Transmission Data Dashboard 2025

Transmission Project Status

201 transmission projects are ongoing.
In recent years, CAISO TPP projects are 9x more expensive.

Transmission Development Timelines

CPUC permitting is only 25-28% of the average transmission development timeline.

IOUs Peak and Average Load

Load is forecasted to increase sharply, differing from historic trends.

Transmission Access Charge (TAC)

TAC Rates are increasing, potentially tripling by 2045

Generation Interconnection

Cluster 15 reforms decreased interconnection submissions by 50%, hopefully reducing future withdrawal rate.

Transmission Capital Expenditures

PG&E has spent 3x more than SCE and SDG&E and their spending is forecasted to more-than-double.

Delay Times of Transmission Projects

The majority of CAISO-approved projects experience delays.

New in 2025 Dashboard

Data added:

- New IOUs Peak and Average Load page
- New Transmission Capital Expenditures page
- New SCE and SDG&E Delay Times pages

Data updated:

- Updated Transmission Project Status chart includes more projects
- Updated Transmission Development Timelines chart includes more projects
- Updated Transmission Access Charge (TAC) charts with 2025 data and updated forecasts
- Updated Generation Interconnection Queue data, plus Cluster 15 data
- Updated PG&E Delay Times chart includes more projects

Trends in 2025 Dashboard:

- From 2000 to 2022, TPP costs averaged $733M. Since 2023, they have averaged $6.64B, a 9x increase.
- HV TAC Rate increased from $11.60/MWh in 2024 to $13.95/MWh in 2025.
- CAISO IPE 2023 reforms reduced Cluster 15 generation interconnection requests by 50%.

Transmission Project Status

DEFINITION	KEY FACT
The CAISO approves new projects in its TPP annually.	59% of approved projects since 2012 are still in-flight.

CAISO-Approved Project Status (2000-2025)

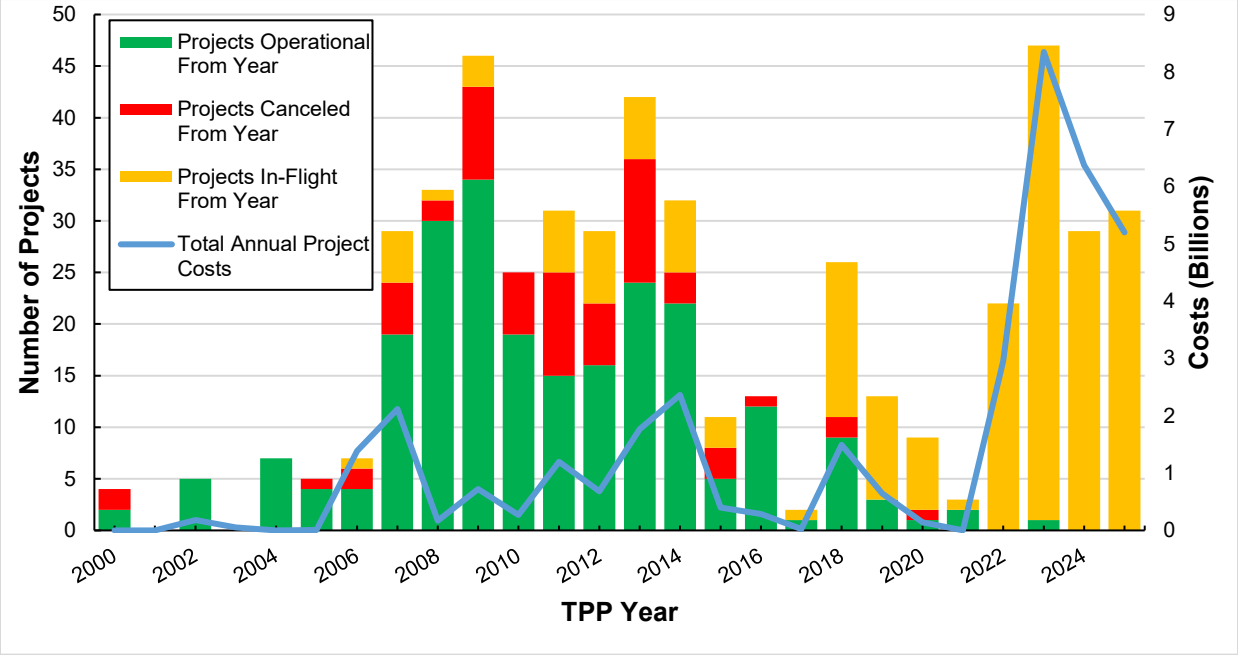
501
Total

201
In-Flight

235
Operational

65
Canceled

Current Status of CAISO-Approved Projects Sorted by Approval Year[1]



Projects are often delayed.	201 of 501 projects approved since 2000 are still ongoing, and 89 (44%) of those are delayed.[2]
Project costs are rising sharply.	From 2000 to 2022, TPP costs averaged $733M. Since 2023, they have averaged $6.64B, a 9x increase.
The quantity of new projects is growing.	140 of 201 in-flight projects (70%) were approved in or since 2020.
Few projects need permits.	Historically, only 17% of CAISO-approved projects require a CPUC permit.

