

CALIFORNIA COASTAL COMMISSION

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To: Planning Directors of Coastal Cities and Counties
From: Dr. Kate Huckelbridge, Executive Director, California Coastal Commission
Date: November 27, 2023
Re: **Small-Scale Renewable Energy Infrastructure Permitting & Planning Opportunities**

I. Introduction & Purpose

This guidance memorandum is intended to 1) describe the circumstances under which a coastal development permit (CDP) may or may not be required for new or expanded small-scale renewable energy infrastructure (SSREI), 2) provide an overview of Coastal Act issues related to planning for and developing new or expanded SSREI, and 3) identify siting and design strategies and other CDP application needs that can help expedite the permit process for SSREI projects.

In the context of this memo, SSREI is generally defined as infrastructure that serves the electric generation needs of a specific development or property and does not broadly distribute or supply energy beyond that development or property. Types of SSREI typically include roof-mounted, ground-mounted, or pole-mounted solar arrays (also known as solar photovoltaic or PV systems); wind turbines; hybrid solar-wind power generation systems; and microhydropower systems that serve individual residential, commercial, agricultural, and other non-residential developments (see [Attachment 1](#) for more information on these various types of SSREI). SSREI does not include any offshore infrastructure, or any onshore infrastructure such as solar or wind farms or geothermal power plants that are intended to generate and distribute clean energy to multiple offsite users.¹

More broadly, the goal of this memo is to help improve climate change resiliency in the coastal zone by enabling the efficient permitting of renewable energy projects in a manner consistent with the Coastal Act. In alignment with the state's efforts to transition to 100% renewable, carbon-free energy sources to meet climate targets, the Commission can help reduce the impacts that climate change is having on coastal resources, public coastal access, and environmental justice communities by facilitating sustainable land use policies and development such as renewable energy infrastructure. However, while SSREI projects play an important role in reducing greenhouse gas emissions and mitigating climate change, they are not without the potential for impacts to coastal resources that are protected under the Coastal Act. The most typical Coastal Act concerns associated with SSREI involve visual resources, coastal water quality, marine resources, ESHAs, and bird and bat strikes. Thus, it is critical for the Commission and local governments to consider these potential impacts in any expedited permit review efforts and

¹ SSREI focuses on electricity generating systems in the context of this memo and does not include space heating or cooling or water heating infrastructure (e.g., solar powered, wind powered, or geothermal powered heat pumps). However, SSREI can support such infrastructure by providing the electricity to power them, and many of the concepts discussed in this memo are also applicable to renewable energy-based heating and cooling systems. For example, see immaterial [CDP Amendment No. A-3-MCO-06-018-A1](#) for installation of a geothermal heating and cooling system.

new or updated LCP policies or ordinances. This memo is intended for use by the Commission, local governments, permit applicants, and others subject to the Coastal Act to help achieve these goals.²

II. Background

As we shift away from fossil fuel energy sources to reduce greenhouse gas (GHG) emissions and mitigate the impacts of climate change, renewable and carbon-free energy sources are becoming increasingly accessible, incentivized, and even mandated. California has passed several major bills into legislation that stem from the Global Warming Solutions Acts of 2006 ([Assembly Bill 32](#)) and 2016 ([Senate Bill 32](#)). These include [Assembly Bill 1279](#) (2022), which sets a statewide goal to achieve carbon neutrality by 2045 and to maintain net negative emissions thereafter; [Senate Bill 100](#) (2018), which requires electric utility retail sales to be comprised of 50 percent renewable resources by 2026, 60 percent renewables by 2030, and 100 percent carbon-free energy by 2045; and [Assembly Bill 2188](#) (2014), which requires local governments to adopt ordinances that create a streamlined permitting process for small residential rooftop solar systems. In addition, the [California Green Building Standards Code](#) (CALGreen, California Code of Regulations Title 24, Part 11) is updated every three years with mandatory and voluntary measures for energy, water, and resource efficiencies in new development (e.g., certain new residential buildings must provide solar photovoltaic systems as of the 2019 code update and must be “electric-ready” as of the 2022 update). At the local level, many cities and counties are adopting ordinances that encourage or require a transition from gas-powered to electric appliances for both existing and new development. Overall, California is increasingly relying on clean, renewable energy sources to combat climate change and is taking actions to facilitate the transition away from fossil fuels.

