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California State Assembly

UTILITIES AND ENERGY



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Wednesday, June 14th
1:30 p.m. – Capitol Room 437

OVERSIGHT HEARING

Building Transmission for a Clean Energy Transition

California is a leader in policies that reduce carbon footprint, develop clean energy technologies, and accelerate investments and equitable economic opportunities in the clean energy economy. At the heart of these policies is SB 100 (De León, Chapter 312, Statutes of 2018) which established the state policy that renewable and zero-carbon resources supply 100% of retail sales and electricity procured to serve all state agencies by 2045 (the 100% Clean Energy Policy).¹ This policy was recently updated under SB 1020 (Laird, Chapter 361, Statutes of 2022) which accelerated the requirement on state agencies to 100% by 2035, and established interim targets to meet the sector-wide 100% goal. In addition, the updated² 2022 Scoping Plan released by California Air Resources Board (CARB) in December 2022 calls for targets of 38 million metric tons of carbon dioxide equivalent (MMTCO₂e) in 2030 and 30 MMTCO₂e in 2035 in the electricity sector.³ These sector-wide targets establish the planning goal that informs all subsequent electricity procurement and transmission planning.

California has made progress towards a clean energy future with roughly 59% of the state's electricity in 2020 coming from renewable resources and zero-carbon resources.⁴ However, meeting these targets for the world's fifth⁵ largest economy, requires rapid actions to shift every sector of California's economy away from fossil fuels which coincide with the need to decarbonize our electrical grid. These efforts also ensure the transition to a clean energy future is affordable and uplifts disadvantaged and low-income communities. In March 2021, the California Energy Commission (CEC), California Public Utilities Commission (CPUC)

¹Public Utilities Code §454.53

² In its previous draft plan, CARB set the electric sector targets at 38 million metric tons of carbon dioxide equivalent (MMTCO₂e) in 2030 and 30 MMTCO₂e in 2045.

³Pg.75, CARB, "DRAFT 2022 Scoping Plan Update," May 10, 2022

⁴ CEC, "New Data Indicates California Remains Ahead of Clean Electricity Goals"; <https://www.energy.ca.gov/news/2022-02/new-data-indicates-california-remains-ahead-clean-electricity-goals>

⁵ Pg.1, CARB; "2022 Scoping Plan for Achieving Carbon Neutrality." December 2022

and California Air Resources Board (CARB) released the SB 100 report, to determine how best to implement the 100% Clean Energy Policy, and found that in order to meet our goals, California will need to roughly triple its current electricity power capacity.⁶ The report has also found 6 gigawatts (GW) of new solar, wind, and battery storage resources were needed annually, roughly triple the build rate for solar and wind and an eightfold increase for battery storage.⁷

Recent decisions at the CPUC call for unprecedented amount of new resources, with two orders calling for 11.5 GWs to come online from 2023-2026,⁸ and an additional 4 GW to come online from 2026-2027.⁹ Furthermore, CPUC's recent integrated resource planning (IRP), a key part in the California Independent System Operator's (CAISO) Transmission Planning Process, recommends 85 GW of new resources in the next 12 years. It also allows CAISO to study transmission needs in anticipation of new offshore wind resources.¹⁰ With limited transmission capacity, new resources cannot come online. Needless to say, the rate at which we build these new clean resources to meet our reliability needs and energy goals, will need to be parallel to the associated upgrade and expansion of the state's transmission system.

A recent study by the Clean Air Task Force and the Environmental Defense Fund concluded a doubling—at minimum—of transmission capacity is needed to interconnect new renewables by 2045.¹¹ Unfortunately, the current transmission development process is lengthy and complex and can take over a decade from start to finish.¹² If new high-voltage transmission takes, on average, a decade to build, then concerns arise whether our current transmission system largely built out over four decades ago to deliver electricity from fossil, nuclear, and hydroelectric generation can rapidly accommodate clean new resources of solar, wind and geothermal energy from different locations in California and from neighboring states.¹³

The purpose of this hearing is to provide an update of the federal and state efforts to build more transmission capacity in California, as there has been lots of focused attention on advancing solutions to aid in transmission development in the state. This hearing represents a follow-up to this committee's hearing last May on transmission development, as well as

⁶ Pg. 10, CEC, CPUC, & CARB; "Achieving 100% Clean Electricity in California," *2021 SB 100 Joint Agency Report Summary: An Initial Assessment*, March 2021.

⁷ Pg. 11, *Ibid*.

⁸ D. 21-06-035, CPUC, *Decision Requiring Procurement to Address Mid-term Reliability (2023-2026)*, R. 20-05-003, June 24, 2021.

⁹ D. 23-02-040, CPUC, *Decision Ordering Supplemental Mid-term Reliability Procurement (2026-2027) and Transmitting Electric Resource Portfolios to California Independent System Operator for 2023-2024 Transmission Planning Process*, R. 20-05-003, February 23, 2023.

¹⁰ Pg 3, R.20-05-003

¹¹ Lucid Catalyst, Clean Air Task Force, and the Environmental Defense Fund, "California's Clean Energy Transition: Understanding Today's Challenges to Reach Tomorrow's Goals," presentation January 18, 2022.

¹² Nelson Falkenburg, Clean Air Task Force, "California's transmission permitting: Slowest in the West?" May 2023; <https://www.catf.us/2023/05/californias-transmission-permitting-slowest-in-the-west/>

¹³ Pg 1; Grid lab, CEERT; "Report: Transmission in California," March 2023.

provides a complement to recent hearings in this committee on grid reliability and distribution planning to ensure a full update on energy infrastructure development in California.

Findings:

