CALIFORNIA
BUSINESS AND ECONOMIC DEVELOPMENT

GO-Biz Clean Energy Permitting Playbook

Accelerating Clean Energy Permitting Statewide

2025

Acknowledgments

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Cover image (right): Riverside County, CA, Solar + Storage Facility.

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Section 2: Resources and Toolkit

The following downloadable resources that can be adapted for use by local permitting authorities can be found on the **GO-Biz Clean Energy Permitting Initiative** website:

Permitting resources & checklist	Guidance, local best practices and sample permitting checklist template
Aligning stakeholder engagement on projects	Guidance to articulate clean energy project benefits from a multi-stakeholder perspective
Model ordinance guidance	Battery energy storage systems (BESS), onshore wind, and solar model ordinance templates including discussion on fire codes for local planners, fire officials and local stakeholders
BESS, onshore wind, and solar clean technology fact sheets	Informational pamphlet on BESS, onshore wind and solar technologies for use in internal and external communications
Considerations for tribal lands	Overview of clean energy development and stakeholder engagement on tribal lands

Preface

As the world's fifth-largest economy, California is a global leader in clean energy, with ambitious goals to reduce greenhouse gas (GHG) emissions and achieve carbon neutrality by 2045, as outlined in Executive Order B-55-18 (2018, Brown), Assembly Bill (AB) 1279 (2022, Muratsuchi), AB 32 (2006, Pavley), and the California Air Resources Board's (CARB) 2022 Scoping Plan.

In parallel, Senate Bill (SB) 100 (2018, DeLeon) mandates 100% clean electricity by 2045 with additional interim targets established by SB 1030 (2022, Smallwood-Cuevas). While technological advancements have accelerated clean energy generation and storage, the pace of deployment must still increase significantly to meet the state's goals.

SB 846 (2022, Dodd) included legislation to provide $1 billion from the General Fund to support the Clean Energy Reliability Investment Plan (CERIP), which was developed by the California Energy Commission (CEC). CERIP provides recommendations for investments that accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability. The Budget Act of 2023 funded the Governor's Office of Business and Economic Development (GO-Biz) to help overcome barriers to energy development and streamline local permitting processes. Permitting delays remain a major barrier to the clean energy transition. Utility-scale projects must undergo rigorous analysis, essential community engagement, and coordination across multiple agencies, including overlapping or even contradictory state and local regulations. These requirements, when layered onto fragmented and inconsistent processes across jurisdictions, often slow the deployment of critical clean energy infrastructure.

GO-Biz kick-started the Clean Energy Permitting Initiative to increase transparency and develop tools to support local planning authorities with large-scale clean energy permitting. In collaboration with local governments, planning agencies, developers, community members, and other stakeholders, GO-Biz developed the Clean Energy Permitting Playbook and Toolkit to improve understanding of local permitting processes, share smart practices, provide guidance, and actionable steps to accelerate the deployment of utility-scale energy projects.

Executive Summary

The Clean Energy Permitting Playbook and Toolkit, developed by the Governor's Office of Business and Economic Development (GO-Biz), is a resource designed to help California's local planning authorities improve permitting processes for utility-scale clean energy projects. By streamlining these processes, the Playbook supports planners in advancing the state's goal of achieving 100% carbon-free electricity by 2045. Meeting this ambitious target requires deploying approximately 7 to 10 gigawatts (GW) of new clean energy resources each year. In 2024, California reached this level of annual deployment for the first time - a major milestone that now must be sustained every year through 2045 to realize the state's clean energy vision.

The Tracking Energy Development (TED) Task Force, a joint effort between GO-Biz, the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and California Independent System Operator (CAISO) to track energy projects in California, has identified permitting as one of the main barriers to being able to sustain the pace of clean energy deployment.

Challenges Identified

To gain an on-the-ground understanding of the permitting challenges facing clean energy projects in California, the project team conducted surveys, interviews, webinars and participated in conferences to achieve over 300 individual touch points with local planning authorities, developers, tribes, community-based organizations, and other stakeholders. The insights gathered through this outreach directly informed the design of the Clean Energy Permitting Playbook and Toolkit, to address the most pressing needs identified by localities within their permitting process, particularly those of local planning authorities who play a pivotal and cross-cutting role across the entire clean energy project lifecycle.

Identified challenges included:

- Staff Capacity and Experience: Local planning authorities cited staff bandwidth and inexperience with clean energy technologies as a major barrier. Planners often manage a broad portfolio of permit applications. Clean energy projects—particularly battery energy storage system (BESS) installations—require specialized knowledge of technology fire and building codes, environmental regulations, and interagency coordination.
- Permitting Delays and Rejections: Local planning authorities indicated that permits for clean energy projects are frequently or occasionally delayed and that permits were frequently or occasionally rejected. Community opposition was identified as a frequent cause of delays and cancellations. Incomplete applications were also identified as a common cause of delays.
- Community Opposition and Appeals: Local permitting authorities and developers indicated that community opposition was one of the biggest barriers to accelerating clean energy deployment. Health and safety issues, particularly around BESS fire safety, were among the most significant community concerns.
- Restrictive Ordinances and Inconsistent Standards: Developers cited restrictive ordinances or inconsistent regulations as a significant barrier to BESS development. Local planning authorities expressed a need for more technical information to be able to confidently issue BESS regulations and site projects locally. Several jurisdictions in the state enacted moratoria on BESS projects while simultaneously developing their technical capabilities and understanding.

Structure of the Playbook

The Playbook is organized into two primary sections:

- **Section 1 – Playbook:**
  - Provides an overview of California's energy landscape, outlines the drivers for improving permitting efficiency, and presents findings related to delays and barriers in the current permitting environment.
  - Describes the permitting process across jurisdictions and the cross-cutting role of permitting in the broader clean energy project lifecycle, from project initiation through to project decommissioning.
- **Section 2 – Resources and Toolkit:**
  - Introduces the Clean Energy Permitting Toolkit, a curated set of practical resources including permitting checklists, model ordinance templates, technology fact sheets, and stakeholder engagement guidance.

The Playbook concludes with opportunities for future resource development, emphasizing the importance of continued collaboration, technical assistance, and centralized support mechanisms.

The Playbook and Toolkit were developed at a specific point in time during which California's clean-energy deployment reached historic levels in 2024 and 2025. Sustaining the momentum requires a continued focus on streamlining and accelerating local permitting practices under the consistent themes of energy and permitting education, permitting technology enablement and innovation, and multi-stakeholder coordination.

Toolkit Overview

The Clean Energy Permitting Toolkit provides a suite of resources designed to support local planning authorities in navigating the complexities of clean energy permitting. Each tool was developed in consultation with local stakeholders and reflects best practices identified through local outreach. Key components include:

Permitting Application Checklists

This resource includes a standardized pre-application checklist for utility-scale clean energy projects. The checklist outlines requirements for environmental studies, fire protection, and public engagement. It also includes procedural steps for confirming zoning compatibility, identifying applicable permits, and coordinating with other departments. Local planning authorities can customize the checklist to reflect jurisdiction-specific requirements and can be a helpful reference point for developers to understand common application requirements.

Model Ordinances and Guides

The model ordinances provide template language to direct how land can be used and developed for solar, wind, and BESS projects. Key topics include permit types, design standards, environmental compliance, fire safety, and decommissioning. Additional background on each component of the ordinance, such as details on the use cases for different potential options, is also provided. The BESS model ordinance and guide provides detail on fire safety requirements, clarifying which elements should be included in a land use ordinance. The BESS model ordinance and guide also references the California Fire Code and emphasizes the importance of consulting local fire code officials.

Clean Energy Technology Fact Sheets

The Toolkit includes two-page fact sheets for solar, onshore wind, and BESS technologies. These materials are intended to improve public understanding of these technologies. Each fact sheet presents non-biased information about the technology, its benefits, and potential impacts in language accessible to non-technical audiences. These resources can be referenced and shared by local planning authorities and developers during community engagement, public hearings, or other public needs or community meetings.

Aligning Community Interests with Clean Energy Project Development: A Guide for Local Planning Authorities

This guide outlines strategies for aligning interests of host communities with clean energy project development. Recognizing that each local planning authority and community will have different needs, this guide provides options for assessing beneficial impacts of clean energy projects. The guide describes the range of economic and environmental benefits that clean energy projects may provide to host communities and discusses strategies for

communicating those benefits to stakeholders. It lays out questions for planning authorities to consider with regards to additional benefits, like Community Benefit Agreements, and discusses how coordination between community groups, local planning authorities, and developers can improve the process of establishing these agreements.

Permitting on Tribal Lands

This section examines tribal distinctions and offers guidance on permitting clean energy projects on tribal lands. It outlines clean energy development on tribal lands in California and how the permitting process may vary depending on the tribal recognition status and land trusts. The section also reviews consultation protocols, emphasizing their critical role in identifying and addressing cultural, historical, and ecological resource considerations for individual projects. In addition, it summarizes findings from outreach to tribes, noting that while many tribes expressed interest in pursuing clean energy partnerships, they faced challenges related to limited staffing, technical capacity, and legal resources needed to engage in project development.

Supplementary Resources – GO-Biz Website

The GO-Biz website includes links to downloadable tools, forms and guidance, webinar slide decks, and other relevant information. The website resources provide additional context and support for ongoing learning and to continue to share information between state and local agencies.

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Background

California's Energy Landscape and the Local Permitting Process

The Clean Energy Policy Landscape

California is a recognized leader in climate and energy policy. The state has passed several laws over the past 20 years to reduce greenhouse gas (GHG) emissions and increase clean energy to meet grid reliability needs, most notably, Assembly Bill (AB) 32 – the Global Warming Solutions Act of 2006 (Núñez, 2006). Subsequent climate laws set in motion a series of actions to reach carbon neutrality by 2045.

- The CARB Scoping Plan, mandated by AB 32, serves as the roadmap to reduce GHG emissions and details California's commitment to protect the environment, grow its economy, and drive innovation by attracting clean energy investment.
- Senate Bill (SB) 1078 (Sher, 2002), creates the California Renewables Portfolio Standard and sets clean energy procurement targets. Several laws extend and advance the Renewables Portfolio Standards (RPS); SB 100 (de León, 2018) requires 60% of electricity retail sales from renewable resources by 2030 and 100% of retail sales from zero-carbon resources by 2045.

As a result of these state policies, renewable energy development has accelerated. California's in-state solar generation has increased by 370% and in-state wind generation by 21%[1]. By 2024, most electric retailers reported meeting or exceeding the 41.3% RPS requirement for 2023[2]. Including all zero-carbon sources such as hydro and nuclear, California reached 60% carbon-free generation in 2023[3].

The SB 100 Joint Agency Report finds that maintaining momentum requires significant increases in renewable energy and energy storage deployment. This includes over 90 GW of additional utility-scale solar and wind, and over 54 GW of energy storage, which corresponds to building about 2.8 GW/year of solar, 0.9 GW/year of wind, and 2.0 GW/year of storage through 2045[4]. These needs underscore the value of streamlined permitting, transmission coordination, and procurement tools to keep clean energy projects progressing from siting to operation. Foundational to SB 100 implementation is the Governor's Office of Land Use and Climate Innovation (LCI) that guides planning priorities through its General Plan Guidelines, and the Tracking Energy Development (TED) Task Force with GO-Biz participation which coordinates across agencies to assist with development of clean energy infrastructure.

To accelerate the timelines necessary to permit renewable energy and storage resources, the state passed AB 205, which provides the option of a state-led permitting process for energy projects.

The development of renewable energy projects remains a complex undertaking in California, governed by many different statutes. For example, the Williamson Act of 1965 seeks to protect agricultural land from development by providing property tax benefits in return for limitations on development and alternative land uses. Out of state's 30 million acres of farmland, 16 million acres are protected under the Williamson Act and restricted from development.[5].

[1] Calculated from California Energy Commission (CEC), Electric Generation and Capacity dataset. Solar generation defined as PV + Solar Thermal. Available at: https://www.energy.ca.gov

[2] CPUC, 2024 RPS Annual Report, p. 4. Available at: https://www.cpuc.ca.gov

[3] California Energy Commission, 2023 Total System Electric Generation. Available at: https://www.energy.ca.gov

[4] 2021 SB 100 Joint Agency Report, available at: https://efiling.energy.ca.gov

[5] California Department of Conservation, Williamson Act FAQ 2024, see: https://www.conservation.ca.gov

Farmland protected under the Williamson Act often faces limited water availability, a condition now intertwined with the Sustainable Groundwater Act (SGMA) which establishes local control over groundwater management and can further constrain water access. The combination of development restrictions and limited groundwater availability means that some farmlands in California will neither be used for agriculture nor renewable energy development in the near term[6]. The Local Government Omnibus Act of 2022 created an option for Williamson Act restrictions to be rescinded in exchange for the establishment of a solar-use easement and the payment of a rescission fee[7]. A number of other legislative proposals have also sought to address the question of land use development on degraded or water-limited agricultural land, but as of publication, none of these proposals has been adopted.

California's climate and energy polices include both ambitious carbon reduction and clean electricity targets as well as practical considerations and constraints around procurement, permitting, and land use. The state's commitment to achieving carbon neutrality by 2045 will require ongoing refinement of statutory and regulatory tools, including coordination among agencies and alignment of transmission and permitting processes. By continuing to adapt state policies to address barriers in siting, permitting, and land use, California can maintain its leadership role and ensure continued progress toward a carbon-free electricity system.

The most relevant state laws that impact the development of large-scale clean energy resources as of August 2025 are summarized in Table 1.1. Changes made after August 2025 are not included.

Three primary entities regulate clean energy development in California: the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and the California Independent System Operator (CAISO).