Transmission Development Timelines

KEY FACT

Development of CAISO-approved projects takes 8+ years on average.[3]

Some transmission projects require a permit from the CPUC before they can be built:

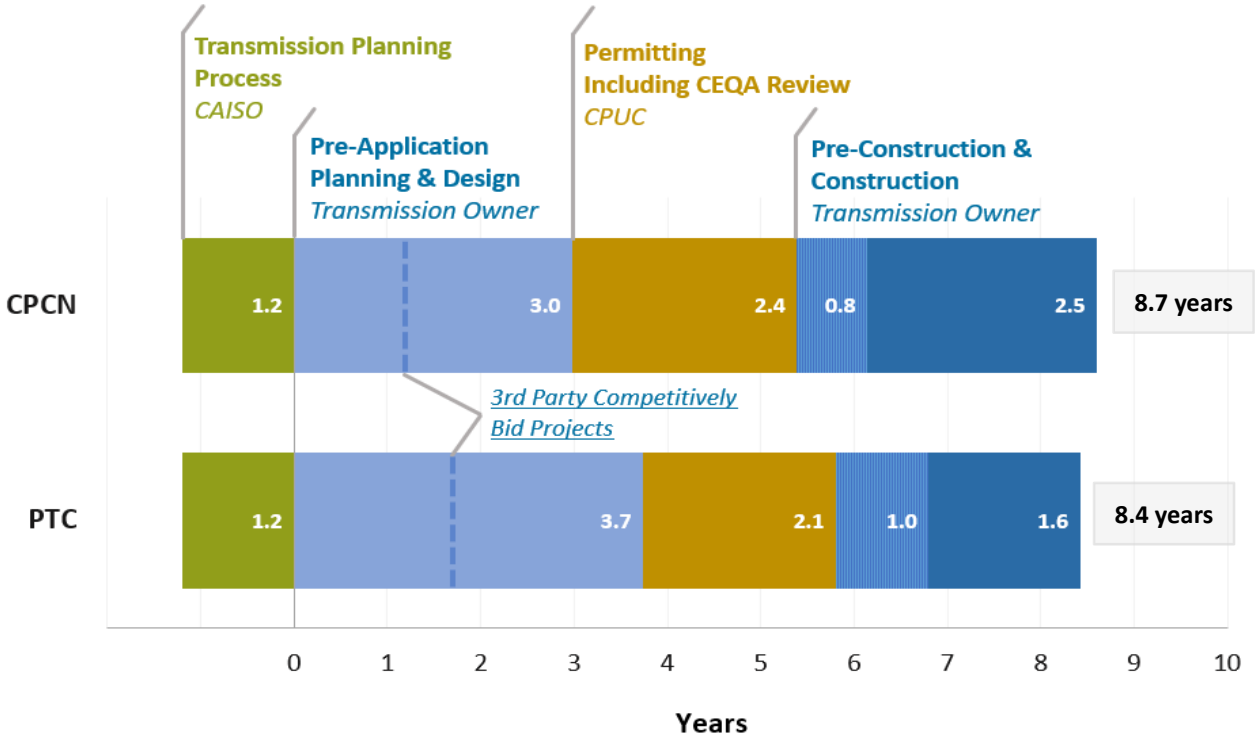
Certificate of Public Convenience and Necessity (CPCN)

- 200 kV or above.
- Proof of project need, cost analysis, and environmental review.

Permit to Construct (PTC)

- 50 – 200 kV; or upgrades to existing infrastructure.
- Environmental review only.

Development Timeline: Concept to Construction[4]



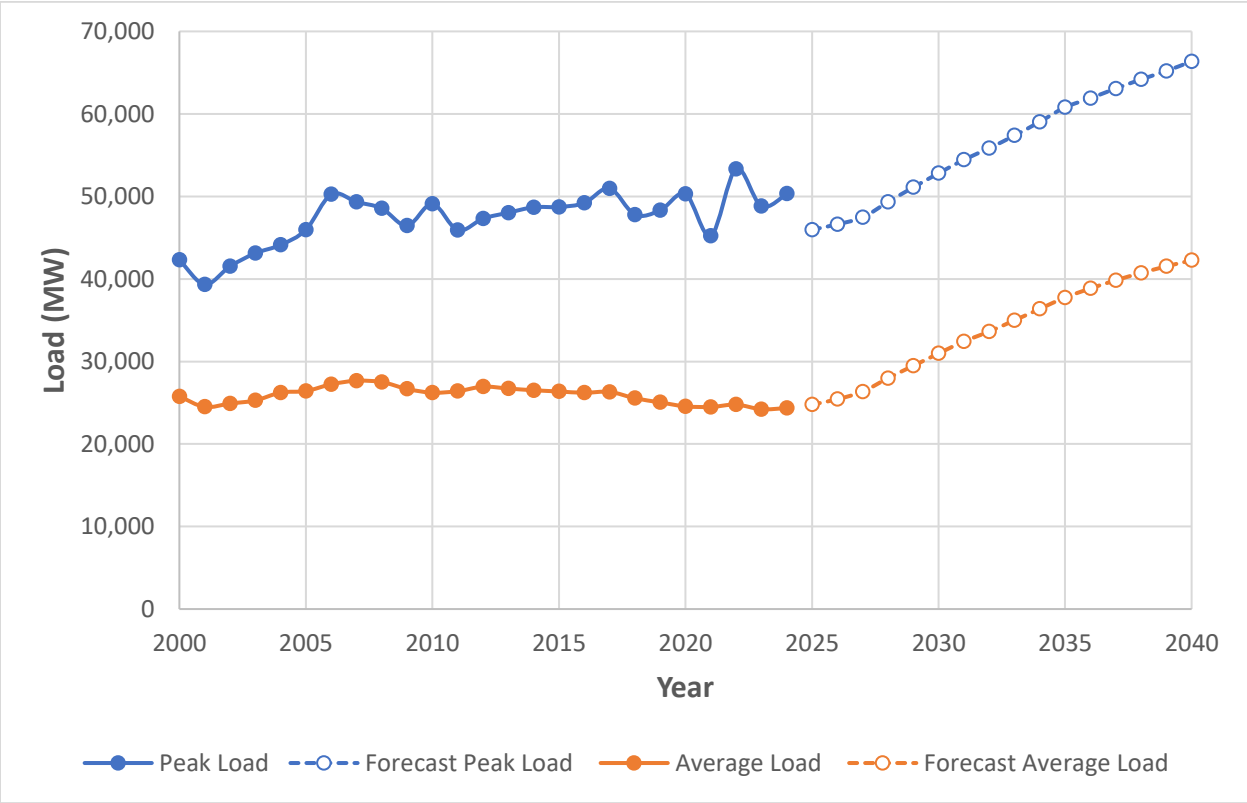
CPUC permitting is 25-28% of the average project development timeline.