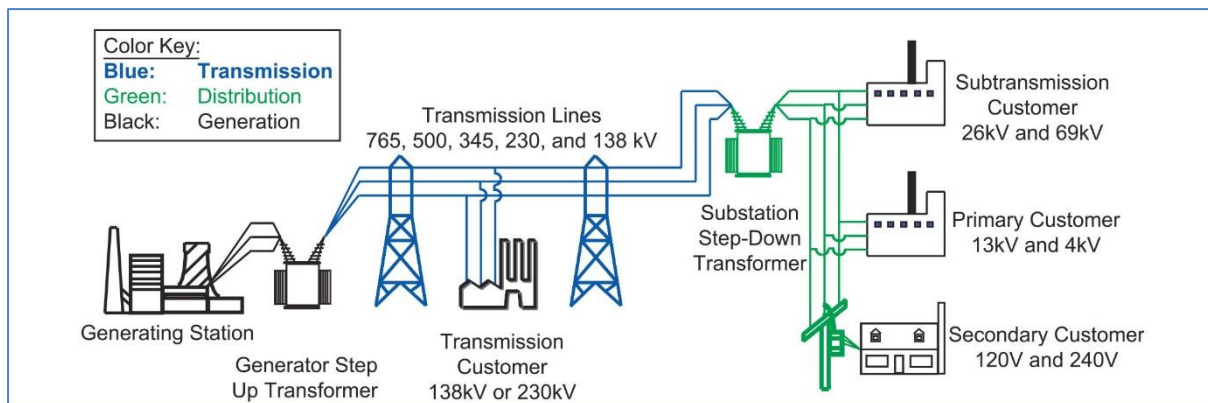
- *The current transmission development process spans several state entities, and is considered lengthy and complex. Without synchronizing the current planning and permitting processes, it may be difficult for California to meet its clean energy and climate goals. Recent efforts to increase cooperativity amongst the state entities have aided in this synchronization, however it remains uncertain if such efforts are sufficient to fully meet the level of rapid build-out anticipated. Partnership with federal entities is considered key to achieving these goals.*
- *Revising current transmission planning processes is critical for California to meet its clean energy goals in a timely and affordable manner; this is especially true for the interconnection processes of both the CAISO and the transmission operators.*
- *Recent legislative efforts may be supportive in the buildout of transmission projects, however a much broader suite of financial incentives, regulatory updates, and accelerating processes may likely be necessary.*

What is Transmission? In traditional utility organization, electric power flows in one direction from centralized generation resources over wires that gradually decline in voltage before reaching end-use customers. As shown in Figure 1, infrastructure operating at higher voltages comprise the transmission grid (in blue), while those at lower voltages comprise the distribution grid (in green). Transmission lines are connected to substations that "step-down" the power to a lower-voltage so that it can be delivered to customers through distribution lines, although some large industrial customers receive their electricity at transmission or sub-transmission voltage. The distinction in voltage level between the transmission and distribution grid differ across the utilities, and are set at the discretion of the utility. Nevertheless, the transmission system carries the electric energy at relatively high voltages, usually above 69 kilovolts (kV).¹⁴ If electrons were like cars on the road, the transmission system would be the highways and freeways, while the distribution system would be the surface streets. Transmission lines may be owned and operated by investor-owned utilities, publicly-owned utilities, or even independent third-party transmission owners that competitively bid for transmission projects. As the transmission system is the connecting point between generation resources (supply) and consumers (demand), planning for transmission construction—both new and upgrading old—requires an understanding of both future generation resource needs (capacity and location) and consumer demand changes.

¹⁴ Though this is not a hard-and-fast rule, some utilities designate circuits >60kV "transmission." >69kV is NERC's definition, as provided by the U.S. Energy Information Administration glossary of terms. <https://www.eia.gov/tools/glossary/index.php?id=T>

Therefore, transmission planning requires a robust planning process that considers all aspects of electricity supply and demand.

Figure 1: Diagram of the standard North American electric grid.¹⁵ All the poles and wires we see along the highway and in front of your houses are called the electrical transmission and distribution system. The generating stations all across the country are connected to each other through the electrical system (sometimes called the "Electrical grid")



The Phases of Transmission. As shown in Figure 2, the transmission development process is marked by three key phases summarized as:

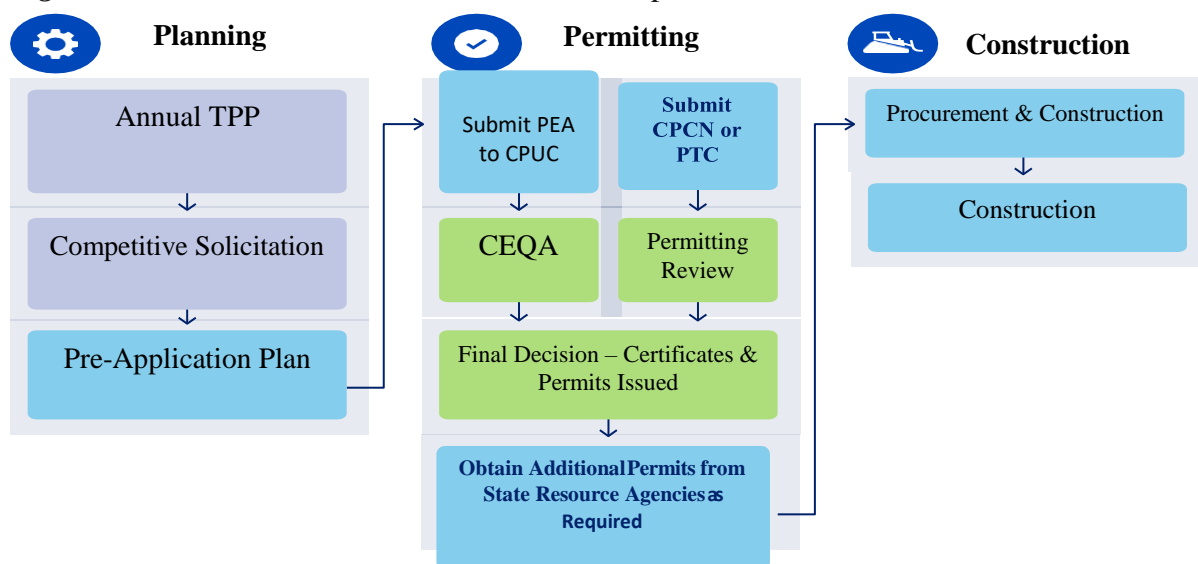
- 1) **Planning Phase:** The CAISO identifies whether new transmission projects are needed to meet system reliability, policy targets (such as GHG reductions), or economic needs (e.g., lower costs). This CAISO analysis is interconnected with demand and resource planning at the CEC and CPUC, respectively. Once new transmission projects are identified, CAISO then engages transmission project developers, some of which must be chosen by competitive solicitation.
- 2) **Permitting Phase:** Once a developer is selected, they submit a proponent’s environmental assessment (PEA) to the CPUC prior to the CPUC’s environmental review process. The CPUC administers two distinct types of permitting processes depending on the project size: the Permit to Construct (PTC) or the Certificate of Public Convenience and Necessity (CPCN). Parallel to these efforts, the CPUC solicits feedback from stakeholders and the public prior to issuing a final decision approving (or denying) a transmission project.
- 3) **Construction Phase:** The project enters the construction phase where developers conduct final engineering work, procurement, and physical construction of the transmission project.

Each step of this process may introduce delays that are unique to the various transmission projects. Furthermore, once a transmission project is built new generation resources seeking to utilize the transmission infrastructure must engage in the interconnection process—also at

¹⁵ National Park Service website, “Electrical Power Transmission and Distribution,” access on May 5, 2023; <https://www.nps.gov/subjects/renewableenergy/transmission.htm>

the CAISO—to physically connect to the transmission line. The resource interconnection process informs subsequent rounds of CAISO transmission planning, and the cycle of transmission development repeats. The remainder of this paper will discuss these different elements of transmission development in the state, and discuss recent reforms and potential opportunities for further action.

