

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

**Building for the Future Through Electric Regional)
Transmission Planning and Cost Allocation and)
Generator Interconnection)**

Docket No. RM21-17-000

**COMMENTS OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
ON ADVANCE NOTICE OF PROPOSED RULEMAKING**

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The California Independent System Operator Corporation (“CAISO”) submits these comments in response to the Federal Energy Regulatory Commission’s (Commission) Advance Notice of Proposed Rulemaking (ANOPR) issued on July 15, 2021 in the captioned docket.¹

I. EXECUTIVE SUMMARY

The CAISO supports the ANOPR’s goal of enhancing regional transmission planning and generator interconnection processes to account for the transmission needs of a changing resource mix. In particular, the CAISO supports more holistic, proactive, and forward-looking transmission planning based on the best available information and a “least regrets” approach to approving transmission. Reactive planning based heavily on the existing unwieldy and outmoded interconnection queue process is not the most effective means of planning the robust high voltage transmission system that will be needed to meet climate goals. More proactive and pragmatic transmission planning and generator interconnection processes will (1) better enable regional transmission planners to address the needs of a rapidly transforming electricity industry, and (2) enable the timely development of the significant new transmission infrastructure that will be required to meet future electricity demand and achieve important climate goals.

Proactive transmission planning should be accompanied by close and

¹ Capitalized terms not otherwise defined herein have the meaning set forth in the CAISO tariff, and references to specific sections, articles, and appendices are references to sections, articles, and appendices in the current CAISO tariff unless otherwise indicated.

effective collaboration between transmission planners and state regulatory authorities. Aligning transmission development with resource development/procurement will produce a more optimally designed, efficient, and cost-effective transmission system that accesses diverse, economic, and reliable resources. This alignment should be coupled with incentives for developers to pursue, and for load serving entities to procure, new generation in identified resource zones or regulator-developed resource locations.

The CAISO's existing transmission planning and generator interconnection processes reflect many of the reforms and concepts discussed in the ANOPR. That being said, the CAISO has escalating challenges arising from existing supply conditions, the need to accelerate and then sustain the pace of procurement and interconnection to meet climate goals, and an "overheated" generation interconnection queue. Accordingly, the CAISO must "get in front" of these issues and move forward with transmission planning and generation interconnection process enhancements ahead of the likely timeline for any Final Rule in this proceeding.

The CAISO is already implementing transmission planning enhancements in connection with its 10-year transmission plan and 20-year transmission outlook that do not require a tariff amendment. The CAISO has commenced a 2021 Interconnection Process Enhancements (IPE) initiative to address the important interconnection-related issues it faces. Broader issues the CAISO will tackle in the 2021 IPE initiative include: (1) better aligning the interconnection process and incoming applications with procurement interest, (2) better aligning the

interconnection process and procurement activity with transmission planning and transmission system capabilities, (3) accelerating processing of the most viable, ready projects, (4) increasing requirements for interconnection applications, and (5) exploring solicitation and subscription-type options. The CAISO anticipates it will complete the 2021 IPE initiative and make a Section 205 filing with the Commission before the Commission issues a Final Rule in this docket. The CAISO urges the Commission not to defer action on any such filing pending the outcome of this proceeding. The specific issues the CAISO is addressing in the 2021 IPE initiative need to be addressed sooner rather than later, and they are best addressed through a CAISO stakeholder process that considers the CAISO's specific circumstances and challenges, not a national rulemaking proceeding.

The CAISO urges the Commission to adopt a Final Rule in this proceeding that allows transmission planners to implement transmission planning and generation processes consistent with the aforementioned principles and its comments herein. In particular, any transmission planning and generator interconnection rules the Commission adopts must provide transmission planners with maximum flexibility to address the specific risks, challenges, and conditions they face in their region and to work with state regulators to resolve them. Meaningful regional differences exist, and overly prescriptive rules can undermine transmission planners' efforts to plan for their regions' needs and meet climate goals effectively. In summary, the Commission should give transmission planners broad authority to implement the reforms they believe are necessary in their region to plan for the transmission needs of anticipated future generation, deal

with evolving technical challenges, resolve interconnection queue issues, and support achievement of climate goals.

Regional Transmission Planning Process Reforms

The CAISO supports considering in the transmission planning process the transmission needs of anticipated future generation, including generation not yet in the interconnection queue. The CAISO's transmission planning process already plans for future generation -- whether it is in the interconnection queue or not -- in several respects. The CAISO also supports using long-term scenarios in the planning process. More proactive, forward-looking evaluations will better inform the planning process and position transmission planners to meet future needs more effectively and efficiently. Further, the CAISO supports collaboration between transmission planning regions and state regulatory authorities to identify actionable resource portfolios or renewable generation zones to support transmission development. Such collaboration will better align resource procurement with transmission planning, promoting optimal transmission design, limiting overbuilding, minimizing the risk of stranded investment, and facilitating state siting authorizations.

In any Notice of Proposed Rulemaking in this proceeding, the Commission should only propose general rules for transmission providers to plan for future generation, identify renewable energy zones or actionable resource portfolios, and consider longer-term scenarios. The Commission should not propose highly granular minimum requirements regarding inputs, assumptions, or scenarios, and it should not seek to impose a "one-size-fits-all" framework on every region to

achieve these objectives. There are significant, relevant differences among regions, and there is more than one way to plan for future generation to achieve the Commission's objectives. The Commission should only provide high level guidance and direction in this proceeding. The Commission should afford all planning regions sufficient latitude and flexibility to determine how they most efficiently and effectively can implement a regional transmission planning framework that plans for anticipated future generation and supports achievement of climate goals based on their particular circumstances.

The Commission should also recognize that many issues raised in the ANOPR, intersect with the states' role in overseeing resource development and procurement. Any proposed Notice of Proposed Rulemaking should provide sufficient flexibility for transmission providers to work closely with their state(s) to address these issues and identify appropriate solutions and processes.

Interregional Coordination Reforms

There are opportunities to improve interregional coordination in the study of interregional transmission projects, but mandating interregional planning is unnecessary, poses significant implementation challenges, and may not be the most effective or efficient approach to facilitate the development of interregional transmission infrastructure that might be needed. The CAISO has approved several transmission projects extending outside of the CAISO planning region without needing mandatory interregional planning (or the interregional coordination process). The CAISO instead recommends that the Commission pursue targeted enhancements to the existing interregional coordination process

to remove certain barriers, foster collaboration with state regulators, and promote more rigor in, and reporting on, interregional coordination efforts.

The current requirement for formulaic, *ex ante* cost allocation and the existence of different calculation methodologies among regions are barriers to interregional transmission development. This can cause a region or state to bear an inequitable, disproportionate share of the costs of an interregional project. To address this problem, the Commission should adopt a new interregional cost allocation framework that allocates the costs of an interregional project based on the amount of capacity each region will have in the project and provides latitude for regions and states to develop other measures that may be more appropriate on a case-by-case basis. This will ensure every region pays for the costs of an interregional facility commensurate with its share of the capacity. This is fair and equitable and will eliminate one barrier to interregional transmission development.

Based on the CAISO's experience, developing interregional transmission projects can be best achieved through motivated transmission providers and states collaborating on specific projects that meet common needs based on agreed-to capacity and cost sharing arrangements. The Commission should take all steps necessary to facilitate such voluntary collaboration in the interregional coordination process. The Commission should incorporate into the interregional coordination process a forum for states and transmission providers to identify potential resource development zones, transmission paths, and transmission projects. This can be coupled with open season/subscription approaches to gauge interest in a particular interregional facility. The Commission should also

leverage the Joint Federal-State Task Force on Transmission to identify and break-down barriers to interregional transmission. A framework that fosters regional/state collaboration and buy-in for an interregional transmission project is necessary to prevent involuntary or unnecessary cost allocation, effectively and efficiently align resource procurement with resource development, avoid overbuilding and stranded costs, and facilitate state siting approvals.

The CAISO notes that certain states in a region may not need an interregional transmission line or may have made different choices regarding the resources they desire their load serving entities to procure to meet future demand and achieve climate goals. Accordingly, the Commission should retain the current requirement that an interregional project must first be selected in each of the neighboring region's regional planning processes before being selected as an interregional project.

Benefit Determinations and Cost Responsibility for Transmission Facilities Planned in Regional Transmission Planning Process

The CAISO agrees with the Commission that cost allocation should be roughly commensurate with the benefits provided by new transmission facilities, and all appropriate benefits should be considered. New high voltage transmission facilities connecting to resource-rich areas can provide broad system wide benefits, including increasing supply options for customers to meet their future demand and reserve requirements and supporting achievement of climate goals. The CAISO's existing cost allocation methodology, which allocates the costs of all transmission facilities at 200 kV or above system wide, recognizes that high

voltage transmission facilities on the CAISO system benefit all customers given the CAISO's specific circumstances. However, the CAISO recognizes that there are significant differences among regions, and these differences may warrant different cost allocation frameworks depending on the region's unique circumstances. Not all regions, in particular the CAISO, require a "portfolio" approach for regional cost allocation. The Commission should not undo existing cost allocation methodologies like the CAISO's that effectively and fairly allocate the costs and account for all of the benefits of new transmission.

Resilience is a transmission benefit that has received increased attention in recent years as a result of several notable extreme weather events. However, there is no formal, standardized definition of resilience, and there are no generally applicable resilience criteria for system performance. The Commission should provide a definition of resilience and adopt clear and specific resilience criteria that might apply nationwide. In addition, the Commission should establish that resilience can be a driver for approving new transmission infrastructure in the transmission planning process. This will allow transmission providers to approve transmission projects that provide important system resilience benefits, justify allocating the costs of such transmission facilities on a regional basis, facilitate siting approvals for projects providing resilience benefits, and avoid stakeholder disputes over whether transmission planners can consider resilience in tabulating the benefits of a transmission project. In addressing resilience the Commission must also recognize that many resilience risks are region-specific, not national. Thus, in addition to adopting any general resilience criteria that might apply

nationwide, the Commission should authorize transmission providers to explore and adopt regional resilience standards that address the specific resilience risks in their regions.

In assessing whether planning regions appropriately account for all benefits in identifying and allocating the costs of new transmission projects, the Commission should not assume that a region’s transmission planning process is inappropriately “siloes” and fails to consider multiple benefits simply because it considers reliability, public policy, and economic needs sequentially. Although the CAISO’s planning process considers reliability, public policy, and economic projects sequentially, it allows the CAISO to revisit projects identified in a prior stage if an alternative project identified in a subsequent stage can meet the previously identified need and provide additional benefits not considered in the prior stage. Thus, the CAISO’s iterative planning process ultimately allows the CAISO to consider and approve transmission projects with multiple benefit streams (e.g., reliability, public policy, and economic). The CAISO does not require a separate multi-value project category of transmission to achieve this result.

Generator Interconnection Process Reforms

The CAISO agrees with the ANOPR that it is prudent to examine participant funding policies for generator interconnection-related network upgrades. The CAISO has found that participant *financing*—as opposed to participant funding (as defined in the ANOPR)—is a much more effective tool, avoiding many of the pitfalls noted in the ANOPR. In the CAISO, interconnection

customers provide the initial financing to construct their interconnection facilities and network upgrades. Upon the commercial operation of the generating facility and the network upgrades, the transmission owner reimburses the interconnection customer in cash within five years for the network upgrades. The transmission owner then includes the costs in its transmission revenue requirement, and recovers the costs from ratepayers. The CAISO imposes a cap on the network upgrade costs that are reimbursable.

The CAISO has found several advantages to its participant *financing* approach:

1. It provides developers strong incentives to site their projects where they will not incur high interconnection costs, as opposed to a framework where developers have no “skin in the game”;
2. It removes the extremely complicated allocation and accounting procedures required to determine the extent other parties later benefit from network upgrades once constructed and how to repay the interconnection customer;
3. It ensures projects are financially viable;
4. It enables the CAISO and transmission owners to provide firm costs caps to interconnection customers, avoiding cascading costs and restudies when earlier-queued customers withdraw; and
5. It avoids “free-riding” on the very large, multi-beneficiary network upgrades that result from the transmission planning process.

Requiring interconnection customers to play a role in financing network upgrades is critical to ensure they can progress in queue. The CAISO is not opposed to some level of financing from other entities, but untethering interconnection customers from *all* financial responsibility for their interconnection facilities and network upgrades likely would exacerbate the issues identified in the ANOPR, not solve them.

The CAISO also supports the ANOPR's intent to address "speculative" interconnection requests. Although all interconnection requests are speculative in a sense, excessive interconnection requests are administratively burdensome and degrade study results. However, allowing developers to identify the most cost-effective points of interconnection benefits ratepayers. Rather than try to restrict the number of interconnection requests by an arbitrary metric, the CAISO, in its 2021 IPE stakeholder initiative plans to examine (1) the minimum requirements to submit interconnection requests, and (2) measures to determine which interconnection requests warrant more attention once submitted. Both questions may center on rewarding those projects farther along in the development process or with other tangible signs of viability.

The CAISO believes the "speculative" interconnection request issue is intrinsically tied to the ANOPR's examining how to identify and accelerate "ready" interconnection customers, such as those customers that have secured power purchase agreements. Both issues essentially ask which projects to prioritize in the interconnection study process. In the CAISO, such fast-tracking is a complex question. Few, if any, interconnection customers enter the queue with a power

purchase agreement already in hand. Because load serving entities must evaluate the total costs of new capacity, California load-serving entities generally require at least a Phase I interconnection study—if not a Phase II study—to enter a utility request for offer process. Thus, most projects are unable to secure a power purchase agreement until the study process is over. However, the CAISO recognizes that exceptions to these generalities are becoming more common. States and local regulators are setting expedited procurement mandates, and load serving entities are becoming more flexible in how they meet them. There are other signs a project is more likely to be “ready,” such as being shortlisted for a power purchase agreement, securing financing, securing a site, or securing generating equipment. The CAISO intends to explore “ready” criteria in its upcoming 2021 IPE initiative. The CAISO also intends to explore how to reward interconnection customers that meet such criteria, or whether meeting such criteria will be required to proceed further with interconnection studies.

Transmission Oversight

Finally, the CAISO agrees with the Commission that transmission providers should not saddle ratepayers with the costs of facilities that are not needed or imprudent. However, it is unnecessary to require transmission providers who are already independent to establish an independent entity to monitor their transmission planning processes and decisions. Further, the CAISO’s regional transmission planning process applies to all expansion and upgrade projects on the system, even on the low voltage (*i.e.*, local) transmission system. There is no separate local transmission planning process for expanding the local transmission

system; that review occurs in the CAISO's regional transmission planning process. Requiring an independent monitor in these circumstances will add another layer of administration and is problematic and unproductive. It will result in duplicative effort, create uncertainty, and potentially cause undue delay. Also, there are potential legal hurdles to requiring a transmission provider to retain an independent transmission monitor.

On the other hand, nothing prevents the Commission from performing this function or taking action against individual entities that are non-compliant. Under the Commission's rules, transmission providers are already required to approve the "more efficient or cost effective" solution to meet an identified need and to consider both transmission and non-transmission solutions. Imposing an independent monitor requirement on all planning regions is unnecessary. Stakeholders participating in regional transmission processes are sophisticated and not bashful about expressing their opinions regarding the need (or lack thereof) for a transmission project. Further, most transmission projects approved by planning regions require siting approvals from state regulatory authorities. These processes, which are often litigated, require the state siting authority to consider alternatives and ensure the record supports the need for the project. As reflected throughout these comments, the CAISO believes the best approach to ensuring the cost-effective and efficient development of needed transmission is the close collaboration of states and transmission providers and the alignment of resource procurement and transmission planning efforts.

II. BACKGROUND: OVERVIEW OF THE CAISO'S TRANSMISSION PLANNING PROCESS

To put the CAISO's comments on the ANOPR in context and assist the Commission in understanding the CAISO's positions, and to identify possible options for addressing issues raised in the ANOPR, the CAISO describes below the key features of its regional transmission planning process. The CAISO's transmission planning process contains many unique features, which reflect the specific circumstances and challenges in the CAISO balancing authority area (BAA). Any final rule in this docket should (1) recognize that relevant regional differences exist, (2) not undo or overhaul planning frameworks that work effectively in the region and can support achievement of the Commission's objectives, and (3) not impose unnecessary one-size-fits-all requirements on transmission planners.

The CAISO follows a "top down" transmission planning approach in which it assesses transmission needs annually and works with stakeholders to identify the more efficient or cost-effective transmission or non-transmission solution to meet any identified transmission need. The CAISO then conducts a competitive solicitation open to all interested entities to select an approved project sponsor to construct, own, operate, and maintain the approved regional transmission solution.² The CAISO's transmission planning process reflects a planning horizon

² A Regional Transmission Facility is a transmission facility operating at 200 kV or above that is not a Merchant Transmission Facility or a Location Constrained Resource Interconnection Facility (LCRIF). A Regional Transmission Facility also includes a transmission facility below 200 kV that is not located entirely within a Participating Transmission Owner's (Participating TO or

covering ten years that considers previously approved transmission upgrades and additions, demand forecasts, demand-side management, capacity forecasts for generation technology types, generation additions and retirements, and other relevant factors.³

This year, the CAISO initiated a 20-Year Transmission Outlook planning process to consider future opportunities and challenges outside of the existing 10-year transmission planning process. The CAISO will conduct the 20-Year Transmission Outlook in tandem with its 10-year transmission planning process. This new effort reflects the CAISO's commitment to pursue a more proactive, comprehensive, and forward-looking evaluation of the in-state and out-of-state transmission capabilities needed to meet identified needs now, over the next decade, and over the longer-term, and to meet the goals set forth in California Senate Bill 100 for a carbon-free electric grid by 2045. Assessing future conditions over this broader timeframe will allow the CAISO and stakeholders to understand and anticipate the CAISO BAA's transmission needs over the long-term and will inform and facilitate prompt decision-making on required transmission. With greater understanding of the longer-term planning horizon,

PTO) footprint or PTO Service Territory, e.g., a transmission line extending between two different PTOs or between the CAISO Balancing Authority Area and another Balancing Authority Area.

³ Business Practice Manual for Transmission Planning Process at 13, available at <https://bpmcm.caiso.com/BPM%20Document%20Library/Transmission%20Planning%20Process/Transmission%20Planning%20Process%20BPM%20Version%2018.doc>.

projects needed in the near term can also proceed more quickly because there will be a clearer understanding of how they fit into longer-term needs.⁴

The CAISO conducts the transmission planning activities authorized under CAISO Tariff Section 24 for all upgrades and expansions of facilities under its operational control, which include transmission facilities at all voltage levels and at all locations on the system.⁵ The CAISO evaluates reliability, economic, public policy, and other transmission needs specified in the tariff at both the local level (*i.e.*, low voltage transmission facilities within a single participating transmission owner's footprint) and at the regional level (*i.e.*, high voltage transmission facilities). The CAISO does not oversee or evaluate "pure" transmission maintenance or asset management projects in the transmission planning process; it only evaluates expansions and upgrades. However, if an asset management or maintenance project can be expanded or modified to address a CAISO-identified transmission need, the incremental portion of the asset management project would be subject to the CAISO's transmission planning process.⁶ The CAISO's participating transmission owners cannot approve transmission system expansions or upgrades in their asset management processes; that can only occur through the CAISO's transmission planning process.

⁴ The CAISO will not focus on specific project approvals in the 20-Year Transmission Outlook.

⁵ See *Cal. Public Util. Comm'n, et al. v. Pacific Gas and Elec. Co.*, 164 FERC ¶ 61,161 at PP 35-37 (2018). CAISO Participating TOs cannot approve upgrades or transmission work in their asset management processes that expand (other than incidentally) the capacity of the CAISO grid. System capacity expansions and upgrades can occur only through the CAISO's regional transmission planning process.

⁶ *Id.* at P 69.

A. The Three Phases of the CAISO's Transmission Planning Process

The CAISO's transmission planning process comprises three distinct phases:

Phase One

Phase one of the transmission planning process is approximately a four-month effort in which the CAISO develops the unified planning assumptions, which the CAISO documents in a study plan.⁷ The unified planning assumptions and study plan include among other items:

- The planning data and assumptions to be used in the transmission planning process cycle, including, but not limited to, those related to demand forecasts and distribution, potential generation capacity additions and retirements, and transmission system modifications;
- A description of the computer models, methodology and other criteria used in each technical study performed in the transmission planning process cycle;
- A list of each technical study to be performed in the transmission planning process cycle and a summary of each technical study's objective or purpose; and
- Identification of state, federal, municipal, or county requirements or directives that the CAISO will utilize to identify policy-driven transmission solutions.⁸

The study plan articulates the scope and details of technical studies the CAISO will conduct as part of the transmission planning process.⁹

⁷ See Section 24.3 of the CAISO Tariff.

