in a way that Stakeholders can readily see if requested. The distinction between preventive and reactive maintenance is important – proactive replacements under PB-06 can potentially avoid future costs and avoid outages if done effectively, whereas PB-05 reactive fixes often incur higher costs and with potential risk of failure or the need for further actions. CPUC Staff is concerned that SCE did not provide concrete examples or data demonstrating the scope and effectiveness of its preventive maintenance program. Without such data, it's difficult to assess whether SCE is investing enough in PB-06 to curb the growth of breakdown events. CPUC Ensuring that PB-06 is robust will be key to reducing costly unplanned outages, so this topic will be monitored in future TPR reviews.

Incorporating Cost-Benefit Analysis in Project Planning (Data Field 66)

Another topic of interest in this cycle was SCE's utilization of cost-benefit analysis (CBA) in its transmission project planning and reporting. Data Field 66 in the TPR PS was

¹⁰ See SCE Response to CPUC Data Request 02-04_ED-SCE-TPR-Cycle 3-2025-002 Q. 02-04 Answer.

intended to eventually include a cost-benefit metric or ratio for projects, but SCE has not adopted any standardized CBA framework to date.

During the August 28, 2025 Stakeholder Meeting and a subsequent related data request, SCE stated that it does not currently use an enterprise-wide cost-benefit analysis program to compare transmission projects. Many transmission projects, SCE noted, are driven by external mandates or essential reliability needs. For example, NERC reliability standard violations must be addressed regardless of cost, CAISO-approved grid expansions move forward based on regional need, and customer-funded interconnections proceed per agreements. In such cases, a traditional discretionary cost-benefit test isn't the primary decision driver.¹¹

During the Stakeholder meeting SCE emphasized that it does consider project costs and alternatives internally¹². For any major project, SCE's planning process includes evaluating different solutions, including potentially non-wires alternatives or operational measures, and then selecting the option that meets requirements at the lowest lifecycle cost, given the constraints. In other words, SCE's planning engineers perform cost-effectiveness analysis as part of their decision-making, but the utility has not translated this into a simple quantitative "benefit metric" that could be reported for each project. When asked if SCE is moving toward a more formal CBA approach, as some other utilities are, SCE did not indicate any active initiative to develop a company-wide metric, pointing out that compliance-driven projects leave limited scope for flexible benefit evaluation.

CPUC Staff recognizes that for many reliability or policy mandates, traditional cost-benefit ratios can be challenging to apply. However, the absence of any quantitative benefit measures makes it difficult for Stakeholders to gauge the value of SCE's discretionary projects or to compare alternatives. This remains an important topic because greater transparency in how projects are justified economically could improve Stakeholder confidence and potentially reveal opportunities for more cost-effective solutions. In this cycle, Staff's data requests sought at least a concrete example of how SCE considers alternatives and costs for a major project, but SCE's response remained at a high-level narrative.

CPUC Staff will look to SCE to provide specific case studies in future cycles to illustrate its cost-consideration process, even if not a formal ratio, and continue to explore the development of benefit metrics where applicable. As other utilities begin to incorporate cost-benefit data in their TPR filings, CPUC Staff will expect SCE to not fall behind. Even if a full CBA model isn't feasible for every project, SCE should be open to piloting simpler benefit indicators or enhancing its qualitative explanations in Data Field 66. This will remain a focus area in future TPR cycles, with the goal of increasing the transparency of project value relative to cost.

¹¹ 02-16_ED-SCE-TPR-Cycle 3-2025-002 Q. 02-16 Answer.

¹² SCE TPR Stakeholder Meeting - 08-28-2025, slide 53

AACE Class Estimates (Data Field 48)

In the June 2025 TPR PS, SCE identified 76 out of 484 projects that have cost estimate classifications per the Association for the Advancement of Cost Engineering (AACE) standards. Data Field 48 – AACE is a data field that indicates the maturity and expected accuracy of cost estimates. Each class represents a different stage of project maturity, with Class 5 being for initial concepts and Class 1 being for definitive, bid-level estimates¹³. CPUC Staff views AACE as significant for transparency, as it helps Stakeholders gauge how developed a project's cost forecast is.

