Working Concepts in Transmission Financing and Ownership

March 11, 2026

California Public Utilities Commission

STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

March 11, 2026

Public Input Requested on *Working Concepts in Transmission Financing and Ownership* Pursuant to Assembly Bill 3264 and Public Utilities Code Section 913.10.

Dear Stakeholders and Members of the Public,

Assembly Bill (AB) 3264 (Petrie-Norris, 2024) established section 913.10 of the Public Utilities Code, which requires the California Public Utilities Commission (CPUC) to issue a study with findings and recommendations to "reduce the cost to ratepayers of expanding the state's electrical transmission grid" as will be necessary to reduce greenhouse gas emissions. Primary solutions to reduce the cost of new transmission projects include changes to financing and ownership models, as well as other strategies to develop projects at lower costs.

AB 3264 further requires that the CPUC seek "public input on which proposals to consider and on draft findings and recommendations."

The CPUC has prepared "**Working Concepts in Transmission Financing and Ownership**" (Concept Paper) in support of the AB 3264 requirements. The CPUC is issuing this Concept Paper and seeking public input. After receiving public input, the CPUC expects to issue a final report.

Following the guidelines below, please provide any input on the proposals in the Concept Paper. Reviewers may respond to specific Discussion Questions or to other proposals in the Concept Paper.

- Input on the Concept Paper must be submitted to txfinancing@cpuc.ca.gov no later than 5:00 pm Pacific Standard Time on Wednesday, March 25, 2026.
- Input shall be in 11-point font or larger.
- Comments should be organized according to the main sections of the Concept Paper:
  1. Transmission Ownership Structures,
  2. Potential Options for Achieving Transmission Cost Savings, and
  3. Considerations for Implementation.

Until March 25, 2026, please direct any questions related to this Concept Paper or the larger AB 3264 Study to txfinancing@cpuc.ca.gov.

Sincerely,

Leuwam Tesfai

Leuwam Tesfai
Executive Director

Cc: Service Lists of: R.25-10-003, R.24-01-017, R. 23-05-018, R.20-05-003, R.25-06-019, A.23-05-010, A.22-05-015, A.21-06-021, A.25-05-009, I.00-11-001, Transmission Project Review Process distribution list, FERC ER25-270, FERC ER25-550, FERC ER24-96.

Contents

Introduction

Assembly Bill (AB) 3264 (Petrie-Norris, 2024) established section 913.10 of the Public Utilities (PU) Code, which requires a study with findings and recommendations to "reduce the cost to ratepayers of expanding the state's electrical transmission grid"[1] as will be necessary to reduce greenhouse gas emissions. Solutions to reduce the cost of new transmission projects required in AB 3264 include changes to financing and ownership models as well as other strategies to develop projects at lower costs. Senate Bill (SB) 254 (Becker, 2025), established the California Transmission Infrastructure Accelerator (Accelerator), which created a new mechanism to finance electrical transmission projects with public debt.

The objective of this paper on "Concepts in Transmission Financing and Ownership" is to frame the issues and gather input from stakeholders to inform a forthcoming California Public Utilities Commission (CPUC) final report on the topics identified in PU Code section 913.10. The CPUC is issuing this Concept Paper to seek public input. After receiving public input, the CPUC expects to issue the final report.

The final study, which will be informed by the comments on this Concept Paper, is a part of the CPUC's transmission-related work, which includes intervening in transmission owner rate cases on behalf of California ratepayers at the Federal Energy Regulatory Commission (FERC), transmission planning – including Busbar Mapping of expected new resources – to identify locations of generation development to ensure transmission upgrades can be planned, and work to improve the efficiency of the permitting process for those transmission projects subject to CPUC permitting requirements. We provide an overview of these existing work areas below, as the concepts in this paper, related to achieving more affordable transmission development through financing and ownership models, complement and build on this work. We note that transmission is generally expensive to develop and that alternative financing and ownership models may have limitations on effectively and meaningfully reducing costs. Other measures, including considering some improvements to existing processes described below, may ultimately yield high cost savings for ratepayers.

CALIFORNIA'S TRANSMISSION OUTLOOK

The CPUC's Integrated Resource Planning (IRP) process identifies a least-cost portfolio of energy resources, including the costs of needed transmission, that are needed to reliably meet forecasted demand while also achieving greenhouse gas (GHG) reduction targets. The CPUC transmits those portfolios of energy resources to the California Independent System Operator (CAISO) to study any transmission upgrades needed to deliver those resources to meet system needs. Successive CAISO Transmission Planning Process (TPP) cycles have studied portfolios from the CPUC that are modeled to reliably meet state decarbonization goals, pursuant to AB 1279. In the last two TPP

[1] California Legislative Information, "AB-3264 Energy: cost framework: residential rates: demand-side management programs report: electrical transmission grid study," September 30, 2024, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB3264.

cycles, the CAISO has found the need for nearly 60 new policy- and reliability-driven transmission upgrades, requiring the state to invest $8.8-11 billion dollars, including to support the 4.6 GWs of offshore wind included in those portfolios, for those identified incremental transmission needs. These costs reflect generational investments based on evidence supported modeling and planning efforts that allow the state to find the least-regrets transmission needed. These identified transmission needs indicate the scope of what California needs to realize its vision of 100% clean, reliable energy and economy-wide decarbonization by 2045. Under current structures, California electric ratepayers will pay for transmission development through the delivery portion of their monthly electric bills, which includes charges for high-voltage transmission service administered by the CAISO and collected via the Transmission Access Charge (TAC).