- California Public Utilities Commission (CPUC)
  - Regulates electricity providers (investor owned utilities - IOUs, community choice aggregators CCAs, electric service providers - ESPs).
  - Conducts Integrated Resource Planning (IRP) to align utility plans with state clean energy and emissions goals.
  - Oversees rates, interconnection, and distributed energy programs.
  - Enforces renewable and emissions targets and approves power purchase agreements.
- California Energy Commission (CEC)
  - Leads state energy planning and permitting.
  - Certifies large power plants (50 MW+) and opt-in renewable/storage projects.
  - Sets RPS rules for publicly owned utilities and certifies eligible renewable facilities.
- California Independent System Operator (CAISO)
  - Manages the flow of electricity over 80% of California's transmission (high-voltage) electricity grid.
  - Oversees the interconnection process for new generation and storage projects.
  - Runs the wholesale electricity markets and ensures grid reliability.

[6] Public Policy Institute of California, "Solar Energy and Groundwater in the San Joaquin Valley: How Policy Alignment Can Support the Regional Economy", Ayres, A. et al. October 2022. See: https://www.ppic.org

[7] See the Department of Conservation, Solar Use Easements: https://www.conservation.ca.gov

Table 1.1. Key Climate and Clean Energy Policy and Targets – At a Glance

Policy Type	Applicable Law(s)	Description
Greenhouse gas emission reduction (GHG) goals	AB 32 (Núñez, 2006) SB 32 (Pavley, 2016) AB 1279 (Muratsuchi, 2022)	AB 32 establishes the state's cap-and-trade program and sets a GHG emissions cap at 1990 levels by 2020, among other climate-related requirements. SB 32 sets a GHG reduction goal of a 40% reduction below 1990 levels by 2030. AB 1279 requires anthropogenic GHG reductions of at least 85% relative to 1990 levels, and carbon neutrality by 2045.
Clean electricity goals	SB 1078 (Sher, 2002) SB 350 (de León, 2015) SB 100 (de León, 2018) SB 1020 (Laird, 2022)	Renewables and clean electricity goals are established under SB 1078 and later accelerated by SB 350. SB 100, together with SB 1020, requires: • 60% renewable energy by 2030 • 90% renewable and zero-carbon energy sources by 2035 • 95% zero-carbon electricity by 2040 • 100% clean electricity by 2045.
Centralized procurement for long-lead time resources	AB 1373 (Garcia, 2023)	Authorizes the CPUC and Department of Water Resources to purchase long-lead time clean energy resources, including offshore wind, long duration energy storage, and geothermal to support the state's goal of carbon-free electricity through a central procurement mechanism.
Consolidated permitting process for renewable projects	AB 205 (Committee on Budget, 2022)	Allows clean energy projects greater than 50 MW (and other categories of energy infrastructure) to opt into a state-level consolidated permitting process that replaces most state and local permitting requirements.
Williamson Act and Solar Use Easements	California Land Conservation Act of 1965 SB 618 (Wolk, 2011) SB 1489 (Local Government Omnibus Act, 2022)	Provides tax benefits to agriculturally zoned tracts that limit alternative uses. Currently, land protected under the Williamson Act cannot be repurposed for solar or other renewable energy development without facing tax penalties. SB 618 established the option of creating a solar easement on Williamson Act lands. This authority was extended under SB 1489. The Act requires the city or county to charge the property owner a rescission fee based upon the fair market value of the property at the time of the rescission.
Sustainable Groundwater Management Act (SGMA)	AB 1739 (Dickinson, 2014) SB 1168 (Pavley, 2014) SB 1319 (Pavley, 2014)	These acts comprise a statewide framework to help protect groundwater resources through local groundwater management agencies and practices. The acts have had the effect of limiting water use on some water-limited agricultural lands, potentially signaling land use for solar or renewable energy development instead.

Key Climate and Clean Energy Policy and Targets

Greenhouse Gas Reduction Policy Goals

Assembly Bill 32 (Núñez, 2006) – Global Warming Solutions Act

AB 32 is a landmark environmental law known as the Global Warming Solutions Act of 2006, which sets into motion the state's climate policies. It establishes a comprehensive program to reduce GHG emissions in California. The provisions of AB 32 include:

- Emissions reduction target – The law requires statewide GHG emissions to fall to 1990 levels by 2020, a goal, which California achieved six years ahead of schedule, largely due to reductions from the electricity sector and the development of clean electricity resources.
- Cap-and-trade program – Implemented in 2012 and administered by the California Air Resources Board (CARB), the cap-and-trade program sets a firm limit on total GHG emissions for the state and allows trading of emission allowances to provide flexibility in how reductions are achieved. The program covers major emission sources such as power plants, industrial facilities, and transportation fuels.
- Scoping plan – Requires CARB to create a scoping plan outlining strategies to reduce GHG emissions across sectors including energy, transportation, agriculture, and waste management. The plan is updated every five years to reflect progress and incorporate new technologies and methods.
- Mandatory reporting – Establishes a system for mandatory reporting and verification of statewide GHG emissions to provide transparency and track progress toward emission-reduction goals. CARB is responsible for verification, reporting, and enforcement under AB 32.

Senate Bill 32 (Pavley, 2016) – California Global Warming Solutions Act of 2006: Emissions Limit

In 2016, ten years after AB 32, the legislature passed Senate Bill 32, which strengthens and extends the state's climate goals beyond 2020. SB 32 sets a binding 2030 GHG emissions goal, requiring CARB to ensure that statewide greenhouse gas emissions are reduced to 40% below 1990 levels by 2030.

Assembly Bill 1279 (Muratsuchi, 2022) – The California Climate Crisis Act

In 2022, the legislature passed AB 1279 - the California Climate Crisis Act which requires the state to achieve net zero GHG emissions, "as soon as possible, but no later than 2045," to achieve and maintain net negative GHG emissions thereafter, and ensure statewide anthropogenic GHG emissions are reduced to at least 85% below 1990 levels by 2045. AB 1279 calls for accelerated deployment of clean energy and extended CARB's administration of GHG emissions under AB 32.

Clean Electricity Goals

Senate Bill 1078 (Sher, 2002) – Renewables Portfolio Standard

The Renewables Portfolio Standard (RPS) program mandates renewable energy generation through 2030. This program was established in 2002 by SB 1078 with the initial requirement that 20% of electricity retail sales must be from renewable resources by 2017. The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) jointly implement the RPS program.

Senate Bill 350 (de León, 2015) – The Clean Energy and Pollution Reduction Act

In 2015, SB 350 accelerated the RPS program from SB 1078, mandating that 50% of electricity retail sales must be from renewable resources by 2030. In addition, SB 350 includes interim annual RPS targets with 3-year compliance periods and requires 65% of RPS procurement to be derived from long-term contracts of 10 years or more. The CPUC implements SB 350 through the Integrated Resource Planning (IRP) process to ensure that the electricity sector meets its targets to reduce the state's GHG emissions goals.

Senate Bill 100 (de León, 2018) – The 100% Clean Energy Act of 2018

SB 100 mandates increased requirements for renewable energy and zero-carbon generation through 2045. Specifically, it states that 60% of electricity retail sales must be from renewable resources by 2030 and that by 2045, California's renewable energy and zero-carbon resources must supply 100% of electric retail sales to end-use customers and electricity procured for state agencies. The law also requires that the transition to 100% renewable and zero-carbon electricity does not increase GHG emissions elsewhere on the Western grid. SB 100 outlines requirements for retail electricity sellers to obtain specific percentages of their electricity from RPS-certified sources. The percentages increase each year.

Policies Impacting Clean Energy Development

Assembly Bill 1373 (Garcia, 2023) – Centralized Procurement of Long Lead-time Resources and Other Resource Planning Provisions

In 2023, AB 1373 established new planning and resource procurement processes governing the state's electricity policy, including several new requirements for resource planning at state agencies.

One of the notable provisions of the bill is the creation of a central procurement framework for the CPUC and Department of Water Resources to purchase electricity from resources that have been identified as being delayed or needing a secure development path.

In August 2024, the CPUC issued a decision (R.20-05-003) determining the need for centralized procurement of long-lead time resources pursuant to AB 1373, authorizing maximum quantities of up to 7.6 GW of offshore wind, 1 GW of geothermal, 1 GW of 12-hour-plus long-duration storage, and 1 GW of multi-day long-duration storage. These resources are not currently procured in sufficient quantities by individual load serving entities to produce deployment at scale and reduce costs. Central procurement of these resources remains contingent on cost-effectiveness. Future central procurement needs will be assessed within the Integrated Resource Planning process and may consider other eligible technologies.

Assembly Bill 205 (Committee on Budget, 2022) – CEC Opt-In Certification Program

California counties, cities, and other local permitting authorities (LPAs) are responsible for issuing permits for clean energy projects. Seeking to address misalignment between state climate goals and the pace of local project approvals, California passed AB 205 (Budget Committee, 2022), which allows certain clean energy projects greater than 50 MW to opt into a state-level certification process that replaces all state and local requirements (with a few exceptions for water quality and coastal permits).

Known as the CEC Opt-In Certification Program, eligible resources under the program include solar photovoltaic, terrestrial wind electrical generation, thermal power plants that do not use fossil or nuclear fuels, specified categories of large energy storage, qualifying electric transmission lines and designated manufacturing, production, and assembly facilities associated with renewable energy or energy storage systems. Acting as the lead CEQA agency, the CEC through the Opt-In Program limits the permitting timeline to 270 days and requires all applicable projects to follow labor and prevailing wage standards, have a net-positive economic impact on the local community, and submit a written community benefits plan with a signatory community partner.

The Williamson Act (Williamson, 1965) – The California Land Conservation Act

The Williamson Act, also known as the California Land Conservation Act of 1965, allows landowners to enter contracts with local governments to designate their land for agricultural use. Contracts range from a minimum of ten years to a maximum of twenty years. They are automatically renewed each year unless the non-renewal process is initiated. If a contract is cancelled immediately, the landowner pays a fee equal to 12.5% of the land's market value. If a party files for non-renewal instead, the contract remains in effect but phases out over nine years, with the property-tax benefit decreasing each year until it ends.

In California, approximately 16 million of the 30 million acres of farmland (of roughly 100 million acres of total land) are under Williamson Act contracts. Governance of the Williamson Act is at the local level; therefore, it is up to local discretion whether clean energy projects are compatible with Williamson Act contracts. The Williamson Act is pertinent to renewable and clean energy development as landowners who have placed their agricultural land under the Williamson Act designation would face penalties if the land were leased or sold for energy development purposes.

As of the date of publication, a pending legislative proposal (AB 1156) would update the solar-use easement framework for Williamson Act lands by allowing temporary suspension or conversion of contracts during an easement and by broadening eligible facilities (including storage).

The Sustainable Groundwater Management Act (SGMA)

The Sustainable Groundwater Management Act (SGMA), enacted in 2014, aims to address the state's chronic groundwater overdraft by mandating sustainable management of high- and medium-priority groundwater basins by 2040. Under SGMA, local Groundwater Sustainability Agencies (GSAs) develop Groundwater Sustainability Plans (GSPs) to curb excessive pumping, particularly in the San Joaquin Valley, where restricted groundwater access is projected to fallow 500,000 to 1 million acres, reducing the agricultural value of these lands[8].

SGMA can create economic challenges for lands enrolled in the Williamson Act, which are restricted to agricultural use but may no longer have full water access. A number of legislative proposals have sought to enable solar development on water-restricted lands. AB 2528 (Arumbala 2024) proposed to exempt SGMA-affected lands from Williamson Act contract cancellation penalties, thereby facilitating renewable energy development on fallowed parcels, but the proposed bill ultimately did not pass[9].

[8] PPIC, Solar Energy and Groundwater in the San Joaquin Valley. Available at: https://www.ppic.org
[9] California Legislature, AB 2528. Available at: https://leginfo.legislature.ca.gov

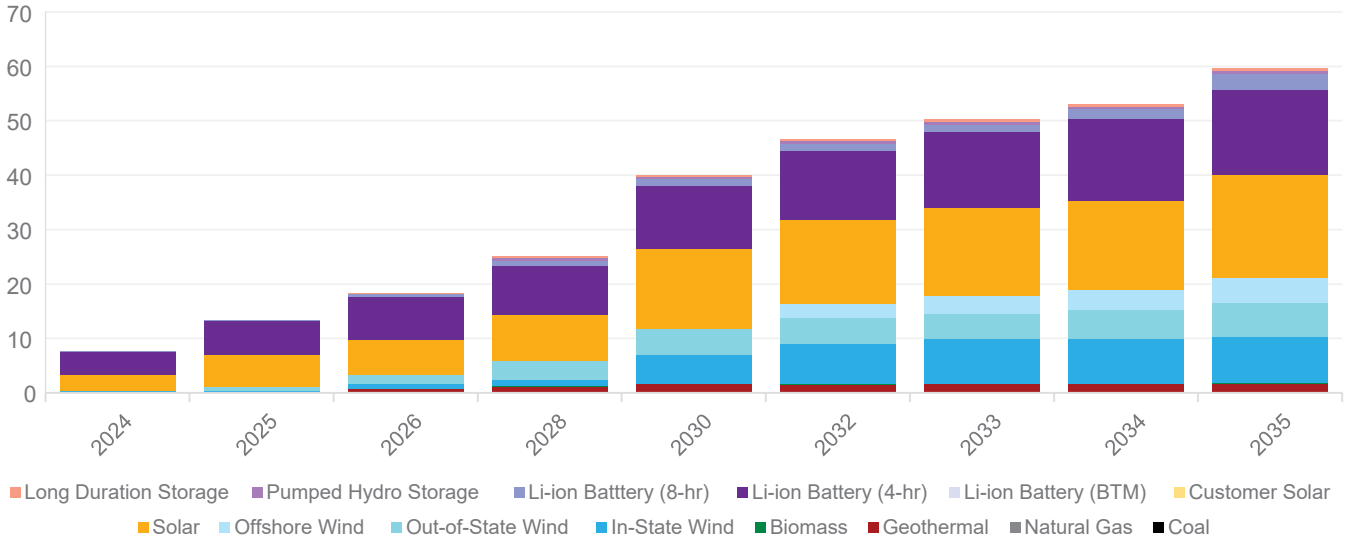
Drivers for Improving Permitting Efficiencies

The California Public Utilities Commission's (CPUC) Integrated Resource Plan (IRP) is the statewide energy blueprint that directs load serving entities (LSEs)[1] to procure new resources that will help meet the state's GHG reduction targets. Figure 2.1 shows the new resources by type and MWs needed to meet milestone GHG targets by 2035. The plan, adopted in 2023, includes 19 GWs of solar, 7 GWs of onshore in-state wind and 18.5 GWs of BESS.[2]

The IRP is primarily a regulatory planning tool for LSEs, but it also provides developers with a macro-level signal on which resources and regions California has prioritized for future development. Developers must balance this statewide signal against practical local siting factors such as transmission interconnection access, land availability, and the permitting environment, including the willingness and capacity of local governments to process land use permits. Misalignment between these statewide signals and local-level realities creates barriers to achieving California's clean energy goals.