The Coastal Act also addresses energy and climate issues and should be carried out in a manner that supports and bolsters other state efforts to reduce GHG emissions and mitigate the impacts of climate change. As the Commission has previously found, although these other state laws do not supersede the Coastal Act within the coastal zone, their provisions should be harmonized with Coastal Act requirements so that the intent of these laws can be achieved while still complying with the Coastal Act. For example, the Commission and local governments can use a variety of tools to encourage and streamline the approval of appropriate renewable energy projects.³

Several Coastal Act policies specifically support the transition to and development of renewable energy. Namely, Coastal Act Section 30253 requires new development to minimize energy consumption and to be consistent with requirements imposed by the California Air Resources Board (CARB). CARB is responsible for guiding the state’s path forward to meeting the mandates of AB 32, SB 32, and AB 1279 through five-year updates to the *Climate Change Scoping Plan*, which translates the latest climate science and projection modeling into a range of economically and technologically feasible actions to

² This document was developed using federal financial assistance provided by the Coastal Zone Management Act, as amended, under award NA22NOS4190073, administered by the Office for Coastal Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration or the U.S. Department of Commerce.

³ See, e.g., LCP Update Guide, Part 1, Section 10, p. 8 (“LCPs should be updated to encourage and facilitate development of renewable energy in a manner that meets requirements of Chapter 3 policies of the Coastal Act.”), https://documents.coastal.ca.gov/assets/lcp/LPUUpdate/LUPGuidePart1_10_EnergyIndustrialDev_July%202013.pdf.

achieve GHG reduction targets. In its [2022 Scoping Plan](#), CARB emphasizes the importance of transitioning to clean, renewable energy sources in all sectors to achieve a carbon-neutral future, which means continuing to build out the infrastructure that generates clean and renewable energy.

In addition to Section 30253, Coastal Act Section 30270 requires the Commission to take the effects of sea level rise into account in planning and permitting activities. As sea level rise is one of the many adverse results of GHG emissions and associated global temperature increases, it is crucial for the Commission and local governments to consider land use policy and development decisions that will minimize GHG emissions, sea level rise, and related impacts to coastal resources. This may include policies, development standards, permit processes, or other incentives that facilitate SSREI.

The Commission is also supportive of renewable energy policies and developments through its [Sustainability Principles](#) (2023), which encourages permit streamlining opportunities for appropriately sited and designed SSREI; its Local Coastal Program ([LCP Update Guide \(Section 10\)](#)), which encourages LCP updates to facilitate development of renewable energy in a manner compliant with the Coastal Act; and its [2021-2025 Strategic Plan](#), particularly Objective 4.5, which calls for Commission actions to protect coastal resources and enhance coastal resiliency to climate change through GHG reduction measures in LCPs, CDPs, and other efforts.

III. Types of CDP Authorizations and Streamlining Opportunities

SSREI projects can range from installation of new or expanded infrastructure with no other project components to serve existing development, to installation of SSREI in conjunction with new structures that will be served by the SSREI. In any case, the installation of new or expanded SSREI in the coastal zone constitutes “development” under the Coastal Act and therefore typically requires CDP review for Coastal Act consistency. The Coastal Act supports various levels of streamlined CDP processing, including exemptions, waivers, administrative permits, and immaterial amendments. SSREI may be processed pursuant to these more streamlined methods only where it meets the prescribed Coastal Act and regulatory criteria described further below, and, for projects in a local government’s permitting jurisdiction, where these processes are integrated into the local government’s certified LCP (also see [Attachment 2](#) for a flowchart illustration of permit processing). To that end, local governments are encouraged to update their LCPs to support permit streamlining opportunities for SSREI as described further below. However, as local planning practices and coastal resource protection needs vary from one local government to the next, not all expedited permitting options may apply to all local governments. For projects within the Commission’s permitting jurisdiction, it is highly recommended to consult with the appropriate [district staff](#) to determine permit expediting opportunities, the type of CDP application needed, and other application requirements.