Thus, it is highly valuable to the state to explore additional ways that transmission can be built cost-effectively and avoid cost overruns. This paper describes strategies to contain costs and avoid overruns, but it also identifies factors that lead to project delays and higher costs regardless of transmission development, ownership, or financing models. Specifically:

- Led by the CAISO in its role as the implementer of FERC Order 1000, California has a robust transmission development market in which cost containment is an element of competition, regardless of what entity develops the transmission. Some case studies demonstrate that a lack of competition can be a factor leading to higher transmission costs. While only about 5 percent of all transmission projects are subject to a competitive solicitation and development process nationwide, where it is present, as it is in California, competition has been shown to reduce costs by as much as 40%.[2] Among seven competitively-bid projects in the CAISO between 2022-2024, bids for competitively-bid transmission projects had an average range of $529 million between the highest and lowest bids, with one project having a range of $1,224 million;[3]
- It is generally widely applicable that transmission project delays can occur and do lead to higher development costs;
- Any entity developing transmission presents its request for an approved rate of return at FERC, where the entity makes an argument based on the risk associated with its transmission financing and investment.

TRANSMISSION REVENUE REQUIREMENT

FERC transmission rates are set to recover the cost of construction and operation of the transmission grid. The rates for both investor-owned utilities (IOU) and non-IOU transmission owners are expected to cover costs and provide a reasonable return to investors based on the transmission revenue requirement inputs. For example, as shown in **Figure 1**, in 2023, the total transmission revenue requirement collected in transmission rates from customers across the three

[2] The Electricity Transmission Competition Coalition, "FERC Order 1000 Competitively Bid Transmission Projects 2021 – 2025 Ratepayer Savings & Benefits," https://electricitytransmissioncompetitioncoalition.org/competitive-wins/

[3] Ibid.

major IOUs (PG&E, SCE, and SDG&E) was $5.5 billion, including about $3.5 billion in expenses.[4] In addition to the expenses, the revenue requirements included approximately $2.0 billion for the rate of return on the total transmission asset rate base of $25.3 billion. The return on assets was divided by approximately $1.3 billion to investors for the regulated cost of equity, and a further $0.7 billion for the cost of debt.[5] The portion of a utility's capital structure that is return on equity for investors is typically the result of a negotiated settlement before FERC, and typically lands around 10% of the asset value per year.[6] That Return on Equity (ROE) will generally account for various forms of risk, which in California especially will reflect exposure to wildfire risk. The cost of debt portion of the capital structure, as shown in **Figure 1**, is typically lower than the cost of equity, and is currently around 5% of the asset value per year.[7] The approved mix of equity and debt (i.e., capital structure) for each utility, which is also often negotiated among parties litigating cost of capital for transmission projects or assets before FERC, can vary, and averages around 50% equity and 50% debt. As shown below, the weighted average cost of capital, which is made up of the cost of equity (i.e., ROE) and cost of debt equals an overall rate of return of 7.8%.

As shown in **Figure 1**, the cost of debt is typically cheaper than the cost of equity, and a higher proportion of debt would reduce the overall cost of financing. However, the use of a high proportion of debt in the capital structure may introduce more risk to cashflow and may increase the probability of default. As a result, to compensate equity holders for the increase in potential volatility to cash flow, a higher return may be required.

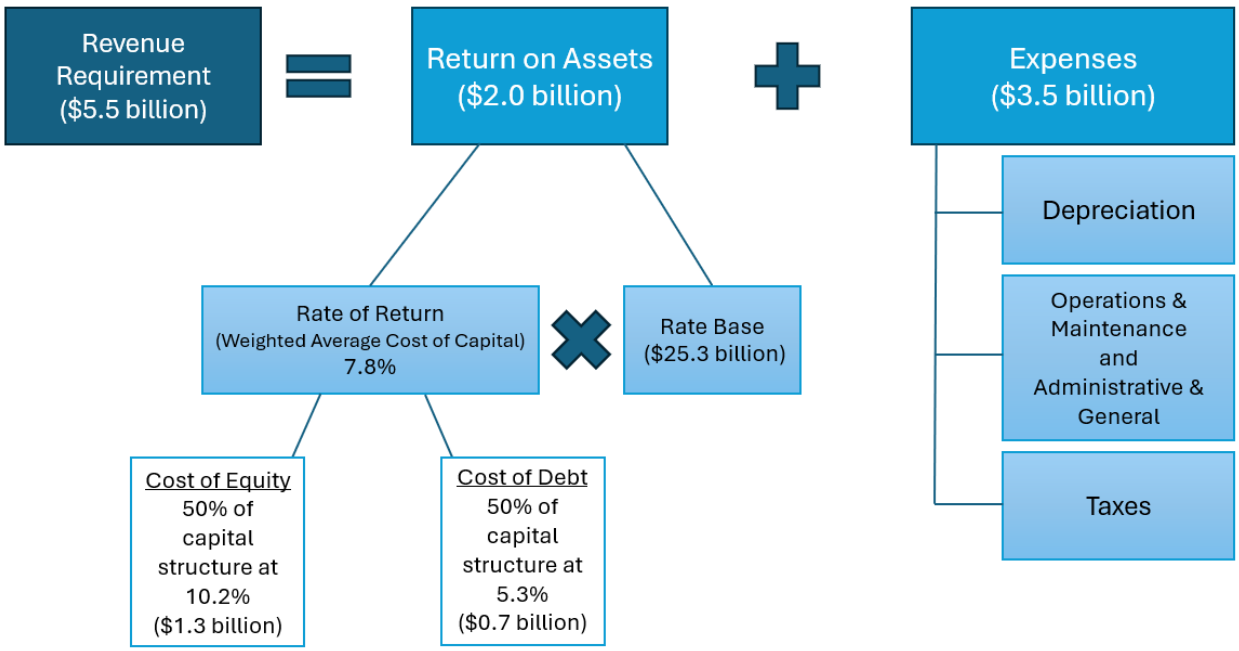
[4] California Public Utilities Commission, "2023 California Electric and Gas Utility Costs Report (AB 67 Annual Report to the Governor and Legislature)," April 2024, 84, https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2023-ab-67-report.pdf.