The CPUC's IRP identifies the portfolio of renewable and storage resources that California utilities must procure to meet state clean energy and reliability targets. CAISO's interconnection queue, in turn, is the mechanism through which developers seek to connect those resources to the transmission grid. In many ways the IRP signals the demand for energy projects, and the interconnection queue reflects the supply pipeline of projects vying for grid access. Alignment between the two processes is critical: if the projects advancing through the queue do not match the IRP-mandated portfolio, or if transmission upgrades identified in CAISO studies lag behind procurement needs, California risks delays in meeting its decarbonization targets.

Figure 2.1. Excerpted from CPUC Fact sheet: Decision Adopting 2023 Preferred System Plan (R.20-05-003) indicating aggregated plans to meet milestone GHG targets by 2035.



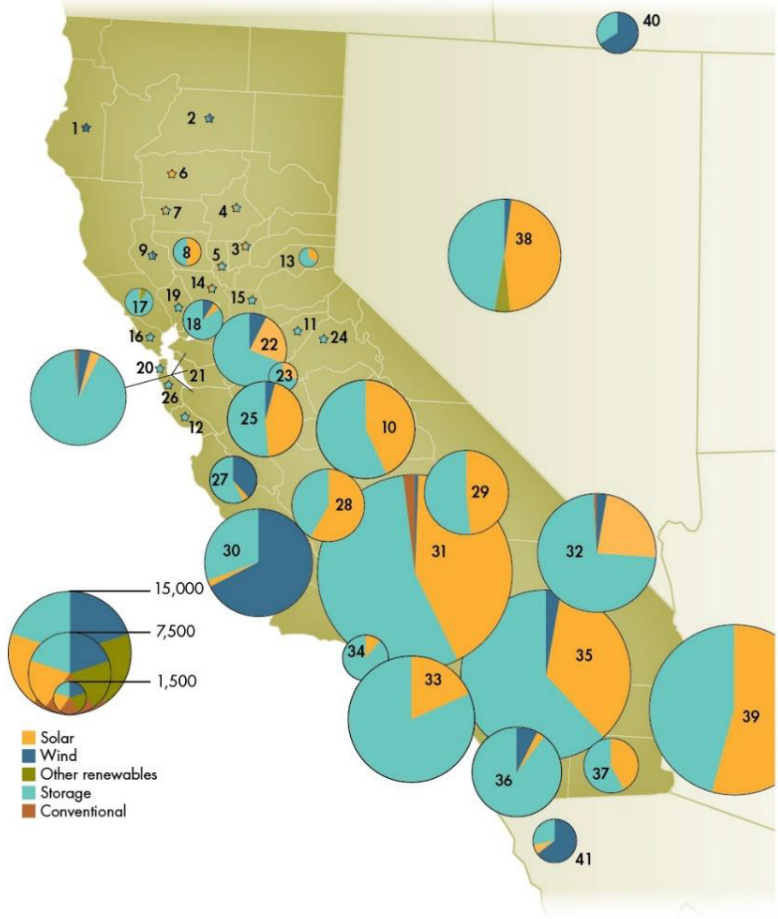
[1] The CPUC IRP covers approximately 80% of California's total electric load. The remaining 20% is predominantly covered by local utilities, including the Los Angeles Department of Water and Power (LADWP) and Sacramento Municipal Utility District (SMUD).

[2] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2023-irp-cycle-events-and-materials/2022-2023psp_decision_2pager_final.pdf

Figure 2.2 demonstrates the June 2022 interconnection queue map and denotes clean energy technology over-subscriptions. This reflects the realities that projects may not advance due to transmission constraints, permitting challenges, financing barriers, or other bottlenecks. Developers may pursue parallel applications across multiple jurisdictions to account for permitting and interconnection uncertainties. As a result, local planning authorities may also be spending their limited resources to review applications for projects that never come to fruition.

From a local permitting perspective, California jurisdictions may constrain where clean energy projects can be sited through a combination of zoning, general plan policies, and local ordinances. While some counties have established renewable-friendly overlay zones, many limit large-scale projects to certain land use categories or prohibit them in others, creating uneven siting opportunities across the state. Some jurisdictions have banned utility-scale renewable projects altogether, citing concerns such as fire safety, construction traffic, visual impacts, and preservation of community character. Across California's 58 counties, policies span the spectrum, from proactive support for renewable development to formal restrictions on clean energy. Figure 2.3 depicts CPUC-identified development zones and counties with renewable energy zoning restrictions.

Figure 2.2. Graph excerpted from CAISO Memorandum representing the ISO queue map of conventional and renewable energy projects as of June 2022. The larger circles highlight the counties with the most interconnection activity in storage, solar, and wind in California (Kern, Riverside, Los Angeles-Orange, San Bernardino, San Luis Obispo).



Interconnection queue by county

		# of Projects	Megawatts			
	County		Renewables	Storage	Conventional	Total
1	Humboldt	1	162			162
2	Shasta	3	300	333		633
3	Yuba	1	165	90		255
4	Butte	3	232	644		876
5	Sutter	3	111	222		333
6	Tehama	4	405			405
7	Glenn	1	160	159		319
8	Colusa	3	747	740		1,487
9	Lake	4	145	80		225
10	Fresno-Madera	33	4,565	6,032	63	10,660
11	Calaveras	1		101		101
12	Santa Cruz	2		408		408
13	Placer	3	307	622		929
14	Yolo	2	97	97		194
15	Sacramento	2		273		273
16	Marin	1		314		314
17	Sonoma	8	137	1,260		1,397
18	Solano	9	505	2,744		3,249
19	Napa	2	25	252		277
20	San Francisco	1		250		250
21	Alameda, Contra Costa, Santa Clara	51	837	10,155	129	11,121
22	San Joaquin	18	1,888	4,151		6,039
23	Stanislaus	8	689	1,220		1,909
24	Tuolumne	1		10		10
25	Merced	19	3,246	3,396		6,642
26	San Mateo	4		447		447
27	San Benito-Monterey	7	1,698	2,280		3,978
28	Kings	19	3,890	2,752		6,642
29	Tulare-Inyo	19	4,029	4,214		8,243
30	San Luis Obispo	16	8,341	3,651		11,992
31	Kern	92	14,473	18,675	656	33,804
32	San Bernardino	36	3,365	9,305	100	12,770
33	Los Angeles-Orange	48	3,056	13,505		16,561
34	Ventura	8	500	3,953		4,453
35	Riverside	45	10,306	16,614		26,920
36	San Diego	52	964	8,224		9,188
37	Imperial	7	1,996	2,553		4,549
	In-state totals	537	67,341	119,726	948	188,015
38	Nevada	28	8,411	7,451		15,862
39	Arizona	26	14,265	12,015		26,280
40	Idaho	2	1,992	1,030		3,022
41	Mexico	7	2,880	1,136		4,016
	Out-of-state totals	63	27,548	21,632		49,180
	TOTAL ALL PROJECTS	600	94,889	141,358	948	237,195

Several counties have adopted renewable energy overlay zones, a special land use designation that pre-approves areas suitable for clean energy development. These zones may provide developers with greater certainty and streamline permitting, but they also pose risks for local governments, including potential litigation, equity concerns, and reduced opportunities for community input at the project level.

Some counties have also created designated opportunity areas or renewable energy designation layers to help inform property owners and developers about optimal sites for utility-scale power projects, helping guide decisions but not granting "by-right", or ministerial permission. Figure 2.4 depicts Butte County's mapping tool, PowerButte, that provides this service.

Figure 2.3. Depicting both CPUC development zones and counties with zoning restrictions.

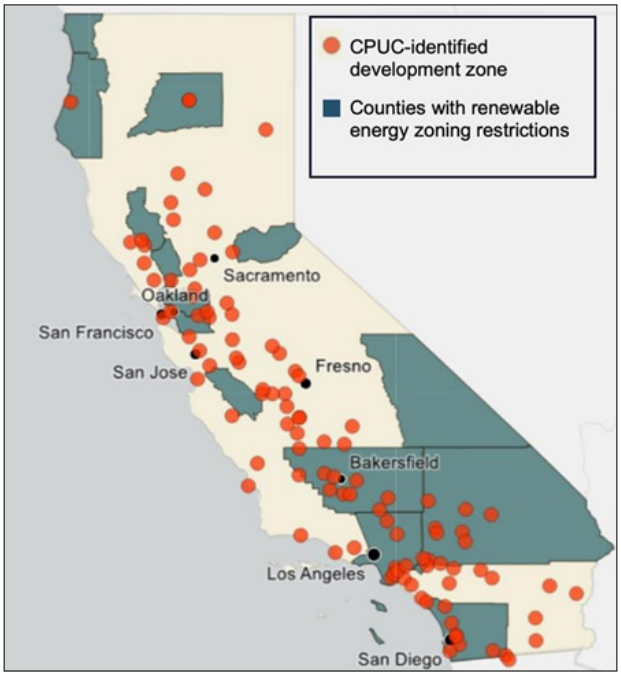
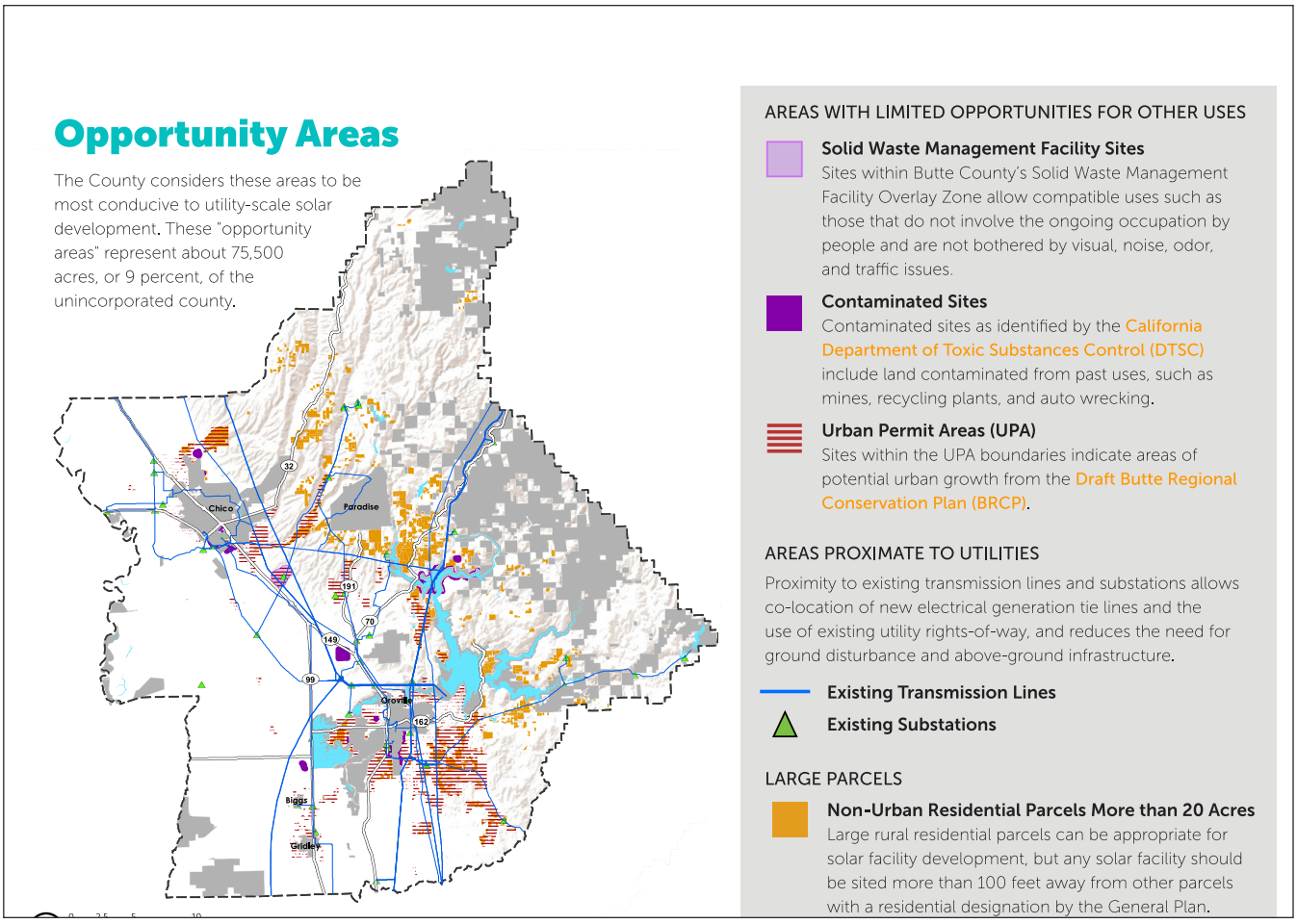


Figure 2.4. Extracted from Butte County's Development and Design Guidelines - Constraint Areas as part of PowerButte, the county's Geographic Information Systems (GIS) planning tool and Climate Action Plan.