CDP Exemptions

Where SSREI is installed or expanded as an improvement to existing structures, it may qualify for a CDP exemption. The Coastal Act exempts certain development from permitting requirements if it serves as an improvement to an existing single-family residence or to structures other than single-family

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residences or public works facilities, such as existing commercial structures and private parking lots.⁴ To qualify for these exemptions, the SSREI must meet various criteria that are found in Sections 13250 and 13253 of the Commission's regulations, such as the following:

- For projects associated with single family residences, the SSREI must generally either be attached to the existing residential structure or to a garage or other onsite structure that is normally associated with residential structures
- For projects associated with structures other than single-family residences or public works facilities, the SSREI must generally either be attached to that existing structure, to any fixture or other structure attached to the primary structure⁵
- Must not be located within environmentally sensitive habitat areas (ESHAs), on a beach, within a wetland or stream or lake, within 50 feet of the edge of a coastal bluff, or seaward of the mean high tide line
- Must not be associated with a structure that has a past permit condition requiring that future development obtain a permit
- Must not increase the overall height of the existing structure by more than 10% in areas very close to the coast, such as between the sea and the first public road paralleling the sea
- Must not involve any significant alteration of landforms, including vegetation removal, on a beach, wetland, sand dune, near the edge of a coastal bluff, or in other sensitive areas
- Must not be located in an area designated as highly scenic in a certified land use plan

With these criteria, the Commission has previously found that detached SSREI such as ground-mounted solar arrays and ground-mounted wind turbines did not qualify for a CDP exemption. On the other hand, the Commission has found that attached SSREI such as roof-mounted solar arrays on existing structures in urbanized areas are exempt, as they tend to involve minimal construction activities on existing developed sites. However, roof-mounted SSREI can often increase the overall height of an existing structure; in order to qualify for a CDP exemption, such increase cannot exceed 10% of the height of the existing structure if the development is proposed in a location near the shore.⁶ If an increase of more than 10% is necessary to optimize solar or wind input in these locations, the SSREI project could not be exempted but may be considered for a CDP waiver. In addition, if there is a past permit condition requiring that any new development for the subject site must obtain a permit, an SSREI project could not be exempted and would need to be approved through another authorization method.

Example of a CDP exemption:

- CDP Exemption No. 6-22-0077-X (City of Solana Beach, 2022): Proposed construction of rooftop solar panel system on an existing commercial building; approved as a CDP exemption as an

⁴ Pursuant to Coastal Act Sections 30610(a) and (b) and 14 California Code of Regulations (Cal. Code Regs) Sections 13250 and 13253.

⁵ In the case of private parking lots, this could likely include attachment to the parking lot itself or to existing or proposed carports.

⁶ Specifically, a project with this height increase would not be exempt if it was located between the sea and the first public road paralleling the sea, within 300 feet of the inland extent of a beach or of the mean high tide of the sea where there is no beach, or in significant scenic resources areas. 14 Cal. Code Regs §§ 13250(b)(4), 13253(b)(4).

improvement to an existing structure other than a single-family residence or public works facility with no risk of adverse environmental effects.

CDP Waivers

For SSREI that is not exempt from CDP requirements, it may be feasible to process the SSREI as a CDP waiver. The Coastal Act provides for two types of CDP waivers: standard and de minimis. Both types of waivers provide a means to expedite minor, common development activities with lower application costs and quicker processing times.

- **Standard waivers** apply to improvements to existing single-family residences or to structures other than a single-family residence or a public works facility where the project does not meet all of the criteria in 14 Cal. Code Regs Sections 13250 and 13253 (excerpted above), but the Executive Director nevertheless finds the impact of the development on coastal resources or coastal access to be insignificant.⁷ Standard waivers only apply to projects being considered by the Coastal Commission, and they may not be issued by local governments with certified coastal permitting authority. Standard waivers may be appropriate for attached SSREI such as roof-mounted solar arrays and roof-mounted wind turbines that do not meet one or more of the criteria for CDP exemptions, but also do not have the potential for significant coastal resource impacts.

Example of a standard waiver:

[CDP Waiver No. 6-22-0240-W](#) (City of Solana Beach, 2022): Proposed installation of a rooftop solar PV system and energy storage equipment at an existing single-family residence; did not qualify for a CDP exemption due to a special condition previously imposed by the Commission stating that all future improvements require a permit; approved as a standard waiver as an improvement to an existing structure with no adverse impacts to coastal resources.