CPUC permitting has ranged from 85 days to over 5 years

34-44% of the average project development timeline is spent waiting for projects to be submitted to the CPUC for permitting.

Competitively bid project developers submit applications to the CPUC in half the time as IOUs (see chart above).[5]

IOUs Peak and Average Loads



KEY FACTS

While peak load has been slowly increasing, average load has been largely flat since 2000.

The peak load increased by 8,000 MW between 2000 and 2024.[6]

The average load has decreased by 3,000 MW between 2007 and 2023.[7]

Despite historically modest peak load growth and largely flat average load, California's load is projected to increase dramatically.

Peak Load: Increase of 20.4 GW by 2040[8]

Average Load: Increase of 17.5 GW by 2040[9]

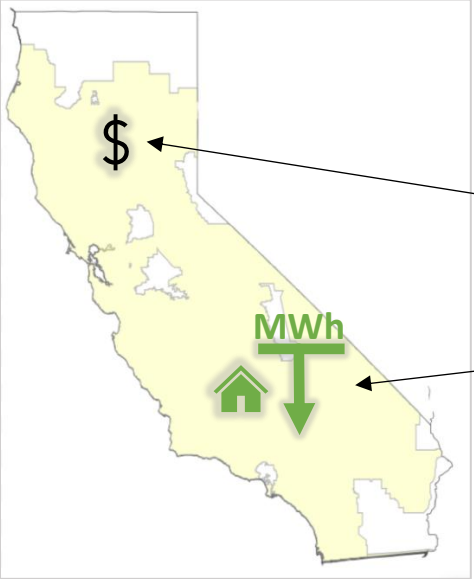
Data centers make up 17% (~3.5 GW) of forecasted additional peak load in 2040.[10]

Transmission Access Charge (TAC)

DEFINITION

The TAC recovers the cost of electric transmission services in the CAISO region.

What is the TAC?



The CAISO collects federally approved transmission costs based on the TAC rate.

The TAC rate is determined by this formula:

$$TAC = \frac{\sum \$}{\sum MWh}$$

$: Annual transmission revenue requirements (TRR) for transmission facilities.

MWh: Annual gross load in the CAISO region.

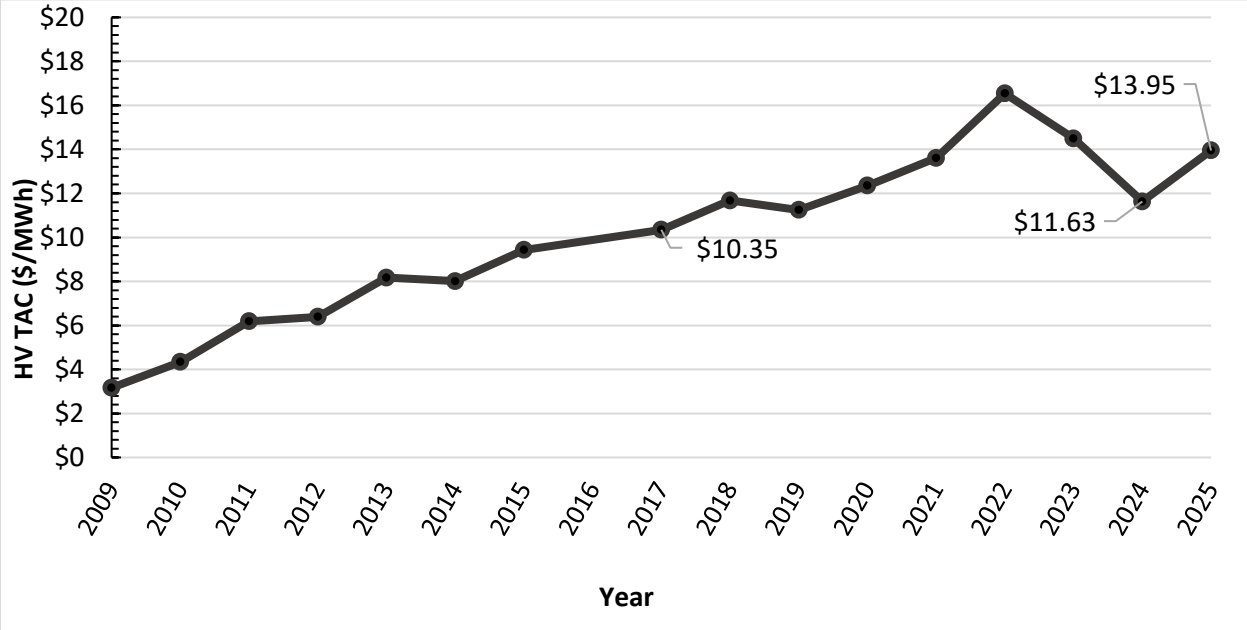
There are separate charges for high and low voltage facilities.

Rate type:	***High Voltage (HV) TAC***	***Low Voltage (LV) TAC***
Revenue types:	Facilities 200 kilovolt (kV) or above.	Facilities below 200 kV.
Load types:	Paid for by all end-use transmission customers in the CAISO region.	Paid for by customers in utility service territory (e.g., PG&E).
Rate structure:	Single rate for CAISO region.	Rates vary by utility.
Collection entity:	Load-serving electric utilities via CAISO settlement process.	Utility serving its own customers with low voltage transmission.

The TAC is reflected on customer utility bills as transmission rates.