Tracking Energy Development Task Force

Established under the Governor's July 30, 2021, Emergency Proclamation, the TED (Tracking Energy Development) Task Force is a cross-agency initiative comprising the CEC, CPUC, CAISO, and GO-Biz to accelerate the deployment of generation and energy storage projects to meet California's climate and reliability mandates. The TED Task Force monitors and tracks projects, engages developers and stakeholders, coordinates assistance to resolve permitting and interconnection hurdles, identifies systemic challenges and informs statewide reliability planning.

As reported by developers, challenges to project deployment include permitting delays, supply chain issues, interconnection and transmission.

Table 2.5. Summary of challenges identified by the TED task force as part of clean energy development

Permitting Delays	Supply Chain Issues	Interconnection Delays
• Local, state and/or federal reviews • Staffing capacity/turnover • Community opposition	• Global competition, including from other industries for similar technologies (i.e. batteries) • Longer lead time for circuit breakers and transformers	• Network upgrades (sometimes linked to supply chain issues) • Inverter problems • Deliverability • Grid testing and synchronization • Obtaining easements to the point of connection

CPUC provides monthly reports on the status of recent energy development and procurement underway. According to the June 2025 Resource Tracking Data, nearly 27 GW of new resources were brought online since January 1, 2020, including over 8 GW of solar, 1 GW of in-state onshore wind, and 13 GW of storage. Approximately half of the state's storage has come online since the start of 2024, including 9% as standalone BESS systems.

California achieved a record level of clean energy deployment in 2024, both in megawatts installed and projects completed. The state is also maintaining a strong pace for 2025. To meet the state's long-term decarbonization goals, this pace must be both sustained and accelerated through 2045. Maintaining such momentum will become increasingly challenging as readily available project sites are built out, leaving future development to occur in areas with more complex land use constraints and more difficult local permitting environments.

[3] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/summer-2021-reliability/tracking-energy-development/tn262896_20250501t164812_sb-846-combined-first-and-second-quarterly-joint-reliability-planning_2025.pdf

Figure 2.6. Extract from Resource Tracking Data indicating cumulative new energy resources online. CPUC

New Energy Resources Online

Data includes projects online as of July 2, 2025

New Resources Additions, January 1, 2020 – July 2, 2025, Cumulative

Technology Type	Nameplate Capacity MW	Estimated Sept. Net Qualifying Capacity (NQC) MW	Number of Projects
STORAGE	11,836	10,922	161
SOLAR	8,167	2,486	132
HYBRID (STORAGE/SOLAR)	2,165	1,596	28
WIND	1,145	260	23
GEOTHERMAL	41	31	1
BIOGAS, BIOMAS, HYDRO	42	0	12
Subtotal Total New SB100 Resources, IN-CAISO	**23,396**	**15,296**	**357**
NATURAL GAS, incl. Alamitos & Huntington Beach	1,539	1,487	17
Total New Resources, IN-CAISO	**24,935**	**16,783**	**374**
New Imports, Pseudo-Tie or Dynamically Scheduled	2,033	1,120	16
Total New Resources, including Imports	**26,968**	**17,902**	**390**

Notes:
All data shown derived from CAISO Master Generating Capability List, and CPUC NQC Lists.
Nameplate Capacity is shown as "Net Dependable Capacity" in the CAISO Master Generating List file. Data shown excludes imports, except where specified. All NQC values are "September NQC" and subject to change based on counting rules and additions to monthly CPUC NQC Lists. "Project" is defined as a unique CAISO resource ID. "Natural Gas" includes Alamitos Unit 7 (675 MW) and Huntington Beach (674 MW) added in Feb 2020. SB100 resources include all eligible renewable energy resources and zero-carbon resources for compliance with California's SB 100 clean energy targets.

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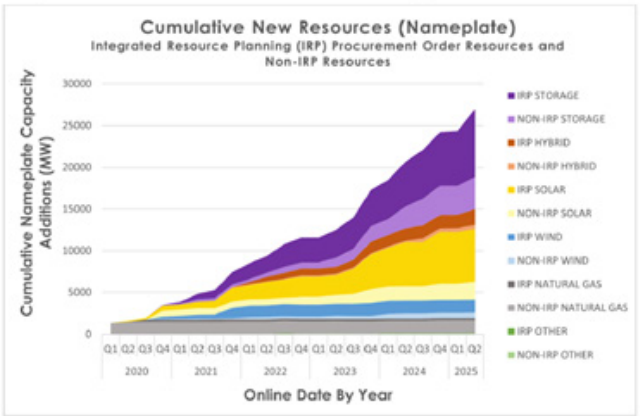
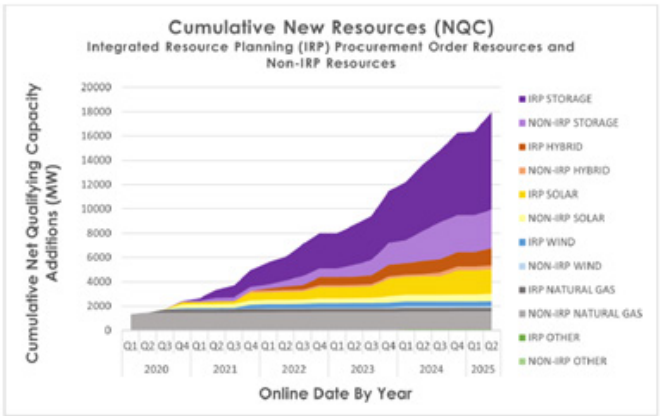
Figure 2.7. Extract from Resource Tracking Data- June 2025 indicating new procurement by year and resource type. CPUC

Total New Procurement

By Year and Resource Type

Data includes projects online as of July 2, 2025





Note: Data shown here shows a snapshot of new resources added to the CAISO grid Q12020 – Q2 2025, including specified CAISO imports. "Other" resources include geothermal, biomass, biogas, and hydropower. Hybrids include some storage, and some other (usually solar) technology. "IRP Procurement Order Resources" refer to resources claimed for compliance with IRP Procurement Orders; "Non-IRP Resources" include resources that are not counting towards IRP Procurement order compliance, which occurs for a variety of reasons such as the resource was in development prior to IRP orders, the resource is energy-only, the resource is not under contract to a CPUC jurisdictional entity, etc.
NQC = Net qualifying capacity (NQC) and represents the amount the resource contributes to reliability; NQC can vary over time, and for each month of the year; the values shown are indicative of September NQC values for the resources.

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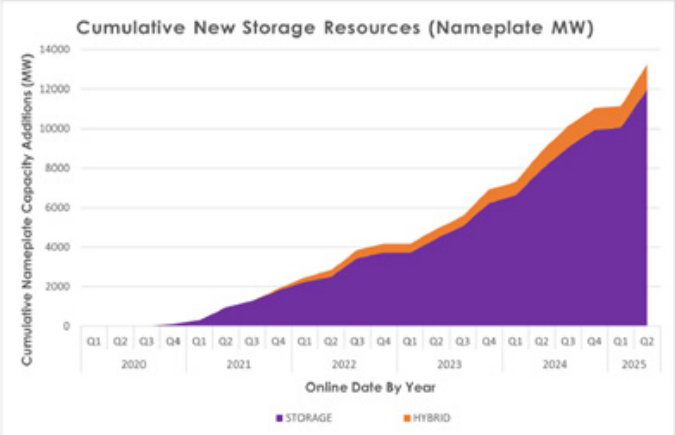
Figure 2.8. Extract from Resource Tracking Data indicating cumulative total storage online. CPUC

Total Storage Online
By Year

Data includes projects online as of July 2, 2025



Note: Data shown here shows a snapshot of new resources added to the CAISO grid Q1 2020 – Q2 2025, including specified CAISO imports. Hybrids include some storage, and some other (usually solar) technology. MW shown here only include the storage portion of hybrids.

- **Installed to date:** Over 13,000 MW of storage nameplate capacity is online serving the grid as of June 2025, including imports.
  - Includes ~150 MW of storage added prior to 2020
  - Includes standalone battery storage and the storage component of hybrid resources
- **Expected future installs:** Roughly 14,000 MW nameplate capacity of additional storage resources are under contract and expected to come online by 2028.

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Clean Energy Project Lifecycle and Permitting Processes – Summary

Clean energy development in California advances through coordinated phases involving developers, local planners, utilities, and state and federal agencies. The developer manages parallel tracks—site studies, equipment procurement, financing, and utility interconnection—to keep the project on schedule. Meanwhile, the local planner oversees permitting, coordinating reviews across land use, building, fire, and public works departments to ensure code compliance and community safety. In parallel, the developer engages state agencies such as the California Energy Commission, California Public Utilities Commission, and federal agencies when projects affect protected lands or resources. The utility interconnection process, managed through the serving utility or CAISO, proceeds alongside permitting to secure grid access. Together, these efforts align technical, regulatory, and environmental requirements to bring clean energy projects from concept to operation. A summary of the coordinated phases of a clean energy project lifecycle together with cross-cutting permitting considerations is provided in Figure 3.1 and also discussed in more detail in this chapter.

The local planner plays a pivotal role in directing projects through permitting and maintaining project development timelines. Under local permitting processes, the local planning authority serves as the lead agency, guiding the process through zoning and land use compliance, CEQA review, technical studies, and public engagement. The developer works with the planner to address environmental, safety, and community requirements, while the local planner coordinates input from other authorities and agencies before issuing final approvals.

Because the permitting process varies across more than 550 local planning agencies (e.g., counties, incorporated cities, tribal governments, economic development departments), the specific requirements and workflows differ by region.

Permitting timelines vary significantly depending on project complexity, CEQA requirements, and community interest. Streamlined review is possible with by-right permitting, clear zoning standards, or renewable energy overlay zones. For BESS projects, planners should coordinate closely with fire officials to address evolving codes and emergency response needs. Planners should encourage developers to engage early and transparently to reduce risk and build public trust – especially given the developers may have already made substantial legal, consulting, and permitting investments before permits are filed or approved. Planning departments must also work across agencies to simplify processes, minimize delays, and attract clean energy investments that strengthen local resilience and create jobs.

Figure 3.1. The Clean Energy Project Lifecycle.

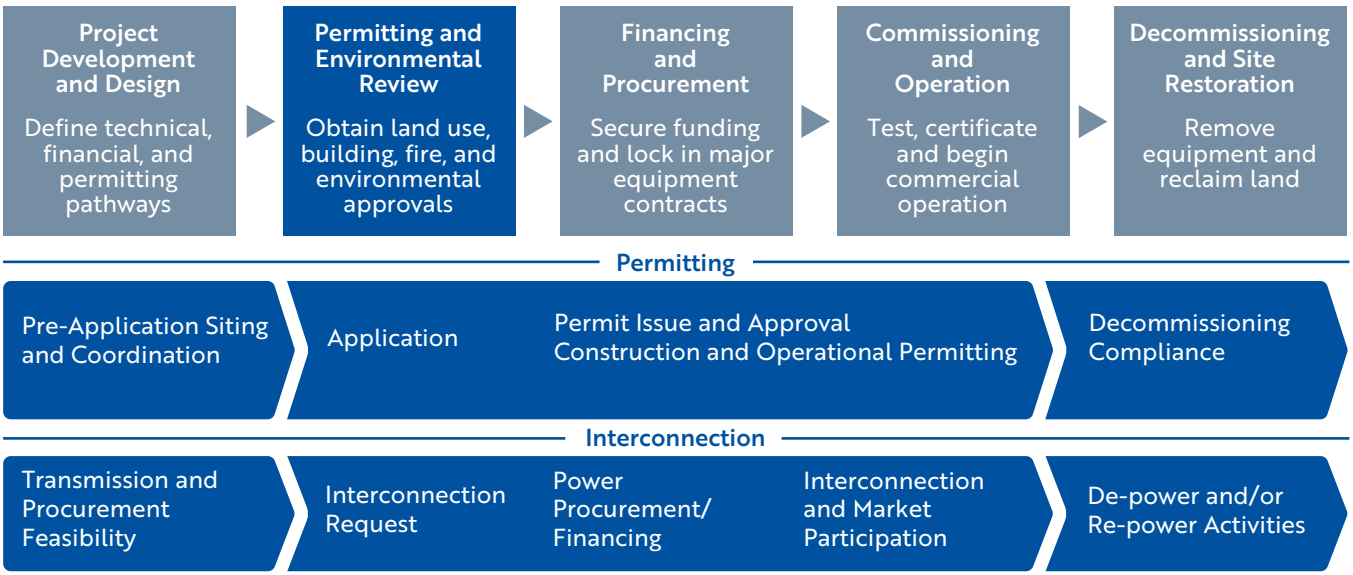


Figure 3.2. Clean Energy Project Permitting Process at a Glance

Clean Energy Project Permitting Process

This section details California's local land use permitting process for clean energy projects from both the planner and developer perspective. It highlights the involvement of other authorities having jurisdiction (AHJs) and the coordination required across multiple stakeholders. By outlining the process stages, this framework illustrates where delays commonly occur.

Pre-Permitting

In the pre-permitting phase, developers evaluate sites and engage jurisdictions to introduce potential projects. Planners and developers use early meetings to clarify zoning and regulatory requirements, outline review processes, and flag potential environmental or community concerns. This coordination helps developers refine siting decisions, anticipate permitting risks, and strengthen investor confidence in the project.