- **De minimis waivers** may be used to approve any new development (not only to improvements to existing development, as with exemptions for improvements and for standard waivers) that involves no potential for adverse effects on coastal resources, either individually or cumulatively, and that is consistent with the Chapter 3 policies of the Coastal Act.⁸ De minimis waivers would thus be appropriate for SSREI proposed in conjunction with a new structure that also meets this criteria, and for detached SSREI such as ground or pole-mounted solar arrays and wind turbines that are appropriately sited and designed to avoid coastal resource impacts.

Local governments must have de minimis waiver provisions within their certified LCP in order to issue these types of expedited approvals and thus are encouraged to update their LCPs to

⁷ Pursuant to Coastal Act Section 30610 and 14 Cal. Code Regs Sections 13250(c) and 13253(c).

⁸ Pursuant to Coastal Act Section 30624.7.

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incorporate such provisions if they are not already included. Local governments may also only use de minimis waivers for projects that are not appealable to the Commission.⁹

Example of a de minimis waiver:

[CDP Waiver No. 2-22-0510-W](#) (Sonoma County, 2022): Proposed installation of a parking canopy structure with rooftop solar panels at an existing RV parking and storage area; required a permit as the project scope constitutes new development that does not qualify for an exemption; approved as a de minimis waiver as the project was sufficiently sited and designed to avoid adverse impacts to coastal resources.

Local Hearing Waiver

The Coastal Act allows for local governments to include a provision in their LCPs to waive the public hearing requirement for certain minor developments. Local governments may waive the requirement for a public hearing for minor development which a local government determines is consistent with its certified LCP, requires no discretionary approvals other than the subject CDP under review, and has no individual or cumulative adverse effect on coastal resources or public access to and along the coast.¹⁰ The local government may only waive the requirement for a public hearing if public notice is provided, consistent with specific public noticing provisions, and if no parties specifically request a hearing.

This public hearing waiver also can be utilized for qualifying development that is appealable to the Commission (i.e., if the development is located within the Commission's appealable jurisdiction). If there are no objections to waiving the public hearing, and the hearing is subsequently waived, local parties may no longer have standing to submit an appeal either at the local level or to the Commission for the subject CDP.¹¹ It should be noted, however, that the development still qualifies as appealable development, and the Commission's typical appeal period must run to allow for any potential appeals by Coastal Commissioners.

In summary, the public hearing for a proposed SSREI development located within a local government's certified LCP jurisdiction that is appealable to the Commission may be waived by a local government if the LCP has such a waiver process and all of the following apply:

- The development activity is consistent with the certified LCP of the local government in which the development is located;
- The development activity requires no other discretionary approval, such as a conditional use permit;
- The development activity involves no potential for any individual or cumulative adverse effect on coastal resources; and
- Public notice is provided, and no parties specifically request a hearing.

⁹ 14 Cal. Code Regs Section 13566 requires that at least one public hearing shall be held on each application for an appealable development, affording interested persons the opportunity to appear at the hearing and inform the local government of the nature of their concerns. Because no such hearings are provided for waivers, the Commission has found that they may not be used for projects that are appealable per Coastal Act Section 30603.

¹⁰ Coastal Act Section 30624.9.

¹¹ Coastal Act Section 30624.9.

Administrative CDPs

Where development of SSREI does not fit within the criteria allowing for a CDP exemption or waiver, an administrative CDP could be considered. The Coastal Act allows for the issuance of administrative CDPs for certain non-emergency developments which, as applicable to SSREI projects, may include any improvements to existing structures and any other developments not in excess of one hundred thousand dollars other than any division of land.¹² Administrative permits are reviewed and approved at a staff level and reported out to the Commission or local governing body at its first scheduled meeting after the permit has been approved, thus allowing for a streamlined permitting process. Similar to CDP waivers, local governments must have administrative CDP provisions in their certified LCPs in order to issue such permits and are encouraged to incorporate such provisions through an LCP update.

Example of an administrative CDP:

- [CDP No. 5-12-027](#) (City of Long Beach, 2012): Proposed installation of three solar-powered message boards at three water taxi docks for display of transit-related information to support Long Beach Transit's public bus, train, and water taxi services; required a permit as the project scope constitutes new development that does not qualify for an exemption; approved as an administrative CDP with special conditions of approval related to permit compliance, construction best management practices, and assumption of risk.