⁸ Section 24.3.2 of the CAISO Tariff. The 2021-2022 Uniform Planning Assumptions and Study Plan provides an example of the inputs, assumptions, and studies in an annual CAISO transmission planning cycle. It is available at <http://www.caiso.com/InitiativeDocuments/Final2021-2022StudyPlan.pdf>

⁹ During this time, the CAISO also receives submittals of interregional transmission projects. The CAISO participates in an interregional coordination stakeholder meeting in turn with the other

The CAISO tariff expressly requires the transmission planning process to consider many factors in developing the planning assumptions and study plan for each year's transmission plan, including among other inputs:

- Western Electricity Coordinating Council (WECC) base cases for the relevant planning horizon;
- Facilities studied and approved to interconnect new generators in the generator interconnection process;
- Federal, state, and local public policy requirements and directives;
- Generation Resource Areas or other resource areas identified by local regulatory authorities;
- Demand response programs;
- Generation and non-transmission alternatives proposed for inclusion in long-term planning studies as alternatives to transmission additions or upgrades; and
- The most recent interregional information provided by other planning regions

The CAISO tariff also requires the CAISO to consider “Economic Planning Study requests.”¹⁰ The CAISO performs Economic Planning Studies “to provide a preliminary assessment of the potential cost effectiveness of mitigating specifically identified Congestion.”¹¹

Based on these and other factors, the CAISO develops the unified planning assumptions and study plan. In doing so, CAISO staff works closely with local

western planning regions to provide for the exchange of planning data and information between themselves and stakeholders.

¹⁰ *Id.*

¹¹ Appendix A to the CAISO Tariff; definition of “Economic Planning Study.”

regulatory authorities. Specifically, the CAISO coordinates with the California Energy Commission (CEC) on the long-term demand forecast resulting from the CEC's biennial Integrated Energy Policy Report (IEPR), and with the California Public Utilities Commission (CPUC) on the generation capacity procurement plans resulting from its biennial Integrated Resource Planning (IRP) proceeding.¹² Consistent with Order No. 1000,¹³ the CAISO also coordinates with these agencies and California's municipal entities to identify the public policy requirements that might necessitate transmission upgrades.¹⁴ In recent transmission planning processes, the principal public policy requirement driving transmission needs has been California's evolving renewable portfolio standard (RPS). California's RPS has resulted in load serving entities procuring thousands of megawatts in new renewable generation capacity. The CPUC has regulated the vast majority of this procurement and therefore plays a critical role in informing the CAISO's transmission planning process. Since the first RPS was established, the CAISO's transmission planning process has identified transmission upgrades to enable the delivery of this new generation capacity in the most reliable and

¹² See *Alignment of Key Infrastructure Planning Processes by CPUC, CEC, and CAISO Staff* (Dec. 23, 2014) available at http://www.aiso.com/Documents/TPP-LTPP-IEPR_AlignmentExplanatoryText.pdf. This document describes how the CAISO, CPUC, and CEC align the demand forecast, long-term procurement planning, and transmission planning processes. The staff of the three organizations collaborate to develop draft assumptions and study scenarios to be utilized in the procurement and transmission planning processes each year. The alignment document also identifies the information required for the studies including, load forecast data, RPS portfolio calculation, renewable project information, solar and wind hourly generation profiles, conventional supply resource data, data regarding other resource types (e.g., demand response storage), outage rates, and forecasted retirements.

¹³ *Transmission Planning and Cost Allocation by Transmission Owning and Operating Pub. Util.*, Order No. 1000, 136 FERC ¶ 61,051 (2011); *order on reh'g and clarification*, 139 FERC ¶ 61,132 (Order No. 1000-A) (2012); *order on reh'g and clarification*, 141 FERC ¶ 61,044 (Order No. 1000-B) (2012), *aff'd.*, *S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014).

¹⁴ Section 24.3.3 of the CAISO Tariff.

cost-efficient way. Looking forward, the primary policy objective will be meeting SB 100's goal of a carbon-free grid by 2045.

The CAISO also seeks input from stakeholders to develop the unified planning assumptions and study plan. The CAISO tariff specifically requires the CAISO to issue a market notice requesting input on the assumptions for:

- Demand response programs to include in the base case or assumptions;
- Generation and other non-transmission alternatives proposed as alternatives to transmission solutions; and
- State, federal, municipal, or county policy requirements or directives.¹⁵

Phase Two

Phase two of the transmission planning process is approximately a 12-month activity. Based on the unified planning assumptions and study plan developed in phase one, the CAISO assesses the CAISO controlled grid and determines the need for transmission solutions or alternatives to meet identified needs.¹⁶ This phase includes a request window during which interested parties may submit suggested solutions for needs identified in the technical studies.¹⁷ The CAISO documents the results, conclusions, and recommendations for solutions developed from this technical analysis in a draft transmission plan that, after stakeholder review, CAISO management presents to the CAISO Governing

¹⁵ Section 24.3.3(a) of the CAISO Tariff.

¹⁶ See Section 24.4 of the CAISO Tariff.

¹⁷ See *id.*

Board for consideration and approval. The comprehensive transmission plan adopted by the CAISO Board identifies the needed transmission solutions.

In phase two of the transmission planning process, the CAISO evaluates three primary categories of transmission needs:¹⁸

- Transmission facilities to ensure system reliability;¹⁹
- Transmission facilities to meet public policy requirements;²⁰ and
- Transmission facilities to address congestion, local capacity requirements, or integrating new generators or loads on an aggregated basis. This group is collectively known as the “Economic” category.²¹

The CAISO describes these and the other categories of transmission the CAISO can study and approve in Section II.B, *infra*.

The CAISO considers reliability needs and solutions first, followed by public policy solutions, and then and economic solutions.²² At each stage of phase two, the CAISO may modify or enhance a solution identified in an earlier stage to meet the next level of need (and the previously identified need) more efficiently or cost-effectively, or it may adopt an entirely new solution to meet both needs. For

¹⁸ The other categories of transmission facilities the CAISO can evaluate in the transmission planning process are proposed merchant transmission facilities, facilities to maintain the feasibility of long-term congestion revenue rights, expanded generator interconnection facilities, and location constrained resource interconnection facilities (LCRIFs). See Section 24.4 of the CAISO Tariff. Additionally, in each stage the CAISO evaluates whether interregional transmission projects can meet any needs better than regional projects.

¹⁹ Section 24.4.6.2 of the CAISO Tariff.

²⁰ Section 24.6.6 of the CAISO Tariff.

²¹ Section 24.4.6.7 of the CAISO Tariff. This provision requires the CAISO to consider “the degree to which, if any, the benefits of the transmission solutions outweigh the costs.”

²² Under its tariff, the CAISO considers both transmission and non-transmission alternatives to meet identified transmission needs. For example, the CAISO has approved some energy storage solutions to meet identified transmission needs.

example, a public policy need can cause the CAISO to modify the initial solution it identified for a reliability need if a proposed public policy solution meets both needs more efficiently or cost-effectively. In such a case, the CAISO would categorize the solution based on the latter-studied benefit type, in this example, a “policy-driven” transmission project; although, the transmission solution would provide multiple benefits.²³ Likewise, an economic study can change or modify the preferred initial solution for a reliability need, a public policy need, or both.²⁴ The CAISO finalizes its preferred solution only after it completes all three stages. The CAISO’s iterative approach allows the CAISO to approve transmission solutions that provide multiple benefit streams (e.g., reliability, public policy, and economic). Thus, the CAISO does not need a separate multi-value category of transmission to approve transmission projects that provide multiple types of benefits.

Phase Three

Phase three of the CAISO’s transmission planning process takes place if the CAISO Board approves a needed Regional Transmission Facility identified in the annual transmission plan that is eligible for competitive solicitation.²⁵ Regional Transmission Facilities that are not upgrades to existing facilities are eligible for

²³ As discussed in Section II.B.1.a., categorizing a transmission solution as reliability, public policy, or economic, does not dictate or affect cost allocation in the CAISO.

²⁴ Business Practice Manual for Transmission Planning Process at 50-51.

²⁵ Section 24.5.1 of the CAISO Tariff. Under the CAISO Tariff, Regional Transmission Facilities subject to competitive solicitation are those facilities 200 kV and above or located in the service territories of more than one transmission owner, and that do not constitute upgrades or improvements to, additions on, or replacements of, an existing participating transmission owner facility. Section 24.5.1 of the CAISO Tariff and Appendix A to the CAISO Tariff, definitions of “Regional Transmission Facility” and “Local Transmission Facility.”

competitive solicitation. During phase three, the CAISO conducts a competitive solicitation in which it seeks proposals from potential project sponsors to finance, construct, own, operate, and maintain the new Regional Transmission Facility.²⁶

B. The Categories of Transmission the CAISO Evaluates

The CAISO describes below the various categories of transmission it evaluates and can approve in its regional transmission planning process. The CAISO describes cost responsibility for transmission facilities approved in its regional transmission planning process, *infra*, in Section III.B.1.a.

1. Stage 1: Reliability Needs

The first stage of phase two of the CAISO's regional transmission planning process consists of testing the transmission system to meet all North American Electric Reliability Corporation (NERC) reliability standards, WECC regional reliability standards, and CAISO planning standards.²⁷ The CAISO tabulates initial results and presents them to stakeholders²⁸ and provides stakeholders an opportunity to submit proposals to address identified reliability issues.²⁹ The initial results also identify reliability issues addressed by existing solutions that cannot

²⁶ *Id.*

²⁷ Section 24.4.6.2 of the CAISO Tariff. The CAISO Planning Standards allow the CAISO to plan to certain standards above and beyond the NERC Reliability Standards. For example, Section 6.1 of the CAISO Planning Standards allows the CAISO to plan to a higher standard than NERC Reliability Standard TPL-001-4 for high population density urban load areas. Section 7.1 of the CAISO Planning Standards establishes an Extreme Event Reliability Standard for the San Francisco Bay Area given its unique characteristics. The CAISO Planning Standards are available at <http://www.caiso.com/Documents/ISOPlanningStandards>

²⁸ Section 24.4.1 of the CAISO Tariff.

²⁹ Sections 24.4.2 and 24.4.3 of the CAISO Tariff.

be readily modeled in power flow base cases (such as demand response), but which do not constitute a need for new reliability transmission upgrades.³⁰ Besides considering new transmission upgrades to address newly identified reliability needs, the CAISO also considers remedial action schemes (RAS),³¹ operational solutions, and other alternatives such as accelerating or expanding existing approved transmission solutions, demand-side management, generation, storage facilities, interruptible loads, and reactive support.³²

The CAISO identifies its initial preferred solutions based on efficiency and cost effectiveness.³³ Specifically, the CAISO will determine the solution that meets the identified need “in the more efficient or cost effective manner.”³⁴ In doing so, the CAISO considers a variety of concrete factors including capital costs, operating costs, and transmission line loss savings. Because the CAISO can “revisit” any new solution in the economic-driven analysis, the CAISO typically identifies an initial preferred solution to meet the reliability needs, and then evaluates other proposed solutions during the later stages of phase two. This allows the CAISO and stakeholders to account for the avoided costs of other initially-identified reliability projects.

³⁰ The CAISO does this so stakeholders who perform their own analysis are not led to believe there are additional unmitigated needs that the CAISO failed to report.

³¹ Remedial action schemes (or RAS) are also known as special protection systems (SPS). They automatically disconnect generators or load in the event of a contingency that would otherwise cause system overloads. These schemes generally consist of circuit breakers and telecommunications equipment that can detect grid events and trip generators offline to protect grid equipment.

³² Section 24.4.6.2 of the CAISO Tariff.

³³ *Id.*

³⁴ *Id.*

2. Stage 2: Public Policy Needs

After identifying preferred solutions to meet reliability needs, the CAISO evaluates whether there is a need for new facilities to meet state, municipal, county, or federal policy requirements or directives.³⁵ In doing so, the CAISO identifies two categories of transmission solutions:

Category One: Transmission solutions the transmission planning process will recommend to the CAISO Board for approval.

Category Two: Transmission solutions that could be necessary to achieve an identified public policy, but which the CAISO has not found to be necessary in the current transmission plan.³⁶

The CAISO reevaluates Category Two solutions in the next planning cycle based on updated data on new generation, load, grid topology, and public policy. Future transmission plans are not restricted to studying previously identified Category Two projects; new alternatives to meet public policy needs can be proposed.

In categorizing transmission solutions for public policy needs, the CAISO determines the need for solutions that efficiently meet applicable policies under alternative resource location and integration assumptions and scenarios, while mitigating the risk of stranded investment.³⁷ The CAISO creates a baseline

³⁵ Section 24.4.6.6 of the CAISO Tariff.

³⁶ *Id.*

³⁷ *Id.*

scenario reflecting the assumptions about likely generation locations and reasonable stress scenarios that the CAISO compares to the baseline scenario. Any transmission solutions identified as critical in a significant percentage of the stress scenarios may be Category One transmission solutions. Category One solutions are essentially “least regrets” solutions based on their low risk of being underutilized because they appear as needed across different generation development scenarios or rank high based on the commercial, economic, and environmental criteria. Transmission solutions identified in the baseline scenario that are not critical in a significant percentage of the stress scenarios generally will be Category Two transmission solutions, unless the CAISO finds that sufficient analytic justification exists to designate them as Category One transmission solutions. In such cases, the CAISO publishes the analysis upon which it based its justification.³⁸

The results and identified generation portfolios of the CPUC and other local regulatory authorities arising from their resource planning processes are a key driver in evaluating public policy-driven solutions. These resource portfolios include future generation not already in the interconnection queue. The resource portfolios reflect potential generation regulatory authorities want to see developed and procured from specified locations. Another criterion is commercial interest (e.g., executed and approved power purchase agreements and interconnection agreements) in resources in the applicable geographic area (including renewable

³⁸ *Id.*

energy zones) to be accessed by potential transmission solutions.³⁹

Policy-driven transmission planning in past planning cycles has focused primarily on state policy directives to procure new renewable generation capacity to meet RPS goals and reduce greenhouse gas emissions (GHG). As discussed, *infra*, the CAISO and the CPUC have a memorandum of understanding under which the CPUC provides the CAISO the latest renewable resource portfolios to inform the CAISO's transmission planning process efforts. These data inform the CAISO regarding new generation capacity coming to the grid based on the utilities' procurement efforts, as regulated by the CPUC.

3. Stage 3: Economic Needs

After the CAISO identifies initially preferred solutions for reliability and public policy needs, the CAISO evaluates whether additional transmission solutions are needed to address congestion, local capacity requirements, or integrating new generators or loads on an aggregated basis. This group of needs constitutes the "Economic" category of transmission.⁴⁰ The CAISO tariff expressly requires the CAISO to consider "the degree to which, if any, the benefits of the transmission solutions outweigh the costs."⁴¹ The tariff states that potential benefits "may include a calculation of any reduction in production costs, Congestion costs, Transmission Losses, capacity or other electric supply costs

³⁹ *Id.*

⁴⁰ Section 24.4.6.7 of the CAISO Tariff.

⁴¹ *Id.*

resulting from improved access to cost-efficient resources.”⁴² The CAISO does not perform this evaluation in a project-specific vacuum. The CAISO tariff expressly requires the CAISO to consider “the comparative costs and benefits of viable alternatives to the particular transmission solution,” including:

- other potential transmission solutions, including those being considered or proposed during the Transmission Planning Process;
- acceleration or expansion of any transmission solution already approved by the CAISO Governing Board or included in any CAISO comprehensive Transmission Plan; and
- non-transmission solutions, including demand-side management.⁴³

The CAISO’s economic studies simulate future system conditions and consider historical congestion occurrences, local capacity area resource requirements, other expected grid conditions consistent with the unified planning assumptions, and other data submitted through the request window, such as long-term power supply plans. The studies utilize production cost simulation as the primary tool to identify potential study areas, prioritize study efforts, identify grid congestion, and assess economic benefits created by congestion mitigation measures. The production simulation is a computationally intensive application based on security-constrained unit commitment⁴⁴ and security-constrained economic dispatch⁴⁵ algorithms.⁴⁶ The CAISO conducts the production cost

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Also known as “SCUC,” Appendix A to the CAISO Tariff, definition of “SCUC” and “Security Constrained Unit Commitment.”

⁴⁵ Also known as “SCED,” Appendix A to the CAISO Tariff, definition of “SCED” and “Security Constrained Economic Dispatch.”

⁴⁶ Business Practice Manual for the Transmission Planning Process at 51.

simulation for all hours for each study year.

Although the CAISO's initial reliability and policy evaluations consider costs and benefits, the CAISO bases its evaluations on more conventional financial metrics like capital and operating costs. When the CAISO conducts its economic studies, it considers more comprehensive benefits by using the so-called Transmission Economic Assessment Methodology (TEAM).⁴⁷ Because transmission ratepayers ultimately fund transmission projects, the principal goal of TEAM is to quantify transmission ratepayer benefits accurately. The CAISO relies on CAISO ratepayer benefits in determining whether to approve a transmission project as an economically-driven solution.⁴⁸ The CAISO generally groups these benefits into five categories (although some benefits can overlap):

- **Production Benefits:** Changes in the net ratepayer payment based on production cost simulation due to the proposed transmission upgrade;
- **Capacity Benefits:** Increasing importing capability into the CAISO or a local constrained area. Decreased transmission losses and increased generator deliverability contribute to capacity benefits;⁴⁹
- **Public-policy Benefits:** Reducing the cost of reaching renewable energy targets by facilitating the integration of lower cost renewable resources in remote areas, or by avoiding over-build;
- **Renewable Integration Benefits:** Interregional transmission

⁴⁷ See *id.*, citing CAISO Transmission Economic Assessment Methodology (TEAM), November 2, 2017 (TEAM Document), available at http://www.aiso.com/Documents/TransmissionEconomicAssessmentMethodology-Nov2_2017.pdf.

⁴⁸ See TEAM Document at 1, 4, 10. CAISO ratepayers pay the CAISO's transmission access charge. Utility-retained generation is also included in the CAISO ratepayer perspective because the profits (or negative profits) flow into the transmission access charge balancing account. *Id.* at 20. Finally, CAISO participating transmission owners are included in the CAISO ratepayers because their congestion revenues flow into the balancing account. *Id.*

⁴⁹ The TEAM Document enumerates "capacity benefits" and identifies them separately as import capability, transmission loss, and deliverability benefits. *Team Document* at 21-22.

upgrades help mitigate integration challenges, such as over-supply and curtailment, by allowing sharing energy and ancillary services among multiple balancing authority areas; and

- **Avoided Costs of Other Projects:** If a reliability or policy project can be avoided because of the economic project under study, then the avoided cost contributes to the benefits of the economic project.⁵⁰

TEAM recognizes these five benefits “do not need to be applied in exacting detail for each study”⁵¹ and that for a specific project only some of these benefit types might apply.⁵² TEAM also recognizes that

some data used in the additional benefits calculation may not be from the ISO’s transmission planning process such as capacity shortfall, renewable portfolios, etc. Instead, coordination may be needed with state agencies (e.g., the CPUC) and other ISO processes to obtain such data.⁵³

Using TEAM, the CAISO identifies its preferred transmission solutions. If a solution identified in the economic study is more efficient than a solution identified in the reliability or public policy evaluations, and can meet the applicable reliability or public policy needs, the CAISO will include the economic solution in the transmission plan, and it will categorize the solution as an economic project.

⁵⁰ *Id.* at 2.

⁵¹ *Id.* at 4. The type of study and initial study result will dictate the level at which the CAISO will apply the principles. *Id.* For example, if preliminary economic feasibility studies show the proposed upgrade to be highly economic from CAISO ratepayer perspective and no negative impact to the WECC system, then uncertainty analyses may not be necessary. *Id.* If the economic benefits are marginal, the CAISO may need to conduct further uncertainty analyses to understand the distribution of benefits and their root causes better. *Id.*

⁵² *Id.* at 21.

⁵³ *Id.*

4. Other Categories of Transmission

a. Location Constrained Resource Interconnection Facilities (LCRIFS)

The CAISO also has the authority to approve LCRIFs in the regional transmission planning process.⁵⁴ The CAISO may conditionally approve a LCRIF if the CAISO finds the facility is needed and it meets all of the following requirements:

- (1) The facility will be constructed for the primary purpose of connecting the CAISO grid to two or more Location Constrained Resource Interconnection Generators (LCRIGs)⁵⁵ in an Energy Resource Area⁵⁶ and at least one of the LCRIGs is owned by an entity that is not an affiliate of another LCRIG;
- (2) The facility will operate at or above 200 kV;
- (3) At the time of the in-service date, the facility will not be a network facility and would not be eligible for inclusion in a Participating TO's transmission revenue requirement other than as an LCRIF;⁵⁷ and
- (4) The facility meets applicable reliability criteria and the CAISO Planning Standards.

In assessing the need for a particular LCRIF, the CAISO considers, among other factors,

- (1) The extent to which the facility has the capability and flexibility to interconnect potential LCRIGs in the Energy Resource Area and to

⁵⁴ CAISO Tariff Section 24.4.6.3.

⁵⁵ A LCRIG is a generating unit that (1) uses a primary fuel source or source of energy that is in a fixed location cannot practicably be transported from that location and (2) is located in an Energy Resource Area. Generating units meeting this criteria include, but are not limited to, wind, solar, geothermal, hydroelectric, digester gas, landfill gas, ocean wave, and ocean thermal tidal current units. CAISO Tariff, Appendix A: Definition of LCRIG.

