

**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

Innovation and Efficiencies in  
Generator Interconnection

---

)  
)  
)

AD24-9-000

**Prepared Statement of Neil Millar  
on behalf of the California Independent System Operator Corporation**

My name is Neil Millar. I serve as Vice President, Infrastructure and Operations Planning at the California Independent System Operator Corporation (CAISO). In this role, I lead the division responsible for the CAISO's transmission planning, infrastructure contracts, operations engineering services, and generation interconnection processes. Thank you for the opportunity to participate in this discussion. My remarks primarily address Efficiencies Panel 3: *Post-Generator Interconnection Agreement Construction Phase*.

The CAISO strongly supports efforts to increase transparency on the pace of transmission development activities. In coordination with the California Public Utilities Commission and CAISO participating transmission owners, we host transmission development forums on a semiannual basis to discuss the status of transmission projects, focusing on network upgrades approved in prior CAISO transmission plans or initiated through the interconnection process, on which resources with executed interconnection agreements depend. In the remainder of this statement, I provide short answers to questions identified for Efficiencies Panel 3 in the August 14, 2024 Second Supplemental Notice of Staff-led Workshop in this proceeding.

1. What are the primary cost and timing concerns arising during the period between execution, or unexecuted filing, of a GIA and the COD? To the extent that cost increases and delays for interconnection facilities and network upgrades are becoming more frequent, what are the primary drivers of those issues?

The CAISO is not directly involved in construction activities. However, the CAISO does coordinate, with the California Public Utilities Commission (CPUC), a semiannual “transmission development forum” where transmission owners provide updates on active transmission projects and discuss any delays. This forum addresses network projects either approved through the CAISO’s transmission planning process or triggered through the resource interconnection process. Transmission owners provide presentations on a public stakeholder call and discuss any material changes since the last update, with the opportunity for questions as well as written follow up questions.

Based on discussion in the transmission development forum, delays have been a more frequent concern, especially as the number of new interconnections grows. The most common reasons for delays include the growing number of transmission projects - including those on which new resources are dependent - straining engineering/construction and capital resources, competition for major equipment resulting in equipment delays or shortages, and prioritization of other projects such as capital maintenance (wildfire hardening in particular) impacting the design and construction workforce. Some of these factors are driving out the initial planned date for network upgrades even if not subsequently delayed, although the large volume of resources in the interconnection study process is another contributing factor leading to the identification of these long lead-time major transmission projects.

The CAISO initiated the transmission development forum as a quarterly process; it transitioned to a semi-annual process when the CPUC adopted additional and more comprehensive reporting requirements on transmission owners. Those reporting requirements limited the transmission owners' ability to continue to support quarterly forums.

2. Are there productive ways to increase transparency around construction plans and progress of interconnection facilities and network upgrades, such as CAISO's quarterly forum to track the status of network upgrades, SPP's quarterly transmission project tracking report, or California's newly instated metrics for tracking distribution-level interconnection timeframes? What construction metrics for interconnection facilities and network upgrades would be most informative? How much documentation is reasonable and not unduly burdensome?

The transmission development forum focuses on schedules and schedule delays, which are the most critical information for understanding the impact of a project's delay and assessing whether other interim mitigations are feasible or necessary. For network projects funded through the interconnection process, interconnection customers provide up front funding subject to a cost responsibility cap, and the funds are returned over a five-year period following the interconnection customer's project. As such, delays in project funding for cost increases are generally not an issue.

Higher-level information on schedule changes and causes has provided sufficient transparency to stakeholders. The CAISO is developing additional analysis to more fully assess the impact of different project delays on the ability to maintain the pace of new resource development inside the CAISO footprint.

3. Are there new approaches to sourcing equipment for interconnection facilities and network upgrades that could be more efficient? What safeguards would need to be in place for engineering, procurement, and construction work for such facilities to begin earlier? Is there a way to pool equipment purchasing or risk? Are there efficiencies that may be achieved by standardizing engineering, procurement, or construction of interconnection facilities and network upgrades? Would pooling procurement of equipment provide manufacturers with the certainty needed to increase their manufacturing capacity thereby reducing lead times?

This is a topic of discussion in California, and the CAISO understands that utilities are evaluating bulk pre-ordering of common equipment such as breakers. The current practice is to place equipment orders for interconnection-related equipment only after a triggering customer issues a notice to proceed. This strategy minimizes the risk of additional Allowance for Funds Used During Construction or other carrying costs if equipment is not deployed immediately upon arrival, but can also create a critical path for project execution as delivery times for new orders increase. The CAISO understands utilities are considering revisions to this practice, and we will explore how the CAISO can help them assess future needs.

The CAISO also understands that, in some cases, utilities have limited pools of qualified vendors with whom they are able to contract. The CAISO encourages attention to the broader issue of equipment availability, contracting, and construction to enable timely deployment of critically needed infrastructure.

4. Are there efficiencies that may be gained by enhancing internal transmission owner or RTO/ISO procedure, increasing staffing, or by opening up interconnection facility studies and/or interconnection facility construction work to contractors? How can the interconnection study process be better aligned with interconnection customer-initiated processes, such as permitting for the generating facility and generator equipment procurement?

This question poses two separate issues the CAISO wishes to address. First, regarding additional use of contractors for engineering and construction activities, the

CAISO understands contractors are already used to some extent, and must rely on the judgment of transmission owners in terms of each utility's ability to manage additional contractor workforce. Second, regarding study work, the CAISO has employed a cluster study process that relies on transmission owners as well as consulting labor to complete its studies on time. This worked well until April 2021, when the CAISO received an unprecedented number of interconnection requests in its "Cluster 14" and sought a one-year extension to issue phase 1 study results. The even greater number of applications received in Cluster 15 in April 2023 required the CAISO to pause the interconnection process and launch a stakeholder process to enhance the interconnection request intake process. We expect these reforms to enable the CAISO to achieve the tighter timelines established by Order No. 2023.

Our experience has been that interconnection-driven transmission projects only proceed after at least one affected interconnection customer successfully obtains a power purchase agreement (PPA), and then issues notice to proceed to the relevant transmission owner. This then results in construction proceeding. Notably, the CPUC is currently developing a forward procurement framework, the Reliable and Clean Power Procurement Program (RCPPP), which will assign load-serving entities (LSEs) under the CPUC's jurisdiction forward procurement obligations based on its long-term resource planning process. A deliberate approach to directing forward procurement should help align LSE procurement and execution of PPAs with progress and decision-making in the interconnection process.