This phase includes confirming land use controls with local planners to ensure the project aligns with local regulations. Key developer activities include screening the site, reviewing the property title, coordinating with the planner, and performing a desktop study to identify constraints and decide whether to proceed with the project. Developers screen potential sites using various information sources including city or county websites, zoning maps, local ordinances, and land use plans. Having accessible zoning maps and other online permitting resources helps developers efficiently understand applicable local requirements.

The CEC land use screening data helps identify viable locations for clean energy projects. This data helps avoid critical habitats, agricultural preserves, floodplains, wetlands, high fire-risk zones, and cultural resource zones. Use of this data helps support California's energy planning goals, meet CEQA/NEPA requirements, and streamline approvals aligned with transmission and policy needs.

Developers will familiarize themselves with local ordinances, focusing on sections like "Environment" or "Development Regulations." Local planners can help navigate these codes, clarify interpretations, and advise on requirements impacting site feasibility relevant to clean energy projects by tagging or cross-referencing these specific code sections.

Developers will also check for consistency with the local jurisdiction's General Plan (typically at county and/or city level) and any applicable Specific Plans, as these documents outline long-term goals and land use policies that guide development. Inconsistencies can delay projects or require discretionary approvals. Local General Plans often control growth or preserve resources, impacting project suitability.

Key local requirements impacting clean energy projects may include:

- Noise limits for equipment (e.g. inverters and cooling systems)
- Height restrictions on panels, fencing, or substation equipment
- Setbacks from property lines, roads, or sensitive areas
- Glare, aesthetic, or view corridor protections
- Fire safety standards and emergency access for BESS

Considering zoning, land uses, and adjacent areas early helps developers select appropriate sites and engage effectively with local authorities. For example, utility-scale solar installations have a large land footprint, so may require close review of land use compatibility in agricultural or residential zones. Wind farms have a smaller land footprint but tend to have a larger visual impact due to their height, which may also need to be considered in site selection. Proximity of BESS to residential zones or other sensitive receptors given concerns around fire safety may also factor into site options.

Steps for zoning and land use review include:

- Review of proposed projects for consistency with General or Specific Plans
- Check for clean energy project zoning
  - If zoning is favorable, obtain development permits (e.g. building or construction permits)
  - If not, obtain variance, re-zoning, conditional use permit (CUP), or special use permit (SUP). Conducting a CEQA review may be required.
- Hold pre-application meetings with planning departments
- Attend public meetings to understand and discuss local considerations.

Agricultural Land Classifications

Roughly 40% of California's land is agricultural[1], making considerations of siting renewable energy projects on agricultural land important for many local jurisdictions throughout the state. Tools such as the Farmland Mapping and Monitoring Program can be used to identify agricultural or open-space land. Several California regulations affect use of these lands. The Williamson Act (the California Land Conservation Act of 1965) allows local governments to enter contracts with landowners to restrict land use to agricultural or open space and has costly fees for ending contracts. The California Coastal Act limits farmland conversions to non-agricultural uses. Various programs also support conservation easements. Local planners can incorporate assessments of land use compatibility with renewable energy projects through discretionary project review, or can direct projects to degraded or nonproductive agricultural lands through streamlined processes, such as ministerial permits.

Topography

Topography impacts solar and wind energy resource potential. Solar projects typically need flat, open areas, while wind projects fare better at higher elevations without turbulence-causing features. Steep slopes and rugged terrain can complicate infrastructure design, increase costs, and pose safety and environmental challenges. Topography considerations therefore limit site options for renewable energy.

Historic Areas

California's historic places are protected under the California Historical Building Code (CHBC) and the National Historical Preservation Act which includes Historic Landmarks administered by the National Park Service. Projects must consider these resources during applicable CEQA and NEPA evaluations. The National Park Service provides guidelines for renewable energy projects near historic landmarks. Caltrans' General Guidelines for Identifying and Evaluating Historic Landscapes also offer valuable insights. Projects should not alter the character of historic sites.

Grid Interconnection Feasibility

Grid connection feasibility varies by location, influencing project costs and timelines. Factors determining interconnection feasibility include whether upgrades or new lines are needed, status in the applicable interconnection queue, local administrative procedures, and technical reviews. Technical challenges assessed as part of interconnection include grid capacity, planning for reliable power delivery, and the effect of intermittent energy sources on grid stability. Regulatory issues and site features such as proximity to the grid and land preparation factors also impact feasibility.

Site selection often prioritizes transmission availability and the distance to grid interconnection. This affects project costs, permitting timelines, policy alignment, and environmental and community interests. Even if a location has excellent resource potential, i.e. an abundant source of wind or solar power - inadequate transmission infrastructure can make development impractical and/or costly. Developers often consider transmission access as a primary criterion when evaluating sites for renewable energy projects.

Developers may initiate interconnection studies at the start of land acquisition and permitting, including paying for expedited studies (if offered by the grid operator), and securing shared grid capacity, if possible (e.g., by teaming up with other nearby developers). Many projects in California will request interconnection through the California Independent System Operator (CAISO), but projects serving publicly owned utilities or other areas outside CAISO may request interconnection through other entities.

[1] Public Policy Institute of California, https://www.ppic.org/publication/agricultural-land-use-in-california

Site Accessibility and Existing Infrastructure

Project costs, schedules, and profitability will be influenced by site accessibility, the presence of existing roads and utility lines, and the distance electricity needs to travel to connect to the electric grid. Communities may object to projects on visible and accessible sites. However, remote locations with undisturbed environments, critical habitats, or migration corridors also pose design and construction challenges, along with permitting and compliance concerns. Protected species and habitats need careful consideration in urban areas as well. The developer will weigh multiple criteria to locate ideal sites.

Community Stakeholders

Developers will consider social factors such as proximity to residences or tribal lands and the local political climate. Residents may oppose projects near homes or based on aesthetic or other impacts. Local economic dependence on fossil fuels or concerns about environmental impacts or land use changes can also affect project acceptance.

Title Review and Preliminary Environmental Desktop Study

Developers review property titles for easements, covenants, or restrictions that may limit or constrain development potential. They also use online databases and maps to identify potential environmental constraints. Sources include:

- National Wetlands Inventory
- U.S. Fish and Wildlife Service Information for Planning and Consultation
- U.S. Department of Agriculture Web Soil Survey
- FEMA Flood Map Service Center
- California Office of the State Fire Marshall Fire Hazard Severity Zones
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database and other applicable state natural resource databases
- California Environmental Protection Agency Cortese List (hazardous waste sites).

Ministerial and Discretionary Permits

A permit for a renewable energy project may be issued on a ministerial or discretionary basis. Ministerial permits (i.e. by-right, permit by rule, non-discretionary) are automatically issued if an application meets objective, pre-defined standards in the zoning code. Discretionary permits (i.e. conditional use permit, special use permit) are granted by a decision-making body (i.e city staff, planning commission, city council) and requires subjective review in addition to rules compliance.

Developers will also seek sites where "by-right" zoning is possible for large-scale clean energy projects which allows projects to proceed without discretionary reviews or public hearings. In the instances where localities use Conditional Use Permitting (CUP) instead of by-right zoning, developers may assess the ability to meet all conditional standards upfront to minimize project risk and create more certainty.

Permit Application

During the permit application phase, responsibility shifts substantially from the developer to the planner. While developers lead most pre-application activities with planners in an advisory role, once an application is submitted, the planner assumes primary responsibility for managing the review process. This includes coordinating across departments, evaluating compliance with land use regulations, facilitating public hearings, and ensuring that conditions of approval are addressed.

Environmental Review

Developers begin environmental review during site screening by commissioning technical studies on potential impacts to ecosystems, wildlife, water, cultural resources, and nearby communities. They prepare documentation, propose mitigation strategies, and adjust project designs based on findings.

California Environmental Quality Act (CEQA)

CEQA applies to discretionary projects and informs government decisionmakers and the public about potential environmental effects of proposed projects. Local planners often serve as the Lead Agency under CEQA and are responsible for managing the review process, determining the level of CEQA analysis required, coordinating with other agencies, evaluating the developer's studies, and ensuring that public input and mitigation measures are incorporated into permit conditions. Most utility-scale clean energy projects in California today receive discretionary permits and therefore go through the CEQA environmental review process.

Minor projects may be exempt from CEQA if a "Categorical Exemption" (CE) applies and no significant environmental impact is expected. If an Initial Study shows less than significant or mitigable impacts, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) may be issued.

Projects with potential significant impacts require an Environmental Impact Report (EIR). This detailed report examines effects on the environment, cultural resources, transportation, and human health, presenting mitigation options. The EIR informs decision makers and allows public input.

National Environmental Policy Act (NEPA)

NEPA is a federal law that may apply to California projects with federal funding, on federal land, or requiring federal permits. A federal Lead Agency oversees NEPA projects. NEPA assessments are similar to CEQA but use different terms and requirements. Projects with no significant effect may qualify for a "Categorical Exclusion" (CATEX). If impacts are uncertain or moderate, an Environmental Assessment (EA) is required. A Finding of No Significant Impact (FONSI) may follow an EA. Projects likely to have significant impacts require an Environmental Impact Statement (EIS). The EIS leads to a Record of Decision (ROD) by the Lead Agency, detailing the chosen alternative, rationale, and mitigation measures.

Table 3.3 summarizes the different terms used in CEQA and NEPA environmental reviews . Early coordination with the CEQA or NEPA Lead Agency is vital for determining the necessary level of environmental review. Environmental field work and/or technical studies and reports may be needed to support CEQA or NEPA reviews or natural resource permits (e.g., biological resources report, wetland delineation, cultural resources report).

Table 3.3. CEQA and NEPA Terminology

CEQA	NEPA
Categorical Exemption – Used when a project is statutorily or categorically exempt.	**Categorical Exclusion** – Used when a project is expected to have no significant impact.
Initial Study – Determines whether a project may have significant impacts. If it does not, a Negative Declaration or Mitigated Negative Declaration may be adopted.	**Environmental Assessment** – Determines whether a project may have significant impacts. If it does not, a Finding of No Significant Impact is adopted.
Environmental Impact Report (EIR) – Required when a project may have significant impacts. Must consider alternatives, provide mitigation, and include public input.	**Environmental Impact Statement (EIS)** – Required when significant environmental impacts are likely. Must consider alternatives, provide mitigations, and involve the public.
Findings – Notice of Exemption, Notice of Determination, or Notice of Completion	**Findings** – Finding of No Significant Impact, or, if EIS is prepared, Record of Decision.

Review periods and certification processes for environmental documentation can be lengthy. The process varies based on complexity and environmental impact and may span months or years. Time may be required for technical studies and analysis to identify and mitigate potential impacts, which can be further delayed by understaffed agencies or incomplete permits that require rework. Slow environmental reviews can lead to extended and unpredictable environmental clearance timelines and outcomes.

Programmatic EIRs evaluate the potential impacts of a plan or group of related projects rather than individual projects on a case-by-case basis. For example, programmatic EIRs can assess the effects of a land use plan, zoning designation, or multiple clean energy projects and supporting infrastructure within a defined area. By addressing common impacts and mitigation strategies upfront, programmatic EIRs help streamline subsequent project reviews.

Natural Resource Permits

Natural resource permits may be required to comply with federal, state, and local environmental laws. These may include:

Waters and Wetlands

- U.S. Army Corps of Engineers – Clean Water Act (CWA) Section 404 permit
- State Water Resources Control Board – CWA Section 401 water quality certification
- CDFW Section 1600 of the Fish and Game Code – lake or streambed alteration agreement

Species

- State
  - CDFW Incidental Take Permit (ITP) – California Endangered Species Act (ESA) listed species
- Federal
  - USFWS Biological Opinion – Federal ESA listed species (Section 7 ESA)
  - USFWS Eagle ITP and Migratory Bird ITP – Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act listed species

Air Quality

- Regional Air Board – Construction and Operational permits
- Regional Air Board – Fugitive Dust Control Plans (Rule 403)

Coastal Development

- California Coastal Commission – Coastal Development Permit

Developers will consider environmental concerns by avoiding sensitive areas like wetlands, habitats, and floodplains (even if they are buildable), mitigate impacts by designing wildlife corridors or funding habitat conservation ("mitigation banking"), plan early for CEQA/NEPA requirements, and conduct wildlife studies, geotechnical evaluations, cultural, or archaeological site surveys and other applicable studies.

Utility Interconnection Agreements

Developers initiate interconnection inquiries with the utility and submit applications concurrently with other permitting activities. Interconnection studies determine the necessary transmission infrastructure, required upgrades, and bind the developer to cost and schedule responsibilities. In CAISO jurisdictional areas, developers apply to CAISO for interconnection studies and participate in CAISO's transmission planning process; in non-CAISO areas, applications go to the relevant utility or transmission owner. The interconnection queue has shifted from a first-come, first-served basis to a cluster-study approach to reduce backlogs.

Interconnection agreements are critical because only interconnected capacity can be contracted into the electric system. These agreements clarify upgrade costs, reduce project uncertainty, and are often essential for financing and scheduling. Delays or unexpected costs can render a project uneconomic even after permits are secured. Contributing factors include the scale of transmission upgrades, utility and ISO backlogs, and the need to model both charging and discharging for BESS projects. To hedge against these risks, developers may submit multiple applications across different locations.

During this phase, local planners have a limited direct role, as utilities and CAISO manage the process. However, planners facilitate access by assisting with encroachment permits, easements, and right-of-way approvals for infrastructure upgrades, and may coordinate between utilities and local departments for construction of interconnection infrastructure within city or county boundaries.

A construction schedule is created alongside the signed interconnection agreement. Steps supporting the process include an interconnection application submitted to the utility or grid operator, Feasibility study to identify potential transmission upgrades, system impact study to model required upgrades, and facilities study to estimate associated costs for the developer.