⁵⁶ An Energy Resource Area is a geographic region certified by the CPUC and the CEC as an area in which multiple LCRIGs could be located.

⁵⁷ In other words, a LCRIF is essentially a radial, high voltage generator interconnection line. Except for LCRIFs, generator interconnection lines typically are not under CAISO operational control, and their costs are not recovered in the regional high voltage transmission access charge.

become a network facility in the future; and

- (2) Whether the project cost is reasonable in light of the projected benefits in comparison to the cost and benefits of other alternatives for connecting generation.⁵⁸

An LCRIF is eligible for final approval if it meets these two criteria:

- (1) The addition of the capital costs of the facility will not cause the aggregate costs of all LCRIFs included in the regional transmission revenue requirement (RTRR) of all Participating TOs to exceed 15 percent of the net investment of all Participating TOs for all transmission facilities reflected in their RTRRs; and
- (2) Owners of LCRIGs have demonstrated the necessary level of interest in the LCRIF.⁵⁹

b. Merchant Transmission Facilities

A merchant transmission facility is a transmission facility or upgrade whose costs the project sponsor pays and does not recover through the transmission access charge, wheeling access charge, or any other regulatory cost recovery

⁵⁸ CAISO Tariff Section 24.4.6.3.6. Factors the CAISO will consider in assessing costs and benefits include the potential capacity and energy that can be produced by LCRIGs in the area, the projected cost and in-service date of the LCRIF compared to other alternatives, the extent to which the facility provides other reliability or economic benefits, and the extent to which the LCRIF creates the risk of stranded costs.

⁵⁹ CAISO Tariff Section 24.4.6.3.1 (b). The proponent of an LCRIF must demonstrate minimum interest in the LCRIF equal to or greater than 60 percent of the capacity in the facility. The CAISO tariff requires the proponent of the LCRIF demonstrate that the LCRIGs accounting for at least 25 percent of the capacity of the facility have executed interconnection agreements. CAISO Tariff Section 24.4.6.3.4. If the proponent of the LCRIF does not demonstrate that at least 60 percent of the LCRIF's capacity is dedicated to LCRIGs that have executed interconnection agreements, the proponent of the LCRIF must demonstrate the remaining required minimum level of interest through other means specified in the tariff. Specifically, an LCRIG must demonstrate site exclusivity or, depending on the tariff provision under which the generator is seeking to interconnect, that it has paid the applicable site exclusivity deposit or a \$250,000 deposit. In addition, the LCRIG must demonstrate that it has either: (1) executed a firm power purchase agreement for a period of five years or longer; (2) paid the Interconnection Study Deposit or minimum deposit required for studies, depending on the applicable tariff section under which the generator is interconnecting, or (3) paid a deposit equal to five percent of the LCRIG's pro rata share of the costs of the LCRIF. CAISO Tariff Section 24.2.6.3.4.

mechanism. The CAISO can approve a merchant transmission facility in the transmission planning process if the project sponsor demonstrates the financial capability to pay the full cost and operation of the facility.⁶⁰ A project sponsor has the financial ability to pay for the construction and operating costs of the merchant facility by demonstrating creditworthiness or providing sufficient security in the form of an irrevocable, unconditional letter of credit or other similar security to meet its responsibilities and obligations for the full cost of the merchant facility. The project sponsor must mitigate all of the CAISO's operational concerns to the CAISO's satisfaction, in consultation with the Participating Transmission Owner (Participating TO or PTO) in whose service territory the merchant facility will be located, and the facility must ensure the continuing feasibility of allocated long-term congestion revenue rights (CRRs) over the length of their term.

c. Transmission Facilities to Ensure the Simultaneous Feasibility of Long-Term CRRs

The CAISO can also approve transmission solutions to maintain the long-term feasibility of CRRs over the length of their term.⁶¹ In assessing the need for transmission solutions to maintain the feasibility of long-term CRRs, the CAISO, in coordination with the applicable Participating TO and other market participants, must consider lower cost alternatives to the construction of transmission solutions such as acceleration or expansion of existing transmission solutions, demand-side management, remedial action schemes, constrained-on generation, interruptible

⁶⁰ CAISO Tariff Section 24.4.6.1.

⁶¹ CAISO Tariff Section 24.4.6.4.

loads, or reactive support. The CAISO must determine the solution that meets the identified need to maintain the feasibility of long-term CRRs in the more efficient or cost-effective manner.

d. Expansions of LGIP Network Upgrades

The CAISO can assess in the transmission planning process network upgrades originally identified in the Phase II Interconnection Study or Interconnection Facilities Study Process of the Large Generation Interconnection Process (LGIP) that are not already included in a signed Large Generator Interconnection Agreement if these network upgrades satisfy the following criteria:

- (a) The network upgrades consist of new transmission lines 200 kV or above and have capital costs of \$100 million or greater;
- (b) The network upgrade is a new 500 kV substation that has capital costs of \$100 million or greater; or
- (c) The network upgrades have a capital cost of \$200 million or more.⁶²

This authority allows the CAISO to evaluate interconnection network upgrades that are candidates for modification to be more efficiently sized or cost-effective. The CAISO recognized that ambitious renewable energy goals would require the interconnection of a large number of new resources to the CAISO grid. The CAISO added this category of transmission recognizing that certain categories of generator interconnection upgrades could be more effectively and efficiently

⁶² CAISO Tariff Section 24.4.6.5.

accomplished if upgrades to the same transmission segment or electrical area of the grid were evaluated together and coordinated with other planned transmission upgrades and additions so the CAISO could appropriately size them for the multiple demands that would be placed upon them.⁶³ This assessment authority enables the CAISO to ensure that network upgrades are appropriately sized and configured not only to meet the demands associated with the specific studied interconnection requests, but also able to meet other identified potential system needs in an efficient manner. This tariff authority allows the CAISO to expand the size of network upgrades identified in the LGIP process or include additional facilities or equipment in the transmission planning process.

C. Coordination with the CPUC

The CAISO and the CPUC coordinate closely to ensure a reliable system that also supports achievement of California's RPS and carbon goals. Consistent with the Federal Power Act (FPA), the CAISO is responsible for conducting studies to identify transmission needs and proposed solutions to meet applicable transmission planning criteria, whereas the CPUC has planning and procurement authority regarding "facilities used for the generation of electric energy"⁶⁴ for load-serving entities in the CAISO footprint. The CPUC's authority extends to resource adequacy, integrated resource planning, and bilateral procurement of generation

⁶³ See Revised Transmission Planning Process Tariff Amendment, Docket No. ER10-1401 (June 4, 2010) and Commission order approving the CAISO's filing, *Cal. Indep. Sys. Operator Corp.*, 133 FERC ¶ 61,224 (2010) (Revised Transmission Planning Process Order).

⁶⁴ Fed. Power Act § 824(b) (1).

and other preferred resources.⁶⁵ Moreover, the CPUC has siting and permitting authority regarding the construction of planned transmission facilities.⁶⁶

Coordination between the CAISO and the CPUC in transmission planning is mutually beneficial. The CAISO tariff specifically identifies the need for the CPUC and other local regulatory authorities to provide long-term resource plans as inputs into the CAISO's transmission planning process.⁶⁷ The CAISO tariff also contemplates that local regulatory authorities such as the CPUC will notify the CAISO of demand response programs and identify energy resource areas and policy programs initiated by the state as assumptions in the transmission planning process.⁶⁸ Section 24.4.6.6 of the CAISO tariff also contemplates that the CPUC and local regulatory authorities will submit resource planning results and identify resources portfolios to enable the CAISO to identify needed transmission upgrades. The CAISO uses these data as critical inputs to identify reliability, policy, and economic transmission needs.

Similarly, the CPUC uses CAISO-developed transmission system information to inform its integrated resource planning process. In developing

⁶⁵ Preferred resources can include, for example, retail demand response, energy efficiency programs, and energy storage.

⁶⁶ Pub. Util. Comm'n of the State of Cal. Gen. Order No. 131-D, pursuant to the provisions of sections 451, 701, 702, 761, 762, 768, 770, and 1001 of the Cal. Pub. Util. Code.

⁶⁷ Section 24.8.4 of the CAISO Tariff. ("The CAISO shall obtain or solicit from...the CPUC...information required by, or anticipated to be useful to, the CAISO in its performance of the Transmission Planning Process, including, but not limited to: (1) long-term transmission system plans; (2) long-term resource plans; (3) generation interconnection process information; (4) Demand Forecasts; and (5) any other data necessary for the development of power flow, short-circuit, and stability cases over the planning horizon of the CAISO Transmission Planning Process.")

⁶⁸ Section 24.3.1(g)-(i) of the CAISO Tariff.

long-term resource plans, the CPUC considers the existing transmission system capabilities and potential transmission system upgrades in deciding where to authorize new procurement and site new generation resources.⁶⁹

In May 2010, the CAISO and the CPUC formalized their resource planning coordination processes by entering into a memorandum of understanding (MOU) that complemented the CAISO's revised transmission planning process.⁷⁰ In the MOU, the CAISO and the CPUC agreed to "work together to coordinate the ISO's revised transmission planning process and identification of needed transmission infrastructure with the CPUC's subsequent siting/permitting processes."⁷¹ Specifically, the CAISO agreed to consider and incorporate CPUC-developed generation scenarios into the transmission planning process. Subsequent CPUC siting and permitting processes give "substantial weight" to project applications that are consistent with the transmission needs determinations the CAISO makes based on the CPUC-developed portfolios.

This coordinated process provides the CAISO, the CPUC, and project developers with greater assurances that CAISO-approved transmission solutions can be permitted and ultimately built. The CAISO included the MOU in its 2010

⁶⁹ Order Instituting Rulemaking to Develop an Electricity Integrated Resource Planning Framework and to Coordinate and Refine Long-Term Procurement Plan Requirements, CPUC Decision D.19-04-040 (issued May 1, 2019) (Preferred System Portfolio and Integrated Resource Plan Decision), available at <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M287/K437/287437887.PDF>.

⁷⁰ Memorandum of Understanding Between the California Public Utilities Commission (CPUC) and the California Independent System Operator Corporation (ISO) Regarding the Revised ISO Transmission Planning Process (May 13, 2010) (2010 MOU), available at <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442462040>.

⁷¹ *Id.* at 1.

tariff amendment filing with the Commission to implement a revised transmission planning process. The tariff filing included an evaluation process and criteria for approving transmission solutions to meet identified public policy requirements and directives.⁷² In approving the CAISO's tariff amendment filing, the Commission noted that the MOU provides for CAISO consideration of study scenarios that reflect the CPUC's long-term procurement process and rejected requests to require the CAISO to amend its tariff to address how it would coordinate with the CPUC's planning process or include all input, assumptions, and study scenarios.⁷³ The TEAM Document and other CAISO tariff and business practice manual provisions also contemplate that the CPUC and other local regulatory authorities will provide resource planning and resource portfolio information and policy directives to the CAISO for use in the transmission planning process.⁷⁴

⁷² CAISO Tariff Amendment filing, Revised Transmission Planning Process, Docket No. ER10-1401 (June 4, 2010). The 2010 MOU was included as Attachment C to that filing.

⁷³ Revised Transmission Planning Process Order, 133 FERC ¶ 61,224 at P 162.

⁷⁴ Sections 24.3.1 and 24.4.6 of the CAISO Tariff; Business Practice Manual for Transmission Planning at 22, 24, 49; Exhibit CAISO-2.

III. COMMENTS

A. Regional Transmission Planning and Cost Allocation Processes

1. The CAISO Supports Planning for the Transmission Needs of Anticipated Future Generation, but the Commission Should Grant Regions Sufficient Flexibility to Implement This Approach Based on Their Specific Circumstances

The ANOPR inquires whether the Commission should amend regional transmission planning processes to plan for the needs of anticipated future generation to meet a changing resource mix, including generation that is not yet in the interconnection queue.⁷⁵ If so, the Commission asks how it should structure and implement a framework for considering the transmission needs of anticipated future generation in the regional transmission planning process.⁷⁶

The CAISO supports the vision articulated in the ANOPR that transmission planning processes should plan for anticipated future generation. The CAISO's existing regional transmission planning process plans for anticipated future generation needs, including generation not yet in the interconnection queue. As discussed in Section II *supra*, the CAISO uses its reliability and policy-driven transmission assessment, the LCRIF process, and the potential reassessment of LGIP projects to identify projects necessary to meet future generation needs beyond the resources in the interconnection queue.

⁷⁵ ANOPR at P 44.

⁷⁶ *Id.*

However, the CAISO cautions the Commission against imposing a one-size-fits-all approach on all planning regions. There are significant differences (and challenges) among regions that can affect how they might plan transmission for future generation. These differences include, *inter alia*, single-state vs. multi-state regions, unique resilience risks, centralized vs. highly dispersed procurement (e.g., public utilities, energy service providers, community choice aggregators), different state policy preferences for resource development and procurement, the nature and age of the existing resource fleet, different stakeholder processes and frameworks for collaboration with state entities, market vs. non-market frameworks, different local planning frameworks, the location of potential resource zones and the types of resources likely to be developed in the region, the topography of the existing transmission system, and the vastness and diversity of the region. Also, all regions are not starting from the same point. Some are further along than others in developing renewable resources and planning transmission needs for anticipated future generation and climate change. Accordingly, the Commission should allow individual planning regions sufficient latitude to achieve this objective in the manner that best fits their particular circumstances and systems. There are many possible ways to plan for anticipated future generation efficiently and cost-effectively. Under these circumstances, the Commission should not be overly prescriptive.

a. Future Scenarios and Modeling Anticipated Future Generation (P 46)

The ANOPR asks what factors shaping the generation mix are appropriate to use for transmission planning purposes, e.g., federal, state, and local clean energy laws and regulations; federal, state, and local climate goals that have not been enshrined into law; utility/corporate clean energy policies, trends in technology costs within and outside of the electric industry, including shifts toward electrification of buildings and transportation, and resource retirements.⁷⁷ The ANOPR seeks comment on whether the Commission should establish minimum requirements regarding scenarios for transmission providers to use in their regional planning processes, including modeling anticipated future generation in those scenarios.⁷⁸ The ANOPR also seeks comment on whether and how planning regions should pursue the development of longer-term scenarios for planning purposes.⁷⁹ In particular, the Commission seeks comments on whether greater use of probabilistic transmission planning approaches may better assess the benefits of regional transmission facilities.⁸⁰

The CAISO has a robust process for modeling future scenarios incorporating long-term generation needs, while considering appropriate public policy goals. The CAISO believes it is appropriate to consider in the transmission planning process clean energy laws and regulations, technology trends, building

⁷⁷ *Id.* at P 46.

⁷⁸ *Id.*

⁷⁹ *Id.* at P 48.

⁸⁰ *Id.* at P 49.

and vehicle electrification, resource retirements, and other factors shaping the generation mix. These factors directly affect the future demand for electricity, the types of resources that will be meeting such demand, and the transmission that will be needed to accommodate future demand and resources.

The CAISO tariff affords the CAISO broad discretion to consider “capacity forecasts relating to generation type, additions and retirements, and such other factors as the CAISO determines are relevant.”⁸¹ In developing its annual Unified Planning Assumptions and Study Plan,⁸² the CAISO explicitly considers “Policy requirements and directives, as appropriate, including programs initiated by state, federal, municipal and county regulatory agencies,” “Energy Resource Areas or similar resource areas identified by Local Regulatory Authorities,” and “Generation and other non-transmission alternatives that are proposed for inclusion in long-term planning studies as alternatives to transmission additions or upgrades.”⁸³ The long-term forecasts the CEC provides the CAISO for use in the transmission planning process take into account electricity industry sector trends, building decarbonization and energy efficiency, energy demand in the transmission sector

⁸¹ CAISO Tariff Section 24.2(b).

⁸² The CAISO’s *Unified Planning Assumptions and Study Plan* for the CAISO’s 2021-2022 Transmission Planning Process is available at <http://www.aiso.com/InitiativeDocuments/Final2021-2022StudyPlan.pdf>

⁸³ CAISO Tariff Section 24.3.1(g). The CAISO believes it is appropriate to plan the transmission system to meet federal, state, and local policy laws and regulations promulgated by the appropriate legislative or regulatory authorities. To the extent policy makers or regulatory agencies articulate only general policy goals, the CAISO looks to specific regulatory directives to guide it in how to plan transmission to assist in achieving those goals.

(i.e., zero-emissions vehicles), decreasing greenhouse gas levels, load modifying demand response, and distributed energy resources (e.g., roof top solar).⁸⁴

The CAISO accounts for known and expected resource retirements in the transmission planning process.⁸⁵ To align with CPUC portfolios, the CAISO generally does not assume in its planning processes that resources more than 40-years old will retire.⁸⁶ The CAISO is awaiting guidance from state regulators regarding the desired timeline for retiring the remaining gas-fired resources on the system, in particular gas-fired resources in the LA Basin. This policy decision will be a significant input into the transmission planning process. Once state policymakers advise the CAISO of their expectations, the CAISO can plan the appropriate, timely, and cost-effective solutions to maintain reliability in light of the resource retirements.

The CAISO also supports a longer-term outlook for planning purposes. The CAISO's transmission planning process, the CEC's IEPR process, and the CPUC's IRP process look out 10 years. These processes account for generation both in and outside of the generation interconnection queue. The CAISO currently approves transmission projects based on a 10-year outlook. Starting this year, the ISO has commenced a 20-Year Transmission Outlook that will run in

⁸⁴ See the current process for the 2021 Integrated Energy Policy Report (IEPR) at [2021 Integrated Energy Policy Report \(ca.gov\)](#) and the last completed IEPR at [2020 Integrated Energy Policy Report Update \(ca.gov\)](#)

⁸⁵ See *Uniform Planning Assumptions and Study Plan for the 2021-2022 Transmission Planning Process*, pp. 24-25.

⁸⁶ *Id.* There are instances, however, where the CAISO has proactively anticipated a specific generating unit's retirement given its age, condition, and other issues in moving forward with a transmission project, e.g., the Oakland Clean Energy Initiative.

parallel with the annual transmission planning process.⁸⁷ The 20-Year Transmission Outlook will not focus on specific project approvals. It will focus on higher level technical studies to test the feasibility of alternatives, not the detailed comprehensive analyses underpinning the 10-year plan. For example, the 20-Year Transmission Outlook will consider the potential impacts of increased electrification in other sectors and more aggressive fossil fuel resource retirement scenarios. Layering the 20-year outlook on the 10-year transmission planning process will provide greater context to the transmission planning process and inform planning decisions so the CAISO can identify solutions that will “fit” the energy landscape not just in the near-term but well into the future.

This new approach allows considerations that extend beyond 10 years to inform planning decisions. There is no need to extend the project approval timeline, as 10 years represents a reasonable period of time to permit and construct needed facilities.

The CAISO supports (1) using long-term scenarios in the transmission planning process and (2) working closely with state regulatory authorities in developing future scenarios. The CAISO studies both base case scenarios and sensitivity study scenarios in the transmission planning process.⁸⁸ As the

⁸⁷ See 20-Year Transmission Outlook Kick-Off Meeting – Agenda available at <http://www.caiso.com/InitiativeDocuments/Presentation-20YearTransmissionOutlook-May14-2021.pdf>

⁸⁸ See *Uniform Planning Assumptions and Study Plan for the 2021-2022 Transmission Planning Process*, pp. 34-41..Sensitivity scenarios for reliability assessments typically include different load levels (e.g., peak and off-peak), renewable generation levels, and gas generation commitment levels. Sensitivity studies for public policy assessments typically consider alternate resource portfolios. See *id.* at 51.

Commission recognizes in the ANOPR, “states are uniquely situated in determining how much anticipated future generation is needed, or in providing information related to infrastructure siting or resource mix as influenced by state and local policies.”⁸⁹ The CAISO works with the CEC, CPUC, local regulatory authorities, and stakeholders to reflect future generation additions in the base case portfolios it uses in the transmission planning process. In particular, as discussed above, the CAISO and the CPUC have a memorandum of understanding under which the CPUC provides the CAISO with resource portfolios to inform the CAISO’s transmission planning process efforts. The CAISO uses the CPUC’s base case portfolio to assess reliability and public policy transmission needs.⁹⁰ The data provided by the CPUC inform the CAISO regarding new generation capacity coming to the grid based on the utilities’ procurement efforts and projected future resource needs. The CPUC develops the generation resource portfolios by conducting production cost modeling studies to optimize resource build-out, while considering the state’s policy goals, reliability needs, and economic tradeoffs.⁹¹ By using these resource-optimized portfolios, the CAISO’s transmission planning process directly considers generation resources outside the interconnection queue.

The CAISO’s current planning framework provides it flexibility to identify transmission infrastructure to meet future generation scenarios, while reducing the

⁸⁹ ANOPR at P 52.

⁹⁰ The CPUC may also provide the CAISO with portfolios to use in public policy sensitivity studies.