Immaterial CDP Amendments

SSREI are often installed on existing permitted structures and in such cases may be processed as a CDP amendment. For SSREI to qualify for an immaterial amendment, there must be no potential for adverse impacts, either individually or cumulatively, on coastal resources or public access to and along the shoreline. Immaterial CDP amendment determinations are also made at a staff level with specific noticing and reporting requirements that allow for a more streamlined process than material amendments.¹³ Local governments must also have the appropriate provisions within their certified LCP in order to issue such permit amendments.

Example of an immaterial CDP amendment:

- [CDP Amendment No. 1-88-166-A1](#) (Mendocino County, 2022): Proposed installation of a solar panel array onto the roof of the existing single-family residence authorized by the original CDP; processed as an amendment due to conditions of approval for the original CDP restricting future development and design, as well as the project's location on a blufftop lot in an area designated as highly scenic by the certified LCP; approved as immaterial because the project would not be visible from nearby public vantage points, would not exacerbate geologic hazards related to the bluff, and had no potential for adverse impacts, either individually or cumulatively, on coastal resources or public access.

¹² Coastal Act Section 30624.

¹³ Pursuant to 14 Cal. Code Regs Section 13166(b).

Regular CDPs or Material CDP Amendments

A regular CDP or material CDP amendment would be required for any new or expanded SSREI that does not meet the criteria for the above-described expedited permit options. There is still potential for streamlining the permit process at the hearing stage, however. Regular CDPs and material CDP amendments for SSREI projects in the Commission's permit jurisdiction may be placed on or moved to the Commission's consent calendar if the project does not raise significant Coastal Act issues and there is no significant opposition to Commission staff's recommendation (e.g., the project applicant is in agreement with all recommended conditions of approval). Local governments may also offer a similar consent calendar option for non-expedited permit types.

Example of a regular CDP:

- [CDP No. 4-12-075](#) (Los Angeles County, 2013): Proposed installation of six ground-mounted solar arrays and approximately 3,300 sq. ft. of roof-mounted solar PV panels on two existing structures at a grade school campus; did not qualify for an expedited permit process due to potential for impacts to visual resources (specifically, the project would be highly visible from a designated scenic highway, viewing area, and public trail); approved with special conditions for revised plans to relocate certain solar arrays to less visible portions of the site and to color treat the proposed infrastructure such that it is more compatible with the natural surroundings.

Example of a material CDP amendment:

- [CDP Amendment No. A-3-SCO-05-073-A1](#) (Santa Cruz County, 2010): Installation of an approximately 35 foot tall wind turbine to be mounted on a pole attached to the existing single-family residence approved by the original CDP, and other site improvements; did not qualify as an immaterial amendment due to potential for impacts to visual resources and neighborhood character with respect to proposed project height and siting; approved with special conditions for revised plans to move the turbine to a less visible area of the site and reduce the turbine height such that it does not exceed the maximum elevation of the existing roofline.

The Commission does not have any permit history for microhydropower projects on record to reference for precedent. However, microhydropower projects are not likely to qualify for an expedited CDP process due to the inherent risk of coastal resource impacts that comes with development in or near streams and rivers (see [Attachment 1](#) for a description and visual examples of microhydropower infrastructure). Microhydropower projects will therefore most likely require a regular CDP (or a material CDP amendment if changing the project description or conditions of a previously approved CDP), and may include conditions of approval for avoiding, minimizing, or mitigating coastal resource impacts. Such projects may also require permits or approvals from other resource agencies, such as a Streambed Alteration Agreement from the California Department of Fish and Wildlife. Considerations for identifying and addressing the potential coastal resource impacts associated with microhydropower and other SSREI projects are discussed in Section IV below.

IV. Common Coastal Act Considerations

While SSREI projects play an important role in reducing GHGs and improving coastal resiliency, they are not without the potential for impacts to coastal resources that are protected under the Coastal Act. Employing coastal resource protection strategies during project development can lead to an expedited permit process for SSREI projects such as those discussed in the previous section. The most typical Coastal Act concerns associated with SSREI involve visual resources, coastal water quality, marine resources, ESHAs, and bird and bat strikes. Less common concerns include environmental hazard avoidance and impacts to cultural resources, agricultural lands and timberlands, and public access and recreation. The following sections describe how these various impacts may arise and how they may be avoided, with relevant examples of past projects where applicable.