Historical TAC Rates

Historical CAISO-Wide High Voltage TAC Rate

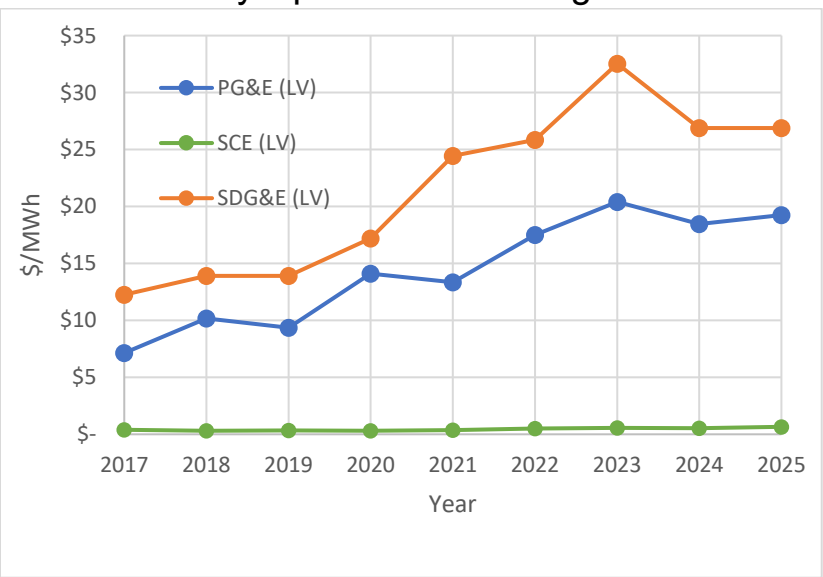


Changes to the TAC rate are driven by TRR (revenues) and load (consumption).

Average annual increase of HV TRR since 2017:

3.43%

Historical Utility-Specific Low Voltage TAC Rates



IOUs allocated 63% of the 2025 transmission revenue requirement to low voltage transmission.

Average annual increase of LV TRR since 2017:

SDG&E	+9.3%
PG&E	+13%
SCE[11]	+6.5%

Forecasted TAC Rates

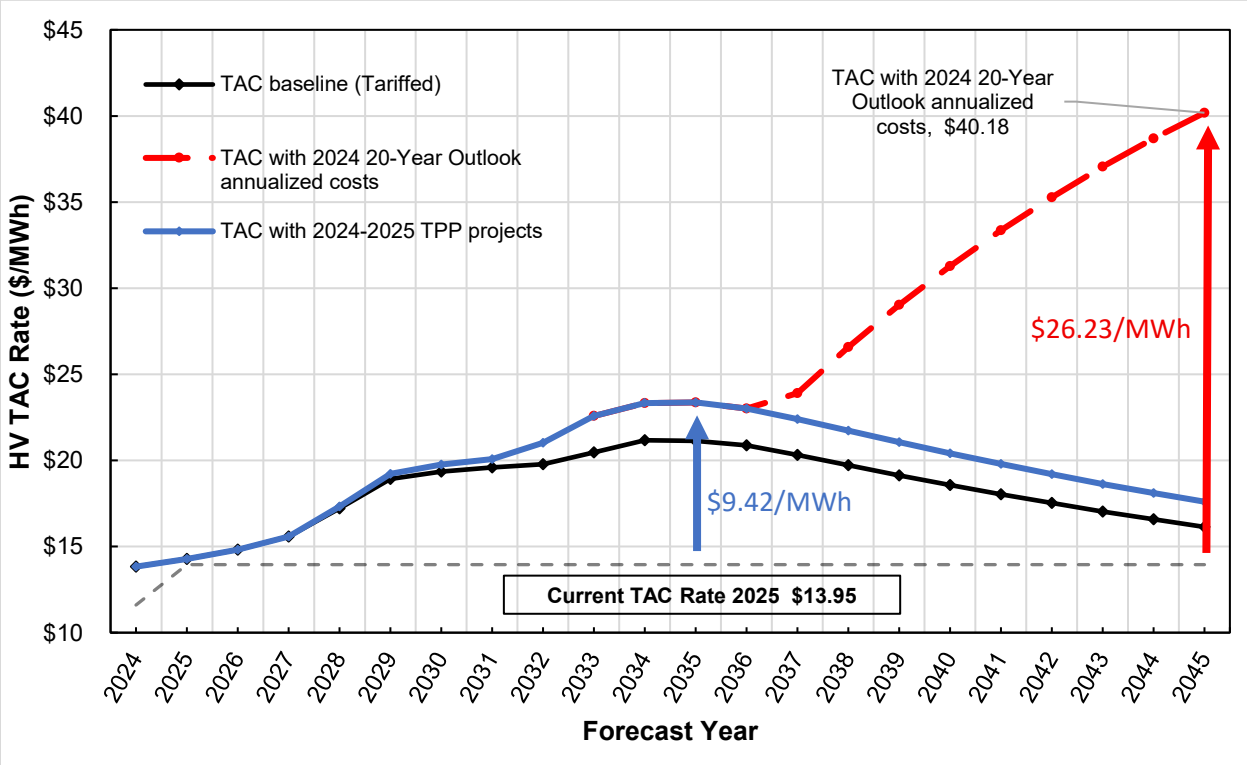
KEY FACT

By 2035, the HV TAC Rate could increase by 70% ($23.37/MWh).[12]

CAISO's 2024-2025 TPP approved $4.6 Billion in reliability-driven transmission projects.