⁹¹ See the CPUC’s Integrated Resource Plan web page at [Integrated Resource Plan and Long Term Procurement Plan \(IRP-LTPP\) \(ca.gov\)](https://www.cpuc.ca.gov/IntegratedResourcePlanandLongTermProcurementPlan)

potential for overbuilding and abandoned projects. The CAISO recognizes, however, that there are significant differences among regions that will reasonably influence how they might plan for anticipated future generation beyond that in the interconnection queue. The Commission should not dictate the inputs, assumptions, or scenarios individual planning regions utilize, nor should it dictate the specific framework or processes planning regions should employ. Legitimate and relevant regional differences exist, and the Commission should allow each region to plan for future generation in a manner that will enable development of needed infrastructure on a timely, efficient, and cost-effective basis and produce a just and reasonable allocation of costs based on the specific circumstances in the region. Any direction regarding longer-term planning scenarios should be enabling, not prescriptive, because longer-term planning will require increased coordination with state policy makers.

Finally, the CAISO recommends the Commission proceed cautiously before imposing any requirement on transmission providers to increase their use of probabilistic measures to develop generation scenarios in the transmission planning process to justify the approval of transmission solutions. The CAISO transmission planning process uses a deterministic approach with multiple sensitivities and variable inputs and assumptions to account for low probability/high impact events.⁹² The CAISO transmission planning process reflects NERC and WECC planning standards, which require mitigation based on

⁹² As discussed in Section II, the CAISO uses a “least regrets” approach in evaluating a limited number of scenarios for purposes of identifying needed public policy transmission solutions. Those scenarios are usually based on resource portfolios provided by the CPUC.

defined contingency analyses. The CAISO supplements the NERC and WECC planning standards with the CAISO Planning Standards, which go beyond the NERC and WECC requirements by requiring mitigation for non-consequential load drop in high density urban load areas.⁹³ In these assessments, the CAISO conducts a risk assessment of various factors, including the topology of the network and impacts of extreme weather events. The CAISO considers low probability/high impact events and identifies transmission expansion that may be necessary.

The CAISO does not believe requiring a probabilistic analysis in the transmission planning process is necessary at this time. Effective probabilistic analysis will reflect historical data. The rapid rate of change associated with climate change and the severity of weather events may soon offer sufficient historical data to support undertaking probabilistic analyses, but the CAISO does not believe sufficient consensus exists among affected stakeholders at this time to utilize probabilistic tools in the transmission planning process. Rather than relying on probabilistic analysis, the CAISO recommends using and adjusting the current deterministic analysis to account for potential climate change risks.

Also, transmission planners may not have sufficient data and tools to justify the need for transmission infrastructure based on broader probabilistic assessments. For analysis to be meaningful, data requirements for the performance of transmission equipment should reasonably reach into individual elements. However, even if possible, extending that level of granularity to

⁹³ CAISO Planning Standards, Section 6.

existing tools far exceeds the level of complexity of the probabilistic resource planning tools, which are already a challenge for computing resources. Establishing the criteria that would justify approving specific transmission projects based probabilistic assessments would also be challenging. To the extent the Commission desires transmission planners to utilize more probabilistic assessments, the Commission should afford transmission providers sufficient flexibility to work with stakeholders to determine what will work best in their region and encourage collaboration with state regulators. The focus should be on specific areas of concern as opposed to considering a generic migration to probabilistic transmission planning approaches. The Commission should not be prescriptive.

b. Identifying Geographic Zones That Have Potential for High Amounts of Renewable Resource Development to Meet Increased Demand

The ANOPR seeks comment on whether the Commission should require transmission providers in each planning region to establish a process to identify geographic zones that have the potential for the development of large amounts of renewable generation and plan transmission to facilitate the integration of renewable resources in those zones.⁹⁴ The ANOPR also seeks comment on (1) how the Commission should structure this potential requirement and (2) potential best practices, analyses, models, and metrics that could be used to identify such

⁹⁴ ANOPR at P 54.

zones.⁹⁵ The ANOPR inquires whether state entities may provide input into the identification of renewable energy zones.⁹⁶ Finally, the ANOPR asks how transmission providers can assess whether there is sufficient interest in developing generation in potential zones and what safeguards might be adopted to ensure transmission is built only to satisfy expected transmission needs and not overly speculative commercial interests.⁹⁷

The CAISO supports identifying in the transmission planning process renewable energy zones that have the potential for development of large amounts of renewable transmission and planning transmission to facilitate the integration of renewable resources in such zones. This approach can promote optimal transmission development to access, aggregate, and efficiently integrate renewable resources on a wide-scale. As with other enhancements being considered in the ANOPR, the CAISO believes there are many ways to implement this potential requirement. Thus, the Commission should not prescribe any specific approach and should instead permit regions to implement any requirement based on their specific circumstances and processes.

In addition to transmission providers identifying renewable energy zones, the Commission should allow transmission providers to consider and utilize in the transmission planning process resource portfolios established by state regulators. The CAISO transmission planning process already employs such an approach.

⁹⁵ *Id.* at P 57.

⁹⁶ *Id.*

⁹⁷ *Id.*

The CAISO believes the active involvement and buy-in of state regulators in this process is critical to mitigate the risk of overbuilding and stranded costs and to facilitate state siting approvals for transmission accessing generation in renewable energy zones or locations reflected in state regulator-developed resource portfolios.

Inputs into the CAISO's transmission planning process include "Energy resource areas or similar areas identified by Local Regulatory Authorities."⁹⁸ The tariff also enables the CPUC or the CEC to identify Energy Resource Areas that can support LCRIFs.⁹⁹ Further, in assessing public policy transmission needs and solutions, the CAISO will consider among other factors:

- (a) commercial interest in the resources in the applicable geographic area (including renewable energy zones) accessed by potential transmission solutions as evidenced by signed and approved power purchase agreements and interconnection agreements; and
- (b) the results and identified priorities of the California Public Utilities Commission and Local Regulatory Authority resource planning processes.

As described in Section II.C *supra*, the CPUC provides the CAISO with base case resource portfolios to use in the CAISO's reliability and public policy transmission assessments.¹⁰⁰

⁹⁸ CAISO Tariff Section 24.3.1 (h).

⁹⁹ CAISO Tariff Section 24.46.3.2; see also CAISO Tariff Appendix A – Definition of Energy Resource Area.

¹⁰⁰ See the CPUC's 2019-2020 IRP Events and Materials webpage for additional details: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2019-20-irp-events-and-materials>.

Assessing commercial interest in developing generation in potential energy zones is challenging when looking beyond generation in the interconnection queue or generation with executed power purchase agreements. One option is to conduct an open season or solicit declarations of interest to determine interest in a new transmission line. This could be coupled with some form of minimum interest requirement.¹⁰¹ A transmission provider might also consider a deposit requirement. For example, one means of demonstrating commercial interest in a potential LCRIF is for a potential generating resource to pay a deposit equal to five percent of its pro rata share of the capital costs of the LCRIF.¹⁰² A subscription-type model can be an effective approach to gauging interest in the need for a new transmission project.

An effective proxy for commercial interest is to use resource portfolios developed by state regulatory authorities (in conjunction with the transmission provider) because they reflect the generation that the regulator desires its load serving entities to procure. An example of this approach is the CAISO's use of CPUC-developed resource portfolios to assess transmission needs to meet public policy directives. Ultimately, state and local regulatory commissions oversee the resource procurement of their load serving entities, and they can direct procurement from certain resource areas and resource types (and reject

¹⁰¹ In *Section II.B.4, supra*, the CAISO describes the minimum interest requirements for LCRIFs. The CAISO reminds the Commission that LCRIFs are radial, generation tie-line facilities, not networked transmission facilities. The Commission found the CAISO's treatment of LCRIFs was a just and reasonable variation from Order No. 2003's default generator interconnection policies. *Cal. Indep. Sys. Operator Corp.*, 121 FERC ¶ 61,286 at PP 2-3, 69 (2008).

¹⁰² CAISO Tariff Section 24.4.6.3.4 (b) (v).

procurement that does not meet their standards). This aligns state and local resource planning processes and the CAISO's transmission planning process, minimizing the stranded cost risk and facilitating receipt of necessary permits to construct. Utilizing resource portfolios developed by state and local regulators can also serve as a type of "safeguard" because such a framework makes it more likely transmission infrastructure will be built to satisfy expected transmission needs and not speculative commercial interests.

An option that warrants further consideration is incentivizing generation development that is tied to state-driven resource portfolios (or identified resource development zones) and the transmission facilities developed to access such locations. This might take the form of priority processing of interconnection applications for resources in preferred locations or requiring participant funding (or limited cost reimbursement) of interconnection-related upgrades for generation located outside of preferred areas. This approach would better align generation development with renewable resource portfolios and transmission plans. It would promote more optimal, streamlined, efficient, and cost-effective transmission development and limit ratepayer cost exposure for network upgrades associated with sub-optimally sited generation. The Commission should be open to Section 205 filings in which transmission providers seek to incent resource development that aligns with transmission being developed to access identified renewable resource zones or regulator-developed resource portfolios.

Finally, the Commission inquires as to what eligibility thresholds (*e.g.*, voltage, expected new generation) may be appropriate to determine whether a

proposed regional transmission facility should be part of the regional transmission planning and cost allocation process for transmission facilities built for anticipated future generation.¹⁰³ In the CAISO BAA, only transmission facilities at 200 kV and above are eligible for regional cost allocation. This requirement also applies to LCRIFs. As discussed in Section II.B.1.a., this voltage threshold requirement aligns with the design and operation of the CAISO system and recognizes that high voltage transmission facilities support and provide benefits to all customers on the CAISO grid. The LCRIF framework also has a mechanism to limit the risk to ratepayers associated with developing transmission for future generation. Specifically, the net investment in LCRIFs cannot exceed 15 percent of the aggregate net investment of all participating transmission owners.¹⁰⁴ Also, coordinating with state regulators to develop resource portfolios that can be used in the transmission planning process can mitigate the risk of planning for future generation.

There is no one-size-fits all model to address the challenges posed by planning transmission for future generation outside of the interconnection queue. The Commission should allow each region to work with its stakeholders to structure a workable framework to plan for future generation and determine any appropriate commercial interest requirements and safeguards.

¹⁰³ ANOPR at P 59.

¹⁰⁴ CAISO Tariff Section 24.4.6.3.2 (b) (2).

c. Incentivizing Regional Transmission Facilities

The ANOPR expresses a desire to prioritize regional transmission facilities that may have a greater-benefit-to-cost ratio than local alternatives and inquires whether incentives could be improved for the development of regional transmission facilities that are more cost-effective or efficient than local facilities.¹⁰⁵

As an independent system operator responsible for the overall transmission planning process, the CAISO does not see a need for additional incentives for regional transmission facilities. As indicated in Section II.A., the CAISO conducts the transmission planning activities for all upgrades and expansions of facilities under its operational control, which include transmission facilities at all voltage levels and at all locations on the system. Thus, the CAISO evaluates transmission expansion needs at both the local level and at the regional level. Although participating transmission owners oversee maintenance projects in their respective asset management processes, they have no authority to approve projects that expand the capacity of transmission facilities (other than incidentally). Only the CAISO can evaluate and approve capacity expansions and upgrades. If an asset management or maintenance project can be expanded or modified to address a CAISO-identified transmission need, the incremental portion of the asset management project would be subject to the CAISO's transmission planning process. Because the CAISO is responsible for both

¹⁰⁵ ANOPR at P 61.

regional and local transmission planning within its footprint, and the CAISO is required to approve the more cost-effective or efficient solution under its tariff, incentives are unnecessary to prioritize regional facilities over local facilities. Further, all regional transmission facilities except upgrades to existing facilities are subject to competitive solicitation. There is active competition for the right to build, own, and operate new regional transmission facilities in the CAISO footprint, and most applicants propose robust cost containment measures, including limitations on transmission incentives.

2. Enhanced Interregional or State-to-State Coordination

a. Requiring Interregional Planning Is Unnecessary to Achieve the Commission's Goals and May Be Counterproductive

The ANOPR inquires whether reforms to the current interregional transmission coordination process are needed or appropriate.¹⁰⁶ The ANOPR seeks comment on whether the requirement that a project first be approved in each neighboring region before being selected in the interregional coordination process constitutes a barrier to the selection and development of efficient, cost-effective interregional transmission projects.¹⁰⁷ The ANOPR asks whether the Commission should require joint interregional planning, rather than simply joint coordination for neighboring regions.¹⁰⁸ The ANOPR also asks whether there are core principles or approaches the Commission should consider when reviewing

¹⁰⁶ ANOPR at P 62.

¹⁰⁷ *Id.* at P 63.

¹⁰⁸ *Id.*

the existing approach to interregional planning. For example, the Commission queries whether it should establish interregional planning criteria or require consideration of renewable resource geographic zones during interregional coordination.¹⁰⁹

The push for mandatory interregional planning appears to be driven by the belief that transmission development between neighboring BAAs will occur only if the Commission mandates interregional planning. That is an incorrect assumption. The CAISO has approved four projects outside of the CAISO planning region: (1) the Delaney Colorado River Transmission Project, *i.e.*, the Ten West Link Project, from Arizona to California; (2) the Harry Allen-El Dorado Transmission line that runs through Nevada to an interconnection with the CAISO's existing transmission system; (3) an upgrade of the Imperial Irrigation District's S-Line; and (4) an upgrade of the Victorville-Lugo line in collaboration with the Los Angeles Department of Water and Power. The CAISO approved these projects in its regional transmission planning process. The S-Line and Victorville-Lugo line upgrades involved bilateral arrangements between the CAISO and neighboring BAAs, allocating capacity and cost responsibility on the upgraded facilities.

The CAISO acknowledges there is room to improve the interregional coordination process, but mandating interregional planning poses challenges and is not the best approach to facilitate interregional collaboration and develop

¹⁰⁹ *Id.*

interregional transmission projects. Instead, the CAISO recommends that the Commission pursue targeted modifications to improve the interregional coordination process, instill more rigor into it, and require regions to report regularly to the Commission regarding their interregional coordination activities and decision making. Below, the CAISO offers suggested enhancements to remove certain barriers and foster increased collaboration with state regulators. In evaluating the effectiveness of interregional coordination, the Commission should be mindful of four very important considerations (among others).

First, states, not the Commission, oversee resource procurement, and most siting for transmission lines is handled at the state and local level. Promoting interregional transmission is a well-intentioned concept, but if states direct their procurement efforts elsewhere or do not support a specific interregional project, the results can be problematic. Failure to align transmission development and state-directed resource procurement/development can (1) cause overbuilding (unnecessarily increasing costs to ratepayers) and stranded investment (associated with underutilized facilities), and (2) potentially jeopardize receipt of any necessary state siting approvals. It is critical that transmission development align with the resource development and procurement efforts of state and local regulatory authorities. Mandating interregional transmission planning may not be the most effective or efficient means of aligning resource procurement and state policies with transmission planning or facilitating state permitting authorizations.

Second, an interregional transmission project may not be the “more efficient or cost-effective” transmission solution for a region (or may not be needed at all by a region or a state in the region). There can be legitimate differences among regions and among states in a region. Those differences can be much greater when expanding from regional transmission planning to interregional transmission planning. For example, states may have different resource priorities for achieving their policy objectives or maintaining reliability. For some, it may be more efficient or cost-effective to develop remote in-state resources or distributed energy resources. Others may prefer a resource mix that includes a portfolio of out-of-state resources. Some states may have a robust transmission system, others may not. If a region does not need a specific interregional project in its regional transmission planning process, customers in that region should not be required to pay for the costs of the project. Also, as discussed in greater detail in Section III.A.2.b., the Commission should not allow a region to allocate the costs of a project identified in its regional transmission planning process involuntarily to another region.

Accordingly, the Commission should retain the requirement that an interregional project must first be selected in each neighboring region’s transmission planning process. Absent such a requirement, certain parties might seek to pursue an interregional transmission line that arguably provides some benefits to a neighboring region, but which the neighboring region does not need to meet its requirements (or that does not constitute the more efficient or cost-effective means of meeting the neighboring region’s transmission needs), and

then attempt to pass on the costs of the project to others in order to defray the cost impact on customers in the region where the line is needed. This is akin to involuntary cost allocation, which is unreasonable and inappropriate. State and regional buy-in is critical to enable efficient and cost-effective resource development/procurement and transmission development and facilitate timely siting authorizations.¹¹⁰

Third, mandatory interregional planning poses significant implementation challenges. Mandatory interregional planning could cover an extremely vast area and involve a large number of states and transmission providers (and all of their stakeholders). This could prove cumbersome and logistically challenging. Realistically, an individual interregional transmission project will not affect every state and transmission provider that comprises the interregional planning area; it likely will only affect a few transmission providers and states. Also, in regions like the west, many transmission providers are not public utilities under the FPA. Mandatory interregional planning seems a blunt, potentially “Swiss cheese” tool under these circumstances that will create additional burdens and layers of administration.¹¹¹ Mandatory interregional planning poses a perceived risk of costs being allocated to regions that disagree with the allocation, the level of benefits calculated for the region, and the need for the project. This could spawn increased contention in the planning process and potential litigation. Further, it

¹¹⁰ If an interregional project requires siting approvals from a state that does not support the project or believe the project is needed, the viability of the project is questionable.

¹¹¹ Regional transmission planning already involves a significant year-round effort and extensive commitment of resources. Mandatory interregional planning will increase the burden.

might deter constructive participation and collaboration in the process. The CAISO believes collaboration is key to effective interregional transmission development.

Fourth, the predetermined, formulaic cost allocation methodologies arising from Order No. 1000 compliance are a barrier to interregional transmission project development because they create the risk of unintended and inappropriate outcomes. This is particularly problematic when different regions have different benefit metrics. Today, there can be a mismatch of the approaches regions utilize to count transmission project benefits. Dissimilar benefit calculation methodologies among neighboring regions can cause one region to bear an unfairly disproportionate share of the costs of an interregional project because it calculated certain benefits that another region(s) did not consider in its evaluation.

Aligning the benefit metrics among regions would be an improvement, but it would not solve the problem entirely. For example, assume a scenario where three regions desire to share the capacity of a new transmission line equally to meet needs identified in their regions. Assume further that all three regions utilize an identical benefits calculation, e.g., the avoided cost of the regional transmission facility that would be built in lieu of the interregional project to meet the region's transmission need. Because the cost of the avoided transmission line in each region will vary, the *ex ante* cost allocation formula will cause each region to bear a different share of the costs of the interregional transmission line even though each region is receiving an equal share of the capacity (and only needs that equal share). An *ex ante* cost allocation scheme that can cause a party to

bear costs disproportionate to the capacity it is receiving is problematic and serves as a deterrent to transmission providers and states collaborating on interregional transmission projects.

Based on the CAISO's experience, interregional transmission development is best accomplished by a framework in which motivated transmission providers and states work together on agreed-to projects, with negotiated capacity sharing and cost allocation schemes. This type of approach may be preferable in regions like the west where a large number of transmission providers are not FPA public utilities. On the other hand, *ex ante* formulaic cost allocation methodologies and different benefit formulas among regions are a deterrent to interregional collaboration. The Commission should encourage transmission providers and neighboring states to identify mutually beneficial transmission solutions and allow them to negotiate fair and workable capacity and cost-sharing arrangements. Interested parties could utilize an open season/subscription approach to gauge interest in projects and pursue those projects with sufficient interest. The Commission's recent *Policy Statement on State Voluntary Agreements to Plan and Pay for Transmission Facilities*¹¹² is a positive step in that direction.

The CAISO believes there are some enhancements to interregional coordination the Commission should consider:

- To facilitate greater collaboration among states and transmission providers, the Commission should formally incorporate into the interregional coordination process a forum for states and transmission providers to identify potential resource development zones and potential transmission paths (and even transmission projects). This would encourage the identification and pursuit of

¹¹² 175 FERC ¶ 61,225 (2021).

potential projects that meet actual, identified interregional transmission opportunities, as opposed to developers submitting projects they desire to pursue and then waiting for the regions to determine if they need such projects.

- The Commission should adopt a cost allocation framework for interregional transmission that allocates the costs of new interregional facilities based on the amount of capacity a particular region needs from (and will have) in an interregional project, as opposed to allocating costs based on separate regional benefits calculations. This will ensure no region is allocated costs for an interregional transmission facility disproportionate to its share of the capacity in the new facility.¹¹³
- The Commission can require regions to submit an initial report regarding the specific interregional activities they have undertaken and are undertaking. Regions can supplement the report with biennial updates.¹¹⁴ At a minimum, the report should discuss the interregional projects the region has considered in the transmission planning process and the reasons for rejecting the projects.
- Finally, the Commission should promote increased interregional coordination by identifying and resolving any barriers to interregional transmission through the Joint Federal-State Task Force on Electric Transmission.¹¹⁵ The Task Force can also explore opportunities for states to coordinate to identify interregional transmission solutions and create potential cost allocation agreements.

A more collaborative and targeted approach to interregional coordination can accommodate state clean energy goals because it allows states and transmission providers to align transmission development with state-preferred resource portfolios and resource development in preferred renewable resource

¹¹³ At a minimum, the Commission must align benefit metrics across regions for purposes of interregional cost allocation. This approach is preferable to the existing approach that allows different regions to use different benefit metrics, but it is insufficient because a region can still bear a share of the costs of an interregional transmission line that is disproportionate to the amount of capacity it receives.