[5] Calculation based on 50:50 debt to equity ratio, 10.2% return on equity, and $25.3 billion of transmission assets in the rate base of PG&E, SCE, and SDG&E. (The calculation is $25.298 billion * 50% equity * 10.2% ROE = $1.29 billion)

[6] PG&E's last three approved ROEs at FERC were: 9.13%, 10.45%, and 10.38%.

[7] The current costs of long-term debt for a few transmission owners in the CAISO: PG&E – 4.49%, SCE – 4.58%, SDG&E 4.15%, Horizon West Transmission – 4.46%, and DCR Transmission - 5.8%.

Figure 1. Components of Transmission Revenue Requirement with Sample 2023 Joint IOUs' Data[8]

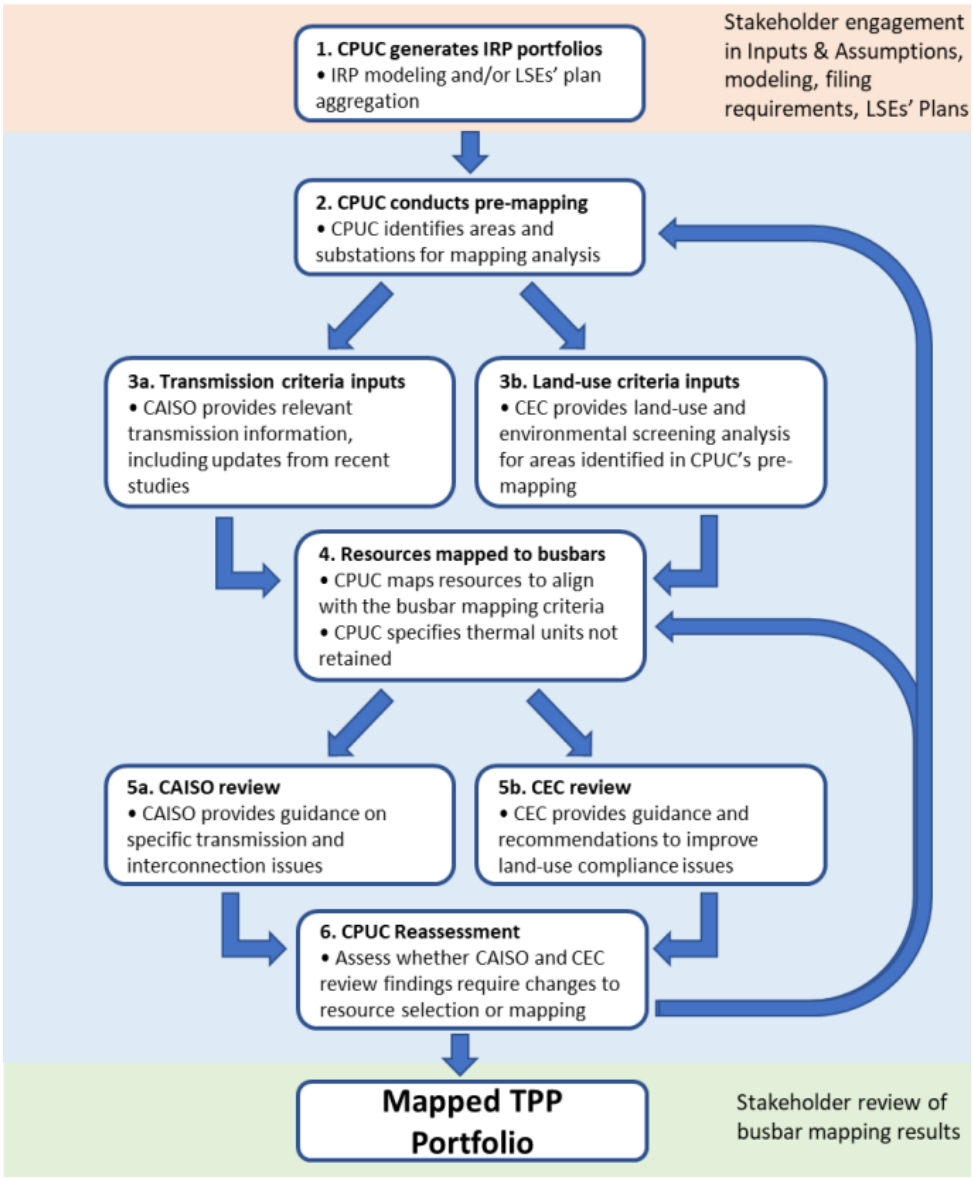


TRANSMISSION PLANNING AND RESOURCE BUSBAR MAPPING ACTIVITIES

The CPUC's Busbar Mapping program promotes cost-effective transmission development, working to optimize generator interconnections to the bulk transmission grid. Busbar Mapping is the process of refining the geographically coarse portfolios produced in the CPUC's IRP proceeding into plausible network modeling locations for transmission analysis in the CAISO's annual TPP. **Figure 2** shows the methodology used for achieving effective and timely Busbar Mapping of the utility-scale resources in IRP portfolios to inform the CAISO's annual TPP.

[8] Adapted from: DH Infrastructure Economics & Finance and EE-Analysis, "Public Sector Financing of Electricity Transmission Lines in California," May 2024, 13, https://drive.google.com/file/d/1bhi6sVZTqYJHZ1Z9OSOhcgma6FH0_3AO/view.

Figure 2. The Role of CPUC Busbar Mapping in CAISO's Transmission Planning Process



PROJECT TIMELINES

The CPUC has analyzed recent data about the development timelines for transmission projects - as they progress from planning and permitting through construction. Each project is unique in size and scope, but the average timeline is 7-8 years, and delays can double that timeline (see **Figure 3**). The CPUC reviewed causes of transmission delays in response to SB 1174 (Hertzberg, 2022), and reported that the most frequently cited issues include: challenges with obtaining land rights or right-of-way (ROW), long lead times for procurement of necessary equipment, permitting at all levels of government, project design changes, and workforce shortages.