Transmission Project Development Timelines in California

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Summary: The Public Advocates Office analyzed the development timelines of recently approved and completed transmission projects to better understand development bottlenecks. Based on this sample, the average project took over a decade to be built and a comparatively short period was spent on physical construction. The majority of the project development time was attributable to planning and review, by both oversight agencies and project developers. For example, project developers spent a notable amount of time outside of official regulatory review processes to conduct detailed engineering, business development, and environmental analyses. These activities are necessary to complete project application for the California Public Utilities Commission-led economic and environmental reviews.

Quickly building approved transmission projects is in the best interest of ratepayers and California's climate goals.[1]

Approved transmission projects are intended to make the grid more efficient, reliable, and clean. Therefore, accelerating the development and completion of these projects yields ratepayer benefits, such as:

1. Lower electricity rates. Transmission projects can connect more affordable power plants and enhance competition, reducing energy costs for ratepayers.[2] Longer development times delay these ratepayer savings.
2. Decreased volatility. Faster build times reduce the probability of a project becoming impacted by unfavorable market changes, such as increased material costs.
3. Increased access to clean energy. Electric transmission projects can connect renewable power plants that support California's energy and climate goals.

The current development process involves sequential approvals from multiple agencies, as well as many opportunities for stakeholder input.[3]

[1] The CAISO generally approves three types of transmission projects: economically-driven, reliability-driven, and policy-driven. This document only addresses policy-driven projects, which are approved to integrate renewable energy needed to meet California's climate goals.

[2] Transmission Economic Assessment Methodology (TEAM). CAISO. August 8.2018. p. 18. Available at https://www.caiso.com/Documents/DraftTransmissionEconomicAssessmentMethodology.pdf.

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New transmission projects take about 7 to 10 years to develop, approve, and construct, according to estimates from the California Independent System Operator (CAISO).[4] The development process spans four main phases: planning, pre-application planning, permitting, and construction.

Phase 1: Planning (CAISO). The CAISO identifies whether new transmission projects are needed to meet system reliability, policy objectives (e.g., greenhouse gas reductions), or economic needs (e.g., lower costs) in its Transmission Planning Process. The CAISO uses complex, grid modeling software to identify new transmission infrastructure needs. For the largest transmission projects, CAISO runs a bidding process ("competitive solicitation") among interested developers. Smaller projects are built by utilities based on project location in their respective service territories.[5]

Phase 2: Pre-application planning (Developer). In this phase, the developer conducts more detailed engineering, design work, and environmental analyses. For example, the developer is required to submit a proponent's environmental assessment (PEA) to the California Public Utilities Commission (CPUC) prior to the CPUC's environmental review process. Sometimes, a developer's initial PEA submission is incomplete and additional time is needed to provide the necessary details.

Phase 3: Permitting (CPUC). The CPUC is the primary agency responsible for completing the environmental review to satisfy CEQA requirements and reviewing project costs, as applicable. During the environmental review, the CPUC identifies potential impacts (e.g., noise, pollution, cultural impacts) and mitigation options of the proposed project and project alternatives. The proposed project and alternative options are considered in the CPUC's permitting process, including different routes, and sometimes a project's necessity and cost. The CPUC administers two distinct types of permitting processes: the Permit to Construct (PTC), which generally applies to projects with less ratepayer risk, and the Certificate of Public Convenience and Necessity (CPCN), which applies to riskier projects. Both the permitting and environmental review processes require iterative discussions beween the CPUC and the developer. Throughout both, the CPUC also solicits and responds to stakeholder and public feedback.

Phase 4: Construction (Developer). The project enters the construction phase after a project receives CPUC approval. The developer primarily conducts final engineering work, procurement, and physical construction activities.

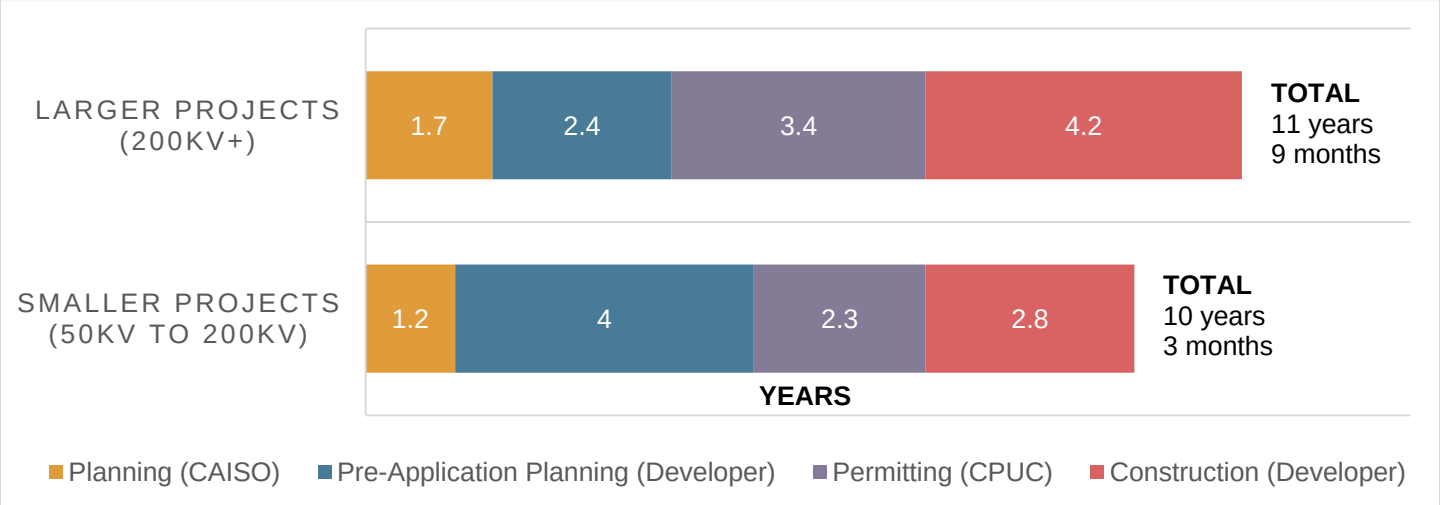
[4] The CAISO's 20-year Transmission Outlook. May 2022. p. 3. Available at http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf.