¹¹⁴ In the west, interregional coordination is conducted on a two-year cycle.

¹¹⁵ *Joint Federal-State Task Force on Electric Transmission*, 175 FERC ¶ 61,224 (2021).

areas. This approach will mitigate the stranded cost risk. It will also support more timely (and more certain) siting authorizations because the states will already have prioritized such transmission. It will provide greater certainty to load serving entities that regulatory authorities will approve their resource procurement plans and permit recovery of the of transmission costs incurred to effectuate such procurement.

Absent strong state buy-in for an interregional transmission project, the stranded cost (and overbuilding) risk and the risk of not obtaining necessary siting authorizations increase greatly. Further, targeted collaboration and interregional project development, in conjunction with interregional coordination, is much more efficient than unwieldy mandatory interregional planning. The Commission should adopt measures to facilitate coordination between states and transmission providers.

b. The Commission Should Not Allow Regions to Allocate the Costs of Projects in their Regions Involuntarily to Neighboring Regions

Beyond interregional planning, the Commission asks whether it should identify benefits and allocate costs to one region for a project selected in a neighboring region’s regional transmission planning process.¹¹⁶

In Order No. 1000, the Commission adopted Cost Allocation Principle 4, which provided that a planning region “must allocate costs solely within that transmission planning region unless another transmission planning region

¹¹⁶ *Id.*

voluntarily agrees to assume a portion of those costs.”¹¹⁷ The Commission should not abandon that core principle.

As the Commission recognized in Order No. 1000:

allowing one region to allocate costs unilaterally to entities in another region would impose too heavy a burden on stakeholders to actively monitor transmission planning processes in numerous other regions, from which they could be identified as beneficiaries and be subject to cost allocation. Indeed, if the Commission expected such participation, the resulting regional transmission planning processes would amount to interconnectionwide transmission planning with cost allocation, albeit in a highly inefficient manner.¹¹⁸

There are no changed circumstances since Order No. 1000 that would justify allowing one region to allocate the costs of projects approved in their regional transmission planning processes involuntarily to entities in other planning regions.

There are reasons other than those articulated by the Commission in Order No. 1000 why such involuntary allocation of the costs of regional projects is unreasonable and inappropriate.

Allowing involuntary cost allocation will make transmission planning processes more challenging and contentious, promote disputes, and increase the litigation risk. Stakeholders in a region might seek to pass the costs of regional transmission projects needed in their region onto entities in other regions in order to defray the cost impact of a project on them. Entities in neighboring regions will then have to participate actively in other regions’ planning processes because of the risk they may be allocated costs arising from such planning processes. This will also increase transmission planner workloads because, in addition to

¹¹⁷ Order No. 1000 at P 657.

¹¹⁸ *Id.* at P 660.

calculating the benefits regional projects provide to regional stakeholders, they will also have to calculate the benefits that will potentially accrue to entities in other regions. This approach essentially would allow transmission planners not only to plan for their regions, but for neighboring regions as well. This is inappropriate. Transmission planners in one region will be less familiar with, and less knowledgeable of, the operations and specific circumstances and needs in other planning regions.

Involuntary cost allocation can also cause a neighboring region to bear the costs of a transmission project in a different region even though it does not need the project. This could potentially “strand” capacity and unnecessarily increase costs for ratepayers in the neighboring region. For example, a regional transmission line may access renewable resources that could be delivered to another region to meet that region’s RPS goals. However, if the “sink” region already has more than enough transmission and generation to meet its public policy goals, and its state regulators have directed load serving entities to procure energy from other locations, the regional project would not be needed to meet such public policy objectives. Under these circumstances, the “sink” region should not bear the costs of such line.

Involuntary cost allocation also raises many difficult questions left unanswered by the ANOPR. What happens if multiple regions approve regional projects that essentially provide the same benefit to another region? What happens if the region being allocated costs from a transmission project in another region identifies a more cost-effective solution to meeting its transmission need?

How will regions enforce their allocation of costs to neighboring regions? How will neighboring regions re-allocate any costs to their customers, particularly if the “benefits” do not accrue to the entire region? What prevents stakeholders in neighboring regions from seeking to “reciprocate” and push for approval of regional projects that also provide benefits to other regions so they can allocate the costs to the other region. Involuntary cost allocation is a highly inefficient, ineffective, burdensome, chaotic, and problematic proxy for interregional coordination and voluntary collaboration between neighboring states and BAAs. The Commission should reject this concept just as it did in Order No. 1000.

c. Transmission Planning Processes Should Welcome State Participation in Developing and Evaluating Assumptions and Inputs

Finally, the ANOPR seeks comment on whether and how states can participate in developing and evaluating assumptions or criteria used for regional transmission planning, interregional coordination, and cost allocation.¹¹⁹

The CAISO strongly supports collaboration with state authorities in the transmission planning process. There are numerous ways in which states can effectively participate in and contribute to regional transmission planning processes. As discussed above, the CAISO employs one approach, but other models can also work effectively. The Commission should respect unique regional approaches to facilitate effective state participation in the transmission

¹¹⁹ ANOPR at P 64.

planning process and should not impose any “one-size-fits-all” model on planning regions.

In Section II.C, the CAISO describes in greater detail how it works closely with state and local regulatory authorities and involves them in developing assumptions used in the planning process. On its website, the CAISO has posted a document entitled *Alignment of Key Infrastructure Planning Processes by CPUC, CAISO, and CEC Staff*.¹²⁰ It describes how the three entities align three core processes -- Integrated Energy Policy Plan, Integrated Resource Plans (formerly the Long-Term Procurement Plan proceeding), and the transmission planning process -- to develop planning assumptions and scenarios used in the infrastructure planning for the upcoming year.¹²¹ Most notably, the CAISO collaborates with the CEC and CPUC on key inputs into the transmission planning process. The CAISO coordinates with the CEC on the long-term demand forecast the CAISO uses for transmission planning purposes. The CAISO coordinates with the CPUC on resource procurement plans that serve as inputs into the transmission planning process. As discussed in Section II.C., the CAISO and CPUC have formalized their resource planning coordination process in a MOU. The CAISO considers and incorporates CPUC-developed generation portfolios into the transmission planning process and uses them to determine reliability and public policy transmission needs and identify appropriate transmission solutions.

¹²⁰ http://www.caiso.com/Documents/TPP-LTPP-IEPR_AlignmentExplanatoryText.pdf

¹²¹ The CAISO has also posted an alignment diagram, which is available at http://www.caiso.com/Documents/TPP-LTPP-IEPR_AlignmentDiagram.pdf

CPUC siting and permitting processes then give substantial weight to CAISO-approved transmission projects that are consistent with the identified transmission needs based on the CPUC-developed portfolios. Thus, effectively integrating state authorities into the transmission planning process can better align transmission planning with resource procurement, minimize the risk of stranded costs, and facilitate siting decisions.

3. Integrating Transmission Planning and Generator Interconnection Processes

In the ANOPR, the Commission asks whether there should be closer integration, or even optimization, between the transmission planning and generator interconnection processes.¹²² The ANOPR asks whether the Commission should require the two processes run on concurrent, coordinated timeframes and how information from the generator interconnection process can be timely integrated into the regional transmission planning process.¹²³ Finally, the ANOPR seeks comment on whether and how transmission providers can incorporate anticipated future generation, including resources in the interconnection queue, into regional planning processes.¹²⁴

The CAISO supports greater integration between the transmission planning and generator interconnection processes. Based on the CAISO's experience with integrated processes, it is more efficient to build major transmission facilities to

¹²² ANOPR at P 66.

¹²³ *Id.*

¹²⁴ *Id.* at P 67.

access renewable energy areas through the transmission planning process than the generator interconnection process. The transmission planning process can use interconnection queue data and procurement targets to identify, assign, and finance the typical large network upgrades that are frequently cost-prohibitive for interconnection customers to finance. However, the Commission should not prescribe any specific rules or mechanisms for better integrating the two process. There is no need to require the two process run on identical, concurrent, or coordinated timeframes, and directing such could unduly and unnecessarily disrupt existing processes. Each RTO/ISO's transmission planning processes and interconnection processes are dependent on a number of local factors, especially local procurement cycles.

For example, the CAISO conducts an annual transmission planning process, which runs about 15 months. The CAISO opens a queue cluster annually, and although the generator interconnection study process takes 24 months, it is conducted in two discrete steps each of which is aligned with the annual transmission planning process. Once the study is completed, interconnection customers then achieve commercial operation in months or often years depending on their network upgrade requirements, power purchase agreements, supply chain, and construction timeline. Generation also comes online each year through modification and repowering processes. There is no way the generator interconnection and transmission planning processes can be perfectly aligned from a timing perspective given their different steps and requirements. Nor is there a need for the two processes to run perfectly

simultaneously. So long as both processes can inform one another on needs, solutions, and timing, developers and transmission owners benefit from the efficiency of coordinated processes. The Commission should allow each transmission provider to integrate the two processes in a manner that best fits the specific circumstances of the region. The CAISO describes below its mechanism for integrating the transmission and generator interconnection processes.

The CAISO uses information from the generator interconnection process as an input into the transmission planning process. The CAISO's Generator Interconnection and Deliverability Allocation Procedures (GIDAP) integrates the generator interconnection and transmission planning processes.¹²⁵ The principal objective of the GIDAP is to ensure the CAISO can identify and approve all major transmission additions and upgrades to be paid for by transmission ratepayers under a single comprehensive process—the transmission planning process—rather than developing some projects through the transmission planning process and others through the generator interconnection process. The most significant implication of GIDAP on the transmission planning process relates to the planning of policy-driven transmission to achieve California's renewables portfolio standard. In that context, the CAISO plans the transmission upgrades to enable the deliverability of the renewable generation forecast in the base renewables portfolio scenario provided by the CPUC, unless specifically noted otherwise.

¹²⁵ CAISO Tariff Appendix DD.

Through the GIDAP, the CAISO allocates the resulting MW volumes of transmission plan deliverability (TPD) to the proposed generating facilities in each area that are the most viable based on a set of project development milestones specified in the tariff.¹²⁶ Per the GIDAP, the CAISO calculates the available TPD in each year's transmission planning process in areas where the generation in the interconnection queue exceeds the available deliverability, as identified in the generator interconnection cluster studies.¹²⁷ In areas where eligible generation in the interconnection queue is less than the available deliverability, the transmission plan deliverability is sufficient. Interconnection customers proposing generating facilities not allocated TPD, but that still want to build their projects and obtain deliverability status, fund needed delivery network upgrades at their own expense without being eligible for cash reimbursement from ratepayers.

The GIDAP studies for each queue cluster also provide information that supports future planning decisions. Each year, the CAISO validates the capability of the planned system to meet the needs of renewable generation portfolios that have already been provided. The CAISO augments this information with information about how much additional generation can be deliverable beyond the previously-supplied portfolio amounts with the results of the generator queue cluster studies. The CAISO provides the results to the CPUC for its consideration in developing the next round of renewable generation portfolios.

¹²⁶ *Id.* at Section 8.9.

¹²⁷ *Id.*

B. Identification of Cost and Responsibility for Regional Transmission Facilities and Interconnection-Related Network Upgrades

1. Cost Responsibility for Transmission Facilities Approved in the Regional Transmission Planning Process

a. Background: Cost Responsibility for CAISO Regional Transmission Facilities

To place the CAISO's comments regarding cost responsibility for transmission upgrades in context, the CAISO briefly describes below its existing methodology for allocating the costs of transmission facilities approved in the transmission planning process.

All networked transmission facilities 200 kV and above are considered regional, high voltage facilities, and the CAISO allocates the costs of such facilities system-wide, on a postage-stamp basis. Thus, whether the justification for a newly approved network transmission facility at 200 kV or above is reliability, public policy, or economics, the costs of the transmission facility are recovered through the CAISO's single High Voltage Access Charge (also known as the Regional Access Charge), which is a volumetric rate assessed to market participants who withdraw energy from the grid.¹²⁸ The CAISO allocates the costs of all network transmission facilities below 200 kV to the applicable Participating TO, who recovers the costs of such lower voltage facilities from its customers that

¹²⁸ CAISO Tariff Section 26.1 (a). Utility Distribution Companies and Metered Subsystem Operators that are serving Gross Load in a PTO Service Territory pay the access charge based on their Gross Load. *Id.* CAISO Tariff Section 26.1 (c). Wheeling customers pay the Wheeling Access Charge, which is the same volumetric rate as the Regional Access Charge for exports. CAISO Tariff Section 26.1.4.

use the low voltage facilities. The Participating TO establishes its low voltage usage charge rate in its transmission owner tariff (TO Tariff) on file with the Commission and collects it, using data the CAISO provides, from the customers of its local service area that actually withdraw energy from those low voltage facilities.¹²⁹

The CAISO's transmission cost allocation scheme recognizes that the high voltage transmission lines on the CAISO grid perform a backbone function that supports regional flows of bulk energy throughout the system; whereas, the lower voltage facilities are essentially local facilities designed (1) to deliver energy already transmitted over the high voltage lines to local customers in load pockets, or (2) to deliver energy from smaller-scale, individual generating units used to serve local areas. The high voltage facilities support the attachment and delivery of bulk energy throughout the system. They also enable the CAISO to maintain reliability on the overall system, support the import and export of power, provide access to remote resource areas, and facilitate reserve sharing among load serving entities.

Regarding cost responsibility for LCRIFs, LCRIGs bear their pro rata share of the costs of an LCRIF going forward as they come on-line.¹³⁰ The remaining costs of the LCRIF are reflected in the Participating TO's regional transmission

¹²⁹ As indicated above, transmission facilities below 200 kV that extend beyond the footprint or service territory of the PTO are considered Regional Transmission Facilities, not Local Transmission Facilities.

¹³⁰ CAISO Tariff Section 26.6.

revenue requirement and recovered through the CAISO's high voltage (regional) access charge.¹³¹

b. The Commission Should Not Disrupt Existing Cost Allocation Frameworks that Already Allocate Costs “Roughly Commensurate” with Benefits

(1) A Project-Specific Regional Transmission Cost Allocation Methodology Can Provide a Workable Framework for Identifying Transmission Beneficiaries

The ANOPR suggests that with the greater deployment of renewable resources, regions utilizing a project-specific regional transmission cost allocation method potentially may not distribute benefits evenly across regions.¹³² For example, the ANOPR states that customers located outside of zones where renewable resources are located may reap the reliability and economic benefits of high voltage transmission projects accessing such zones. The ANOPR seeks comment on whether current regional transmission costs allocation methodologies adequately address these circumstances and provide a workable framework for identifying beneficiaries and sharing benefits.¹³³

For more than 10 years the CAISO successfully has been planning its transmission system to access and integrate increasing quantities of renewable resources to support achievement of California's robust RPS and climate goals. The CAISO approves and allocates the costs of transmission projects (including public policy transmission projects) on a project-specific basis. As indicated in

¹³¹ *Id.*

¹³² ANOPR at P 88.

¹³³ *Id.*

Section III.B, the CAISO allocates the costs of all high voltage transmission facilities, including facilities intended to access and integrate renewable resources, on a system wide basis to all customers. Thus, the CAISO's project-specific cost allocation methodology does not pose the potential problem identified in the ANOPR, *i.e.*, that customers located outside of zones where the renewable resources are located are not bearing their fair share of the costs of the high voltage transmission facilities accessing such resources. Accordingly, the ANOPR provides no basis to overturn the CAISO's project-specific review and transmission cost allocation framework.

(2) A Portfolio Approach to Allocating Transmission Costs Is Unnecessary In All Planning Regions

The ANOPR states that most regional cost allocation methods do not consider whether a regional transmission facility addresses more than one category of need, thus providing more than one category of benefit. The ANOPR claims that although regional transmission planning processes consider transmission needs driven by reliability, economic considerations, and public policy requirements, transmission planners generally consider these in a silo from one another, and the cost allocation for regional transmission facilities is similarly separated by transmission type.¹³⁴ The ANOPR queries whether this framework potentially fails to consider the full suite of benefits that transmission facilities provide and thus fails to allocate the costs of such facilities “roughly

¹³⁴ *Id.* at P 85.

commensurate” with the benefits.¹³⁵ The ANOPR seeks comment on whether a portfolio approach¹³⁶ that considers a group of transmission projects that collectively provide reliability, economic, and public policy benefits, is better able to identify more efficient and cost-effective transmission facilities compared to an approach that focuses only on individual transmission facilities or individual benefits.¹³⁷

As an initial matter, the CAISO seeks to correct the apparent misconception in the ANOPR that just because a transmission provider has separate categories of transmission for reliability, economics, and public policy -- and has no distinct multi-benefit category of transmission -- it necessarily considers these transmission benefits in a silo separate and apart from each other and cannot approve projects that provide multiple benefit streams. Although the CAISO’s tariff does not use the term “multi-value project,” the CAISO’s transmission planning process allows the CAISO to assess the need for projects that provide multiple types of benefits. As discussed in Section II.A., *supra*, although the CAISO has separate transmission categories for reliability, economics, and public policy, it reviews needed transmission solutions on an iterative, “layered” basis, which enables the CAISO to identify and approve transmission projects that provide multiple types of benefits (*e.g.*, reliability, public policy, and economic).

¹³⁵ *Id.*

¹³⁶ The ANOPR identifies examples of portfolio approaches as including MISO’s Multi Value Project (MVP) method and SPP’s Balanced Portfolio framework. ANOPR at P 90. These approaches consider multiple projects together and consider the collective benefits of the projects for purposes of regional transmission cost allocation.

¹³⁷ *Id.* at P 91.

The CAISO first evaluates transmission solutions to meet reliability needs, then evaluates transmission to meet public policy needs, and, finally, evaluates transmission to meet economic needs. However, the CAISO can “revisit” any previously identified solution in its subsequent evaluation. For example, the CAISO might identify an initial solution that is the more cost-effective solution to meet a reliability need, but it can consider a new solution in its subsequent economic analysis. There the CAISO may identify an economic transmission solution that both provides economic benefits and meets the previously identified reliability need (or public policy need). Thus, the CAISO’s iterative, layered approach can result in the CAISO approving a transmission project with multiple benefits even though the CAISO would label such project an economically-driven project rather than a multi-value project. The CAISO does not require a separate Multi Value Project category of transmission to achieve this result. The Commission should not focus on the label ascribed to a specific transmission project, it should focus on the actual process the transmission provider follows to approve the transmission project. The CAISO recognizes that its existing tariff language may cause confusion for stakeholders, and the CAISO is open to exploring tariff revisions that state explicitly the CAISO’s ability to approve transmission projects with multiple categories of benefits.

The ANOPR expresses concern that cost allocation for regional transmission facilities is separated by transmission type. That concern does not apply to the CAISO. As discussed above, it does not matter how the CAISO labels a high voltage transmission project for cost allocation purposes because

the CAISO allocates the costs of all high voltage transmission facilities system wide regardless of whether the project provides reliability, economic, or public policy benefits (or some combination thereof). In other words, the CAISO does not have separate cost allocation methodologies for each distinct category of transmission.¹³⁸

The CAISO recognizes that not all transmission providers are similarly situated to the CAISO. Multi Value Project and Balanced Portfolio models may be beneficial in transmission regions like MISO and SPP that are comprised of many states (that may have different needs and interests) and span long distances. The MVP and Balanced Portfolio approaches essentially provide a means for transmission providers to allocate the costs of a portfolio of projects to the entire region even though the specific benefits of an individual project within the portfolio may accrue more to a specific zone within the overall system. However, such an approach is unnecessary for the CAISO to achieve the objectives identified in the ANOPR. The CAISO already allocates the costs of all high voltage projects system wide because they provide system wide benefits given the unique planning, design, scope, and operation of the CAISO's transmission system. The Commission should not take any actions in this proceeding that would undermine the CAISO's transmission planning and cost allocation processes that are successfully supporting achievement of California's climate goals. Unnecessarily changing well-functioning planning processes and cost allocation methodologies could increase contention in planning processes, promote litigation, and

¹³⁸ *Id.* at P 85.

potentially delay or disrupt efforts to obtain approvals for, and develop, the transmission infrastructure needed to meet ambitious climate (and other) goals.

(3) A Major Overhaul of the Reliability, Economic, and Public Policy Benefits Framework Is Unnecessary

The ANOPR asks how transmission providers currently define transmission benefits. In particular, the ANOPR, asks whether transmission providers merely calculate adjusted production costs or go beyond calculating adjusted production costs for purposes of determining benefits.¹³⁹ The ANOPR inquires whether the existing approach to cost allocation for regional transmission facilities fails to consider the “full suite” of their benefits and beneficiaries, including “hard to quantify benefits.” The ANOPR asks what benefits should be considered other than reliability, economic, and public policy benefits. In particular, the ANOPR asks what types of benefits provided by transmission facilities needed for anticipated future generation are relevant for cost allocation purposes and how transmission providers can quantify such benefits.¹⁴⁰ The ANOPR also seeks comment on whether it is appropriate to credit benefits that the transmission provider cannot credibly quantify.¹⁴¹

¹³⁹ ANOPR at P 93.