[9] Whatever the cause, development delays lead to higher costs as project overhead and financing costs accumulate and compound. These delays impact ratepayers, as both IOU and non-IOU transmission developers accrue a return on capital invested during planning and construction through the Allowance for Funds Used During Construction (AFUDC), which is added to the actual project costs, all of which receives a rate of return from ratepayers for decades only after the project goes into operation.

In recognition of the impact that delays can have on project costs, the CPUC and the CAISO have worked together to host biannual public stakeholder forums known as the Transmission Development Forum (TDF) to provide the public information on transmission projects previously approved through the TPP and network upgrades identified in the generation interconnection process.[10] Part of the January 2025 TDF focused on efforts that are already underway to address common sources of delays, including:

- Determining more realistic project in-service dates and project costs
- Considering proactive procurement of long lead-time materials

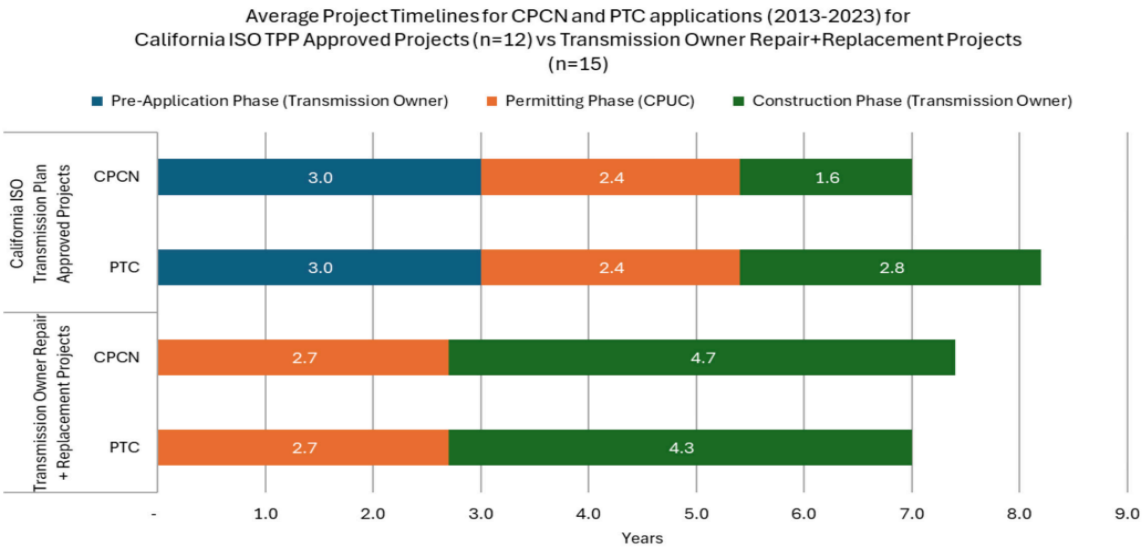
In further recognition of the importance of continuing to address energy resource interconnection and transmission buildout that is needed to support the wholesale clean energy resources the state needs to meet its climate goals, CPUC President Alice Reynolds sent the IOUs letters requiring them to identify actions they were taking to identify process improvements for the transmission and interconnection buildout.[11] The TDF and the letters sent to the IOUs are examples of efforts to address transmission development processes that directly involve or implicate the IOUs.