CAISO's 20-Year Outlook forecasts the need for an additional $63.2 Billion in transmission costs.[13]

HV TAC Rates Forecast and Forecast Scenarios



Current TAC Rate (April 2025):

$13.95/MWh

Cost increase from California's clean energy goals:[14]

Transmission rates **triple** by 2045

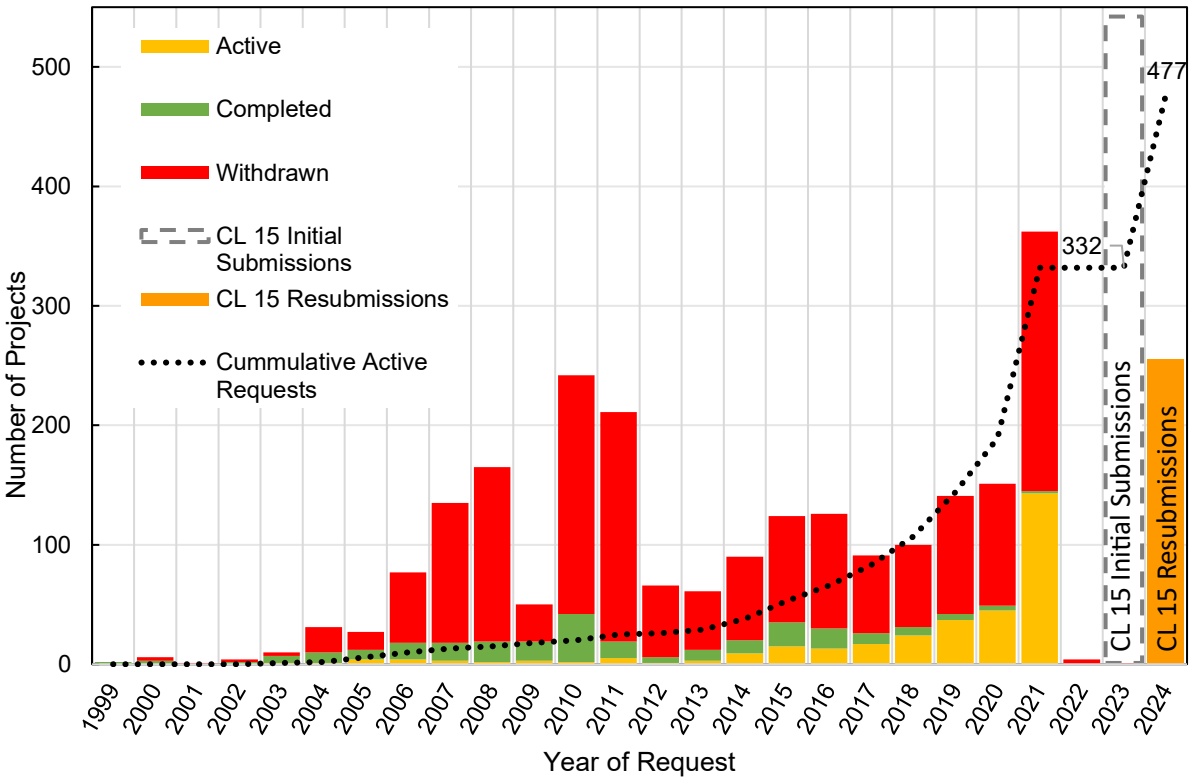
CAISO Generation Interconnection Queue

KEY FACT

477 Active generation interconnection requests (140 GW requested in total) in the CAISO queue.

9% Completed

72% Withdrawn

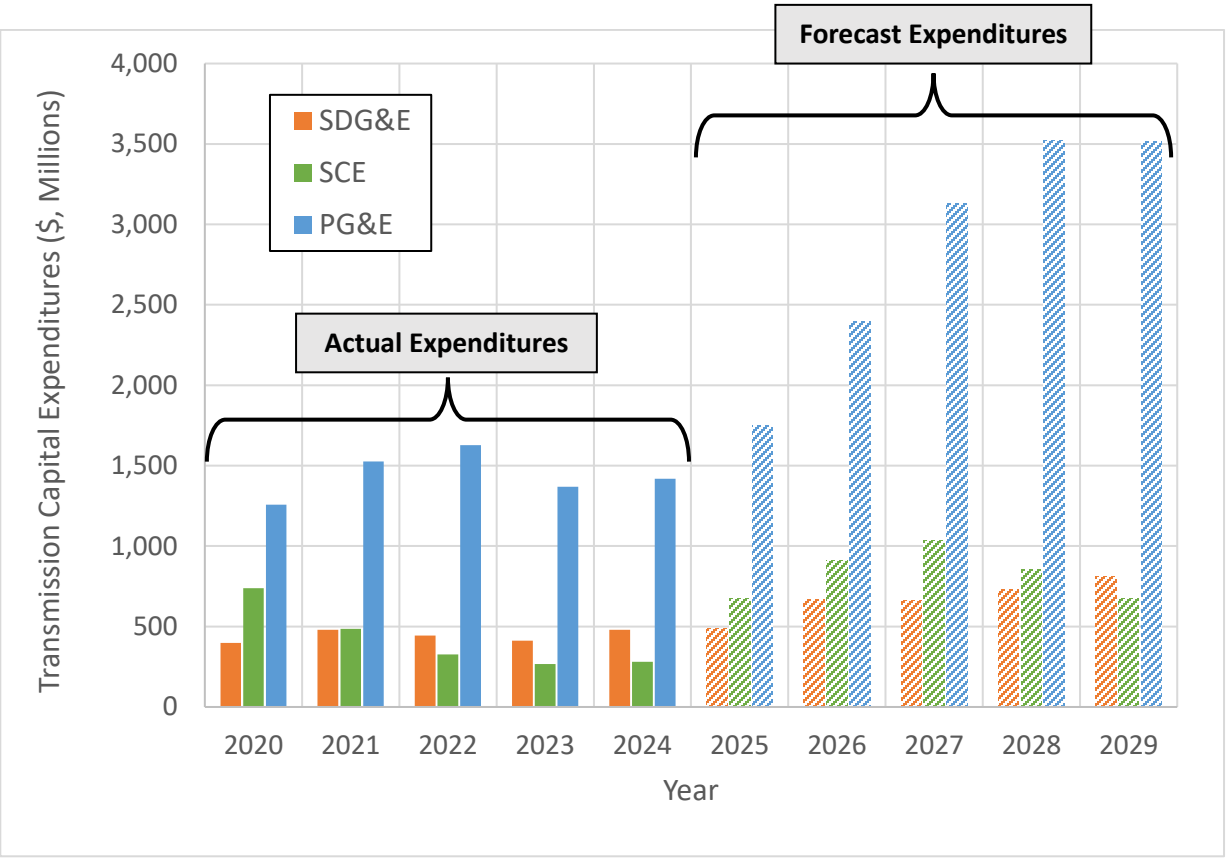


CAISO implemented interconnection reforms after 541 Cluster 15 (CL 15) submissions. The reforms (2024) resulted in 255 resubmissions. Currently, 145 resubmissions are active.[15]

- **33 GWs** of installed capacity are **operational**.
- **165 GWs** of new generation are **needed** by 2045 to meet the state's energy goals.[16]
- **405 GWs** of capacity **withdrew** before completion.
- **140 GWs** of potential capacity are **actively** requesting interconnection.