¹⁴⁰ *Id.* at PP 90, 94.

¹⁴¹ *Id.* at P 96.

(a) How the CAISO Defines Transmission Benefits

The CAISO's transmission planning process considers a broad range of transmission benefits in determining whether it needs a new a transmission facility.

Reliability Benefits

Reliability projects include all projects needed to maintain system reliability consistent with the NERC national reliability standards, WECC regional reliability standards, and the CAISO's own CAISO Planning Standards, which go beyond the NERC and WECC standards. The CAISO Planning Standards allow the CAISO to plan to a higher standard than NERC Reliability Standard TPL-001-4 for high population density urban load areas. Section 6 of the CAISO Planning Standards, entitled *Planning for High Density Urban Load Area Standard*, includes Section 6.1--Local Area Planning, which states:

A local area is characterized by relatively small geographical size, with limited transmission import capability and most often with scarce resources that usually can be procured at somewhat higher prices than system resources. The local areas are planned to meet the minimum performance established in mandatory standards or other historically established requirements, but tend to have little additional flexibility beyond the planned-for requirements taking into account both local generation and transmission capacity. Increased reliance on load shedding to meet these needs would run counter to historical and current practices, resulting in general deterioration of service levels.

For local area long-term planning, the ISO does not allow non-consequential load dropping in high density urban load areas in lieu of expanding transmission or local resource adequacy capability to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems.

- In the near-term planning, where allowed by NERC standards, load dropping, including high-density urban load, may be used to bridge the gap between real-time operations and the time when system reinforcements are built.
- In considering if load shedding, where allowed by NERC standards, is a viable mitigation in either the near-term, or the long-term for local areas that would not call upon high density urban load, case-by-case assessments need be considered. Assessments should take in consideration, but not limited to, risk assessment of the outage(s) that would activate the SPS including common right of way, common structure, history of fires, history of lightening, common substations, restoration time, coordination among parties required to operate pertinent part of the transmission system, number of resources in the area, number of customers impacted by the outage, outage history for resources in the area, retirement impacts, and outage data for the local area due to unrelated events.

For local area long-term planning, the CAISO does not allow non-consequential load dropping in high-density urban load areas in lieu of expanding transmission or local resource capability to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems. A High Density Urban Load Area is an Urbanized Area, as defined by the US Census Bureau, with a population over one million persons.

Section 7 of the CAISO Planning Standards, entitled *Extreme Event Reliability Standard*, allows the CAISO to plan for extreme events in defined circumstances. It states:

The requirements of NERC TPL-001-4 require Extreme Event contingencies to be assessed; however, the standard does not require mitigation plans to be developed for these Extreme Events. The ISO has identified in Section 7.1 below that the San Francisco Peninsula area has unique characteristics requiring consideration of corrective action plans to mitigate the risk of extreme events. Other areas of the system may also be considered on a case-by-case basis as part of the transmission planning assessments.

Section 7.1 of the CAISO Planning Standards sets forth the *San Francisco*

Peninsula –Extreme Event Reliability Standard:

The [CA]ISO has determined through its Extreme Events assessments conducted as part of the annual transmission planning process, that there are unique characteristics of the San Francisco Peninsula that require consideration for mitigation as follows:

- high density urban load area,
- geographic and system configuration,
- potential risks of outages including seismic, third party action and collocating facilities; and
- challenging restoration times.

Economic Benefits

Under section 24.4.6.7 of its tariff, the CAISO can approve economically-driven transmission facilities if their benefits outweigh their costs. Under section 24.4.6.7, an economic benefit may include a “calculation of any reduction in production costs, congestion costs, transmission losses, and capacity or electric supply costs resulting from improved access to cost-effective resources.” The CAISO determines economic benefits by applying its TEAM methodology. The general categories of benefits under TEAM include:

- **Production Benefits:** Changes in the net ratepayer payment based on production cost simulation due to the proposed transmission upgrade;
- **Resource Adequacy/Capacity Benefits:** Increasing importing capability into the CAISO or a local constrained area. Addressing capacity shortfalls. Decreased transmission losses and increased generator deliverability contribute to capacity benefits as well;

- **Public-Policy Benefits:** Reducing the cost of reaching renewable energy targets by facilitating the integration of lower cost renewable resources in remote areas, or by avoiding over-build;
- **Renewable Integration Benefits:** Interregional transmission upgrades help mitigate integration challenges, such as over-supply and curtailment, by allowing sharing energy and ancillary services among multiple balancing authority areas; and
- **Avoided Costs of Other Projects:** If a reliability or policy project can be avoided because of the economic project under study, then the avoided cost contributes to the benefits of the economic project.¹⁴²

Public Policy Benefits

The CAISO’s public policy category of transmission takes a very broad perspective regarding transmission benefits. Public policy transmission solutions are those needed to enable the grid infrastructure to support state, federal, and local policy requirements and directives.¹⁴³ It allows the CAISO to approve transmission facilities that will access future generation needed to meet public policy goals. The tariff expressly recognizes accessing resources in applicable geographic areas (including renewable energy zones) and resource development/procurement portfolios arising out of integrated resource planning processes.¹⁴⁴ The primary focus of the CAISO’s public policy analysis has been on identifying transmission needed to access and effectively integrate new renewable resources needed to meet California’s RPS and GHG goals. As discussed above, in evaluating public policy transmission solutions, the CAISO

¹⁴² *Id.* at 2.

¹⁴³ CAISO Tariff Section 24.4.6.6.

¹⁴⁴ *Id.*

considers the transmission needs of anticipated future generation and identifies future transmission and generation scenarios.

(b) There Is Sufficient Basis to Allocate the Costs of High Voltage Transmission Facilities Needed to Accommodate Anticipated Future Generation on a System Wide Basis

Reliability, economics, and public policy capture most of the major types of benefits a transmission planner should consider in determining whether to approve a new transmission facility and how to allocate the costs of such facility. In particular, they are important benefits provided by transmission facilities needed for anticipated future generation; although, such facilities may provide other benefits. Most benefits should fall into one of these general categories if the Commission does not take an overly narrow view of their scope.

Resilience is another transmission benefit that has received significant attention recently following several extreme weather events. However, there is no clear, standardized definition of resilience. Resilience is related to reliability but, unlike the national reliability standards, there are no formal, generally applicable resilience standards and criteria. Further, there can be significant differences among regions to assess and achieve resilience. Different regions face different resilience risks, threats, and operational challenges. They also have different resource mixes, load curves, policy choices, and topography. Effective resilience criteria should account for regional differences, and entities in each region should have the flexibility to determine what capabilities are needed to maintain resilience based on the specific circumstances in their region.

The lack of clear, objective resilience criteria may pose a risk to transmission providers in their efforts to consider, justify, approve, and allocate the costs of transmission projects that provide resilience benefits. Accordingly, the Commission should define resilience and promulgate general resilience criteria and standards that can apply nationwide. The Commission should also authorize transmission providers to treat resilience benefits as a separate driver for approving new transmission infrastructure in their transmission planning processes. Adopting clear and specific resilience criteria will (1) promote transmission providers' approval of transmission facilities that support system resilience, (2) justify allocating the costs of such transmission facilities on a regional basis, (3) help avoid stakeholder disputes over whether transmission planners can consider resilience in calculating transmission project benefits, and (4) facilitate the receipt of siting authorizations.

In addition to considering any generally applicable resilience standards, the Commission should authorize and encourage planning regions to explore and adopt resilience standards that address the specific resilience challenges in their regions. For example, the CAISO Planning Standards, which the CAISO tariff references, specify certain resilience-related planning criteria (*e.g.*, extreme event) that go beyond the NERC reliability standards. These objective criteria explicitly authorize the CAISO to approve transmission projects to address specified certain resilience concerns and help justify the need for such projects in state siting and permitting proceedings.

The ANOPR identifies some benefits provided by regional transmission

facilities needed to meet anticipated future generation and provide access to renewable energy zones.¹⁴⁵ However, the CAISO believes the ANOPR ignores the most basic benefit these facilities provide -- they will connect the existing transmission system to new generation supply areas, providing access to such supply to all load serving entities (LSEs) on the integrated system. Not only will such new transmission allow LSEs on an integrated transmission system to meet their (growing) load obligations and reserve requirements (arising from vehicle electrification and other causes), they will facilitate LSEs meeting RPS goals and promote achievement of federal and state climate laws, thus benefitting a broad range of customers. These benefits support a broad allocation of the costs of such transmission facilities on an integrated system.

In addition to these benefits and the benefits recognized in the ANOPR, such facilities will promote increased competition, fuel diversity, increased market liquidity, system resilience, and optimal resource and infrastructure development. They will increase system dependability and reduce the likelihood and severity of outages. Precedent has long recognized that needed transmission lines providing access to identified supply areas provide system wide benefits and, as such, it is appropriate to allocate the costs of such facilities on a broader basis to customers on an integrated transmission system.¹⁴⁶ The inability to quantify precisely the

¹⁴⁵ ANOPR at P 94.

¹⁴⁶ *Illinois Commerce Comm'n v. FERC*, 721 F. 3d 764, 772-75 (7th Cir. 2013) (High voltage transmission facilities moving energy from remote wind development regions benefit all customers); *Midwest Independent Transmission Sys. Operator, Inc.*, 132 FERC ¶ 61,201 at PP 208-10 (2010) (regional benefits accrue from a project that efficiently integrates new generation resources to meet documented energy policy mandates and laws); *Southwest Power Pool, Inc.* 131 FERC ¶ 61,252 at P 79 (2010) (Extra High Voltage lines provide all SPP members access to a

reliability benefit or supply access benefit of a new high voltage line accessing renewable energy resource areas does not mean such lines provide no regional benefit. Further, the Commission is not required to calculate benefits down to the last penny; it need only provide an articulable and plausible reason that the benefits are roughly commensurate with costs allocated to the entity.¹⁴⁷ The Commission should be able to allocate broadly the costs of integrated transmission facilities connected to geographic zones that have the potential for the development of large amounts of renewable generation consistent with this guidance.

wider range of generation resources, leading to more cost-effective generation dispatch and flexibility in meeting additional state and federal policies); *Cal. Indep. Sys. Operator Corp.*, 121 FERC ¶ 61,286 at P 39 (2007) (LCRIF facilities will assist the state in meeting RPS goals); *Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,061 at P 78 (2007) (interconnection facilities accessing remote resource zones will (1) promote supply diversity and competition in the marketplace, as well as provide access to new source of supply that will be available to all LSEs, (2) promote efficient, cost effective development of infrastructure, and (3) meet future demand requirements and RPS requirements in a cost-effective manner). *See also, Old Dominion Elec. Coop. v. FERC*, 898 F.3d 1254, 1260 (D.C. Cir. 2018) (recognizing that a regional benefit of high voltage facilities includes improved access to generation).

¹⁴⁷ *Illinois Commerce Comm'n v. FERC*, 756 F.3d 556, 562-64 (7th Cir. 2014); *Illinois Commerce Comm'n v. FERC*, 576 F.3d 470, 477 (7th Cir. 2009). *See also Midwest ISO Transmission Owners v. FERC*, 373 F.3d 1361, 1369 (D.C. Cir. 2004) (“[W]e have never required a ratemaking agency to allocate costs with exacting precision . . . It is enough, given the standard of review under the APA [Administrative Procedure Act], that the cost allocation mechanism not be ‘arbitrary and capricious’ in light of the burdens imposed or benefits received.”) (citation omitted).

(c) If the Commission Seeks to Allocate Transmission Costs to Interconnection Customers, It Should Do So in a Manner that Does not Unduly Disrupt Existing, Well-Functioning Cost Allocation Frameworks

The ANOPR inquires whether transmission providers should treat interconnection customers as beneficiaries of transmission facilities built before their interconnection and allocate transmission costs to interconnection customers.¹⁴⁸

As discussed in greater detail in Section III.B.3, most interconnection customers in the CAISO do not “fund” network upgrade costs. Interconnection customers only *finance* network upgrade costs, and the participating transmission owners refund their payments over a five-year period.¹⁴⁹ Thus, the CAISO’s cost responsibility framework does not present the situation identified in the ANOPR where subsequent interconnection customers are “free-riding” on transmission upgrades paid for out-of-pocket by preceding interconnection customers. Although interconnection customers do not finance the large transmission upgrades that result from the transmission planning process, this rule does not result in free-riding. To the contrary, it incentivizes interconnection customers to select sites with new capacity and network upgrades already planned. These network

¹⁴⁸ ANOPR at PP 98-99.

¹⁴⁹ In other words, the interconnection customer provides the initial funds to finance the construction of its required interconnection facilities and network upgrades (up to its cost allocation for shared network upgrades). The transmission owner reimburses the interconnection customer in cash plus interest within five years of commercial operation, and the transmission owner then includes those costs in its transmission revenue requirement. As such, interconnection customers upfront *finance* construction, but ultimately ratepayers *fund* construction.

upgrades are sufficiently large they affect all the interconnection customers in the area.¹⁵⁰ As such, no single interconnection customer gets an advantage in obtaining a power purchase agreement, which is the key factor in whether the interconnection customer's project achieves commercial operation.

If the Commission decides to allocate transmission costs to interconnection customers it should only do so in a manner that aligns with and does not unduly disrupt existing well-functioning cost allocation schemes.

2. Cost Responsibility for Interconnection-Related Network Upgrades

a. Participant Funding of Network Upgrades for Generator Interconnections

The ANOPR asks whether the participant-funding approach to network upgrades is prudent.¹⁵¹ Participant funding for interconnection-related network upgrades refers to the direct assignment to a particular interconnection customer of the costs of interconnection-related network upgrades that would not be needed but for the interconnection.¹⁵² Although the interconnection customer pays for the costs of the interconnection-related network upgrades upfront, the transmission provider must reimburse the total amount that the interconnection customer paid for interconnection-related network upgrades, plus interest, as

¹⁵⁰ For example, the CAISO tariff distinguishes between Local Delivery Network Upgrades (which interconnection customers finance) and Area Delivery Network Upgrades (which result from the transmission planning process and the transmission project sponsor finances) based on size and number of beneficiaries. See Appendix A to the CAISO Tariff.

¹⁵¹ ANOPR at P 111.

¹⁵² *Id.* at P 29.

credits against the charges for transmission service taken with respect to the interconnection customer's generating facility as such charges are incurred. The ANOPR notes the Commission has accepted several independent entity variations of this policy, including the CAISO's.¹⁵³

The CAISO agrees it is prudent to examine participant funding policies. The CAISO has found that participant *financing* of interconnection-related upgrades—as opposed to participant funding as defined in the ANOPR—is a more effective tool that avoids many of the pitfalls noted in the ANOPR. In the CAISO, interconnection customers provide the initial *financing* to construct their interconnection facilities and network upgrades. Upon the commercial operation of the generating facility and the network upgrades, the transmission owner reimburses the interconnection customer in cash within five years. The transmission owner then includes the costs in its transmission revenue requirement and recovers costs from ratepayers. The CAISO caps the network upgrade costs that are reimbursable.

The CAISO has found success with its approach for several reasons. First, it still provides developers strong incentives to site their projects where they will not incur high interconnection costs. California procurement entities do not consider capacity or energy costs alone; rather, they consider each project's ultimate total costs to ratepayers. This includes the interconnection facilities and network upgrades costs, regardless of which entity initially finances them. At least a plurality—often a majority—of interconnection customers withdraw their

¹⁵³ *Id.*

interconnection requests immediately after receiving their Phase I interconnection studies because those studies show the interconnection customer's project will have relatively high interconnection costs.

Second, the CAISO's approach removes the extremely complicated allocation and accounting procedures required to determine the extent other parties later benefit from constructed network upgrades, and how to repay the interconnection customer. Ratepayers are the ultimate beneficiaries of network upgrades, and therefore they ultimately fund them through transmission rates. By including these costs in transmission owners' transmission revenue requirements (rather than bilateral capacity contracts), the CAISO and the Commission can ensure their costs are just and reasonable. For example, the CAISO has imposed a cap on the amount a reliability network upgrade is reimbursable at \$60,000/MW (adjusted annually for inflation).¹⁵⁴ Any costs beyond this cap would have to be financed on a merchant basis, which has never occurred because procurement entities find such projects uncompetitive.¹⁵⁵ The CAISO also limits the extent delivery network upgrades can even be constructed based on how much deliverable capacity California load serving entities require to meet their peak demands. These mechanisms help ensure ratepayers do not incur network upgrade costs beyond what the CAISO, stakeholders, and the Commission have found just and reasonable.

¹⁵⁴ The \$60,000/MW value was established in 2018.

¹⁵⁵ Their reliability network upgrade costs being relatively too high compared to their capacity.

Third, requiring interconnection customers to *finance* their network upgrades still ensures they are financially viable. The CAISO agrees with the ANOPR that an interconnection customer not bearing any costs related to its network upgrades ultimately may “free-ride,” but the CAISO’s approach avoids this problem by requiring the interconnection customer to provide the initial financing. An interconnection customer that cannot finance its network upgrades must withdraw its request.

Fourth, the CAISO’s approach to network upgrade financing enables the CAISO and transmission owners to provide firm costs caps to interconnection customers. Because transmission customers ultimately fund network upgrades through transmission owners’ revenue requirements, transmission owners can finance costs that result from queue changes, withdrawals, system changes, or study errors. If network upgrade assignments or cost allocations change after the interconnection customer has been studied, the interconnection customer cannot inherit any new costs exceeding the cost caps provided in its interconnection studies. Such exceedance would be covered by the non-refundable portion of interconnection financial security of withdrawn interconnection customers and the interconnecting transmission owner. Although transmission owners have rarely had to cover such costs,¹⁵⁶ interconnection customers’ binding cost caps provide

¹⁵⁶ Intuitively, the most common change in study premises is the presence of other interconnection customers. The vast majority will withdraw because they could not secure a power purchase agreement. As interconnection customers withdraw, fewer upgrades are required to interconnect the remaining interconnection customers. As such, overall costs usually decrease as an interconnection customer remains in queue. As explained below, however, there can be exceptions. The most common is when an interconnection customer shares a single upgrade with other interconnection customers that each customer needs regardless of the others. If the others withdraw and the upgrade is still needed, the remaining interconnection customer’s share of the

crucial transparency to interconnection customers as they develop, market, and finance their projects. The cost caps also obviate any need to conduct serial restudies based on changes in upgrade cost responsibility. Interconnection customers can rely on their interconnection studies without fear of changes late in their projects' development. In the Commission's Order No. 845 proceeding, the American Wind Energy Association, NextEra, and several developers identified the CAISO processes as best practices.¹⁵⁷ NextEra, for example, advocated that the Commission adopt the CAISO's processes nationally "to break endless start and stop restudy cycles" elsewhere.¹⁵⁸

Fifth, the CAISO's approach avoids "free-riding" of the very large, multi-beneficiary network upgrades that result from the transmission planning process. By allocating the *financing* of these network upgrades to their project sponsors in the transmission planning process instead of to interconnection customers, interconnection customers are incentivized to select sites that can take advantage of the new transmission capacity. These network upgrades are sufficiently large they affect all the interconnection customers in the area. As such, no single interconnection customer gets an advantage in obtaining a power purchase agreement, which is the key factor in whether the interconnection customer's project achieves commercial operation. More critically, allocating these costs to transmission project sponsors instead of interconnection customers allows both

upgrade's costs would rise. For this reason, each interconnection customer's studies identify the current share and the potential share.

¹⁵⁷ See, e.g., AWEA Petition, p. 24, Docket No. RM15-21-000 (June 19, 2015).

¹⁵⁸ NextEra Comments, p. 9, Docket No. RM15-21-000 (Sep. 8, 2015).

the network upgrades themselves and the generating facilities to avoid interconnection costs that would otherwise make the project unviable. If an interconnection customer or even a group of interconnection customers had to finance a new substation, long transmission line, or other substantial upgrade, the upgrade likely would never be constructed because of the significant financial and regulatory risk that upgrade would present to interconnection customers.

The ANOPR also asks whether costs allocated to interconnection customers under participant funding approaches have increased over time and, if so, why.¹⁵⁹ The CAISO has not observed significant increases in network upgrade costs,¹⁶⁰ but developers and transmission owners are better suited to address this issue. In any case, the CAISO tariff ultimately allocates all network upgrades—whether they result from the transmission planning process or generator interconnection process—to transmission ratepayers. The transmission planning process also takes data from procurement portfolios and the generator interconnection queue to construct large network upgrades for new generating capacity. There is little to no incentive to shift (or avoid) network upgrade construction needed for new generating capacity. The CAISO's firm cost caps also protect developers from cascading costs from grid changes and changes in the generator interconnection queue.

¹⁵⁹ ANOPR at P 114.

¹⁶⁰ Obviously, costs increase over time due to inflation and the rising costs of goods and construction, but the CAISO has not seen any evidence of cost increases due to interconnection procedures or cost allocation rules.

The ANOPR also asks whether the Commission’s policies on participant funding have affected the interconnection queue, for example, through late-state withdrawals and, if so, how and to what degree.¹⁶¹ The ANOPR also seeks comments on transmission providers’ ability to process interconnection requests from other interconnection customers affected by the withdrawal efficiently, and the extent to which withdrawals can affect developer costs and create uncertainty.