[5] The CAISO does regularly re-assess whether a project is needed, taking into account changes in load growth and other factors. In the 2017-18 and 2018-19 Transmission Planning Cycles, the CAISO cancelled about $3.1 billion in transmission projects due to lack of need.

The average development time for recently approved and completed transmission projects exceeded a decade.

Based on the sample of 14 recent projects[6] reviewed by the Public Advocates Office, development timeframes exceeded a decade. This period is longer than the 7 to 10 year timeframe estimated by CAISO. Half were large projects that were permitted under the CPUC's CPCN process and the other half were smaller projects permitted under the CPUC's PTC process. The larger projects had comparatively shorter pre-application planning periods, and longer permitting review and construction stages. Longer permitting periods for the larger projects are anticipated as they likely have larger potential impacts and considerations (e.g., alternate routes).

Figure 2. Average Duration of Development Process Phases for Analyzed Projects (in years)



One observation is that developers invest long times in the pre-application planning stage prior to undertaking CPUC's formal permitting process. In fact, pre-application planning is one of the primary contributors to the overall transmission development timeline, particularly for smaller projects.

The environmental review process could be a potential contributor. For example, after the CAISO approved the Riverside Transmission Reliability Project (RTRP) in 2006, the City of Riverside began the environmental review process. A series of lawsuits from cities within the RTRP's path contributed to the fact that Southern California Edison Company (SCE) did not submit a CPCN application to the

[6] The Public Advocates Office reviewed 7 projects that went through the CPCN process (SCE Eldorado Lugo Mohave Series Capacitor Project, PG&E Embarcadero-Potrero Project, SDG&E South Orange Reliability Enhancement Project, NextEra Suncrest Dynamic Reactive Power Support Project, SCE Sycamore- Penasquitos Project, DCRT Ten West Link Project, and the West of Devers Project) and 7 projects that went through the PTC project (PG&E Fulton-Fitch Mountain Reconductoring Project, SCE Mesa 500 kV Substation Project, PG&E Missouri Flat - Gold Hill 115 kV Power Line Reconductoring Project, SDG&E Salt Creek Substation Project, SDG&E Ocean Ranch Substation Project, PG&E Vierra Reinforcement Project, and SDG&E Vine Substation Project.) If a project had not yet been completed, the Public Advocates Office used the in-service date estimates provided by the project owner at the time of review.

CPUC until 2015.[7] Although difficult to quantify, developers may plan for an extended time to minimize potential litigation risks during subsequent environmental review.

Another potential factor is that utilities currently face a large backlog of CAISO-approved transmission projects and may be challenged to complete pre-planning activities in a timely manner. For example, PG&E has 67 transmission projects intended to integrate new resources that are in the planning, engineering, or construction phase.[8] Stakeholders have raised concerns that this backlog will be exacerbated if the CAISO approves a significant number of additional projects, as anticipated.[9]

The Public Advocates Office is developing recommendations to accelerate transmission line development.

The Public Advocates Office is exploring ways to accelerate the development of transmission lines and reduce ratepayer costs. Our efforts focus on actions that the CPUC can undertake, such as CPUC's proceeding to update its transmission permitting process in response to SB 529 (Hertzberg, 2022).[10]

The Public Advocates Office represents utility customer interests before the California Public Utilities Commission and in other forums. We develop recommendations that advance the state's climate goals in the most affordable ways for ratepayers.

For additional information, visit our website at www.publicadvocates.cpuc.ca.gov or email publicadvocatesoffice@cpuc.ca.gov

[7] Application of Southern California Edison Company for a Certificate of Public Convenience and Necessity to Construct the Riverside Transmission Reliability Project. CPUC Application 15-04-013. April 15, 2015. p. 6-12. Available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M151/K305/151305031.PDF.

[8] The count applies to transmission projects that exceed 60 kV.

[9] See "Tackling Bulk System Interconnection Challenges." Presentation by Rick Umoff of the Solar Energy Industries Association at the California Energy Commission's Clean Energy Interconnection – Bulk Grid Workshop. May 4, 2023. Available at https://emp.lbl.gov/sites/default/files/queued_up_2022_04-06-2023.pdf.

[10] R.23-05-018. Order Instituting Rulemaking to Update and Amend Commission General Order 131-D.