Federal and State Law Compliance and Approvals

Clean energy projects follow federal and state laws on environmental, energy, land use, wildlife, and safety issues. Projects may also be incentivized by tax credits or renewable certificates. Federal laws relevant to clean energy projects include:

- **Resource Conservation and Recovery Act (RCRA)** – The EPA uses RCRA to regulate the storage, handling, and disposal of hazardous waste. Projects involving materials like batteries or fuel must comply with these rules.
- **Emergency Planning and Community Right-to-Know Act** – Facilities storing hazardous substances above threshold limits must report inventories to local emergency responders for safety planning.
- **Toxic Substances Control Act – TSCA** mandates that chemicals used, such as in batteries or materials, meet federal safety and usage standards.

Possible federal agency involvement includes:

- **Federal Aviation Administration** – Studies may be required to evaluate potential hazards to aviation.
- **Federal Energy Regulatory Commission** – FERC oversees projects that are connected to the interstate transmission system or engaged in wholesale energy markets.
- **Federal Communications Commission** – The FCC may review wind projects that utilize radio-based controls or telemetry if these systems have the potential to impact communication networks.

Possible state agency involvement includes:

- **California Department of Transportation** – A Caltrans encroachment permit is required when a project involves work within a state highway right-of-way or when oversized loads (e.g., wind turbine components) are transported on state roads.
- **California Public Utilities Commission** – The CPUC oversees transmission lines and manages how projects connect to the grid.
- **California Energy Commission** – The CEC approves large energy projects and can streamline permits for clean energy projects.
- **California Independent System Operator** – CAISO oversees grid interconnections for major projects and assesses the system's capacity to accommodate additional power.
- **California Department of Forestry and Fire Protection** – CAL FIRE reviews battery storage projects to ensure they meet state fire-safety standards.

BESS projects require careful consideration of national, state, and local fire codes and standards, as well as early coordination with local fire and building officials to avoid project redesign later in the development process. Developers must ensure compliance with California Fire Code (CFC), which also incorporates National Fire Protection Association (NFPA) and references Underwriters Laboratories (UL) testing protocols. These requirements govern system layout and spacing, electrical design, monitoring, and ventilation, emergency access, and fire detection and suppression systems. Coordination with local fire marshals ensures these provisions are addressed upfront, reducing permitting delays and improving project safety.

Community Engagement

Developers may engage early with the public to highlight the positive economic and environmental impacts of new clean energy projects in communities to build support, meet permitting requirements, and foster long-term relationships. They may seek to hold informational meetings, establish ways to keep the public informed, and address community concerns with fact-based information on the specific clean energy technology, their benefits and the risks. Industry-funded sources can be perceived as biased compared to scientific, academic or other credible third-party studies. Community opposition can derail projects if public concerns have not been addressed.

Clearly articulated benefits can improve public perception, reduce permitting risks, and show community alignment. Local planners should also carefully assess the cumulative contributions made to the locality in terms of permitting fees and other costs, such that developers do not feel disincentivized to pursue clean energy projects due to high costs. These benefits should be weighed in their totality and strike a balance that supports community goals, project viability, and state policy.

Localities and developers address project benefits in various ways:

Economic Benefits

- Payment of locality fees and costs
- Local job creation and local labor hiring commitments
- Quantified tax revenue to localities
- Community Benefit Agreements (CBAs) or voluntary payments to local programs
- Support for local business
- Support for local infrastructure (road upgrades, fire department and emergency services)
- Educational opportunities (scholarships, apprenticeships, energy education, workforce training)
- In-kind commitments that support community goals.

Societal and Environmental Benefits

- Grid reliability and stability (particularly during heatwaves or other periods of high electricity demand)
- Long term reduction of energy costs for households, businesses, and other ratepayers
- Reduced reliance on fossil fuels, leading to:
  - Reduced greenhouse gas (GHG) emissions
  - Air and water quality improvements
- Land use compatibility options and co-location opportunities (agricultural use under solar arrays, wildlife compatibility)
- Decommissioning and land restoration plans that return land to prior or improved conditions.

Permit Issue and Approval

Construction, Final Inspection and Commissioning, and De-Commissioning

Discretionary permits are approved following staff review and public hearings, often with conditions to address safety, environmental protection, and community compatibility. Once issued, planners continue coordinating to ensure compliance, while developers secure ministerial building permits, complete inspections, and meet ongoing requirements such as reporting or decommissioning assurances.

Developers file for local permits to comply with municipal codes, safety standards, and community planning goals. Approvals typically address structural integrity, electrical systems, fire safety, site access, and hazardous materials (e.g., BESS). Local fire codes, zoning restrictions, and hazardous materials ordinances may apply, and early coordination is critical where approval pathways are unclear and require case-by-case negotiation.

Construction related local permits typically include:

- **Building permits** for civil structures such as racking, foundations, and equipment enclosures
- **Electrical permits** for medium-voltage cabling, inverter stations, and substations
- **Mechanical permits** for heating, cooling, ventilation, or pressurized systems, such as those used in renewable energy installations
- **Grading and drainage permits** if the project involves substantial earthmoving (common for solar and BESS projects)
- **Fire permits**, especially for BESS projects
- **Erosion and land disturbance approvals** for disturbances of more than 1 acre; these include construction general permits and stormwater pollution prevention plans
- **Right-of-way and encroachment agreements**, which allow access or utility placement on public land or allow a project to cross, dig within, or install infrastructure within a public space; they may include local transportation-related approvals from a government entity of the city or county with jurisdiction over the project
- **Local hazardous materials approvals or notifications**, particularly for the storage and handling of battery components or other regulated substances

Construction is often limited to specific times of year due to wildlife protection during breeding, flowering periods for rare plants, seasonal presence of protected species, grid upgrade windows, or to avoid adverse weather conditions like rain or snow. These restrictions can delay clean energy construction projects beyond planned timelines.

In the construction phase, planners will be performing compliance monitoring to ensure that the project complies with all conditions of local land use permits (e.g., grading, building, encroachment). They may also be coordinating with inspectors (building officials, public works, code enforcement) to confirm adherence to approved plans. Planners will also be involved in community relations to respond to public complaints (e.g., noise, dust, traffic) and coordinate mitigation if required. Planners may also be confirming compliance with stormwater pollution plans (SWPPP), local grading ordinances as part of overall erosion control and stormwater oversight.

Project Commissioning, and De-Commissioning

Planners coordinate final inspections, close out permits, issue certificates of occupancy or operational clearances, and verify mitigation measures such as fencing or vegetation buffers. At decommissioning, planners review compliance with approved plans, confirm financial assurances cover removal and restoration, ensure grading, revegetation, and zoning requirements are met, and coordinate with agencies to close out projects and terminate land use entitlements.

Evolving and Overlapping Regulations

California's complex and evolving regulations make clean energy permitting difficult for both planners and developers. Planners must interpret overlapping rules, while developers face delays and conflicting requirements that can jeopardize financing milestones or construction windows. To reduce uncertainty, developers may pursue parallel applications in different localities or alternative project designs to address shifting codes, community opposition, or environmental restrictions.

California has undertaken permitting reforms at both the local and state level. The CEC's statewide opt-in permitting process provides developers with an alternative pathway to accelerate reviews when local delays persist. Clear, consistent tools and guidance from local planning departments play a critical role in whether developers choose the opt-in process or remain within the local permitting pathway.

Localities continue to modernize local processes and employ tools to enable permitting including publishing permitting checklists, using permitting software, creating ministerial (by-right) approval pathways and pre-zoning land for clean energy. Useful information shared between planning departments and developers includes:

- Transparency on involved agencies and anticipated permits
- Regulatory triggers on permits
- Technical information required to complete applications
- Contact lists of departments/ personnel responsible for each application or task
- Permit process flows and agency approval timeframes
- Permit fees

Permitting tools and online platforms are increasingly used to expedite permit issuance. California implemented streamlined permitting for residential solar projects through the Solar Access Act SB379 (Wiener, 2022), which mandates that large cities and counties adopt automated online permitting platforms. One such platform is the National Renewable Energy Laboratory's SolarAPP+, providing real-time code compliance checks to expedite permit issuance. The CEC has allocated $20 million in grants to help local governments adopt these systems, and similar processes are being considered for large-scale clean energy projects.

02

Permitting Initiative | Assessment and Findings

Identifying challenges to local permitting

Permitting Initiative | Assessment and Findings

Identifying challenges to local permitting

The local permitting process is inherently complex, requiring coordination across multiple stakeholders and presenting numerous points where delays may occur. Permitting processes also vary widely by locality, shaped by local ordinances, site-specific requirements, community attitudes, environmental factors, and the levels of state or federal coordination.

Project Methodology and Data Gathering

To gain insights into common barriers, GO-Biz and the project team conducted extensive outreach into local permitting procedures for utility scale onshore wind, solar and BESS projects. Outreach focused on local planning authorities (LPA) responsible for land use permits, the challenges they encountered, and the effective practices they adopted to facilitate permitting. Discussions were also held with other local permitting authorities beyond the planning department such as building departments, public works, and other stakeholders.

Outreach included state agencies, clean energy developers, community-based organizations, trade groups, tribal representatives, local and state fire officials, fire safety experts, legal experts, and the general public.

Key questions posed to stakeholders included the following:

- What are the challenges and barriers to permitting large-scale clean energy projects?
- How do current permitting processes vary across local jurisdictions?
- What existing best practices or successful approaches can be shared?
- What resources, tools, or guidance could accelerate local permitting processes?

Through this process of research, data collection and tools analysis, the project team developed the Playbook and Toolkit with close collaboration with local stakeholders. This Playbook and Toolkit outlines the local permitting process, highlights common challenges, documents prevailing practices, and provides tools identified as most useful by local planners.

Figure 4.1. Phases and subphases of the clean energy project permitting process

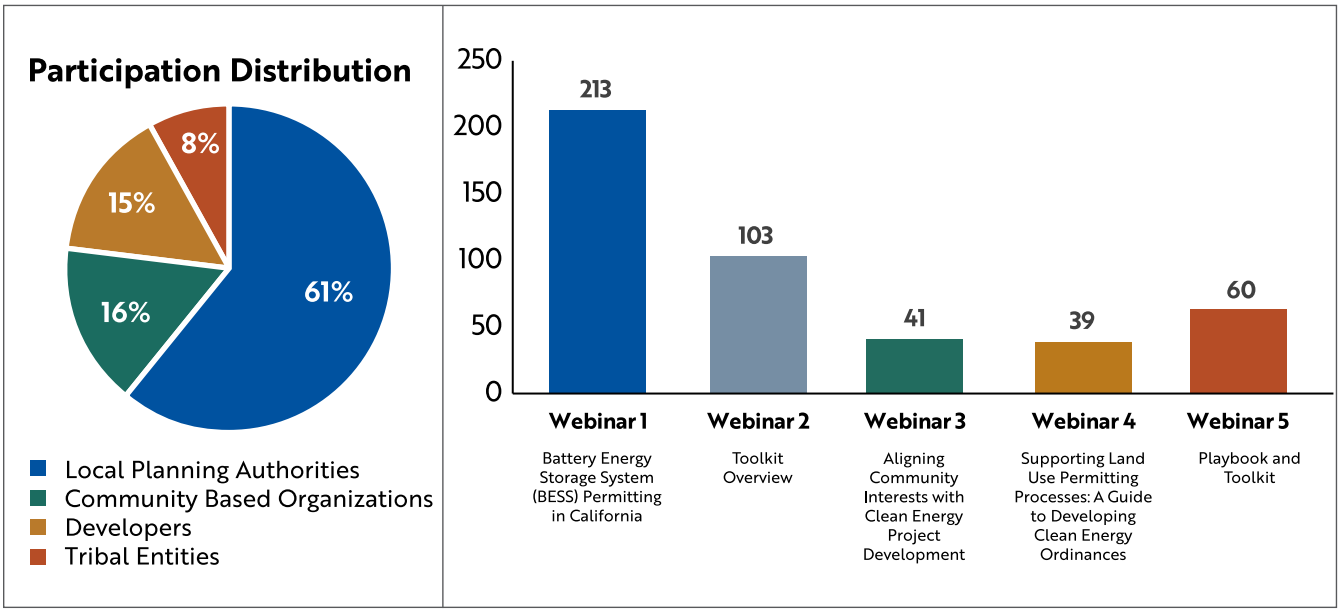
Figure 4.2. GO-Biz Clean Energy Permitting Initiative project activities and outcomes

With more than 550 local planning authorities across the state, the project team prioritized jurisdictions active in clean energy permitting or with potential for increased activity. This prioritization was informed by evaluating the CAISO interconnection queue for regions demonstrating significant future capacity development as well as data from the CPUC Integrated Resource Plan (IRP). The team also identified localities where there was a gap between the amount of clean energy planned based on Integrated Resource Plans, and the amount targeted for development based on CAISO data. While these discrepancies can be due to several factors including developer preliminary site exploration versus greenlit energy projects, the gaps also suggest potential permitting challenges where development was falling short due to permitting delays.

Data was gathered through a combination of surveys, interviews, focus groups, and webinars, supported by analysis and research. The project team conducted over 170 surveys and participated in over 80 interviews, consultations, focus groups, and state and local conferences to gain feedback on the Playbook content and individual tools. This multi-stakeholder approach was designed to gather a range of perspectives on permitting barriers, as well as to collect information on stakeholder tools, processes, best practices, and potential areas for improvement.

GO-Biz conducted public webinars with broad participation to share information about the permitting initiative and to gather input on the proposed Playbook and Toolkit. The project team also reviewed existing clean energy and technology permitting guidebooks from both national and state sources, including the California Local Jurisdiction Broadband Permitting Playbook and Solar Permitting Guidebook, to assemble templates and provide actionable guidance.