Because CAISO interconnection customers have firm cost caps, the CAISO rarely observes late withdrawals due to network upgrade financing issues. Most withdrawals occur shortly after the CAISO publishes study results because the developers no longer believe their projects are competitive. Withdrawals later in the queue generally result because an interconnection customer that was shortlisted for a power purchase agreement—and proceeded in queue on that basis—does not receive one. Firm cost caps provide developers and procurement entities with a holistic understanding of the costs and risks for a project over its entire lifetime in queue, including what can occur due to withdrawals from earlier-queued customers. They also avoid the need to restudy later-queued projects because the transmission owner essentially steps into the role of the withdrawn customer.

The ANOPR further inquires whether participant funding may undermine network upgrades from the transmission planning process.¹⁶² The ANOPR seeks comments on whether participant funding can impede developers’ abilities to site

¹⁶¹ ANOPR at P 114.

¹⁶² *Id.* at P 115.

in ideal locations for wind or solar development.¹⁶³ As explained above, the CAISO does not have a true “participant funding” structure and otherwise has not observed this behavior. Generation developers generally favor large transmission projects like area delivery network upgrades that result from the transmission planning process because they create significant cost-efficient transmission capacity and ideal siting locations for new generators. By working with procurement entities and local regulatory authorities in the transmission planning process, the CAISO can identify greenfield areas ideal for renewable generation, then construct the large network upgrades that could be cost-prohibitive for any single interconnection customer to finance. The CAISO’s financing framework has not presented a challenge for renewable generation because the transmission planning process can create area delivery network upgrades that benefit many projects ahead of the interconnection process.

Additionally, the ANOPR asks whether “queue backlogs” and “cascading interconnection-related network upgrade cost allocations that move from withdrawing higher-queued interconnection customers to lower-queued interconnection customers” demonstrate that participant funding may no longer provide efficient price signals for developers.¹⁶⁴ The ANOPR states a contributing factor to the interconnection queue backlog is a tendency by interconnection customers to submit multiple interconnection requests at different points of interconnection, with the intention of discovering the lowest cost site for a project

¹⁶³ *Id.* at P 117.

¹⁶⁴ *Id.* at P 118.

(from an interconnection perspective), and then withdrawing higher-cost projects from the queue later. The ANOPR states: “This tendency can require numerous restudies and reallocation of interconnection-related network upgrade costs, compounding the uncertainty surrounding the amount of interconnection-related network upgrade costs.”¹⁶⁵

The CAISO agrees that participant funding may aggravate the issues the ANOPR identifies; however, eliminating participant funding would only mitigate them, not resolve them. The CAISO does not have participant funding, restudies, or “cascading” cost allocations because of its firm cost caps, but nevertheless it observes developers submitting multiple interconnection requests to identify the most cost effective project. This issue exists independently of network upgrade financing rules because procurement entities always will seek the lowest cost projects, and a project’s total costs are unknown until it is studied. Even if a developer has identified a cost-effective point of interconnection, it does not know how many *other* developers will try to use that same point of interconnection, potentially increasing costs for everyone.¹⁶⁶ It is critical to remember that transmission providers study interconnection requests on a cluster basis to avoid cascading restudies and to enable customers to share costs. The cluster study approach also means, however, that an interconnection customer’s costs depend on the other interconnection customers in its cluster. This issue exists regardless

¹⁶⁵ *Id.*

¹⁶⁶ Planning an interconnection request is not unlike planning which checkout line to use at the supermarket. Even if a customer knows line 1 will not have any customers in five minutes, the customer does not know how many other customers will rush into line 1 five minutes from now. The ideal line five minutes ago may become the longest line because it was so attractive before.

of what happens with earlier-queued customers, so there always is cost uncertainty for prospective developers. Interconnection and capacity costs are merely one side of the equation developers are trying to solve. The other side is procurement, and developers frequently need several types of projects to address future, unknown requests for offers.

The CAISO agrees that participant funding and its corresponding restudies and cascading cost allocations create significant uncertainty for interconnection customers. The CAISO believes its unique financing structure and the corresponding firm cost caps mitigate many of those issues, but other measures are likely necessary to help ensure interconnection planning reflects more realistic generation development.

b. Crediting Policy for Network Upgrades for Generator Interconnections

The ANOPR asks whether, in lieu of participant funding, transmission providers should “fund upfront all or a portion of the interconnection-related network upgrade costs.”¹⁶⁷ The ANOPR asks whether eliminating participant funding will eliminate queue backlogs and late-stage withdrawals and increase “integration of generation by removing the possibly prohibitive cost assignment that participant funding” creates.¹⁶⁸

The CAISO is not opposed to some level of financing from other entities, but untethering interconnection customers from *all* financial responsibility for their

¹⁶⁷ ANOPR at PP 120, 132.

¹⁶⁸ *Id.* at PP 125-26.

interconnection facilities and network upgrades likely would exacerbate the issues in the ANOPR, not solve them. The CAISO opposes any reform where developers do not share in the initial financing of their required network upgrades. Unburdened by any “skin in the game,” developers would be incentivized to submit even more interconnection requests in search of a winning project. More problematically, nothing would compel them to withdraw from queue if they are initially uncompetitive. They could merely linger in queue awaiting a potential off-taker.¹⁶⁹

Although interconnection customers would not face potential changes in costs, costs are only one factor among many in achieving commercial operation. Construction timing often is equally important. Even if an interconnection customer has a “free” interconnection, if it cannot achieve commercial operation when it desires, it is just as likely to withdraw as an interconnection customer facing high costs. Even if network upgrades are free to interconnection customers, it would not change the calculus for procurement entities. Receiving a power purchase agreement is the only true litmus test for whether a project will achieve commercial operation, so reforms that do not change how projects appear to potential off-takers are unlikely to have much effect on the size of interconnection queues or how long customers stay in queue.

As described above, in the CAISO interconnection process customers *finance* but do not fund network upgrades, and they are reimbursed in cash within

¹⁶⁹ For example, interconnection customers could request to modify their commercial operation dates or exercise their GIA suspension rights.

five years of achieving commercial operation. However, to ensure non-viable projects do not linger in queue, the CAISO requires interconnection customers to post interconnection financial security as they progress in queue: 15 percent of their network upgrade cost responsibility after the Phase I interconnection study, 30 percent after Phase II, and 100 percent upon construction commencement. Generally 50 percent of the interconnection financial security they post after Phase I and Phase II, and all of the security upon construction, is non-refundable, and therefore at risk for the interconnection customer if it later withdraws. As the Commission has recognized, interconnection financial security postings have multiple functions beyond merely financing the construction of the interconnection customer's facilities.¹⁷⁰ They demonstrate that the interconnection customer is commercially viable and committed to progressing in queue. They also help protect the transmission owner against the risk of interconnection customers' withdrawing and saddling the transmission owner with the costs of network upgrades still required for other interconnection customers. Because other interconnection customers are protected by firm cost caps in the CAISO, they do not inherit "cascading costs" when another interconnection customer withdraws.¹⁷¹ Instead, the transmission owner uses the non-refundable portion of interconnection financial security from withdrawn interconnection customers to offset the financing costs of still-needed upgrades.¹⁷²

¹⁷⁰ See *Cal. Indep. Sys. Operator Corp.*, 129 FERC ¶ 61,124 at P 41 (2009).

¹⁷¹ Section 14.2.2 of Appendix DD to the CAISO Tariff.

¹⁷² Section 7.6 of Appendix DD to the CAISO Tariff.

Further, the CAISO's approach of sizing interconnection financial security postings with network upgrade cost allocations incentivizes interconnection customers to select cost-effective sites. It also incentivizes interconnection customers to withdraw their projects if they are not cost effective. These are critical features in managing an interconnection queue. Free network upgrades or network upgrade flat fees would remove both incentives and burden interconnection queues with uncompetitive projects. As such, the CAISO supports the ANOPR proposal to establish a variable "fee" based on the interconnection facilities and network upgrades required, and it opposes a flat fee.¹⁷³

The CAISO also opposes a fee based on the size of the generating facility rather than the network upgrades required. The capacity of the generating facility does not correlate well with the interconnection costs. A well-sited 100 MW generating facility may have low network upgrade costs, and a poorly-sited 10 MW generating facility may have high network upgrade costs. Capacity does not affect study costs. The time and expense to study a 10 MW project and a 100 MW project are the same. Any reform must incentivize developers to site their projects in a cost-effective manner, and sizing interconnection fees based on generating facility capacity usually fails this test. The CAISO also supports the ANOPR's proposal of an escalating fee like those in the CAISO, SPP, and MISO.¹⁷⁴ Escalating fees help ensure uncompetitive projects withdraw from

¹⁷³ ANOPR at P 137.

¹⁷⁴ ANOPR at P 138.

queue, which ensures more accurate studies and construction schedules for those remaining.

The CAISO recognizes that despite the effectiveness of its reforms, the CAISO still faces challenges due to an oversized interconnection queue. However, this only demonstrates that there is no single solution to the issues the ANOPR identifies. Although many of these issues manifest in generator interconnection queues, their actual causes may lay outside the Commission's reach, such as within capacity procurement practices or local regulatory authority processes. The Commission should continue to provide transmission providers with the regional flexibility needed to address the myriad issues they face based on their unique regional needs. The CAISO is undertaking its own stakeholder initiative to look at broad reforms to interconnection procedures. The 2021 IPE initiative will address queue bloat and study quality specifically, and the other issues described in the ANOPR.

(1) Transmission Providers Provide Upfront Funding for Only Higher Voltage Interconnection-related Network Upgrades

The ANOPR asks whether it would be appropriate to require transmission providers to fund upfront the costs of any interconnection-related network upgrade that is rated at or above a certain voltage threshold.¹⁷⁵ The ANOPR states: "Because higher voltage transmission facilities tend to produce greater and broader benefits to transmission systems than lower voltage transmission

¹⁷⁵ ANOPR at P 139.

facilities, this option may better satisfy the requirement that the allocation of costs be at least roughly commensurate with the distribution of benefits.”¹⁷⁶ The CAISO supports using voltage as a metric to determine cost allocation, but does not believe that using different financing/crediting policies on the transmission grid would affect the generator interconnection reforms the ANOPR seeks. Voltage, like generating capacity, often is a poor proxy for determining the costs to interconnect. As stated above, any reform must incentivize developers to site their projects in a cost-effective manner, and changing financing/credit rules based on voltage is likely to provide the wrong incentives to developers. This is an area where regional flexibility is critical because if financing/crediting rules are different for net energy metering interconnections, distribution interconnections, and transmission interconnections, the incentives to interconnect at different voltages can become severely misaligned, thereby causing inefficient development. Developers should be incentivized to find cost-efficient interconnection sites, not more favorable financing rules based on voltage distinctions.

**(2) Allocate the Upfront Cost of
Interconnection-related Network Upgrades
on a Percentage Basis**

The ANOPR asks whether interconnection customers should fund network upgrades on a percentage basis, including up to 100 percent.¹⁷⁷ The CAISO notes that “100 percent” may be misconstrued because interconnection

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*, at P 146.

customers generally share network upgrade costs with other interconnection customers that need the same network upgrades for interconnection. As such, few interconnection customers actually finance “100 percent” of a network upgrade. In such rare cases, the network upgrade is a stand-alone network upgrade the interconnection customer can self-build if it elects. A more precise framing of this question is whether interconnection customers should fund 100 percent or a smaller percentage of *their share* of network upgrade cost allocations.

The CAISO supports reforms where interconnection customers *finance* 100 percent of their share of network upgrade cost allocations. However, the CAISO does not believe that any level of interconnection customer financing or funding will achieve the goals noted in the ANOPR: (1) giving interconnection customers control over construction speed, or (2) mitigating situations where the transmission owner does not have funding on hand to begin construction. As an initial matter, the CAISO has not observed instances where the transmission owner does not have funding, principally because the interconnection customers provide the upfront financing for construction. Second, the CAISO does not believe interconnection customers can control the speed of construction merely by virtue of financing. To control construction speed, the interconnection customer would need to self-build the network upgrades in lieu of the transmission owner, akin to stand-alone network upgrades.

(3) Additional Considerations

(a) Interconnection-Related Network Upgrade Cost Sharing

The ANOPR asks whether, in lieu of eliminating participant funding, the Commission should require “cost cost-sharing measures to account for the fact that later-in-time interconnection customers may accrue benefits from interconnection-related network upgrades built to accommodate a prior interconnection request.”¹⁷⁸ The CAISO has examined this issue with stakeholders previously. Each time, the CAISO and its stakeholders concluded that the CAISO’s current approach is preferable. By completely refunding the interconnection customer for financing network upgrades, the CAISO’s approach (1) makes the interconnection customer whole; (2) allocates costs to the ultimate beneficiaries, *i.e.*, transmission ratepayers; and (3) avoids the complex accounting required to determine who benefits later and by how much. The CAISO has seen various proposals for after-the-fact beneficiary accounting, and they generally are imprecise, fail to address the myriad potential scenarios for post-construction use, and create significant administrative burdens. It is far simpler and more consistent with basic cost allocation principles for the interconnection customer to finance its network upgrades then receive complete reimbursement from transmission ratepayers through the transmission owner. If future interconnection customers can use excess capacity, no one pays more or shifts costs, and the

¹⁷⁸ *Id.*, at P 150.

ratepayers benefit from additional use of the same network upgrades at no additional cost.

(b) Option to Build

The ANOPR also asks whether the *pro forma* Option to Build would require revision if the Commission revises its funding rules. Because the CAISO has already diverged from participant funding, the CAISO believes continued regional flexibility is critical. In the CAISO, developers use the self-build option to construct network upgrades themselves and not to avail themselves of different funding rules. If the Commission changes either set of rules, the CAISO likely would need flexibility to ensure it can provide viable options to its customers.

(c) Interconnection Request Limit

The ANOPR states that “a contributing factor to the interconnection queue backlog is a tendency by interconnection customers to submit multiple interconnection requests at different points of interconnection, with the intention of discovering the lowest cost location to site the generating facility (from an interconnection perspective), and then withdrawing higher-cost interconnection requests from the queue later in the process.”¹⁷⁹ As an initial matter, the CAISO notes there is nothing inherently wrong with this practice. Ratepayers obviously benefit when developers find the most cost-effective points of interconnection. The CAISO also believes that some level of interconnection exploration is unavoidable. As described above, this issue exists independently of network

¹⁷⁹ *Id.*, at P 153.

upgrade financing rules because procurement entities always will seek the lowest cost projects, and project's total costs are unknown until studied. Even if a developer has identified a cost-effective point of interconnection by examining base cases and available data, it does not know how many *other* developers will try to use that same point of interconnection, potentially increasing costs or construction timelines for everyone. Further complicating matters, an interconnection customer may face higher than expected costs because it is the *only* interconnection customer at a point of interconnection, thereby making it unable to spread the costs of an upgrade among several developers.¹⁸⁰

The ANOPR further states that, “absent an appropriately-sized penalty (or reasonable restriction) associated with submitting an interconnection request and then subsequently withdrawing such an interconnection request, there still may be an incentive to submit speculative interconnection requests.”¹⁸¹ The ANOPR seeks comment on “whether there should be penalties for submitting speculative requests, how such should be defined, and whether there should be a limit on the number of interconnection requests that a developer can submit.”¹⁸²

The CAISO agrees with the Commission these issues warrant discussion. It is difficult to define what constitutes “too many” interconnection requests, or what constitutes a “speculative” interconnection request. Because obtaining a

¹⁸⁰ For example, substation upgrades like new bays can be so expensive that they require multiple interconnection customers to share the costs and maintain financial viability. Even with the CAISO's financing/refund rules, a large upgrade's initial financing costs may pose too much risk for a single developer. In any case, an interconnection customer will not know its cost allocation until studied within its cluster.

¹⁸¹ ANOPR at P 153.

¹⁸² *Id.*

power purchase agreement is the only true litmus test of whether a project will achieve commercial operation, and because a project rarely receives a power purchase agreement until it receives its study results, all interconnection requests are, in some sense, “speculative,” especially at the outset of the interconnection process. However, excessive interconnection requests are a significant burden for transmission planners. Every interconnection request requires staff time to validate, hold scoping meetings, prepare meeting minutes, study, draft study results, receive customer feedback on study results, meet to discuss study results, draft GIAs, negotiate GIAs, and manage milestones. The more interconnection requests transmission providers receive, the more timing issues compound. Additional study funds do not mitigate these constraints because there is a finite number of engineers and subject-matter experts that can perform this work. Excessive interconnection requests also frequently force planners to decide between trying to develop realistic assumptions about what capacity will actually remain in queue or providing study results with all of the proposed capacity, likely leading to unrealistic transmission cost results.

To address this and other pressing issues regarding the generator interconnection process, the CAISO is commencing a 2021 Interconnection Process Enhancements (IPE) stakeholder initiative. Rather than try to restrict the number of interconnection requests by an arbitrary metric, the CAISO’s 2021 IPE initiative will examine (1) the minimum requirements to submit interconnection requests, and (2) measures to determine which interconnection requests warrant more attention once submitted. Both questions may center on rewarding those

projects farther along in the development process or that have other tangible signs of viability. For example, there could be a requirement to have a power purchase agreement to proceed in the interconnection process. The CAISO also may explore limiting its interconnection assumptions to reflect procurement targets rather than what is in queue. These approaches help ensure more realistic study results and a manageable queue without creating barriers to entry for developers.

The CAISO recognizes that generation development is a rapidly changing landscape. Where site exclusivity may have been an obvious prerequisite for large gas-fired plants twenty years ago, today's energy storage resources can find acceptable sites far more quickly and easily. Likewise, supply chain issues and competitive procurement may make certain technologies take longer to interconnect than expected. New reforms must account for the strengths and weaknesses of different technology-type projects. Rules designed for procurement practices already anachronistic will only impede new capacity and harm ratepayers.

As the Commission is well-aware, the number of projects in the CAISO's most recent queue cluster, Cluster 14, exceeded the CAISO's ability to process within the confines of its tariff. Further, despite the solid foundation of the CAISO's transmission planning and generator interconnection processes, there are broader issues that necessitate discussion given existing supply conditions and the need to accelerate and sustain the pace of procurement and interconnection to meet climate goals. The CAISO's 2021 IPE initiative will

address these important issues. In particular, the CAISO will evaluate mechanisms to (1) curb the number of interconnection requests and (2) help the most viable, ready, procured projects, while still ensuring sufficient completion for utility capacity requests for offers. The CAISO anticipates that it will complete the 2021 IPE initiative and make a Section 205 filing with the Commission before the Commission issues a final rule in this docket. The CAISO urges the Commission not to hold up action on any such filing pending the outcome of this proceeding. The specific issues the CAISO faces and is addressing in the 2021 IPE initiative need to be addressed now, and they are best addressed through a CAISO stakeholder process that addresses the CAISO's specific circumstances and challenges, not a lengthy national rulemaking.

**(d) Fast-Track for Interconnection of
Generating Facilities Committed to
Regional Transmission Facilities and
“Ready” Generating Facilities**

The ANOPR seeks comments on “fast-tracking” two types of interconnection customers: (1) generating facilities that have firmly committed to connecting to new regional transmission facilities,¹⁸³ and (2) “ready” generating facilities, such as those with a power purchase agreement.¹⁸⁴ The CAISO agrees that it seems appropriate to prioritize ready projects, and stakeholders should explore what constitutes a ready project and how to fast-track it. In the CAISO, such fast-tracking is a complex question. Few, if any, interconnection customers

¹⁸³ ANOPR at P 155.

¹⁸⁴ *Id.* at P 157.

enter the queue with a power purchase agreement already in hand. Because load serving entities must evaluate the total costs of new capacity, California load-serving entities generally require at least a Phase I interconnection study—if not a Phase II study—to enter a request for offer process. Thus, most projects are unable to secure a power purchase agreement until the study process is over. As such, it is already true that generally the only projects that execute generator interconnection agreements are shortlisted or have executed power purchase agreements. The interconnection study process is not the principal source of their time to come online; rather, they are awaiting the construction of their interconnection facilities and network upgrades with the other “ready” projects. Put another way: by the time it is clear which projects should be fast-tracked, all the projects should already be fast-tracked.

The CAISO recognizes that exceptions to these generalities are becoming more common. States and local regulators are becoming more flexible in their procurement practices and are issuing expedited procurement mandates. There are other signs a project is more likely to be “ready,” such as being shortlisted for a power purchase agreement, securing financing, securing a site, or securing generating equipment. The CAISO intends to explore “ready” criteria in its upcoming 2021 IPE stakeholder initiative. The CAISO also intends to explore how to reward interconnection customers that meet such criteria, or whether meeting such criteria should be a prerequisite to proceed further with interconnection studies.