Figure 2: The Phases of the Transmission Development Process in California¹⁶



Transmission Planning Phase. The transmission planning process (TPP), occurs annually, and begins with CAISO identifying potential system limitations as well as transmission projects in need of upgrades or new infrastructure in need of construction to chiefly meet reliability, state policy goals, and economic or other needs¹⁷ for the state.¹⁸ First, CAISO receives demand forecast of electricity and natural gas sales, consumption, and peak and hourly electricity demand from the CEC’s integrated energy policy report (IEPR).¹⁹ Corresponding to this action, the CPUC’s IRP process²⁰ then works to identify the optimal mix of system-wide resources capable of meeting GHG planning targets for the electric sector.²¹ CAISO receives the IRP results as inputs into its TPP. As eluded earlier, the core of

¹⁶Pg.3, “Clean Air Task Force: “Report: Transmission Development in California –What’s the Slowdown?” January 2023

¹⁷ Maintain the feasibility of long-term congestion revenue rights, provide a funding mechanism for location-constrained generation projects. Pg 3. CAISO; “2017-2018 TRANSMISSION PLAN.” March 22, 2018

¹⁸ See Slide 2, “CAISO Presentation: The CAISO assesses transmission needs annually with intensive coordination with California state agencies;” Assembly Committee on Utilities and Energy. May 18, 2023

¹⁹ The CEC uses these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state’s economy, and protect public health and safety. To carry out these assessments, “the Commission may require submission of demand forecasts, resource plans, market assessments, and related outlooks from electric, natural gas utilities, transportation fuel and technology suppliers, and other market participants.” The CEC is also required to publish a strategic plan for California’s transmission grid and include it in the IEPR.

²⁰Called for under SB 350 (De León, Chapter 547, Statutes of 2015). The legislation establishes targets to increase retail sales of qualified renewable electricity to at least 50 percent by 2030.

²¹ Via the Reference System Plan (RSP) and Preferred System Plan (PSP). The CPUC creates the Reference System Plan (RSP) to meet the electric sector target informed by the California Air Resources Board Climate

these efforts is to meet the GHGs targets for electricity sector established by CARB’s scoping plan. The transmission plan is updated annually, and culminates in a CAISO Board of Governors approved transmission plan that identifies the needed transmission solutions²² and authorizes cost recovery through CAISO transmission rates, subject to the Federal Energy Regulatory Commission (FERC). FERC’s responsibility also includes regulating access to interstate transmission services, and wholesale sales of electricity in interstate commerce.

Role of Memorandum of Understanding (MOU) in Transmission Planning. In 2010, the CAISO and CPUC first inked an MOU when they recognized the need to coordinate the planning processes for both transmission and renewable generation as California’s renewable portfolio standard (RPS) began to take shape.²³ In its 2010-2011 transmission planning cycle, CAISO agreed to incorporate the resource scenarios from the CPUC and consecutively, the CPUC would highly consider in its siting assessment project applications that are consistent with CAISO’s transmission plan.²⁴ It is worthy to note that in this 2010-2011 planning cycle, new transmission projects were not needed to accommodate resources needed to meet the 33% renewable energy goal policy, as illustrated in Table 1.²⁵ It has also been reported that few policy-driven transmission projects were approved since the 2010 MOU was adopted.²⁶ As later discussed later in this paper, for the 2022 – 2023 transmission cycle (current cycle), policy seems to be a key driver of new transmission projects.

Table 1: Elements of the 2010 – 2011 CAISO Transmission Plan Supporting Renewable Energy Goals²⁷

Transmission Facility	Potential Energy Delivery (Terrawatt-hours)	Renewable Deliverability potential (Megawatts)
Transmission Facilities Approved and Permitted For Construction		
Sunrise Powerlink	4.1	1,700
Tehachapi Transmission Project	18.2	5,500
Colorado River - Valley 500kV line	2.9	1,600
Eldorado – Ivanpah 230 kV line	3.6	1,400
Additional Transmission not Permitted		
Borden Gregg Reconductoring	2	800

Change Scoping Plan. The CPUC uses this RSP to establish filing requirements for the load-serving entities. The second year considers the procurement each load-serving entity proposes to meet these GHG targets. As each load-serving entity has its own local constraints to consider, each files its own plan. The CPUC reviews, modifies, and aggregates these individual load-serving entities’ plans into a preferred system plan (PSP). Based on the approved PSP, the CPUC considers authorizing load-serving entities to procure resources within the next 1-3 years to meet GHG planning targets.

²²as well as identifying non-transmission solutions that will be pursued in other venues as an alternative to building additional transmission facilities.

²³ Pg. 4, CAISO; “2011-2012 Transmission Plan,” March 14, 2012.

²⁴Pg.4, CAISO; “Memorandum RE: Decision on the ISO 2010/2011 Transmission Plan,” May 11, 2011.

²⁵ Pg.7, CAISO; “Memorandum RE: Decision on the ISO 2010/2011 Transmission Plan,” May 11, 2011

²⁶ Pg 5; Grid lab, CEERT; “Report: Transmission in California,” March 2023.

²⁷ Pg.7, CAISO; “Memorandum RE: Decision on the ISO 2010/2011 Transmission Plan,” May 11, 2011

South of Contra Costa Reconductoring	0.8	300
Pisgah - Lugo	4.1	1,750
West of Devers Reconductoring	5.7	3,100
Carrizo Midway Reconductoring	2.1	900
Coolwater - Lugo 230kV line	1.4	600
Needed Policy-Driven Transmission Elements		
Mirage-Devers 230 kV reconductoring (Path 42)	3.6	1,400

As California’s electric grid rapidly evolves to accommodate new and distributed clean energy resources to meet energy and climate goals and reliability needs, it is becoming increasingly clear that new approaches are fundamental in planning and managing the transmission infrastructure. In December 2022, the CPUC, CAISO, and the CEC signed an updated MOU to enhance coordination of their shared responsibilities in transmission planning, resource development, interconnection process, and resource procurement.²⁸ Among other things, the new MOU:

- Recognizes CEC’s role for developing and updating multi-decade forecasting, and agreed to use a single demand forecast for both transmission planning and resource procurement.
- Calls for the three entities to work together on informational planning exercises to provide the CPUC and the public with an assessment of transmission planning needs over a longer time horizon. For context, CAISO prepared a 20-Year Transmission Outlook in 2022 to explore the longer-term grid needs and options for meeting statewide energy objectives reliably and cost-effectively. The Outlook estimated total costs arising from upgrades and new build of the high-voltage bulk transmission system needed to meet 2045 goals would be roughly \$30 billion dollars.²⁹
- Directs the CPUC to use transmission information from the CAISO to map its resource portfolios to specific electrical locations (busbars) through a joint effort with the CEC and the CAISO. Busbar mapping refers to the process of refining the geographical portfolios developed through the IRP to specific interconnection locations for study analysis in the CAISO’s annual Transmission Planning Process. As will be discussed shortly, projects that want to interconnect to the transmission

²⁸California ISO; “Memorandum of Understanding between the California Public Utilities Commission (CPUC), the California Energy Commission (CEC) and the California Independent System Operator (ISO) regarding Transmission and Resource Planning and Implementation,”

<http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>, December 2022

²⁹Approximate \$11 billion for upgrades; \$8 billion for offshore wind integration; and \$11 billion for out-of-state wind integration; pg. 3, CAISO, *20-Year Transmission Outlook*, January 31, 2022. DRAFT. Note: just focused on high-voltage bulk transmission; local transmission needs will be addressed subsequently.

grid go through a CAISO-interconnection process, which generally involves filing a request, going through interconnection studies, and eventually signing an interconnection agreement.