Figure 4.3. Overview of stakeholder participation in the Clean Energy Permitting Initiative



Project Findings

Project outreach revealed considerable variation in local permitting processes as well as common barriers faced by all localities. Many localities had developed shareable, effective local permit acceleration solutions, but they also identified challenges considering a potential six-fold increase in renewable energy projects over the next three years to meet state goals.

Figure 4.4. LPA Level of Preparedness to manage an increase in clean energy applications

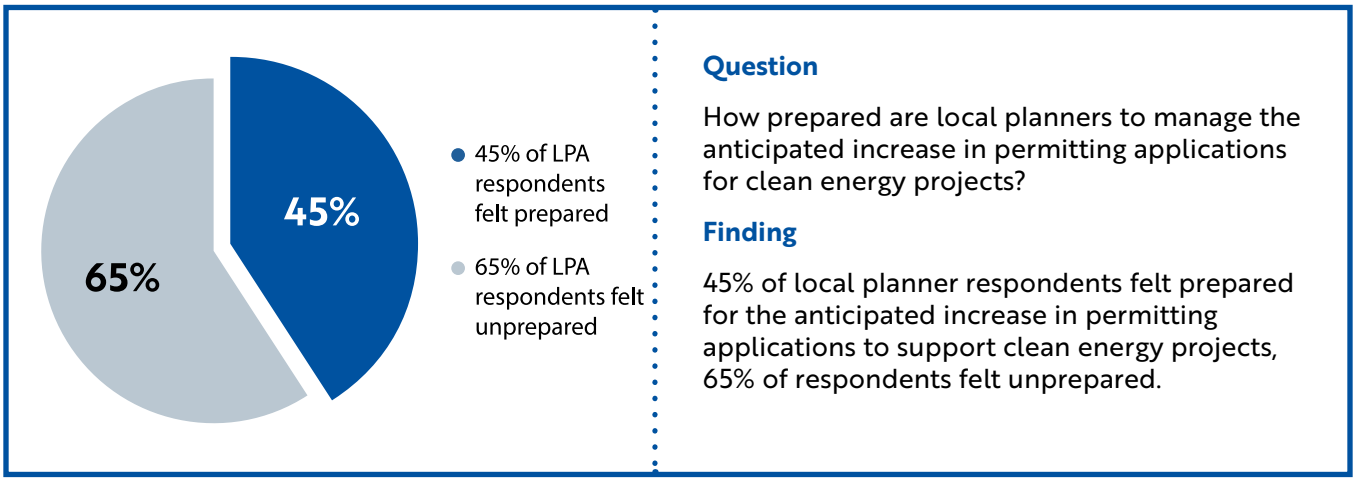
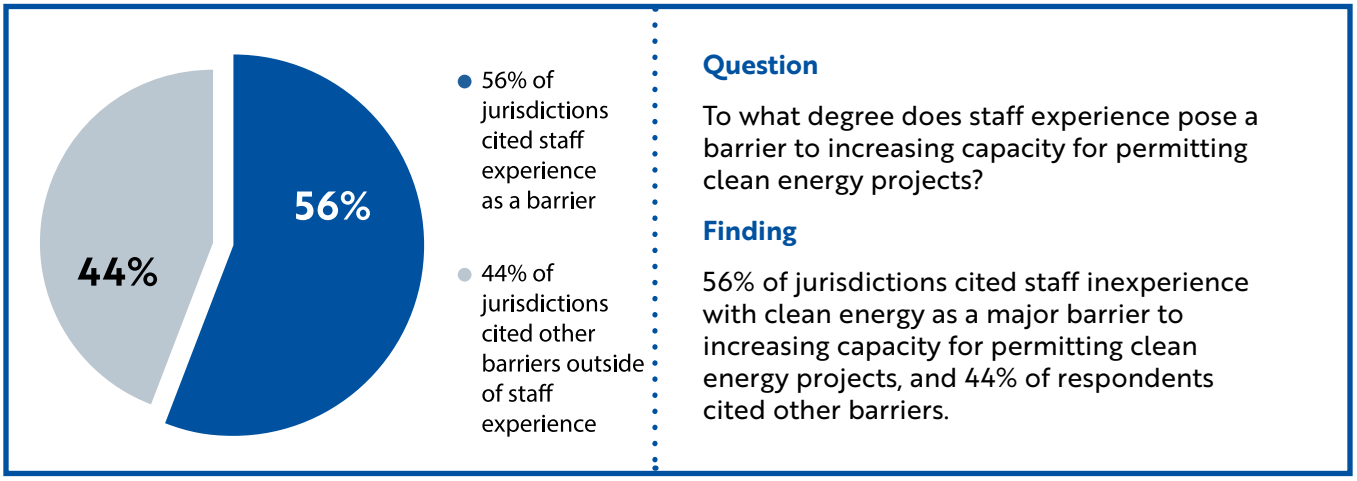


Figure 4.5. Technical / Educational Support to increase capacity and close the experience gap



Input from local planners was that 45% felt adequately prepared to manage an anticipated increase in applications for clean energy projects. Most planners reported responsibilities across multiple types of permits that were not limited to clean energy project permitting. Their duties involved coordinating between the developer, local and state agencies and the public across the project phases, including:

- Pre-application duties: Providing guidance on zoning, land use designations and whether a project was allowed "by right" or required a conditional/ special use permit
- Application intake and completeness review: Reviewing applications, confirming technical studies are provided, and ensuring applicable application fees are paid
- Environmental and regulatory compliance: Managing CEQA/NEPA or delegating to a consultant through procurement processes
- Interagency and stakeholder coordination: Acting as the central contact between the developer, utility, public agencies and community stakeholders as well as coordinating public meetings
- Analysis and recommendation: Evaluating the project's consistency with the general plan, zoning ordinances and other local policies
- Decision and post-approval oversight: Ensuring conditions of approval are met, tracking compliance, coordinating with building inspectors and managing amendments as the project evolves.

The scope of duties combined with limited experience specific to clean energy project permitting contributed to constraints in the locality's permitting capacity.

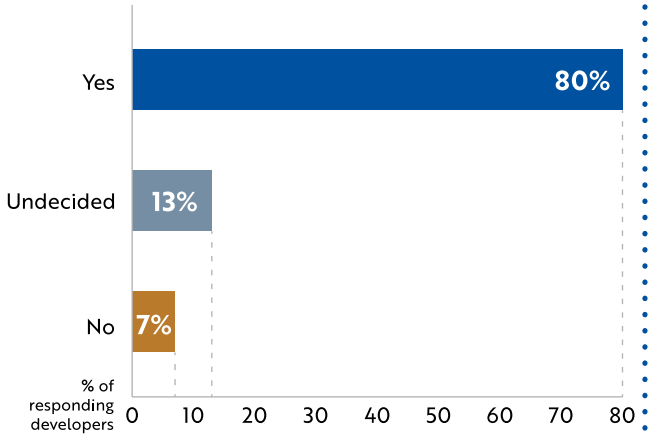
Across all forms of engagement, there was a desire for technical and educational support. Many planners noted ongoing education and technical assistance as desirable to navigate the complexities of clean energy project permitting.

Developers noted that the local permitting process often deterred them from pursuing specific clean energy projects in certain locations. From the assessment, 80% of developers indicated that the local permitting process posed a barrier. Most developers preferred a local permitting process over the state-led CEC Opt-In process, unless the local process was unclear. Developers requested clearer and more specific permitting requirements related to each clean energy technology, as well as clearer permitting timelines to enable their work.

Localities and developers considered BESS projects the most time consuming to permit. Technical consultations were requested by planners to support specific technologies, especially regarding fire safety and technical code and standards for BESS as an increasingly prevalent clean energy project in their respective regions. Assistance was sought to create local BESS specific ordinances where moratoria had halted projects.

Survey found that 71% of respondents across planners and developers stated permits were occasionally or frequently delayed, with 26% responding that permits were never delayed.

Figure 4.6. Developer views on permitting as a key consideration in clean energy decisions



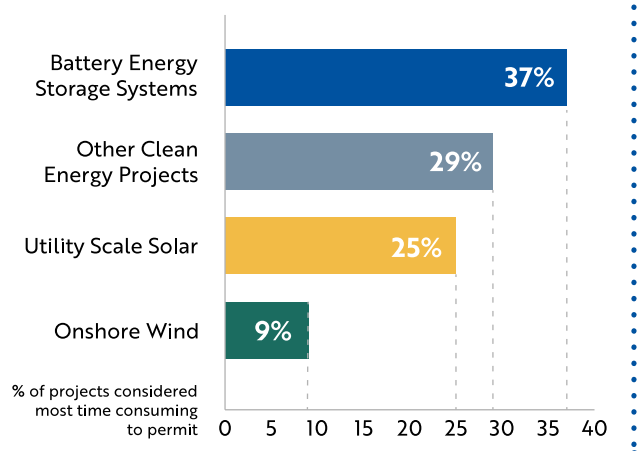
Question

Is the permitting process a key consideration or barrier when evaluating pursuit of a clean energy project?

Finding

80% of responding developers stated the permitting process represents a key factor when considering a clean energy project.

Figure 4.7. Developer views on time-intensive permitting in clean energy projects



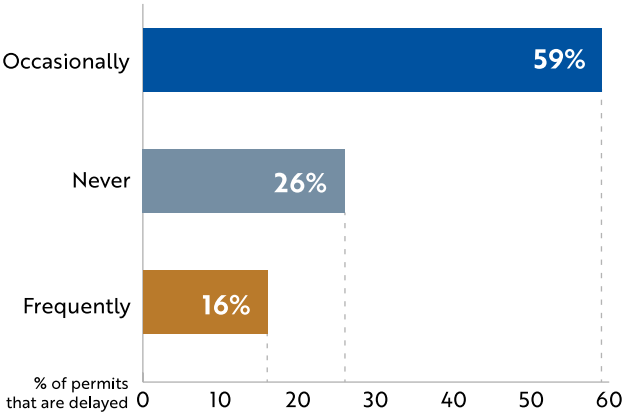
Question

Which large scale clean energy projects are associated with the most time-consuming permitting process?

Finding

37% of respondents ranked the BESS permitting process as the most time-consuming due to safety requirements and community concern.

Figure 4.8. Developer & planner views on frequency of permitting delays



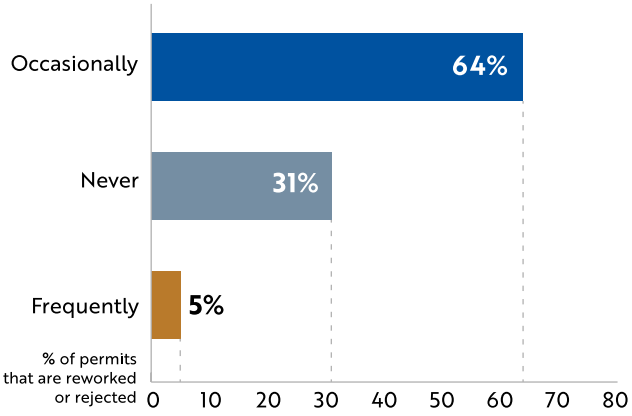
Question

How often is the permitting process delayed for clean energy projects?

Finding

71% of respondents (comprising both planners and developers) stated that permits for clean energy projects are delayed occasionally or frequently, indicating these delays were often due to community concerns, appeals, and delays associated with receiving permitting-related information.

Figure 4.9. Developer & planner views on permit rework and rejection frequency



Question

How often are permits reworked or rejected for clean energy projects?

Finding

69% of respondents indicated that permits for clean energy projects are either occasionally or frequently reworked or rejected.

Areas cited as heightened project risk for developers included wildlife/environmental mitigation, legal fees, Williamson Act, local renewable project fees, and the pending expiry of state solar property tax exemption in 2027.

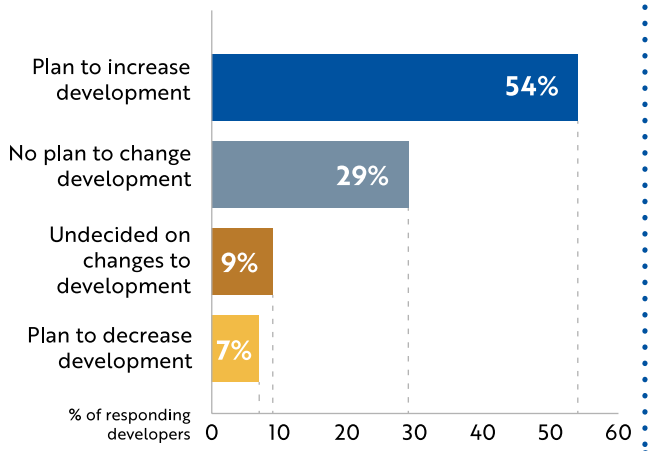
Areas cited by developers as timeline risks included local permitting staff shortages and process delays, restrictive zoning codes, ordinances and moratoria, community opposition to development, changing codes and requirements during the project, and unanticipated requirements and/or mitigation costs (for e.g. CDFW requirements/ Incidental Take Permits).

Planners stated that incomplete permit applications often delayed their review process, necessitating multiple reviews, rework, and possible rejection. Developers noted their process was to file applications in multiple localities to counter potential delays, maximize success and address CAISO interconnection processes.

Most developers, 84%, noted that unnecessary permitting delays could have been avoided. Delays they cited as unnecessary included incompatibility between fire codes and zoning ordinances, moratoriums often "without clear justification", and lack of upfront guidance on permitting expectations.

Over half - 54% - of responding developers planned to increase their clean energy development in California, and 46% stated no plans to increase, were undecided, or planned to decrease development. Factors leading to decreased investment included regulatory or permitting delays, grid connection and infrastructure constraints, and unfavorable market conditions such as declining Power Purchase Agreement prices.