During the August 28, 2025 Stakeholder Meeting, SCE demonstrated its new estimating tool and how AACE classes are assigned, but Staff noticed inconsistencies that led to further inquiry. Notably, many projects nearing completion were still labeled with early-stage estimate classes (i.e., Class 3 or 4), whereas late-stage projects would normally have more refined Class 2 or 1 estimates. CPUC Staff pursued this issue through a data request,¹⁴ asking why 76 out of 484 projects had no updated class despite advanced progress. In response, SCE acknowledged a lag in updating its cost classification data; the AACE class tags in its system were a snapshot in time and not updated with the progress of the project. SCE explained that some nearly finished projects retained a Class 4 label because they were not refreshed¹⁵.

SCE has acknowledged this practice is not fully in line with AACE guidelines and has committed to evaluating its processes so that future TPR cycles will align the reported AACE class with each project's actual stage of completion. CPUC Staff appreciates the introduction of AACE class data as a step toward greater cost transparency but emphasized that these designations must be kept up-to-date. Going forward, Staff will monitor SCE's follow-through on updating estimate classes. Ensuring that all projects have current and accurate AACE class information will help Stakeholders reliably interpret the confidence level of project cost estimates and track estimate refinement over time.

TLRR Progress and Project Delays

The Transmission Line Rating Remediation (TLRR) program is one of SCE's largest programs and includes approximately 54 individual active projects. CPUC Staff continues to be concerned that SCE will not be able to achieve its 2025 or 2030 goals, resulting in higher future cost remediations and reduced reliability until these clearance violations are addressed.

In response to a data request¹⁶ and as included in the August 28, 2025 Stakeholder Meeting presentation,¹⁷ as of the June quarterly report to the CPUC Safety and Enforcement Division (SED)¹⁸, SCE has cleared 5,782 discrepancies with 5,964 discrepancies remaining. SCE

¹³ https://web.aacei.org/docs/default-source/toc/toc_18r-97.pdf

¹⁴ See SCE Response to CPUC Data Request 02-17_ED-SCE-TPR-Cycle 3-2025-002 Q. 02-17 Answer.

¹⁵ Ibid

¹⁶ See SCE Response to CPUC Data Request ED-SCE-TPR-Cycle 3-2025-001 Q.01-01 Answer.

¹⁷ See SCE TPR Stakeholder Meeting - 08-28-2025.

¹⁸ See SCE's_Quarterly_Update_for_CPUC_Q2_2025_FINAL_signed, page 1.

still anticipates remediating all of its infractions for the Bulk Electric System (BES) by 2025 and for the 115kV radial lines by 2030. In this update, SCE states that it “remains committed to undertaking all reasonable efforts to remediate all identified potential infractions for the BES by 2025 and of the 115kV radial lines by 2030.”¹⁹

SCE did clarify during the Stakeholder meeting that the count of remediated circuits appears lower than it really is, because “discrepancy remediations are only taken once all work is complete on a particular circuit.”²⁰ Therefore, there are more discrepancies currently remediated than the “Remediated Spans” tables, provided in response to a Data Request²¹ state, which will be recognized in lump sums and explains the appearance of unrealistic numbers of completions occurring in future years. SCE also stated they believe the circuits can continue to be operated safely.²²

However, also in the Stakeholder Meeting presentation, SCE stated that “[m]ost discrepancies remaining to be remediated fall in one of five (5) major projects that require CPUC licensing,”²³ and in the SED quarterly report that “these projects will likely not be completed by 2025.”²⁴

The discrepancy in remediation by circuit criteria appears to result in under-reporting of remediated spans by an unknown amount. CPUC Staff will continue to seek clarification of exact project counts within these pending projects as well as those related to CPUC-licensed projects.

Advanced Procurement and Delay Mitigation Strategies

Given long lead times for delivery of transmission equipment, along with anticipated supply chain shortages and industry demand, the CPUC Staff asked SCE about its plans for advanced procurement of transformers, circuit breakers, and circuit switches for planned projects.

When asked for an update during the August 28, 2025 Stakeholder Meeting, SCE acknowledged that increases in lead times “continue to be well above historical averages.”²⁵ To mitigate this, SCE has continued to work with preferred manufacturers, negotiating slot reservations to cover anticipated demand for the next few years. SCE is “also working on ordering major equipment earlier in the process to mitigate the potential for delays.”²⁶ Additionally, SCE “is continuing to update their demand plan and place orders proactively to mitigate the potential for project delays due to current market lead-times.”²⁷

¹⁹ Ibid.

²⁰ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 38

²¹ See ED-SCE-TPR-Cycle 3-2025-001 Q.01-01 Answer

²² See SCE TPR Stakeholder Meeting - 08-28-2025, slide 38

²³ Ibid

²⁴ See SCE's_Quarterly_Update_for_CPUC_Q2_2025_FINAL_signed

²⁵ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 41

²⁶ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 41

²⁷ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 41.