- Directs the CPUC to highly consider in its permitting process projects selected in the CAISO's annual transmission plan.
- The CAISO agrees to prioritize interconnection process activities to support resources with the operational characteristics and geographic locations consistent with the resource planning conducted by the CPUC and CEC.

CAISO's 2022-2023 Transmission Plan. The CAISO's TPP released in May 2023 reflects a more coordinated and strategic approach in studying and recommending new infrastructure as stipulated in the recent joint-entity MOU. The 2022-20233 TPP is centered on state projections³⁰ that call for more than 40 GW of new resources in the next decade, and a study projection of 70 GW by 2032. This evaluation reflects the potential of increased electrification occurring notably in the building and transportation sectors.³¹To meet this target requires 45 new transmission projects for a total infrastructure investment of about \$7.3 billion with a vast majority of them being located in California.³² Some of the specific resource projects included in the studies:

- Over 17 GW of solar generation distributed across the state in solar development regions that include the Westlands area in the Central Valley;
- Over 1 GW of geothermal development, primarily in the Imperial Valley and in southern Nevada;
- The import of over 4.5 GW of out-of-state wind generation from Idaho, Wyoming, and New Mexico;
- Access for battery storage projects co-located across the state with renewable generation projects, as well as stand-alone storage located closer to major load centers in the LA Basin, greater Bay Area, and San Diego;

³⁰Via CAISO 2022-2023 Transmission Plan. In planning for the new resources required to meet system-wide resource needs, CPUC portfolios also took into account the announced retirements of approximately 3700 MW of gas-fired generation to comply with state requirements for thermal generation relying on coastal water for once-through cooling, and the planned retirement of the Diablo Canyon Power Plant. The ISO is not relying on the gas fired generation or Diablo Canyon Power Plant to meet any local capacity or grid support purposes beyond the planned retirement dates. However, the ISO must continue to ensure that they are reliably interconnected and can continue to operate through any potential extension period, so the resources are modeled in the ISO's studies for those purposes only.

³¹ Pg. 2, CAISO; "2022-2023 Transmission Plan, "May 2023

³² Pg. 3, CAISO; "2022-2023 Transmission Plan, "May 2023

Figure 3: Transmission Planning Zones and Capacity³³

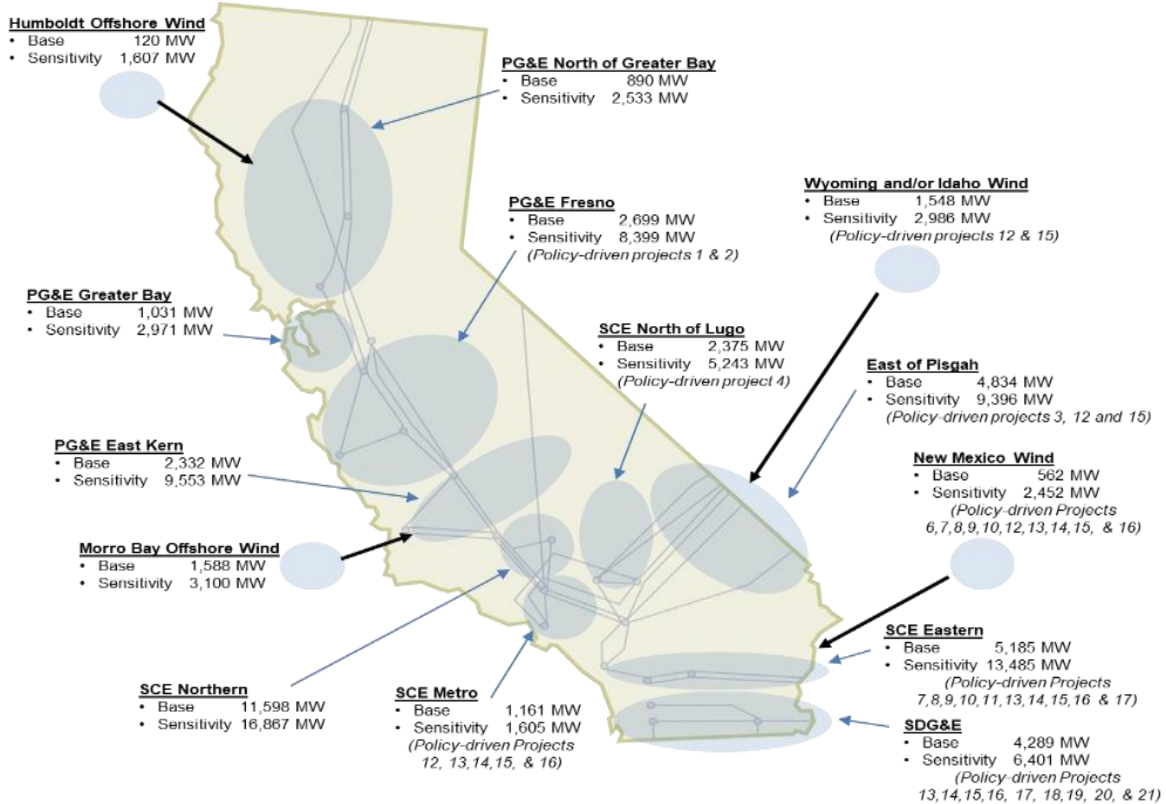


Figure 3 illustrates the 45 specific zones and capacities in each zone as specified by the current transmission plan to meet reliability, state policy goals, and economic needs. The projects are categorized as follows:

- 24 reliability-driven projects as load growth and anticipated electrification needs increase totaling to \$ 1.76 billion.
- 21 projects are state policy-driven to meet energy and climate goals for a total of \$5.53 billion. In the past transmission cycles, the focus has been the RPS goal that renewable and zero-carbon resources supply 60% of retail sales Energy Policy by December 31, 2030 as directed by SB 100 policy.³⁴ More recently, the focus has shifted to the more aggressive 2030 GHG reduction goals established by SB 32 (Pavley, Chapter 249, Statutes of 2016) which includes reducing GHG to 40% below 1990 levels by 2030. The legislation was recently updated by AB 1279 (Muratsuchi, Chapter 337, Statutes of 2022) that requires statewide GHG emissions be reduced to at least 85% below 1990 levels.
- Several economic studies were conducted to reduce total costs to ratepayers through transmission upgrades not otherwise needed for reliability, but no economic driven projects were recommended in the 2022-2023 transmission plan. Economic benefits

³³ Pg. 4, CAISO; “2022-2023 Transmission Plan, “May 2023

³⁴ Pg. 19, CAISO; “2022-2023 Transmission Plan, “May 2023

typically support reductions in congestion costs and transmission line losses and access to lower cost resource. However, it can be assumed that significant amounts of new diverse generating capacity and future transmission upgrades will be required for the state to decarbonize all its sectors.