Transmission Capital Expenditures

PG&E spent more than **3x** the amount of SCE and SDG&E (2020-2024).
By 2029, this disparity is forecasted to grow to **~4x** the amount.



KEY FACTS

- PG&E forecasts to more than **double** costs ($2B) from 2024 to 2029.
- SCE forecasts to more than **triple** costs ($757M) from 2024 to 2027.[17]
- SDG&E forecasts a **70%** increase ($334M) from 2024 to 2029

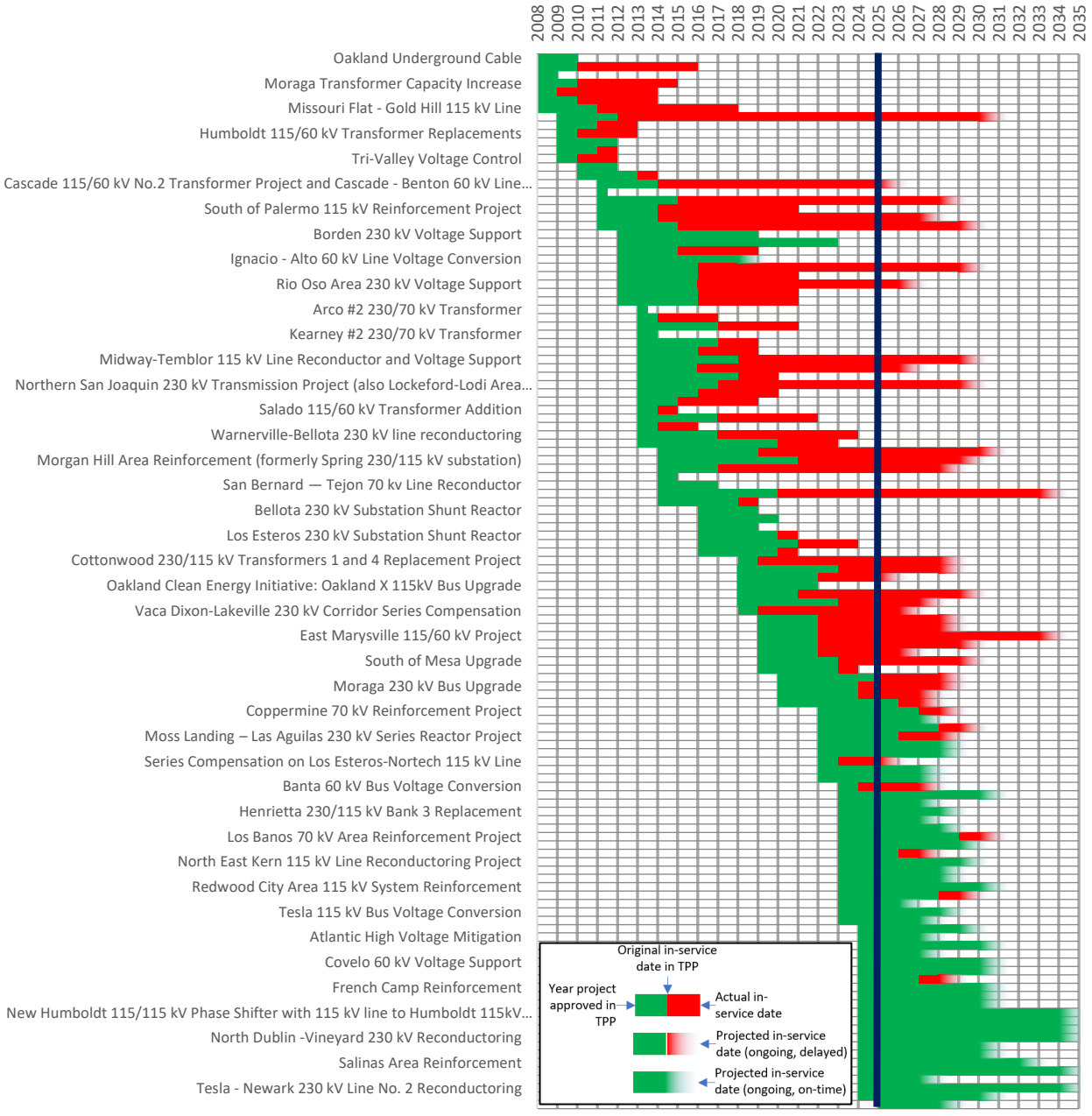
	Service Area (square-miles)	People served
PG&E[18]	70,000	16 million
SCE[19]	50,000	15 million
SDG&E[20]	4,100	3.7 million

Delay Times of PG&E Transmission Projects

KEY FACT

63% of CAISO-approved PG&E projects, since 2000, were completed after the original in-service date.