[9] California Public Utilities Commission, "2024 California Renewables Portfolio Standard – Annual Report," November 2024, 70-72, https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/2024/2024-rps-annual-report-to-the-legislature.pdf.

[10] California Independent System Operator, "Transmission Development Forum," https://www.caiso.com/meetings-events/topics/transmission-development-forum

[11] California Public Utilities Commission, "Regulatory Support for Timely Interconnection Processing," https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/summer-2021-reliability/tracking-energy-development

Figure 3. Average Transmission Project Timeline for CPUC-Permitted Projects[12]



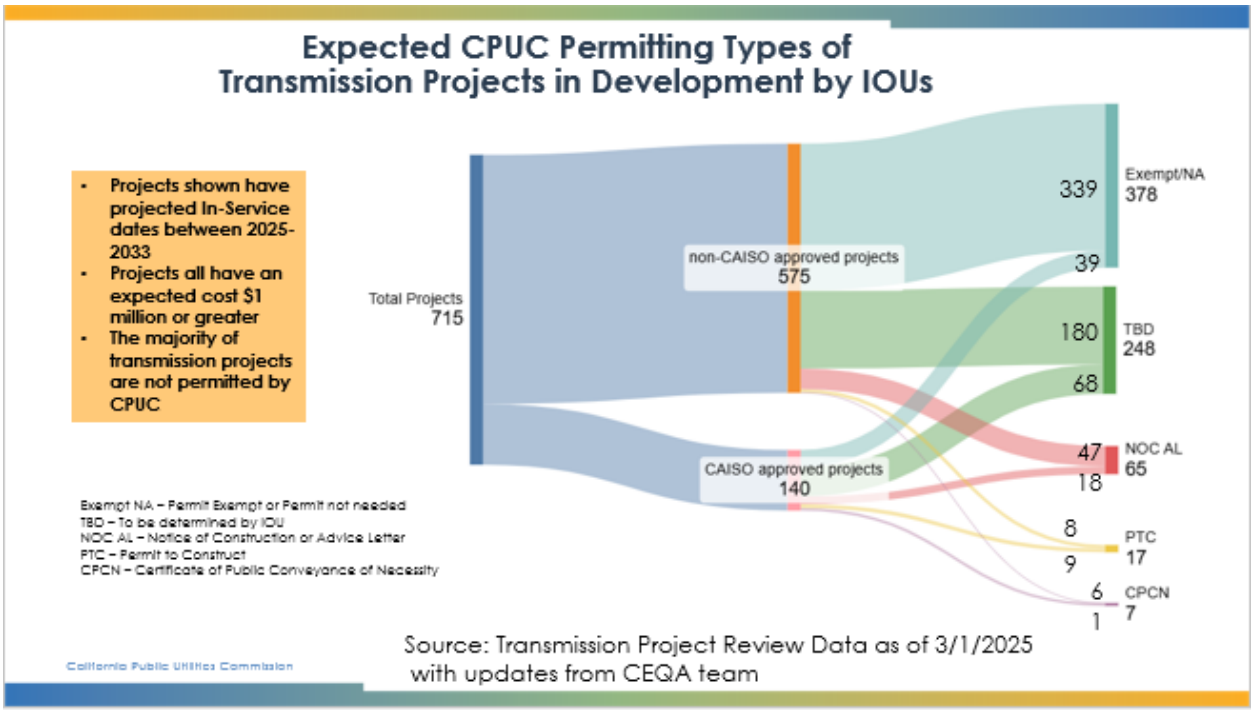
Note: Certificate of Public Convenience and Necessity (CPCN) and Permit to Construct (PTC) are two types of permits that the CPUC issues for transmission projects, with the type of permit required depending on the details of the project.

[12] California Public Utilities Commission, "Transmission Project Review (TPR) Data Fact Sheet," August 2024, https://www.energy.ca.gov/sites/default/files/2024-08/TransmissionProjectReviewData_Fact%20Sheet_Final_08-23-2024.pdf.

NUMBER OF TRANSMISSION PROJECTS SUBJECT TO CPUC PERMITTING

The CPUC is also tracking the types of permitting required for transmission projects that are in development. Currently, there are over 715 projects projected to cost over $1 million under development that are being designed, permitted and constructed by PG&E, SCE, and SDG&E. As shown in **Figure 4**, most transmission project capital investments in California are exempt from permitting and land acquisition issues because they are upgrades or rebuilds of existing equipment.[13] The CPUC permitting processes, including compliance with the California Environmental Quality Act, are designed to determine the need for proposed individual transmission projects or upgrades, identify and manage costs, and to determine, avoid, mitigate and/or offset environmental and community impacts. The Figure shows that of the 715 active transmission projects, only 24 of the projects will require a full environmental review and CPUC permit.

Figure 4. Permitting Requirements for Transmission Projects Under Development



[13] According to the Transmission Project Review Process data provided by the three IOUs between November 2024 and January 2025, only 4% of future projects were determined to need a permit application at the CPUC.

Transmission Ownership Structures

There are three ownership models in California: the IOU model (which makes up the majority of transmission in California), public models, and private models.