FERC Order 1000: The Role of Competitive Solicitation. Historically, electric utilities had the right to construct and earn a return on all transmission projects in their service territories. In 2011, FERC issued Order 1000, which ended this system and promoted more market competition to the process by allowing non-utility companies to bid on and construct select transmission projects in utility company service territories.³⁵ As such, any qualifying regional transmission facility—those that are 200 kV or above and identified for reliability, policy, or economic need—are subject to competitive solicitation in the CAISO region. Projects below 200 kV that span more than two transmission service territories, or that extend beyond CAISO’s authority, are also subject to competitive solicitation.³⁶ The Public Advocates Office just reported in June 2023 that competitive solicitation led to an estimated 29% reduction in transmission project capital costs in the CAISO territory from 2013 to 2019, and 40% nationwide.³⁷ Upgrades to existing transmission facilities and projects with local cost allocation do not undergo solicitation.

Permitting Phase: CPUC Reviews Transmission Projects. Usually utilities proposing the construction of new transmission are required to obtain a permit from the CPUC for construction of certain specified infrastructure listed under Public Utilities Code §1001, including transmission projects. The CPUC reviews permit applications under two concurrent processes:

- (1) An environmental review of applicable projects pursuant to CEQA and CPUC environmental rules. However, some projects may trigger a federal National Environmental Policy Act (NEPA) review if they cross federal land or use federal funds.
- (2) The review of project need and costs according to Public Utilities Code §1001 and General Order (GO) 131-D, also known as a Certificate of Public Convenience and Necessity (CPCN), or—depending on project size—a Permit to Construct (PTC).

(1) ***California Environmental Quality Act (CEQA) Review.*** CEQA was enacted in 1970 and requires public agencies³⁸ to evaluate the environmental impacts of development projects before approving plans, policies, or development projects. A proposal will only trigger

³⁵ FERC; “Order No. 1000 - Transmission Planning and Cost Allocation;” <https://www.ferc.gov/electric-transmission/order-no-1000-transmission-planning-and-cost-allocation>

³⁶ Pg. 4, Clean Air Task Force, “Transmission development in California-What’s the Slowdown?” January 2023

³⁷ Public Advocates Office, “Competitive Solicitation in Transmission Line Development Lowers Ratepayer Costs and Decreases Delays”; [230609-caladvocates-increasing-competitive-solicitation-in-transmission.pdf](#)

³⁸ Public agency' includes any state agency, board, or commission, any county, city and county, city, regional agency, public district, redevelopment agency, or other political subdivision." (Pub. Res. Code, § 21063.)

CEQA review if it involves the exercise of discretionary powers by the CPUC and results in a direct, or reasonably foreseeable indirect, physical change in the environment.³⁹

There are three general buckets of CEQA-eligible projects:

- Exempted from CEQA – projects that either have a categorical exemption (projects that belong to a category that have been found by the Secretary of Natural Resources to not have a significant impact on the environment are exempt from CEQA) or a statutory exemption (projects that have been granted exemptions by the Legislature). The lead agency may file a notice of exemption, and no further actions are required.⁴⁰
- Subject to a Negative Declaration (ND) or Mitigated Negative Declaration (MND) – If a project does not qualify for an exemption, it must undergo an initial review to determine if it may have a “significant” environmental impact, based on 21 environmental factors. If the agency finds that the project would not have a significant impact on the environment or that revisions to the project will mitigate potential impacts, the lead agency may file a negative declaration (ND) or mitigated negative declaration (MND).⁴¹
- Subject to an EIR – a detailed statement describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects. Of the projects for which an EIR was prepared, many may also be subject to the National Environmental Policy Act (NEPA), the federal equivalent of CEQA. For projects that are subject to both CEQA and NEPA, the lead agency may file a joint document that covers both. The EIR process involves the lead agency producing a draft document outlining the environmental impacts of a project, any available mitigation measures, and a consideration of less environmentally impactful alternatives. The draft document must then be released for public comment. The lead agency must revise the EIR or submit a response to the comments prior to certifying the final EIR.⁴²

CEQA directs agencies to complete and certify an EIR within one year of the project application and 180 days for completing and adopting negative declarations. The failure to properly consider a project’s impacts is what typically results in litigation. These limits are measured from the date on which an application is received and accepted as complete by the lead agency. Agencies may provide for a reasonable extension in the event that compelling circumstances justify additional time and the project applicant consents. In the event a lead agency fails to properly conduct an EIR, they may be subject to litigation challenging the

³⁹ 14 CCR Section 15060 (c).

⁴⁰ 14 CCR Section 15062

⁴¹ *Gentry v. City of Murrieta* (1995) 36 Cal.App. 4th 1359.

⁴² 14 CCR Section 15088.

validity of the document and the overarching approval of the project. Most CEQA lawsuits must be brought within 30 days of the approval of the final EIR.⁴³ As with most court proceedings questioning government decision making and actions, CEQA litigation is heavily reliant on official government records as well as communications between stakeholders and government officials

2) **Permit/Certificate Review**. Parallel to environmental review (CEQA), the CPUC reviews the utility's application for a CPCN or a PTC, depending on the size of the project. The CPUC's decision on the CPCN or PTC cannot be issued until the environmental review is complete. Most of the CPCN/PTC process is outlined in General Order (GO) 131-D.

CPUC's GO 131-D. GO 131-D establishes the criteria to be followed to trigger the need for a permit to build or renovate electrical facilities, including transmission lines and substations, and also sets out public notice requirements for proposed transmission projects.⁴⁴ The level of analysis performed by the CPUC pursuant to GO 131-D varies with the size (measured in voltage) of the transmission project.