Project Development for 126 PG&E Projects, in-flight and operational, costing >$10 million, by year of approval



(Note that due to space constraints, only every third project is labeled by name; some names are truncated)

The average delay of a completed PG&E project is **2.1 years.**

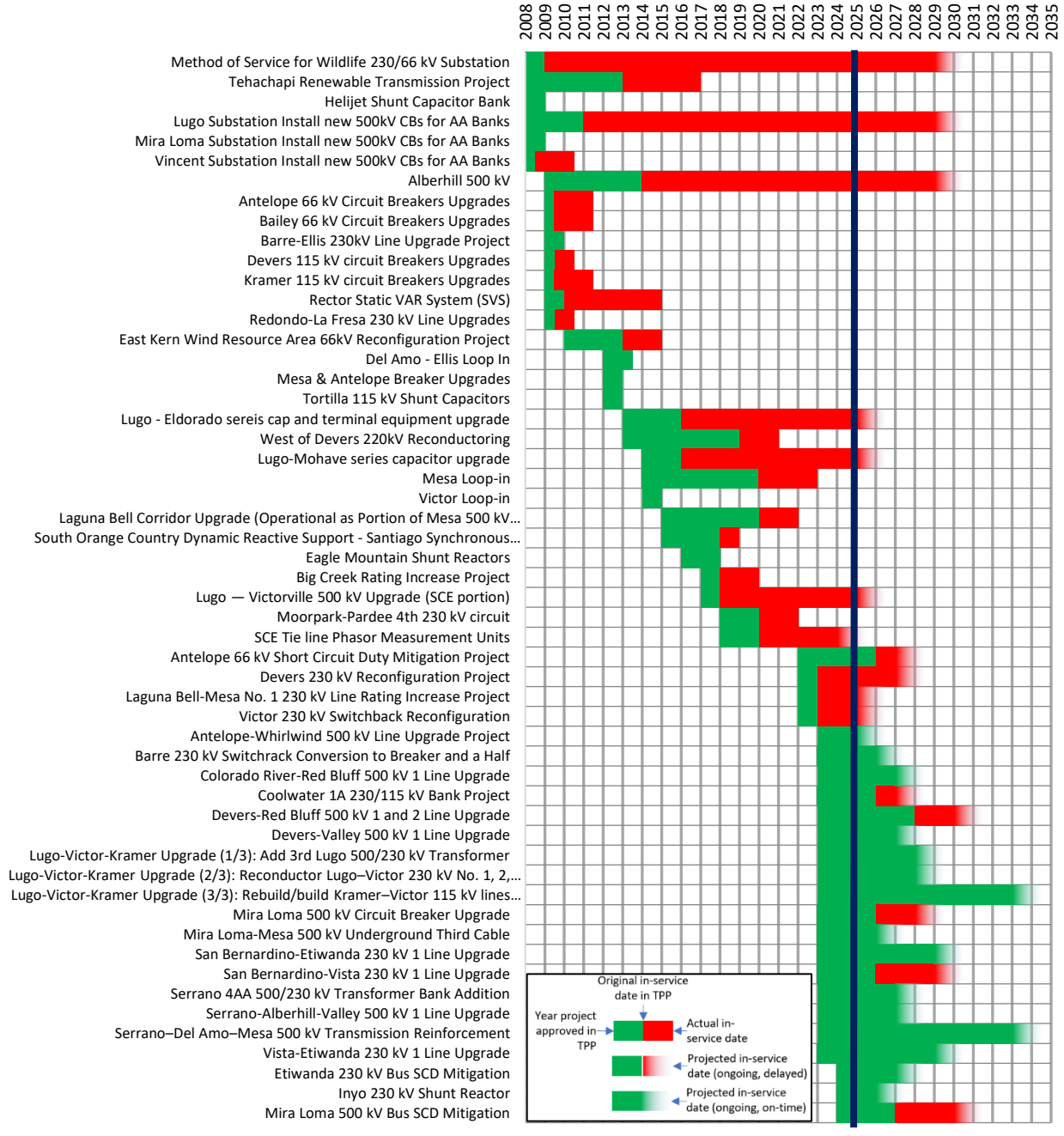
The longest delay of a completed PG&E project is **15 years.**

Delay Times of SCE Transmission Projects

KEY FACT

63% of CAISO-approved SCE projects, since 2004, were completed after the original in-service date.

Project Development for 54 SCE Projects, in-flight and operational, by year of approval



(Note that due to space constraints, some names are truncated)