- **IOU model:** As of 2025, IOUs own and operate transmission that delivers nearly 75% of electricity to end-use customers in California.[14] IOUs receive a FERC-regulated return on equity of roughly 10% on the portion of their transmission rate base. In 2023, this transmission rate base totaled $25.3 billion across the three major IOUs in California.[15] As shown in Figure 1 above, given a typical capital structure of 50 percent debt (at the cost of debt for the given credit rating of the utility, roughly 5.3 percent) and 50 percent equity (at roughly 10.2 percent) means that the weighted average cost of capital – or the rate of return on capital is approximately 7.8 percent.
- **Public models:** Public entities such as municipal utilities can own and operate electric infrastructure. Over 40 municipal utilities serve roughly 25% of electricity customers in California[16] and independently plan, own and operate transmission or may utilize Joint Power Authorities (JPAs) that aggregate municipal utilities' load and infrastructure needs to construct and operate high-voltage transmission. These non-profit entities do not usually have equity investors they need to compensate (and debt investors have no incentives in establishing higher costs) but may use a hypothetical capital structure and rate of return approved by FERC.[17] These entities are often tax-exempt. The prominent JPAs involved with transmission development in California are the Southern California Public Power Authority (SCPPA) and the Transmission Agency of Northern California (TANC). Public entities can be investment constrained based on their authorizing entity (a municipality, JPA, state or federal organization), such as statutory or constitutional debt limits. Municipal utilities can partner with private equity ownership on the development of large infrastructure projects (to get access to additional capital and share financial risk); likewise, some private developers have partnered with local municipalities to get access to local government permitting and environmental review (e.g. the City of Pittsburg partnered with a private developer to develop the Trans Bay Cable, once the line was online, the City exited the partnership).

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[14] Legislative Analyst's Office, "Assessing California's Climate Policies – Residential Electricity Rates in California," January 7, 2025, https://lao.ca.gov/Publications/Report/4950.

[15] California Public Utilities Commission, "2023 California Electric and Gas Utility Costs Report (AB 67 Annual Report to the Governor and Legislature)," April 2024, 15, https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024/2023-ab-67-report.pdf.

[16] Legislative Analyst's Office, "Assessing California's Climate Policies – Residential Electricity Rates in California," January 7, 2025, https://lao.ca.gov/Publications/Report/4950.

[17] See 145 FERC ¶ 61,263 Order on Transmission Rate Incentives and Formula Rate Proposal, ER13-2468 at P25, granting hypothetical capital structure to Central Minnesota Municipal Power Agency.

- **Independent transmission utility models:** There are two alternative transmission utility models that vary depending on their source of rate recovery, with the following two examples currently in operation in California:
    - **Competitive Transmission Providers with FERC-regulated rates:** New greenfield (i.e., requires establishment of new right of way [ROW]) transmission development over 200 kV meeting certain characteristics is open to competitive solicitations pursuant to CAISO's FERC tariff. The competitive transmission model may achieve cost savings by creating a process to select the best project, regardless of the developer. The determination of cost to ratepayers for these competitively awarded projects is the same as the model used for the IOUs. Rates are based on a FERC-approved revenue requirement, which includes a rate of return on project costs of construction typically using the same financial structure as the IOU model[18]. While the CAISO provides selection criteria for prospective bidders, the content of bids and ultimate selection for each competitive transmission provider award is confidential. However, CAISO provides a selection report with each award, detailing any cost containment measures like cost caps and self-imposed ROE penalties committed to by the awardee to incentivize more timely development. Still, these transmission developers operate in a competitive marketplace, with the independent companies also proposing and litigating their costs before FERC. For example, the Viridon Path 15 proposed a 13.5% ROE as part of its request to increase its Transmission Revenue Requirement by 34%.[19]
    - **Transmission Providers with Subscriber-Funded rates:** There is an emerging opportunity for new transmission providers to develop lines primarily funded by "subscribers." The Subscriber Participating Transmission Owner (SPTO) model, initiated by CAISO, recovers costs of development via the contracts with generators that subscribe to the line. Developers of energy projects that are outside of the CAISO Balancing Area yet consistent with the CPUC's resource portfolios, need transmission to deliver power to buyers who have signed long-term contracts (power purchase agreements [PPAs]) can include the cost of transmission in the PPA price,

[18] In the CAISO, returns on equity can vary significantly, with LS Power's Gates and Round Mountain Projects having an ROE capped at 9.8% (FERC Docket ER24-2668); Viridon California LLC's base ROE at 10.55%,(FERC Docket ER24-766); while others receive much higher ROE's such as TransBay Cable LLC's capped at 13.5% (FERC Docket ER13-2412) and StarTrans IO, LLC's recently proposed 13.5% (FERC Docket ER26-302).

[19] The project was originally initiated during the California Energy Crisis and during a time of higher risk. Its approval pre-dated FERC Order 1000 and was not developed in a time of competition. The ROE Viridon is seeking matches this pre-FERC Order 1000 rate. Today, State representatives, led by the CPUC, are presenting the case to FERC to reduce the project's ROE based on lower risk. See FERC Docket No. ER25-2707 for more information.

eliminating the need to establish a price based on FERC-approved rates.[20] The first two SPTO projects approved by the CAISO are TransWest Express and SunZia.

Questions for Discussion:

1. Are there publicly available studies that provide insights on overall cost savings for ratepayers attributable to the various ownership models?
2. Are there public sources that provide evidence of savings related to competitively bid projects versus projects that default to incumbent investor-owned utilities?