- Projects below 50 kV are considered distribution projects, rather than transmission projects, and in general do not require CPUC approval.
- Projects between 50 kV and 200 kV require a PTC, which consists primarily of an environmental review pursuant to CEQA. The CPUC process generally does not require a detailed analysis of the need for or economics of these projects.
- Projects over 200 kV require a CPCN, and are consistently subject to complete CEQA review, including an EIR. The CPCN process analyzes the need for the project and the economics of the project, as well as, the environmental impacts of the project.

According to CPUC data shown in Table 2 below, from 2012 to 2023, of a total 664 projects that required CPUC review: 608 projects were exempt from CEQA, 29 projects were approved via ND/MND, and 27 required an EIR. This represents that over 90% of IOU projects over the last decade were exempt from CEQA, not even counting the thousands of projects < 50 kV that do not require any review from the CPUC. Of the projects that had to go through a full EIR, over half of them were subject to NEPA; meaning, even if a specific project received a statutory exemption from CEQA, a federal NEPA review would still be required. Most projects are reviewed through the CPUC's advice letter approval process, which tends to be more simplified and expedient than a full application for a CPCN.

⁴³ See, Public Resources Code Section 21167.

⁴⁴ Public Utilities Code § 451,701,702,761, 762,768,770, and 1001

Table 2: CPUC CEQA Report⁴⁵

Years	Categorical Exemption ⁴⁶	Statutory Exemption	Negative Declaration/Mitigated Negative Declaration	EIR	Joint EIR/NEPA	Total
2012-2023	602	6	29	27	14	664

GO 131-D Reforms. First adopted in 1970 by CPUC, GO 131-D has been revised a few times to reflect California’s changing energy landscape. SB 529 (Hertzberg, Chapter 357, Statutes of 2022)⁴⁷ directs the CPUC by January 1, 2024 to authorize a utility to use the PTC process or claim an exemption to seek approval to construct an extension, expansion, upgrade, or other modification to its existing transmission facilities. In May 2023, the CPUC opened a rulemaking to solicit comments that would update the GO 131-D rules to accommodate SB 529.⁴⁸ This rulemaking has only begun and is awaiting party comments on the initial draft staff proposal.

Budget Act of 2022-2023. AB 205 (Committee on Budget, Chapter 61, Statutes of 2022) established a new certification process for solar photovoltaic, terrestrial wind, geothermal and other non-fossil power plants with a generating capacity of 50 MW or more, for energy storage systems capable of storing 200 megawatt hours or more of electricity, and for transmission lines from those facilities to a point of connection with an electrical transmission system. The law requires the CEC to review the project application and to determine whether to issue certification within a specified time period. The law designates the CEC as the lead agency for purposes of CEQA review for these projects.

This legislation also permits the CEC to certify a project as a leadership project under the Jobs and Economic Improvement through Environmental Leadership Act of 2021.⁴⁹ The law requires the State Judicial Council, the policymaking body of the California courts, to establish procedures that require actions or proceedings related to the certification of an environmental impact report or the issuance of the certification for a designated facility be resolved within 270 days.

⁴⁵ From a data request to the CPUC by this committee on March 29, 2023

⁴⁶ According to the CPUC, this column represents categories for projects where the applicant utility filed at the CPUC via Advice Letter to note they were taking an exemption to a CEQA document requirement process. There are a variety of exemptions claimed, including categorical exemptions. They CPUC does not track the type of exemptions claimed per Advice Letter.

⁴⁷ Public Utilities Code §564

⁴⁸ CPUC, “CPUC To Update Transmission Siting Regulations To Address Electricity Reliability and Climate Goals”; <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-to-update-transmission-siting-regulations-2023>

⁴⁹ Public Resources Code §21178, § 21185-21186

It is unclear how many proposed projects plan to utilize this new citing process at the CEC, however as of February of this year at least six projects were expressing interest with Fountain Wind in Shasta County the first to submit an application.⁵⁰

Governor Newsom’s Permitting Reforms. In May 2023, Governor Newsom announced a package of permitting and environmental review legislative reforms, with the goal of facilitating the development of projects that support California’s energy and climate change goals. The package included a proposal to streamline the judicial review of qualifying water, transportation, clean energy, and semiconductor or microelectronics projects that are challenged under CEQA. This proposal requires any litigation, including appeals, challenging qualifying projects would need to be resolved, to the extent feasible, within 270 days. In addition, the CEQA lead agencies for qualifying projects would be required to prepare the administrative record concurrently with the administrative process—a measure that is proposed to alleviate delays in litigation caused by preparing the record after a challenge is filed.

The expedited judicial review covers clean energy projects, which expands the offerings under AB 205 mentioned above, to include all electric transmission projects in the state. Most transmission developers already benefit from the fact that a legal challenge to a CPUC approval, including a CPCN or PTC, is reviewed directly in either the Courts of Appeal or the California Supreme Court,⁵¹ and receives judicial calendar preference.⁵² This effectively “streamlines” the judicial review of CPUC decisions. Data reported by the CPUC to this committee, illustrate that CEQA challenges to CPUC decisions are exceedingly rare, averaging less than 1 per year over the past six years. The number of cases in the past decade where a court granted review for a PTC/CPCN was zero. However, if a transmission project required discretionary approvals from a local agency, like a conditional use permit, then the Governor’s judicial streamlining proposal could reduce the length of litigation. These reforms may also aide publicly-owned utilities that plan and build transmission facilities outside of the CAISO footprint, and have their own permitting process separate from the CPUC.

Additionally in May 2023, Governor Newsom released Executive Order N-8-23 (the “EO”), directing the creation of an Infrastructure Strike Team (Strike Team), made up of the heads of various government agencies and requesting the participation of the President of the CPUC, to, among other things, identify projects on which to focus streamlining efforts. Under the EO, the Strike Team would be required to: (1) identify projects on which to focus streamlining efforts; (2) support coordination between federal, state, tribal, and local government, as well as among state agencies; (3) support infrastructure in a particular sector by prioritizing complementary investments in adjacent sectors; (4) share challenges and best practices across agencies, and identify opportunities for improvement.

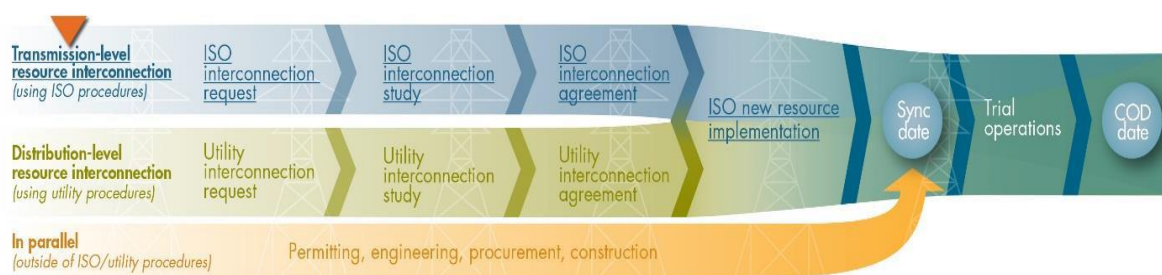
⁵⁰ <https://www.energy.ca.gov/powerplant/wind/fountain-wind-project#:~:text=The%20Fountain%20Wind%20Project%20is,in%20unincorporated%20Shasta%20County%2C%20California.>

⁵¹ Public Utilities Code § 1756.