The average delay of a completed SCE project is **1.4 years.**

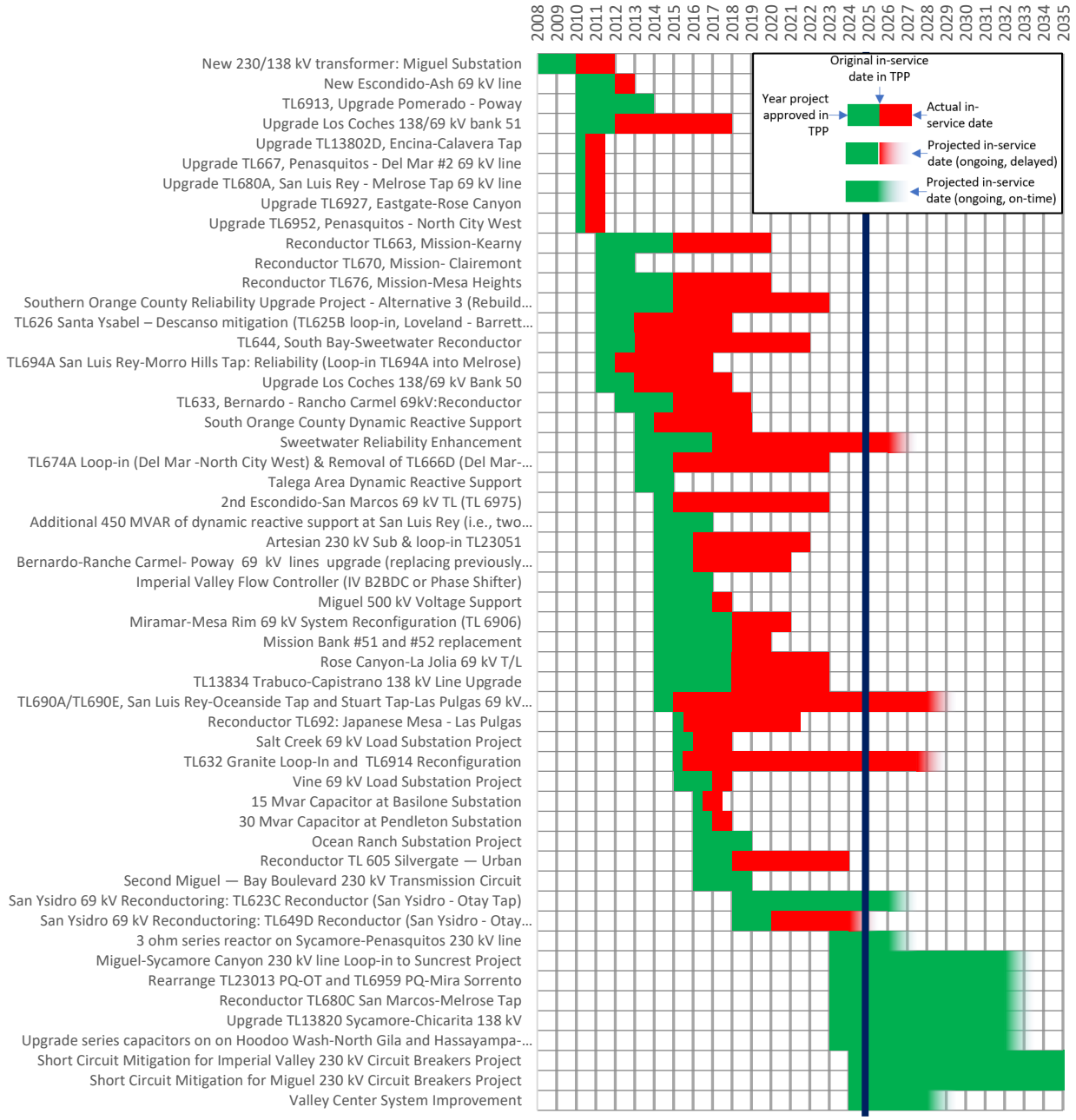
The longest delay of a completed SCE project is **5 years.**

Delay Times of SDG&E Transmission Projects

KEY FACT

76% of CAISO-approved SDG&E projects, since 2000, were completed after the original in-service date.

Project Development for 53 SDG&E Projects, in-flight and operational, by year of approval



(Note that due to space constraints, some names are truncated)

The average delay of a completed SDG&E project is **3.1 years.**

The longest delay of a completed SDG&E project is **9 years.**

[1] Eight significantly "rescoped" projects (e.g. name changes, merging multiple projects) are considered approved in the year of rescope.
[2] A project is delayed if its estimated in-service date is beyond that originally given by CAISO.
[3] The Public Advocates Office analyzed 76 transmission projects (26 CPCNs and 50 PTCs) submitted to the Commission between 2001 and 2025.
[4] The figure depicts the average of each phase, excluding outliers. Values in the bottom 5% and top 5% of each phase were excluded from the calculated average.
[5] 10 competitively bid projects (7 CPCNs and 3 PTCs), with applications filed at the Commission between 2015 and 2025, took 500 days or 1.37 years on average from project sponsor selection to application submission (1.23 years for CPCNs and 1.69 years for PTCs). The range was 237 days (0.65 years) to 768 days (2.10 years).
[6] 2024 IEPR Baseline Forecast, Form 1.5, Historical Net Peak, sum of PG&E, SCE, and SDG&E planning areas
[7] 2024 IEPR Baseline Forecast, Form 1.2, Total Energy to Serve Load / (24hrs * 365 days), sum of PG&E, SCE, and SDG&E planning areas
[8] 2024 IEPR Peak Forecast, Annual Peaks, Coincident, Planning Scenario, Managed Net Load, sum of PG&E, SCE, and SDG&E
[9] 2024 IEPR Hourly Forecast - Planning Scenario, Yearly Managed Net Load / (24hrs * 365 days), sum of PG&E, SCE, and SDG&E
[10] 3474 MW in 2040. 2024 IEPR Peak Forecast, Annual Peaks, Coincident, Planning Scenario, Data Center, sum of PG&E, SCE, and SDG&E
[11] SCE's low voltage transmission costs may be recovered in CPUC or Federal Energy Regulatory Commission (FERC)-jurisdictional rates. SCE's high voltage transmission is recovered by FERC and thus included in the HV TAC.
[12] The HV TAC rate includes CAISO-approved projects' estimated costs in current dollars. Policy and reliability-driven projects approved in future CAISO TPPs, as well as transmission owner-initiated projects, are likely to add capital expenditures to the HV TAC Forecast.
[13] The scenario taken from CAISO's 20-Year Outlook (2024) high-level transmission blueprint is for informational purposes only. Projects already approved by the CAISO were removed from the total cost estimate. It's assumed Participating Transmission Owners will not incur transmission capital costs from 2045 going forward. Finally, the scenario does not consider the future approval of reliability-driven projects or transmission owner-initiated projects.
[14] CAISO's 20-Year Outlook considers a system-wide high electrification load projection, in which the 2045 peak load is 77,430 megawatts. The model assumes a 2.18% annual load growth rate, derived from the forecasted load in the 2024-2025 TPP.
[15] CAISO, *Summary of Cluster 15 Intake Scoring Results*, June 12, 2025
[16] CAISO, *2024 20-Year Transmission Outlook*, July 31, 2024
[17] SCE's transmission costs may be recovered in CPUC or Federal Energy Regulatory Commission (FERC)-jurisdictional rates. The expenditures listed are only FERC-jurisdictional.
[18] https://www.pge.com/en/about/company-information/company-profile.html
[19] https://www.edison.com/about-us
[20] https://www.sdge.com/more-information/our-company/about-us