Visual Resources

Installation of SSREI may result in scenic or visual resource impacts, particularly in coastal settings with scenic views. Coastal Act Section 30251 protects scenic and visual resources by requiring development, including SSREI, to be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, and to be visually compatible with the character of surrounding areas. In general, recommended best practices for avoiding or minimizing visual impacts are to co-locate the SSREI with existing or new structures and to avoid obstructions of visual resource areas to the extent feasible, such as with roof-mounted solar arrays or wind turbines that do not exceed or substantially exceed the overall height of the primary structure.

Questions to consider during the planning and permitting process to address visual resource impacts may include:

- Does the project site contain, or is it located in close proximity to, any visual resources such as public ocean views or scenic coastal areas? If so, visual resource areas should be clearly indicated on the proposed project plans.
- Does the proposed SSREI obstruct or have the potential to obstruct any protected views or visual resource areas? If so, can this be avoided through siting or design modifications? Project renderings or other means of visual assessment may help facilitate this visual impact analysis.
- Can the SSREI be sited and designed to minimize alteration of natural landforms, such as by locating the SSREI in a flat area to avoid or minimize grading for installation, or by locating the SSREI in or on currently developed areas?
- Can the SSREI be sited and designed to be visually compatible with the character of the surrounding area, such as with co-locating the infrastructure with new or existing development, screening with new or existing vegetation, color treatments to blend with the surrounding setting, or height adjustments to avoid unnecessary visual obstructions?
- Does the SSREI comply with the height requirements of the underlying zoning?
- Can the SSREI be sited, angled, or coated to minimize glare?
- If the SSREI is proposed to be roof-mounted on an existing structure that is non-conforming with respect to structure height, can the SSREI be sited and designed such that it does not exacerbate

the non-conformity (i.e., no further increase in overall height and placed where it would be screened by parapets or other existing rooftop features)?

Relevant past SSREI projects with visual impact considerations include:

- [CDP No. A-1-MEN-94-105-A1](#) (Mendocino County, 2006): Proposed one 60-ft tall wind turbine and 200-240 square feet of free-standing solar panels at a rural residential site; partial approval as a material amendment with conditions for the solar panels and partial denial of the wind turbine due to its proposed visibility from Highway 1 (designated a highly scenic area in Mendocino County’s certified LCP) and incompatibility with the surrounding natural settings.
- Also see [CDP No. 4-12-075](#) (Los Angeles County, 2013) and [CDP Amendment No. A-3-SCO-05-073-A1](#) (Santa Cruz County, 2010) examples described above in Section III.

Water Quality, Wetlands, and Marine Resources

Coastal Act Sections 30230, 30231, and 30233 require the protection of coastal water quality, wetlands, and marine resources. Impacts to these resources may arise from SSREI projects, particularly if the project site contains or is located near a coastal water body including any streams, wetlands, lakes, estuaries, or the Pacific Ocean. For example, if the project requires grading for installation, such construction activities could adversely impact water quality or water resources through the discharge of contaminated runoff, sediment, and debris. SSREI may also contribute to water quality impacts associated with increased impervious surface area, particularly if the infrastructure is installed in a currently pervious area and requires an impervious foundation or footings.

Coastal Act Section 30233 allows development in (or “fill” of) coastal waters only for certain types of projects, and only where there is no feasible less environmentally damaging alternative and where feasible mitigation measures have been provided to minimize adverse environmental effects. Most types of SSREI, such as solar arrays and wind turbines, do not require siting within a coastal water body. Thus, even if they could be considered an “energy facility” that might otherwise be allowed in wetlands—which is questionable and has not previously been a position the Commission has taken—they would likely have a less environmentally damaging alternative of siting the development elsewhere, and so would not be allowed to be sited in wetlands or coastal waters. Microhydropower is a possible exception, as this type of SSREI is dependent on the energy of flowing water and typically involves development within and adjacent to a flowing stream or river to capture this energy and convert it to electricity. In this case, microhydropower might be considered an eligible type of fill as a new or expanded energy facility under Coastal Act Section 30233(a)(1). However, an alternatives analysis would need to occur, mitigation measures would need to be provided to minimize adverse environmental effects, and the project would still need to be consistent with other Coastal Act provisions. For example, if a microhydropower project substantially altered a river or stream, it would need to comply with Section 30236. Due to the greater potential for coastal resource impacts and more complicated permitting procedures associated with development in and near streams and rivers, permitting for microhydropower would likely be less streamlined than for other SSREI options.