⁵² Public Utilities Code § 1767

Additional Challenges: The CAISO Interconnection Process. For projects to be financed, new generators (power producers) usually need clear sight of when their projects can be connected to the electrical grid and whether the power they produce can be reliably delivered to customers. As illustrated in Figure 4, Interconnection projects are split into two queues: the distribution interconnection queue, which are operated by the individual utilities, or the transmission interconnection queue, which is operated by the CAISO but also involves the utilities. Which of the two queues a project enters is determined by the desired interconnection voltage level of the project. Projects exceeding a specific voltage threshold, set by whichever utility covers the territory that the project is sited in, are routed into the transmission queue and shepherded through the process by CAISO.

Figure 4: The Parallel Interconnection Queues for Transmission and Distribution-level Projects⁵³



The interconnection process begins with an interconnection request which includes several components such as the selection by the developer of a specific point of interconnection and CAISO’s determination whether there is sufficient transmission capacity to deliver power reliably from that location. When completed, the interconnection request is entered into the interconnection queue for interconnection studies which are performed based on the CAISO tariff (describes the interconnection, operating, and metering requirements for generation facilities to be connected to an electrical utility’s electrical system) and with the application transmission owners. The study processes⁵⁴ can be grouped into three categories:

- i) Cluster study: Small projects (< 20 MW) or large projects (>20 MW)
- ii) Independent study: When cluster process does not accommodate desired commercial operation date
- iii) Fast track study: 5 MW or less

These interconnection studies include resource adequacy deliverability studies, impacts on affected (neighboring) systems, and the relationship between generation interconnection and the CAISO’s TPP.⁵⁵ After a resource has completed the study phases of the interconnection process, contracts must be signed, the resource must be modeled in the CAISO’s market systems, and metering and telemetry equipment need to be installed before participation in

⁵³ California ISO; “Getting started - exploring interconnection to the grid”; <http://www.caiso.com/participate/Pages/ResourceInterconnectionGuide/default.aspx>

⁵⁴Pg .11 Via Slide CAISO Slide Presentation on “ Interconnection Application Options and Process,” March 11, 2020

⁵⁵ CAISO; “CAISO Interconnection Study”; <http://www.caiso.com/planning/Pages/GeneratorInterconnection/InterconnectionStudy/Default.aspx>

the wholesale power market is allowed.⁵⁶ The in-service date of a project can be affected by a variety of factors including permitting, engineering, procurement, and construction of generation and transmission.

CAISO’s Interconnection Challenges. The CAISO’s interconnection process has recently slowed in part because of the lack of available transmission capacity for new generators to reliably deliver power to load centers. As transmission has become limited, there has also been an enormous increase in the number of interconnection applications, particularly for battery storage projects. Over the past decade, CAISO received an annual average of 113 interconnection proposals. However, last year, as the state accelerated the pace of procurement authorized for renewable and storage resources, the annual window for new project applications more than tripled to 373 projects.⁵⁷ The flood of interconnection applications from energy providers wanting to connect to the grid has required the CAISO to consider process reforms to keep pace and improve efficiency. In September 2022, CAISO sought approval from FERC to delay the completion of the necessary interconnection technical studies for a year. In an attempt to resolve more upcoming delays, CAISO released a proposal in March 2023 to modify its interconnection procedures that will adjust the schedule for current interconnections requests and prioritize the processing of interconnection requests located in zones that have available transmission capacity. These efforts run parallel with interconnection reforms proposed by FERC.⁵⁸

Conclusion. While there is broad consensus that transmission is needed to build the grid of the future, uncertainty remains on how best to solve present challenges of transmission development. As such, understanding these challenges is essential in achieving reasonable solutions among diverse stakeholders. As discussed in this paper, there are many steps along the process in building a new—or upgrading an existing—transmission project within the state. Each step of the process presents its unique set of challenges and introduces opportunities for potential delays. As such, it is worth decisionmakers to consider a suite of solutions that may impact the various steps along this process rather than attempting to find a global solution. Many reforms are underway; either through better coordination amongst the energy entities to streamline planning, or through efforts to expedite permitting, including much focus on environmental review, or through reforms to the interconnection process to ensure new resources can be delivered.

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⁵⁶ California ISO; “Getting started - exploring interconnection to the grid”;
<http://www.caiso.com/participate/Pages/ResourceInterconnectionGuide/default.aspx>

⁵⁷ CAISO, “Interconnection queue reforms going to ISO Board”;
<http://www.caiso.com/about/Pages/Blog/Posts/Interconnection-queue-reforms-going-to-ISO-Board.aspx>

⁵⁸ Federal Register, “Improvements to Generator Interconnection Procedures and Agreements”;
<https://www.federalregister.gov/documents/2022/07/05/2022-13470/improvements-to-generator-interconnection-procedures-and-agreements>

Appendix A – Lead Entities

CAISO – a nonprofit public benefit corporation created by California statute as part of the effort to deregulate the electricity market in the late 1990s. The CAISO manages the flow of electricity across the high-voltage bulk power system that makes up 80 percent of California's, and a small part of Nevada's, electric grid. CAISO is registered as both a transmission operator and BA under federal reliability requirements. Transmission operators direct the operations of transmission facilities and are responsible for their reliability. BAs ensure electric reliability over an area that includes the generation, transmission, and loads, balancing electricity supply and demand at every moment. As with other BAs, the CAISO is regulated by federal statute, with oversight by FERC and the North American Energy Reliability Corporation.

FERC – is the United States federal agency that regulates the transmission and wholesale sale of electricity and natural gas in interstate commerce and regulates the transportation of oil by pipeline in interstate commerce.

Order No. 1000 (Transition Planning and Cost Allocation) – issued in 2011 by FERC, the order established minimum criteria for the transmission planning process including development of regional plans, consideration of transmission needs driven by public policy requirements, and coordination between neighboring regions. The order also required regional and interregional cost allocation methods that are "roughly commensurate" with estimated benefits and that protect entities who don't benefit from having to pay. And lastly, the order encouraged non-incumbent transmission owners to build new transmission by removing the right of first refusal given to incumbent transmission owners.