Figure 4.10. Developer outlook on future investment in clean energy projects



Question

Do you anticipate changing your level of investment into clean energy projects?

Finding

54% of responding developers plan to increase their level of investment into clean energy projects in California over the next few years.

Resources Supporting Clean Energy Project Permitting

Both planners and developers indicated pre-application checklists, pre-application submittal meetings, and permitting guides and manuals as best practice resources to assist in accelerating permitting processes and mitigating delays.

Both developers and planners also rated community engagement resources as valuable for enabling the permitting process. Interview and survey participants noted the need to tailor community benefits to the preferences of the host community. A contributor to permitting success was the ability to effectively communicate the benefits of the project to the community, such as economic gains, job creation, grid stability, and clean energy. A cited good practice was to meet with the local planner and economic development department for joint input and to outline the common benefits in the permitting process. More than half of the developers - 61% - had also offered community benefit agreements as part of their projects.

Planners and community stakeholders expressed interest in layman's terms, "Energy 101" understanding of California's power systems and the roles of the utilities and state agencies (e.g. CAISO, CEC, CPUC, GO-Biz) as part of the local clean energy project permitting process.

Feedback from planners included development of additional state-wide resources such as a permitting guidebook similar to the California Solar Permitting Guidebook for small solar systems. Planners also sought additional and ongoing opportunities to seek technical aid, including best practice forums, access to technical experts, and ongoing assistance such as the resources currently provided via the TED Task force.

Permitting Accelerator Playbook and Toolkit Development

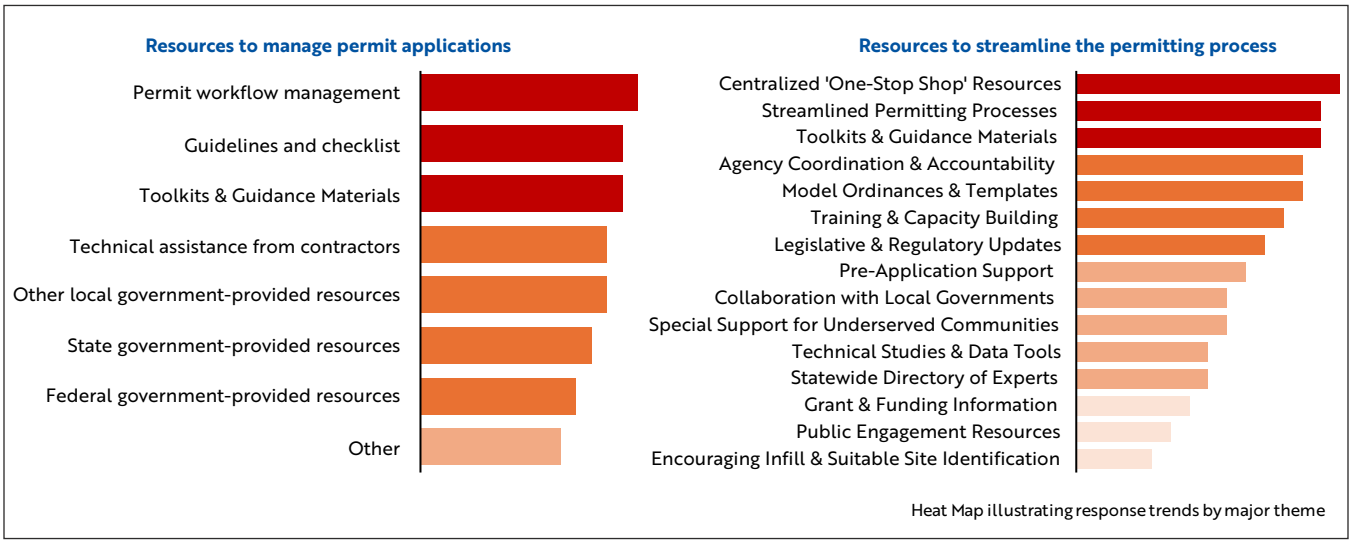
Given the significant variation in permitting practices across local jurisdictions, stakeholders were asked to identify common or best practices that they had implemented. They were also asked whether statewide tools could help streamline or expedite their local permitting process.

Localities cited permit workflow management, guides and checklists, and local, state and federal handbooks and educational resources to manage clean energy project permitting. Various localities used technical and siting tools such as Geographic Information Systems (GIS), screening checklists, and state siting maps. Many localities had or were implementing permitting software. Local peer networks had been formed for learning, such as the local BESS planners working group. Localities were also actively working on model ordinances where moratoria were in place that restricted clean energy projects.

Localities expressed interest in the development of statewide resources to support permitting. Desirable resources included: a central website with access to downloadable forms, guidance and other resources, technical assistance, educational material, AHJ coordination support, and media/public communication guidance, especially where planners felt that there were misconceptions about clean energy projects, their benefits and the risks.

While feedback was mixed on the state led CEC Opt-In process as it reduced local project control, planners also acknowledged the opportunity to accelerate permitting where local capacity was restricted, as did developers.

Figure 4.11. Survey Findings on Resources to Improve Permitting Efficiencies. Figure 4.11 shows the survey respondents' use of resources and survey respondents requests for resources to streamline the permitting process.



The GO-Biz project team compiled commonly identified "accelerator" practices from stakeholders and organized them by stage of the clean energy permitting process, from pre-permitting through post-permitting. Although localities varied in how widely they used these practices and, in their impact, the compilation provides a useful benchmark for localities to assess their own current practices.

The project team also reviewed the tools most frequently requested by stakeholders, assessing each for the effort required to develop it as a statewide resource and the potential benefit to LPAs in their permitting workflows. Based on this assessment, the team developed a set of tools under the CERIP project, in consultation with local stakeholders, to ensure direct application and immediate usability.

Both the practices already in use and the tools requested reflected the same priorities: improved information sharing and transparency for planners and developers, greater permitting predictability, and stronger coordination among permitting stakeholders across jurisdictions. Figure 4.12 compiles these practices and tools which guided the Playbook and Toolkit development.

Figure 4.12. Summary of stakeholder methods for accelerating clean energy permitting and prioritized tools for GO-Biz development

Compiled view of commonly cited local stakeholder methods to accelerate clean energy project permitting	Tools prioritized for GO Biz development based on level of effort and level of local benefit
• Clean energy siting feasibility maps • Pre-application developer/ planning meeting • Land use compatibility strategies • Site specific list of sensitive and protected species • Permitting process documentation and documented timelines • Clarity on downstream requirements (e.g. building, fire code) through meetings or other resources	• Permitting Resources & Checklist • Model Ordinance (in particular for BESS)
• Permitting software comprising online validation, automation, calculation and e-signature features • CEQA documentation technical assistance and coordination • State and federal protected species technical assistance and coordination • Clear communication of project benefits aligned to local economic development, community stakeholders and community impact • Contact lists for AHJ stakeholders (i.e. local, state, federal, utility) • Access to 3rd parties for technical consultation • Efficient procurement/ approved consultant list for CEQA/ environmental review consultants	• Guidance on project benefits communication • Fact sheets for internal agency and external use (general public and the media) • Clean energy technology educational material/ handbook for planners
• Upfront clarity of downstream requirements (i.e. building & fire code, project end of life, project de-commissioning) • Local coordination assistance (e.g. building, fire, electrical) • Coordination assistance with applicable utility and system operator on commissioning requirements	• Fire code overview for land use planners in ordinance development

Conclusion – Resources Developed and Future Resource Development Needs

The GO-Biz Permitting Initiative produced two key outcomes: Background information on clean energy development and permitting, and practical resources that localities can use immediately . Together, this Playbook and Toolkit addresses needs identified by stakeholder - providing "handbook" or "Energy 101" guidance for those new to the permitting process, preparing localities facing an anticipated increase in clean energy projects, and delivering specific tools that can streamline permitting activities today. These resources are described in Table 4.13. Given the significant variation in permitting practices across California's 550+ localities, both the Playbook and individual tools should be assessed for local applicability prior to use.

Table 4.13. CERIP Playbook and Toolkit summary

CERIP Playbook and Toolkit Contents:	
Playbook	• Overview of California's energy landscape, drivers for improving permitting efficiency, and findings on delays • Description of the local permitting process as a framework to identify best practices, barriers, and to provide an "Energy 101" overview of the key permitting activities
Toolkit	
Permitting resources & checklist	• Guidance, local best practices and sample permitting checklist template
Aligning stakeholder engagement on projects	• Guidance to articulate clean energy project benefits from a multi-stakeholder perspective
Model ordinance guidance	• BESS, onshore wind, and solar model ordinance templates including discussion on fire codes for local planners, fire officials and local stakeholders
BESS, onshore wind, and solar clean technology fact sheets	• Informational pamphlet on BESS, onshore wind and solar technologies for use in internal and external communications
Considerations for tribal lands	• Overview of clean energy development and stakeholder engagement on tribal lands

The Playbook and Toolkit were developed at a specific point in time, during which California's clean-energy deployment reached historic levels. In 2024, the state added 7,000 MW of new capacity - the largest single-year increase on record. Looking ahead, 2025 continues this momentum, with utility-scale solar and battery energy storage systems (BESS) on a strong growth trajectory.

Significant opportunities remain to accelerate and streamline local permitting practices under the consistent themes of energy and permitting education, transparency, predictability, and multi-stakeholder coordination. Potential resources for future development based on local feedback include: expanded clean-energy education and training tailored to local planners; enhanced coordination mechanisms across authorities having jurisdiction (including the potential use of an "Ombudsman" role); a centralized platform consolidating permit information and applications; direct technical assistance to localities; and the development of automated, online tools to improve navigation and streamline workflows across the permitting process.

03

Appendix

List of Contributors

List of Contributors

The playbook and toolkit was shaped by contributions from state and local permitting authorities, tribal entities, industry groups, developers, and community-based organizations, listed below.

- American Clean Power (ACP)
- Alameda City
- Alameda County
- Alhambra City
- Amador County
- Arevon Energy
- Aypa Power
- Beaumont City
- Bell Gardens City
- Benicia City
- Berkeley City
- Brownstein Hyatt Farber Schreck
- Buena Park City
- Burlingame City
- Butte County
- California Department of Forestry and Fire Protection
- California Energy Storage Alliance
- California Energy Storage Association (CESA)
- California Energy Commission
- California Independent System Operator (CAISO)
- California Natural Resources Agency
- California Public Utilities Commission
- California Solar & Storage Association (CALSSA)
- California State Association of Counties (CSAC)
- Calistoga City
- Camarillo City
- Chico City
- Chino Hills City
- Claremont City
- Clayton City
- Cleantech San Diego
- Clearlake City
- Clearway Energy Inc.
- Clovis City
- Colfax City
- Colton City
- Colusa County
- Concord City
- Contra Costa County
- Corona City
- Crescent City
- Culver City
- Daly City
- Dudek Consulting
- Eastvale City
- El Dorado County
- Elk Valley Rancheria
- Energy Safety Response Group (ESRG)
- ENGIE
- Escondido City
- Ewiiaapaayp Band of Kumeyaay Indians
- Fillmore City
- Fire & Risk Alliance
- Fluence
- Fremont City
- Fresno County
- Fresno County Fire Department
- Glenn County
- Goleta City
- Half Moon Bay City
- Hiller Fire Protection
- Hoopa Valley Tribe
- Humboldt County
- Huntington Beach City
- Imperial County
- Intersect
- Juaneño Band of Mission Indians

Acjachemen Nation
- Kern County
- King City
- Lafayette City
- Lake County
- Lake Forest City
- Lakeport City
- Lakewood City
- Large-scale Solar Association
- Lemon Grove City
- Lodi City
- Loma Linda City
- Lomita City
- Lompoc City
- Longroad Energy
- Loomis Town
- Los Alamitos City
- Los Angeles County
- Madera County
- Manteca City
- Merced County
- Mono County
- Montebello City
- Monterey County
- Mountain House City
- Napa County
- Nevada County
- NextEra Energy Resources
- Oakland City
- Office of the State Fire Marshal
- Orange County
- Oroville City
- Oxnard City
- Pacifica City
- Pacific Northwest National Laboratory (PNNL)
- Palm Springs City
- Perkins Coie
- Pinole City
- Pismo Beach City
- Placer County
- Plumas County
- Rancho Santa Margarita City
- Redding City
- Redding Rancheria
- Reedley City
- REV Renewables
- Ridgecrest City
- Riverside County
- Robinson Rancheria
- Rural Communities Rising
- Rural Counties Representatives of California (RCRC)
- Sacramento City
- Sacramento County
- Salinas City
- Salinan Tribe of San Luis Obispo and Monterey Counties
- San Bernardino County
- San Diego City
- San Diego County
- San Diego County Fire Authority
- San Joaquin County
- San Juan Bautista City
- San Juan Capistrano City
- San Luis Obispo County
- San Marcos City
- Santa Barbara County
- Santa Cruz County
- Shasta County
- Sherwood Valley Band of Pomo Indians
- Sierra County
- Signal Hill City
- Solano County
- Solar Energy Industries Association (SEIA)
- South San Francisco City
- St. Helena City
- Stanislaus County
- Tamien Nation
- Terra-Gen Power

- Terrell Watt Planning Consultants
- Torrance City
- Trinity County
- Tulare County
- Ventura County
- Viejas Band of Kumeyaay Indians
- Winnemem Wintu Tribe
- Xolon Salinan Tribe
- Yak Tityu Tityu Yak Tilhini Northern Chumash Tribe
- Yolo County
- Yreka City
- Yuba County

CALIFORNIA
BUSINESS AND ECONOMIC DEVELOPMENT

GO-Biz Clean Energy Permitting Playbook

Accelerating Clean Energy Permitting Statewide

The Governor's Office of Business and Economic Development

Energy Unit energyunit@gobiz.ca.gov