[20] Resources for the Future, "Transmission 102: Building New Transmission Lines," September 22, 2023, https://www.rff.org/publications/explainers/transmission-102-building-new-transmission-lines/. California ISO, "Taking the Long View: The ISO's Collaborative Approach to Transmission Planning & Coordination," April 25, 2024, https://www.caiso.com/about/news/energy-matters-blog/taking-the-long-view-the-isos-collaborative-approach-to-transmission-planning-coordination.

Potential Options for Achieving Transmission Cost Savings

Lever 1: Lower the Cost of Capital through Financing

- **Lower the cost of debt:** Public entities have specialized vehicles for borrowing capital. Some public entities are able to issue tax-exempt bonds, further reducing the effective cost of debt.
- **Reduce the share of equity in the capital structure:** Debt is usually lower cost than equity, so higher financial leverage reduces all-in cost of capital (as long as the cash flows are predictable).
- **But consider relative costs and benefits**: New financing structures may not yield meaningful net benefits, given the price of these projects and other factors that can be more significant in driving project costs

Lever 2: Use Public Ownership or Hybrid Public-Private Models to Reduce Required Returns to Investors and Lower Tax Payments

- **Reduce projects' tax liability:** Public entities are not subject to corporate taxes. Assuming other costs are the same, tax savings could reduce transmission costs, in part shifting the burden from ratepayers to taxpayers.

Lever 3: Reduce the Construction Costs

- The longer a project takes to build, the more cost compounds during construction. Efforts are ongoing to streamline existing permitting processes, such as CPUC's revisions to General Order 131-E in compliance with SB 529 (Hertzberg, 2022),[21] imposing greater oversight of adherence to project timelines (ongoing informally through the TPR Process), increasing use and/or streamline acquisition of existing ROWs, CAISO's use of incentive agreements to encourage more rapid project completion, can all contribute to lower costs.

Questions for Discussion

3. Are there publicly available case studies of a government entity financing and building electric infrastructure at lower cost compared to a private entity? Are there publicly available data about the scope of the project and its costs?
4. Are there publicly available case studies of a government entity financing an infrastructure project with the participation of private equity or other private sector financing, with public

[21] California Public Utilities Commission, "CPUC Adopts Decision to Streamline Transmission Permitting,' January 30, 2025, https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/energy-efficiency/go-131-pd/go-131-e-fact-sheet-2025-0130-(002).pdf.

data about how the project financing costs were reduced because of the public-private partnership?

5. At what scale have certain financing solutions been used? What are the constraints, opportunities, risks, and/or tradeoffs of scaling up other kinds of financing?
6. How does tax liability for government entities differ from that of investor-owned utilities?
7. Are there publicly available examples of electric infrastructure project costs reduced because of any of: permitting exemptions or streamlining, meeting/beating timelines, or incentive/penalty structures for the project lead?
8. How does exposure to liability and other risk affect public utilities' willingness to own transmission?

Considerations for Implementation

Table 1. Description of Solution Options and Ease of Implementation

Options	Description	Ease of Implementation
Financing Options		
General obligation bond	Raise low-cost tax-exempt debt to fund public ownership or displace higher cost capital and increase leverage.	**Moderate:** Requires voter approval. General fund/taxpayers bear the risk of project failure.[22]
Project revenue bond	Raise low-cost debt to fund public ownership or displace higher cost capital and increase leverage.	**High:** State entities exist that have this capability, such as California Infrastructure and Economic Development Bank (Ibank) and California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA).
Federal funding	Two possible sources: Department of Energy's Loan Programs Office and Grid Deployment Office.	**Moderate:** Funding sources currently exist but future availability is unclear.
Ownership Options		
PPP – Build-Operate-Transfer (BOT)	Public-Private Partnerships (PPP) seek to combine the best of private and public – and specify responsibilities and risks based on the entity most qualified to deliver. Use public capital from one of the financing options above (general obligation bonds, revenue bonds, or	**Moderate:** PPPs are uncommon for electric transmission in the US but could be set up with no changes to existing legislation. They are more common outside the US, and Australia recently used PPPs to construct new electric transmission.

[22] Proposition 4 was approved in the November 2024 elections allowing funds for transmission infrastructure. https://lao.ca.gov/BallotAnalysis/Proposition?number=4&year=2024

	possibly portions of federal funding).	
Lease-type PPP (transmission authority)	Establish a new agency, or authorize an existing agency, to own or lease transmission projects.	**Moderate:** Requires new entity to own projects, or new authorization for existing entity to own; might require legislative action.

Financing Solutions

- **New responsibilities and processes.** Multiple entities are *capable* of issuing public debt, and with establishment of the California Transmission Infrastructure Accelerator (Accelerator) by SB 254 , the State has taken a significant step in doing so. The Governor's Office of Business and Economic Development (Go-Biz) Energy Unit will work with the CPUC and others to develop a development strategy, and with the California Infrastructure and Economic Development Bank (IBank) to develop a financing strategy, for eligible transmission projects that may receive Accelerator financing, "to accelerate the development and deployment of those projects to maximize ratepayer savings." The Accelerator will evaluate the results of the CAISO's TPP "to select which accelerator projects have the opportunity to receive public financing."[23] Further, SB 254 expands the California Consumer Power and Conservation Financing Authority "to sponsor, finance, purchase, lease, own, operate, acquire, or construct new transmission projects, as defined. The measure authorized the authority to seek financing assistance from any entity eligible to access the California Transmission Accelerator Revolving Fund." Finally, the $5 billion limit is removed on the Authority's ability "to incur indebtedness and to issue securities of any kind or class, at public or private sale by the Treasurer."