CPUC – has many regulatory responsibilities for energy, telecommunications, water, transportation, and safety in California. Relevant to this paper, the CPUC is the lead for energy resource planning and procurement through primarily the IRP, RPS, and RA programs. It additionally sets reliability requirements for the LSEs that participate in the CAISO markets and comprise the majority of the CAISO footprint. Electric utilities regulated by the CPUC represent approximately 80% of the electricity demand in California and 91% of the electricity demand in the CAISO system.

CEC – formally the Energy Resources Conservation and Development Commission, has many electricity planning and policy functions, including forecasting electricity and natural gas demand, investing in energy innovation, setting the state's appliance and building energy efficiency standards, and planning for and directing state response to energy emergencies. Among the CEC's key responsibilities is the preparation and adoption of electricity demand forecasts for the CAISO. As part of its IEPR process and in consultation with the joint entities, the CEC develops a set of forecasts to support the needs of CAISO transmission planning, CPUC Integrated Resources Planning, and CPUC and CAISO resource adequacy.

CARB – promotes and protects public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. CARB is the lead agency for climate change programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards. Relevant to this paper, CARB is the lead for the statewide Scoping Plan, which provides GHG reductions targets specific to the energy sector.

Appendix B – Select Transmission-Related Legislation

In May 19, 2023, Governor Newsom presented a package of CEQA bills that he would like the legislature to approve concurrent with the legislature's responsibility to pass the state budget by June 15, 2023.

Recategorization of "Fully Protected Species" as "Endangered Species" Regulated under the California Endangered Species Act (CESA): The governor proposes eliminating "fully protected" species protections under California law and requires seven currently fully protected species that are not also listed under the California Endangered Species Act (CESA) to be deemed "threatened" under CESA. This proposal would allow project developers to obtain incidental take permits for those species still listed as threatened or endangered and thus provide appropriate mitigation for potential impacts.

CEQA Reforms for Designated Water, Transportation, Clean Energy and Semiconductor or Microelectronic Projects: Most of the governor's CEQA reforms apply to designated types of projects, including those that are eligible for significant federal funding under the Inflation Reduction Act (IRA) and/or Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act. The most significant of these reforms requires that CEQA lawsuit challenges be resolved within 270 days of the filing of the certified administrative record with the trial court, consistent with existing laws allowing for expedited judicial review of environmental leadership projects. The administrative record component of the litigation process is required to be completed and funded by the project sponsor concurrently with the CEQA compliance and project approval process but would, if the prior reform is enacted, now largely exclude internal agency electronic communications. This reform is intended to resolve CEQA lawsuits (including review by the Courts of Appeal and California Supreme Court) in less than one year, instead of the four- to 10-year CEQA lawsuit durations common to complex infrastructure projects such as management of the wind farms, transmission lines and manufacturing facilities.

Chapter 7, commencing with Section 21189.80 would add seven new statutes to CEQA. The most critical is the list of eligible projects, defined in 21189.80, all of which include, except as otherwise noted, mandatory compliance with designated state labor standards. "Clean energy" projects include solar and onshore wind electricity generation, energy storage systems, electric transmission lines and projects for the manufacturing, production or assembly of energy storage, wind or solar energy systems, all of which must meet applicable labor standards except for solar/wind generation projects with a 20-megawatt capacity or less and storage projects with a capacity of less than 80 megawatts of energy.

Section 21167.6 is proposed to be amended to reduce the scope of, and schedule for preparing, the "administrative record" of the agency's approval of a project. Internal electronic communications within the lead agency are excluded from the record unless they were shown to "the final decision-making body" of the lead agency (e.g., a city council). This should reduce time-consuming searches and privilege reviews of emails. Also, a lead agency may insist on preparing the record and may either absorb or pass the cost of record preparation to an applicant.

Authorized Participation in Federal Green Bank Financing Fund: The federal IRA created a Greenhouse Gas Reduction Fund (sometimes called the "Green Bank") to be

administered by the U.S. Environmental Protection Agency (EPA) to help achieve climate change goals. The Biden Administration has required that 40% of these funds be directed to assist disadvantaged communities. These federal funds are awarded competitively in three programs and generally include both direct funding and tax credits. There is no cap on the number of tax credits that can be awarded. The \$14 billion National Clean Investment Fund will fund two to three national nonprofits to partner with capital providers to provide financing for climate projects. The \$6 billion Clean Communities Investment Accelerator will fund two to seven "hub nonprofits" to build the financing capacity of local nonprofits and other entities to finance climate technology deployment in low-income and disadvantaged communities. The \$7 billion Solar for All program will provide 60 grants to states, tribes, municipalities and nonprofits to expand the number of low-income and disadvantaged communities ready to accept solar power.

Section 63048.93(f) of the Government Code is proposed to be amended to allow nine state agencies to work on securing Green Bank funding for the state.

**Bills currently before the Legislature touch on many of the transmission topics discussed
These include:**

SB 319 (McGuire) - codifies a December 2022 memorandum of understanding between the CPUC, CEC, and CAISO regarding transmission and resource planning and implementation. Status: *pending* a hearing in this committee.

SB 420 (Becker) - allows transmission projects, identified by an agency chosen by the governor to be necessary for reliability and to meet the state's clean energy goals, to become environmental leadership development projects eligible for the California Environmental Quality Act streamlining, among other changes. Status: *pending* a hearing in this committee.

SB 619 (Padilla) - requires facilities eligible to be certified by the CEC to include electrical transmission lines carrying electricity from certain generation facilities regardless of whether the electricity is carried to a point of junction with any interconnected electrical transmission system. This bill also gives priority to applications for eligible electrical transmission facilities applying for the opt-in permit streamlining, if the applicant certifies that a capital investment of at least \$250 million will be made over a period of five years. Status: *pending* referral.

AB 914 (Friedman) - Establishes a two-year time limit, from the date the application is submitted, for a lead state agency to complete California Environmental Quality Act (CEQA) review and approve or deny an application for an electrical infrastructure project. Status: *pending* - Senate Environmental Quality Committee.

AB 538 (Holden) - Delegates to the CEC the ability to authorize the transformation of the CAISO into a multistate regional transmission system, if specified requirements are satisfied. This bill would prohibit a California electrical transmission facility owner, a retail seller of electricity, or a local publicly owned electric utility from joining a multistate regional transmission system organization, if specified requirements are not met. Status: *Held* – Assembly Committee on Appropriations.

AB 1358 (Muratsuchi) - Requires the state energy agencies, as part of their joint report reviewing and evaluating the statewide 100% clean energy policy (SB 100, De León, Chapter 312, Statutes of 2018), to develop a statewide transmission plan to facilitate the timely attainment of the SB 100 Policy and the RPS program targets. Requires the plan include a comparison of existing transmission with the transmission needed to achieve these policies; a description of the approximate amount and location of new transmission needed to achieve these policies; and any barriers to new transmission. Status: *Held* – Assembly Committee on Appropriations.