With respect to the potential cost impacts of tariffs, SCE indicates that it has not experienced “challenges with availability due to tariffs, but costs of finished goods, raw materials, and components are impacted by these current tariffs. Edison continues to use competitive pressures, evaluating manufacturing capacity, and negotiating with suppliers to minimize the impact of tariffs.”²⁸

CPUC Staff remains encouraged that SCE is actively managing its equipment procurement given the potential delays and cost increases. CPUC Staff will continue to monitor this topic with SCE.

SP-157 Mesa-Del Amo-Serrano 500kV Upgrade

The Mesa-Del Amo-Serrano 500kV upgrade project is a CAISO policy-driven project approved in the 2022-2023 Transmission Planning Process²⁹, to address deliverability constraints across multiple services areas. This project is very early on in the scoping phase, but SCE has already identified a “significant increase to original project cost,” beyond the current \$1.125 billion reported in the 2022-2023 CAISO TPP³⁰ and the June 2025 TPR.³¹

This identification comes from “extensive review of project scope (post Op Plan) by SCE Project Management team” and the updated estimate is “determined to be multiple times greater than the original.”³² Given the cost magnitude involved, and the policy significance of this project, CPUC Staff will be following this project closely throughout its development, including continued review of system reliability and deliverability analyses performed by the CAISO as part of the Transmission Planning Process. Further, the CPUC and Stakeholders will be seeking information on what SCE is doing to provide more accurate and updates cost estimates related to many other SCE projects in future TPR cycles.

SP-162: Brightline West High-Speed Rail Project

Following execution of the Engineering and Procurement Agreement between SCE and Brightline West in April 2025, engineering and design activities for the project have commenced and are expected to continue through 2025 and most of 2026.³³ The total current budget for project SP-162 remains

Key activities anticipated in 2026 include continued engineering and design work, pre-construction surveying, identification and acquisition of road and path usage rights, procurement of long-lead materials, and completion of required permitting and regulatory approvals. The Accelerate Switching Station will be located adjacent to an existing SCE transmission corridor, while the Rapid Switching Station and its two new 115 kV lines to Ivanpah Substation will be sited on Bureau of Land Management (BLM) land. The BLM has provided SCE with grant

²⁸ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 41..

²⁹ <https://www.caiso.com/Documents/ISO-Board-Approved-2022-2023-Transmission-Plan.pdf>.

³⁰ <https://www.caiso.com/Documents/ISO-Board-Approved-2022-2023-Transmission-Plan.pdf>.

³¹ See SCE TPR Stakeholder Meeting - 08-28-2025, slide 31

³² Ibid.

³³ See ED-SCE-TPR-Cycle 3-2025-001 Q.01-41 Answer

offers for use of this land for the intended purpose. SCE indicates that it continues to monitor potential risks, including the impact of increased tariffs on materials and extended lead times for critical equipment and components.³⁴

In its prior responses, SCE indicated that the customer's contribution to the Brightline West High-Speed Rail Project (SP-162) was approximately 13 percent of total project costs, or about \$3.5 million, based on estimates as of mid-2024.³⁵ To clarify the current funding structure, CPUC Staff issued a follow-up question in Data Request Set 3 seeking the most up-to-date cost allocation of this project for SCE customers.³⁶ SCE's response to this question is that the "current cost allocation of this project for ratepayers is approximately \$22 million and 3rd Party Customer is \$4 [million]".³⁷ CPUC Staff expects SCE to continue to clearly identify which portions of project costs are reimbursable by Brightline West under customer-funded agreements and whether any portion will be rate-based under SCE's Work Requested by Others accounting and recovered from ratepayers. Ensuring transparency in cost responsibility and recovery is essential to prevent ratepayers from bearing expenses associated with privately initiated infrastructure and to confirm that all funding follows Commission and FERC cost-allocation policy.

SP-10: Riverside Transmission Reliability Project

Per the December 2024 TPR PS and the February 28, 2025 TPR Stakeholder Meeting, the Riverside Transmission Reliability Project (RTRP) is currently active³⁸. The project, designed to provide additional reliability to Riverside Public Utilities, was approved by the CAISO in 2007, with CEQA approval by the CPUC in 2020. The project had an original operating date of 2009, which has now been pushed to late 2029. With regard to the project schedule, the June 2025 TPR PS reports construction has started as of June 2025.