Questions to consider during the planning and permitting process to address water quality, wetland, and marine resource impacts may include:

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- Does the project site contain, or is it located in close proximity to, coastal waters including any streams, rivers, wetlands, lakes, estuaries, or the Pacific Ocean? If so, water bodies should be clearly indicated on the proposed project plans.
- Is the SSREI sited a sufficient distance away from any on- or off-site water bodies as appropriate and feasible, including in compliance with any required wetland or riparian buffers, to minimize potential for construction and post-construction impacts to coastal water quality, wetland, and marine resources?
- Can the SSREI be located in or on an already impervious area, such as roof-mounted solar arrays or roof-mounted wind turbines? If not, can the SSREI be designed to minimize new impervious area and direct runoff to existing or new pervious areas?
- Does the proposed SSREI project meet any local requirements for minimum landscaped area or maximum pervious surface area, or require other site changes to meet such requirements?
- Does the project description include construction BMPs for erosion, runoff, and sediment control, as may be required by or in addition to those required by the local jurisdiction or other agencies?

Example of a relevant past SSREI project with water quality, wetland, and marine resource impact considerations:

- [CDP Waiver No. 4-18-0379-W](#) (Santa Barbara County, 2018): Proposed low-glare solar panel carport canopy above an existing surface parking lot at UCSB; no new impervious area created; project proposed BMPs for erosion control purposes during construction; approved as a de minimis waiver.

Environmentally Sensitive Habitat Area (ESHA) and Sensitive Species

Coastal Act Section 30240 only allows uses dependent on sensitive habitat resources to be located in ESHA, and it requires that the ESHA be protected against any significant disruption of habitat values. Development adjacent to ESHA must also be sited and designed to prevent impacts that would significantly degrade the areas. SSREI projects are unlikely to qualify as resource dependent, as they do not depend on being located in particular habitat to function. Although microhydropower projects might need to be located in flowing water that qualifies as ESHA, in such a case, the more specific provisions of 30233 would apply, as discussed above, rather than the more general provisions of Section 30240.

For proposed projects that would be located near areas that qualify as ESHA as defined by the Coastal Act¹⁴ or by a certified LCP, the Commission or certified local jurisdictions will need to consider whether the projects will degrade the ESHA. To ensure ESHA protection, the Commission and certified local jurisdictions typically require a buffer between any new development (including SSREI) and various types of ESHA.¹⁵ Potential impacts may arise from glare from solar panels or from construction activities such as noise, vibration, staging areas, and equipment mobilization. To minimize these types of impacts

¹⁴ Coastal Act Section 30107.5 defines “Environmentally sensitive area” as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

¹⁵ Buffer requirements vary depending on factors including but not limited to the standard of review, ESHA type, and location.

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from projects adjacent to ESHA, the Commission has often required that construction staging and storage areas should be located outside of buffer areas and has sometimes required a qualified professional to monitor noise and vibration levels during construction.

Wind turbines present a unique concern with the potential for bird and bat strikes, as the rotating turbines can injure or kill resident or migrating species. Sensitive bird and bat species, along with their roosting and nesting areas, are protected under Section 30240; other Coastal Act provisions, such as Section 30230, also require protection of shorebirds and other bird species. The California Energy Commission, in collaboration with the California Department of Fish and Wildlife, issued [California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development](#) in 2007 that recommends a stepped approach to help developers address this concern: 1) gather preliminary information and conduct site screenings; 2) determine applicable wildlife protection law requirements; 3) conduct pre-permitting site assessments; 4) assess potential impacts and identify avoidance and mitigation measures; and 5) collect operational monitoring data. The U.S. Fish and Wildlife issued [Land-Based Wind Energy Guidelines](#) in 2012 with a comparable tiered approach, and the Commission has required similar pre- and post-construction studies and monitoring in past actions on wind turbine projects. While wind turbine technology and operational practices are improving to reduce the potential for bird and bat strikes,¹⁶ it is still recommended to conduct such pre- and post-construction studies and monitoring to identify and reduce the potential for impacts.