  Implementing the Accelerator or other public financing programs requires IBank to set terms for companies to access the funds and set up a process for CAISO to include the option and incentives for transmission providers to accept public financing, or to require it, as part of some transmission planning proposals.

  While FERC generally allows a return commensurate with a 50/50 debt to equity ratio, multiple transmission projects in California have been financed with much higher debt shares,[24] demonstrating the willingness of investors to fund projects with greater leverage. The following financing options could be made available to all transmission projects, those

[23] SB 254, SEC. 5, § 12100.111(c).

[24] It is important to note that in some cases, instead of using a transmission owner's actual capital structure, which may have a higher debt ratio, FERC has approved a hypothetical 50% debt, 50% equity capital structure for rate recovery. Examples include Morongo Band - SCE (148 FERC ¶ 61,139) and Citizens Energy (138 FERC ¶ 61,129).

that are CAISO TPP competitive projects[25] and for projects that are not subject to solicitation:

- **General obligation bonds:** These bonds raise low-cost tax-exempt debt to fund public ownership or displace higher cost of capital and increase leverage. General obligation bonds, backed by the credit of the state, are issued for a specific purpose and require voter approval. They typically have the lowest interest rates among public financing options.

- **Debt issuance (project revenue bond):** Sell low-cost taxable activity bonds backed by project revenue to fund public ownership or displace higher cost capital and increase leverage. While activity bonds, such as general obligation bonds, can also be tax-exempt, other programs already account for California's share of federally tax-exempt activity bonds.

  Multiple entities in California, such as IBank and the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA), can serve as conduits, issuing taxable debt on behalf of qualifying projects, where the issuing entity's credit is not affected by the debt issuance because all the funds to pay interest and principal are derived from specific sources such as transmission revenue or utility bill surcharges. Such entities could issue an effectively significant amount of debt as long as the revenue from the projects is sufficient to assure investors that interest and principal would be repaid in full and on time. A small monthly surcharge on utility bills could be one way to ensure strong revenue streams, reducing the risk of holding transmission revenue bonds and thereby lowering borrowing costs. Utility securitization could also lower the costs by leveraging lower interest rates that could, in turn, reduce revenue requirements and help to limit customer rate impacts.

- **Federal funding:** Federal credit programs can provide low-interest rates and loan guarantees. Two possible sources of funding are the U.S. Department of Energy Loan Programs Office and Grid Deployment Office.

  The most likely form of public financing participation would be structured as project financing, backed by revenues from a project or portfolio of projects and, if needed, backstopped by bill surcharges.

[25] Making public financing options available to all bidders before the project is awarded would strengthen the incentive to use them (to improve chances of winning the project). Once a project is awarded, the FERC cost recovery structure reduces developer incentives to lower costs.

Alternative Ownership Models

When designed well, PPPs can combine the cost benefits of public ownership (lower taxes and access to lower cost public financing) with efficient private operation and those who have the expertise to operate transmission. The allocation of risk is an important consideration for PPPs, especially considering the major implications of wildfire liability in California.

How PPPs would interact with competitive CAISO projects is an open question. Public entities funding transmission in other states, such as New Mexico, generally must defer to private developers willing to develop a project. In New Mexico, the public entity cannot compete with private parties. However, the public entity can partner with private parties that have already won a project. In cases where the state entity is not restricted from taking an equity interest, the developer may still lack incentives to partner since the private entity's equity may be diluted by a state share of ownership. One option for public participation would be to make public financing and ownership options available to all interested companies prior to submitting their bids.

- **PPP – Build-Operate-Transfer (PPP-BOT):** Use public capital from one of the financing solutions above (general obligation bonds, revenue bonds, or possibly federal funding) to fund a public share of project ownership. Under a BOT project, the private company owns the project assets until they are transferred to public ownership at the end of the contract. Private ownership may preclude the securing of tax-exempt financing.
- **Lease-type PPP:** Assume ownership of strategic new transmission facilities and enter into lease agreements with private operators. In New Mexico, the Renewable Energy Transmission Authority (RETA), established in 2007, charges developer partners for the use of acquisition, co-development, and leaseback agreements under which RETA holds the title to projects, thereby reducing their tax liabilities. RETA also collects fees from developers to issue passthrough industrial revenue bonds, which are tax-exempt and supported by revenue from a specific project. Most RETA projects are merchant transmission.[26]

  While certain California entities can issue revenue bonds, they would need new authority to own projects. Granting this authority to an existing entity, rather than creating a new entity like RETA, may limit the need for new public infrastructure and appropriations, allowing financing to flow more quickly. This financing may also be cheaper than that of a new entity given that, absent a general obligation commitment, a new entity would have to establish its creditworthiness over time.

Questions for Discussion:

9. Please comment on feasibility of either of these models for California. Please specify barriers and the structural elements that would have to exist for the model to develop transmission at lower costs.

[26] More information available here: https://nmreta.com/reta-projects/