CPUC Staff continues to be concerned regarding the length and cost of delays on this project, and the potential uncertainty of further legal or local government action regarding this line. The project will be delayed by at least 20 years from its original operational date, and the projected project costs have increased since the initial cost estimates from \$249 million to \$588 million currently³⁹. The CPUC Staff questions why transmission ratepayers should bear the costs of these delays. Further, there are potential impacts on system reliability. The reliability issue was identified 20 years ago as the driver for the project, and reliability concerns have only increased as Riverside has grown in the years since the issue was identified.

³⁴ Ibid

³⁵ See ED-SCE-Public-Cycle 1-001 Q. 69 Answer

³⁶ See Public - CPUC to SCE TPR June 2025 Cycle - Data Request Set 3, question 03-11

³⁷ See ED-SCE-TPR-Cycle 3-2025-003 03-11 Answer

³⁸ SCE TPR Stakeholder Meeting - 02-28-2025, slide 35

³⁹ 01_(Public) SCE TPR Process June 2025

Conclusion

From the information provided, SCE's actual and planned spending remains relatively close to what it has been in past submittals. Projects appear to be developed consistent with internal policies, the CAISO Transmission Planning Process, and anticipated load and generation growth within its service territory. The July 2025 TPR process in particular, has highlighted SCE's project prioritization and development methodology, which appears generally in line with good utility practice.

SCE has continued to make improvements in the TPR process through the information provided in its July 2025 submittals and the subsequent exchanges with CPUC Staff and their consultants. The initial information provided was clear, and the provided cover letter made it much easier to understand changes and revisions than previous submittals. The CPUC appreciates SCE's willingness to engage in this process and provide additional clarification where information wasn't clear or wasn't provided. There are two areas that need significant improvement, and they are in the timeliness and completeness of data request responses, and in SCE's obstructive approach to Stakeholder Meetings.

The inability to provide complete data requests impedes the exchange of information in the TPR process, prevents Stakeholders from ascertaining all pertinent facts and information, and does not adhere to the requirements of E-5252. Over the course of the July 2025 submittals, 38 of 78 total data requests remained at least partially unanswered, which is not an acceptable performance. The CPUC expects SCE to answer all data requests fully in subsequent data submittals.

Stakeholder Meetings are a forum to allow direct access to SCE's subject matter experts for live discussions and Q&A from the source(s) of SCE's TPR data. With SCE's removal of the chat feature, the inability of participants to articulate their questions in writing clearly for all to see, detracts from this open forum approach and makes it more challenging to come away from the meeting with greater understanding of the material. Likewise, not providing subject matter experts to discuss requested details of key projects further inhibits Stakeholder transparency, and is also a disservice to SCE, limiting its ability to provide nuance and detail that spreadsheets cannot.

Issues Addressed/Key Takeaways

In addition to updates on the more significant projects that have been tracked throughout the TPR process since it began, several new projects have been explored this cycle. Generally, SCE was helpful with its responses and discussions regarding estimation, project prioritization and cost-benefit analysis processes. This is not an area that has been explored in previous submittals and provided much needed insight into how SCE develops the very projects we see in the data submittals.

The cost of the newly added Mesa-Del Amo-Serrano 500kV Upgrade is already multiple times greater than the CAISO's 2023 estimate of \$1.1 billion and faces large design challenges, with much more refinement expected. The CPUC looks forward to learning more about this project, as well as other CAISO approved projects, and expects SCE to provide detailed updates as part of the next TPR data submittals, data requests, and Stakeholder Meetings.

Supply chain challenges will continue for the energy industry for the foreseeable future, and SCE appears to have a sound approach to trying to mitigate both delays and unnecessary costs through its procurement strategies. It is encouraging to see projects like seismic enhancements being undertaken comprehensively across all of SCE's system.

Other major projects like the Riverside Transmission Reliability Program will be watched closely for continued progress and meaningful milestones toward completion. The Brightline West Train project will also be more closely monitored for continued understanding of how the costs are being allocated and what system upgrade projects will truly benefit ratepayers.

CPUC Staff appreciates SCE's engagement in this process and the information provided. CPUC Staff looks forward to SCE's improvements in the Stakeholder-facing aspects of this process, specifically data requests and the Stakeholder Meeting. CPUC Staff looks forward to continuing to work with SCE in the TPR Process.

SCE should direct any questions or comments on the TPR Process to tpprocess@cpuc.ca.gov.