However, with the large number of interconnection requests in the queue, it is difficult to fast-track certain projects without “jumping” earlier-queued projects. Maintaining queue order is important to ensure a level playing field and avoid the need for restudies. In developing reforms, the Commission also must explore the consequences of qualifying for a fast-track process but then failing to actually be “ready.” Circumstances frequently change in queue: developers can lose power purchase agreements, supply chain issues can delay generator construction, and financing can fall through. For every project that is truly ready, there will be projects that represent they are ready when they are not. It is not enough simply to develop criteria for what constitutes ready; the Commission also must develop appropriate penalties for projects that cannot meet the same criteria after already receiving an advantage in queue. Without such penalties, interconnection customers can represent they are ready, gain advantages in queue, then try to linger in queue and delay milestones.

(e) Grid Enhancing Technologies

The ANOPR seeks comment on the “potential for Grid-Enhancing Technologies¹⁸⁵ not only to increase the capacity, efficiency, and reliability of transmission facilities, but, in so doing, also to reduce the cost of interconnection-related network upgrades.”¹⁸⁶ The ANOPR asks “whether the Commission should require that transmission providers consider Grid- Enhancing Technologies in

¹⁸⁵ Grid Enhancing Technologies “increase the capacity, efficiency, or reliability of transmission facilities. These technologies include, but are not limited to: (1) power flow control and transmission switching equipment; (2) storage technologies, and (3) advanced line rating management technologies.” ANOPR at P 48 n. 68.

¹⁸⁶ ANOPR at P 158.

interconnection studies to assess whether their deployment can more cost-effectively facilitate interconnections.”¹⁸⁷

The CAISO supports using Grid-Enhancing Technologies, which are among the most common required upgrades for interconnection customers in California. The CAISO does not define or categorize certain types of grid technologies so it can consider any technology in the interconnection process, and select those network upgrades that are most efficient for reliability, efficiency, and cost-effectiveness. Frequently, the CAISO requires remedial action schemes, special protection systems, and direct transfer trips¹⁸⁸ to deploy intermittent generation in congested areas. Both transmission planning processes and interconnection processes should consider Grid-Enhancing Technologies.

C. “Enhanced” Transmission Oversight

1. An Independent Transmission Monitor Is Unnecessary

The Commission inquires whether it should require creation of “independent transmission monitors,” potentially modeled on existing independent market monitors, to oversee various aspects of the planning and costs of transmission facilities in a region.¹⁸⁹ The Commission seeks comments on what functions the independent transmission monitor should perform and the scope of its oversight and review authority. For example, the Commission asks whether the independent monitor should review the design of the planning process on an

¹⁸⁷ *Id.*

¹⁸⁸ These terms are frequently used interchangeably depending on the region.

¹⁸⁹ ANOPR at P 163.

ongoing basis, review the mechanisms and planning criteria used to identify transmission needs and facilities, monitor transmission provider spending on transmission facilities, identify excessive costs, identify inefficiencies between local and regional planning process, review the rules and regulations of the planning processes, and identify instances where selected projects may not have been the more efficient or cost-effective solutions.¹⁹⁰ Finally, the Commission asks if it has the legal authority to require an independent entity to monitor transmission planning and spending in each transmission planning region.¹⁹¹

The CAISO does not support adopting a uniform requirement to create independent transmission monitors, especially within planning areas administered by RTOs/ISOs. The CAISO is already independent of market participants. The CAISO conducts its transmission planning function in an open and transparent stakeholder process in which the CAISO has identified non-wires solutions as alternatives to transmission projects, justified capital expansion projects based on an objective and conservative cost/benefit analysis, and regularly selected non-incumbent transmission developers as project sponsors. The CAISO does not oppose scrutiny of its transmission planning process and welcomes proposals to enhance that process. However, requiring an independent transmission monitor is unnecessary and problematic. It would duplicate work already performed by the CAISO, disrupt and add uncertainty to the transmission planning process, and create potential delays. Stakeholders can raise any concerns directly with the

¹⁹⁰ *Id.* at PP 165-69.

¹⁹¹ *Id.* at P 175.

CAISO or with the Commission. The Commission has ample authority to request information from transmission planners, audit whether transmission planning processes adhere to existing rules or regulations, or initiate and/or entertain section 206 proceedings regarding public utility transmission planning processes. There is no need to create an additional layer of monitoring. If needed, the Commission can hire employees and consultants to help it address these questions.

In Order No. 890, the Commission declined to require use of an independent third-party transmission coordinator.¹⁹² The Commission recognized it was possible to comply with the principles of Order No. 890 without requiring use of an independent third-party.¹⁹³ To support this conclusion, the Commission noted:

We expect the transmission plans themselves to be developed under an open process that includes coordination among each transmission provider, its customers, other stakeholders, and its neighbors. A transmission provider will need to demonstrate to us in a compliance filing that the plan meets the principles, including providing a dispute resolution process. We believe that an open, transparent planning process, with meaningful coordination and dispute resolution, will provide a sufficient basis for customers to identify and raise meaningful concerns if a plan does not treat similarly-situated customers in a comparable manner, where planning appears to be conducted in a discriminatory manner, or in other instances where the independence of planning may be in question. If disputes do arise in these areas and cannot be resolved consensually, we are

¹⁹² *Preventing Undue Discrimination & Preference in Transmission Serv.*, Order No. 890 at P 567, FERC Stats. & Regs. ¶ 31,241, (Order No. 890), *order on reh'g*, Order No. 890-A, FERC Stats. & Regs. ¶ 31,261 (2007) (Order No. 890-A), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008) (Order No. 890-B), *order on reh'g*, Order No. 890-C, 126 FERC ¶ 61,228, *order on clarification*, Order No. 890-D, 129 FERC ¶ 61,126 (2009).

¹⁹³ *Id.* at P 568.

available to either encourage a consensual resolution ... or resolve them ourselves if a complaint is filed.¹⁹⁴

The same reasons that led the Commission to reject the concept of an independent third-party transmission monitor in Order No. 890 continue today. If a particular transmission provider is not following the requirements of Commission Order Nos. 890 and 1000, the Commission should take appropriate action vis-à-vis that specific transmission provider. It need not impose an independent transmission monitor requirement on every transmission planner.

a. RTOs/ISOs Already Adhere to Order No. 890 Transmission Planning Principles and Do Not Have a Financial Interest in the Outcome of Transmission Planning Processes

The ANOPR asks whether in light of the significant potential costs of transmission, t customers might benefit from enhanced oversight over identification and costs of transmission facilities.¹⁹⁵ Increased transmission development and costs do not in themselves merit requiring independent transmission monitors for ISOs/RTOs. The CAISO believes the current transmission planning principles establish a foundation for a sufficient robust transmission planning process. The CAISO always welcomes input on how it can improve its practices to implement these principles better, but this input can occur without the need for an independent transmission monitor. Further, if individual transmission planning entities are not adhering to the principles of Order Nos. 890 and 1000, the Commission should address those specific circumstances using its

¹⁹⁴ *Id.*

¹⁹⁵ ANOPR at P 162.

Section 206 authority; it need not adopt a uniform requirement for all planning regions to employ an independent transmission monitor.

In addition, RTOs/ISOs must adhere to independence principles adopted by the Commission. As part of these principles, RTOs/ISOs maintain financial independence from their market participants, including entities seeking to develop transmission. RTOs/ISOs perform their transmission planning process ultimately to benefit transmission customers. Further, the CAISO is a not-for-profit corporation. Requiring each RTO/ISO to employ an independent transmission monitor will not enhance this independence or the work RTOs/ISOs perform for transmission customers.

b. An Independent Transmission Monitor Will Not Increase the Transparency of the CAISO's Existing Process

The planning work the CAISO performs occurs through a transparent process, and it fully vets input assumptions and a study plan with stakeholders. The CAISO's current transmission planning process incorporates demand forecasts developed in coordination with the CEC that reflects established energy policies. The CAISO works with the CPUC to incorporate CPUC-developed resource portfolios into its transmission planning process to inform the need for transmission upgrades or additions. Review of these inputs by an independent transmission monitor would likely provide no meaningful purpose. Indeed, the states, not the Commission, are responsible for determining what specific resources their load serving entities procure. At the outset of its transmission planning process, the CAISO presents a draft study plan to stakeholders and

accepts comments before finalizing this plan. An independent transmission monitor would provide no greater transparency to stakeholders or transmission customers into the CAISO study plan. Similarly, the CAISO explains the results of its studies, which capital projects it approves, and which capital projects it does not approve. The CAISO makes the study results available to stakeholders, including modeling work performed by the CAISO. An independent transmission monitor would not increase the transparency of the CAISO's transmission plan.

c. Overlaying an Independent Transmission Monitor Will Create Duplicative Work and Could Face Legal Hurdles

The CAISO performs the role of an independent transmission planner and provides stakeholders with information and regarding, and explanations of, planning inputs, the study plan, and study results. The work of any independent transmission monitor will only duplicate the work the CAISO and stakeholders already perform to assess transmission needs and identify transmission expansions and non-wires alternatives. At best, it will foster uncertainty and potential delay by creating another layer of administration in the transmission planning process. At worst, this function could undermine the timely completion of the transmission planning process and create a shadow process performed by the independent transmission monitor in which entities "re-litigate" their positions. For example, conflicting positions between an independent transmission monitor and the regional transmission planner will create confusion and significant uncertainty regarding whether the approved transmission plan can proceed, potentially

delaying progress on transmission infrastructure required to meet critical, time sensitive needs.

Finally, directing public utilities to retain an independent transmission monitor to oversee transmission planning functions may be perceived as intruding on how public utilities manage their own corporate affairs.¹⁹⁶

d. The Commission Should Explore Alternatives to Independent Transmission Monitors as a Means to Enhance Transparency and Oversight of Transmission Planning Processes

The ANOPR contemplates that independent transmission monitors could perform various functions to increase transparency and oversight over transmission planning processes.¹⁹⁷ Among other functions, the ANOPR asks whether independent transmission monitors should review transmission planning processes, planning criteria that lead to the identification of particular transmission needs and facilities, and the rules and regulations governing such processes. The ANOPR suggests an independent transmission monitor could review various outcomes of transmission planning processes and assess whether they are the most efficient or most cost-effective solution compared to other alternatives. The ANOPR suggests independent transmission monitors could make referrals to the Commission, and then the Commission could conduct a review of the relevant

¹⁹⁶ See *Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395, 403 (D.C. Cir. 2004) (The Commission cannot dictate the choice of “CEO, COO, and the method of contracting for services, labor, office space” or remove or replace a board of directors).

¹⁹⁷ ANOPR at P 164.

transmission planning processes and/or transmission facility costs under section 206 of the Federal Power Act.

The CAISO believes none of these functions require an independent transmission monitor. Again, the CAISO reviews its process, planning criteria, study plans and study results with stakeholders. This collaborative process helps the CAISO develop an annual transmission plan that identifies the most cost effective solution whether that is a wires or non-wires solution. The Commission need not establish independent transmission monitors to oversee public utility transmission planning processes. The Commission may submit data requests to transmission planners, audit whether transmission planning processes adhere to existing rules or regulations, or initiate and/or entertain section 206 proceedings relating to public utility transmission planning processes. The Commission itself can hire employees and consultants to help address questions or concerns or fulfill the functions the ANOPR contemplates an independent transmission monitor might perform. Further, the stakeholders participating in transmission planning processes are sophisticated and capable of submitting a formal dispute, informing the Commission, or filing a complaint, if a transmission provider is not following its tariff or the principles of Order Nos. 890 and 1000.

If the Commission believes it needs to act, one alternative might be for the Commission to survey and publish best practices of transmission planning processes of the various planning regions to promote transparency and understanding and then assess whether transmission planning entities have or

have not adopted them. This may provide meaningful information regarding the need for any additional reform or targeted enhancements.

2. State Oversight

The ANOPR notes that another way to add oversight to the transmission planning process is to involve state commissions in the process.¹⁹⁸ For example, the ANOPR notes that some regional organizations have regional state committees that provide input on the transmission planning process. The ANOPR seeks comments on whether this type of model, or some other model could work in other regions.¹⁹⁹ The ANOPR asks whether a state-led committee could: (1) provide insight into regional transmission facility costs and cost allocation methods; (2) evaluate whether the transmission needs identified in the local transmission planning process could be better considered in regional transmission planning processes; (3) inform the Commission whether a further review is warranted of whether incurred costs are prudent; or (4) provide the Commission with additional means of ensuring rates are just and reasonable.²⁰⁰

The CAISO supports collaboration with state commissions in the transmission planning process. The CAISO has described above the many ways in which it collaborates with the CEC, CPUC, and local regulatory authorities in its transmission planning process. Involving a state commission in the transmission

¹⁹⁸ ANOPR at P 176.

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at P 177.

planning process can take many forms and encompass many potential functions. The CAISO's approach is one option, but other options exist. The Commission should let each planning region and its stakeholders determine what form of state commission involvement works best in the region given the region's particular circumstances. For example, a regional state committee may be an efficient and effective framework in certain multi-state planning regions, but it may not be a necessary or optimal approach in every region. The Commission should not impose any one-size-fits-all model.

Regarding inter-regional coordination, the Commission could enhance state oversight by encouraging state representatives to engage with one another to address transmission development in the region and facilitate projects necessary to integrate new resources that support state energy policies. The Commission could facilitate greater collaboration among states and transmission providers by formally incorporating into the interregional coordination process a forum for states and transmission providers to identify potential resource development zones and potential transmission paths (and possibly even transmission projects). The Commission could also promote increased state engagement in interregional coordination by identifying and resolving any regional barriers through the Joint Federal-State Task Force on Electric Transmission.²⁰¹

²⁰¹ *Joint Federal-State Task Force on Electric Transmission*, 175 FERC ¶ 61,224 (2021).

3. Limitation on Recovery of Costs for Abandoned Projects

The ANOPR seeks comments on whether the Commission should revise its policies governing the recovery of abandoned transmission project costs to protect consumers from increased costs of never built facilities.²⁰²

The CAISO supports the continued availability of non-ROE incentives to all transmission projects that demonstrate they either will ensure reliability or reduce the cost of delivered power by reducing transmission congestion. These incentives include the abandoned plant incentive, construction work in progress incentive, hypothetical capital structure, accelerated depreciation for rate recovery, and regulatory asset treatment. These incentives facilitate the development of needed transmission projects and help place incumbent and non-incumbent transmission developers on a level playing field.

The CAISO strongly supports changing the effective date for the abandoned plant incentive to the date transmission projects are accepted in the regional transmission planning process. The CAISO also requests such abandoned plant incentive automatically apply from that date so a project sponsor need not file a separate petition for declaratory order to obtain the abandoned plant incentive. Although the abandoned plant authorization would be automatic, recovery of actual abandoned plant costs would remain subject to a Section 205 filing to ensure the costs were prudently incurred. Abandoned plant pre-authorization effective on the date the project is approved in a regional

²⁰² ANOPR at P 178.

transmission planning process will provide increased certainty to project sponsors, reduce their risk exposure, and reduce administrative burdens and costs, all while retaining the Section 205 protections for ratepayers.

The CAISO believes pre-authorizing abandoned plant recovery effective on the date of project approval in the regional transmission planning process is appropriate when the subsequent decision to abandon the project is not within the control of project developer.²⁰³ Immediately after a project is approved in the regional transmission planning process, a transmission developer can begin incurring costs on the project. The existing approach, which allows only for recovery of costs prudently incurred after the Commission issues its order granting abandoned plant recovery, can unfairly deny developers recovery of abandoned plant costs they incur from the date the project is approved in the transmission planning process to the date the Commission issues its order approving the abandoned plant incentive.²⁰⁴

²⁰³ Today, transmission developers face significant risk developing and pursuing projects particularly given the rapid changes occurring in the industry, the risk that planning regions may find that projects approved in one transmission plan are no longer needed in a subsequent transmission plan as the result of changed circumstances, and the significant challenges developers face in obtaining siting approvals. These and other factors can lead to project abandonment. Although the CAISO can consider potential abandonment and regulatory risk in determining which transmission solutions to approve, the CAISO does not determine which facilities ultimately are approved and sited. State and federal siting authorities control siting decisions; these decisions are beyond the CAISO's control and the control of individual transmission developers.

²⁰⁴ For example, the CAISO cancelled the Gates-Gregg project, and the joint project sponsors were unable to recover project costs they incurred prior to the date of the Commission's order granting the abandoned plant incentive.

The CAISO tariff obligates approved project sponsors to make a good faith effort to obtain all approvals and property rights for and to construct needed transmission projects reflected in the annual transmission plan for which they are responsible.²⁰⁵ Within 120 days after the CAISO selects an approved project sponsor, the approved project sponsor must submit a construction plan to the CAISO.²⁰⁶ It is particularly important that approved project sponsors proceed with reliability projects in a diligent and expeditious manner so such projects can be completed in a timely manner, and the CAISO does not face potential reliability criteria violations. Automatically authorizing the abandoned plant incentive effective on the date the project is approved in the transmission planning process promotes this undertaking. Because approved project sponsors must immediately commence project development after the project is approved in the transmission planning process, the abandoned plant incentive should be automatically authorized back to that point in time to mitigate against any risk of cost non-recovery. This will encourage participation in competitive transmission processes, promote the timely and diligent pursuit of approved projects, and protect transmission developers from undue risk. Absent automatic authorization of the abandoned incentive, project sponsors will face uncertainty whether their petition for declaratory order will be accepted, and they might be dis-incentivized from incurring the costs necessary to pursue approved projects promptly.

²⁰⁵ CAISO Tariff Section 24.6.

²⁰⁶ CAISO Tariff Section 24.6.1.

4. Additional Oversight Approaches

The ANOPR seeks comment on additional oversight approaches the Commission might take to ensure that wholesale transmission spending is cost effective, e.g., performance-based regulation.²⁰⁷ The ANOPR asks how to design performance-based regulation to ensure that rates are just and reasonable, ensure reliability of the transmission system, promote regional expansion of transmission facilities for a sufficiently wide range of future scenarios, including anticipated future generation, and encourage transmission provider participation.²⁰⁸

The CAISO conducts a competitive solicitation for all regional transmission facilities that are not upgrades to existing facilities. Entities bidding into these competitive solicitations regularly submit binding cost containment proposals that include construction cost caps and return on equity caps. The CAISO does not limit the types of cost containment measures participants in competitive solicitations can propose. Proposed cost containment measures have also included performance-based incentives such as return on equity (ROE) penalties for project delays and tiered ROEs depending on final project cost levels. However, the CAISO has not observed the need for broader performance based ratemaking for transmission infrastructure to ensure that transmission rates are just and reasonable or to ensure the selection of the more efficient or cost-effective solutions in the transmission planning process. Under Order Nos. 890

²⁰⁷ ANOPR at P 180.

²⁰⁸ *Id.*

and 1000, transmission providers are already required to select the more efficient or cost-effective solution to an identified transmission need, whether it is a transmission solution or a non-transmission solution.

Any performance based ratemaking or shared savings mechanism the Commission considers should not impose additional requirements on RTOs/ISOs. In particular, the CAISO does not support shared savings mechanisms that require RTOs/ISOs to estimate the benefits that might support any shared savings between transmission owners and ratepayers. Estimated benefits from RTO/ISO planning studies can support the decision to proceed with a capital addition to the transmission system or a grid enhancing technology. But grid changes that will occur due to load growth, resource development, congestion, and numerous other factors do not make these modeling estimates a good source for rate recovery purposes in future years. Requiring an RTO/ISO to assess benefits for purposes of awarding a performance-based rate incentive will create additional disputes regarding the precision of an RTO/ISO benefits assessment in its transmission planning process. An additional concern with performance based ratemaking that relies on *ex ante* assessments of benefits performance by RTOs/ISOs is that it might incentivize entities to submit artificially inflated bids to increase their opportunities to share on savings. Such submissions likely will also lead to disputes in the transmission planning process, distracting transmission planners from their core responsibilities.

The CAISO conducts production simulation modeling to assess the estimated economic benefits of projects and uses those modeling results to

determine whether to pursue a project in the first instance. The CAISO does not use the modeling results to calculate rates or determine how costs should be “shared,” nor are they designed for that purpose. Utilizing the modeling results to authorize rate recovery creates the risk that transmission ratepayers will pay for benefits that may not materialize at the level projected. Alternatively, the modeling results might understate the benefits that actually accrue on the transmission system and under-compensate the project sponsor.

The CAISO cautions that use of *ex ante* modeling results from the transmission planning process may not provide an accurate assessment of actual savings that will result on a year-to-year basis from implementing a transmission expansion project or a grid enhancing technology. Grid conditions are constantly changing, especially now given the rapid transformation of the electricity industry and more extreme weather conditions. Numerous factors can affect the yearly (and long-term) efficacy of any grid enhancing technology, including, among others, generation and transmission additions (and retirements), natural gas prices, generation and transmission outages, rapid growth of variable energy resources and distributed energy resources, changes in load, new weather patterns, drought, and fires. All of these factors can affect flows on the transmission system and change the effectiveness of transmission projects or grid enhancing technologies. For these reasons, distributing incentive payments under a shared savings approach using *ex ante* modeling approach can create an inaccurate payment stream over a period of time.

IV. CONCLUSION

The Commission should act on the ANOPR in a manner consistent with the CAISO's comments.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 12th day of October, 2021.

/s/ Martha Sedgley
Martha Sedgley