Questions to consider during the planning and permitting process to address ESHA impacts and bird and bat strikes may include:

- Is there ESHA or potential ESHA on or near the project site? If so, a biological resource study will most likely be required and the proposed plan set should clearly indicate ESHA boundaries and construction staging and storage areas in relation to the proposed SSREI site.
- If the SSREI includes a wind turbine(s), did site assessments identify any sensitive bird or bat species or suitable habitat for such species on or near the project site? If so, what siting and design features, prevention measures and monitoring plans are proposed to minimize collision risk?
- If a biological resource study is required and includes recommendations on avoidance and minimization measures (e.g., environmental awareness training for construction crews, biological monitoring during construction, flagging off sensitive areas, avoiding construction during sensitive nesting/breeding seasons, buffers from nesting/roosting/other suitable habitat areas for birds and bats), are those recommendations adequate to avoid ESHA impacts and minimize bird and bat strikes? Are these recommendations included with the proposed project description, or do they need to be included as conditions of approval?
- Does the proposed location for SSREI comply with any required ESHA buffers? If not, does the standard of review allow for exceptions and does the biological resource study provide sufficient information to support an exception?

¹⁶ Whitby, M. D., M. R. Schirmacher, and W. F. Frick. 2021. The State of the Science on Operational Minimization to Reduce Bat Fatality at Wind Energy Facilities. A report submitted to the National Renewable Energy Laboratory. Bat Conservation International. Austin, Texas.

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- Does the project propose to remove non-ESHA native vegetation? If so, can this be avoided, such as by locating the SSREI in a previously disturbed area?

Relevant past SSREI projects with ESHA and sensitive species impact considerations include:

- [CDP No. A-3-SLO-10-053](#) (San Luis Obispo County, 2010): Proposed two carport-mounted solar arrays and two free-standing solar arrays in a drainage basin area at an elementary school site; substantial issue found as the drainage basin could qualify as ESHA and the arrays were not resource-dependent uses; approved de novo as a regular CDP with conditions to remove the free-standing solar arrays from the project description.
- [CDP No. 5-08-251-A3](#) (City of Los Angeles, 2012): Proposed six, 50 ft. tall wind turbines at a high school site; original CDP application included 36 wind turbines with new school, but Commission excluded turbines from approval until biological studies were conducted; approved six turbines through a material CDP amendment with conditions for post-construction bird strike monitoring, reporting, and future re-design if feasible and necessary to reduce potential for bird strikes.

Other Potential Coastal Act Issues

Similar to the issues above, many of the generally less common coastal resource impact concerns associated with SSREI can likely be resolved with thoughtful siting and design based on site-specific conditions, especially where the infrastructure can be co-located with the development it is serving to minimize site disturbance.

Questions to consider during the planning and permitting process to address other potential Coastal Act issues such as environmental hazard avoidance (Section 30253) and protection of cultural resources (Section 30244), agricultural lands and timberlands (Sections 30241 through 30243), and public access and recreation (Sections 30210 through 30224) include:

- Is the project site within or near any environmental hazard areas, including but not limited to flood, tsunami, sea level rise, fire, seismic, landslide, or liquefaction risk areas? If so, can the SSREI be sited and designed to minimize risks to life and property over its full design life (e.g., compliant with any required hazard setbacks, elevated or coated for floodproofing, securely anchored to an existing or proposed structure or foundation, able to be removed or relocated if the SSREI or the development it is serving is threatened by hazards)?
- Are there known or potential archaeological or cultural resources on site or nearby that could be adversely impacted by any ground disturbing activities associated with SSREI construction? If so, is a monitoring and recovery plan proposed? Is tribal consultation needed to develop appropriate avoidance and mitigation measures?
- Does the site contain any timberlands or prime agricultural land as defined by the Coastal Act¹⁷ or by a certified LCP? If so, can the SSREI be sited to avoid diminishing the productivity of the timberlands or prime agricultural land, such as by locating the SSREI in developed areas?

¹⁷ Coastal Act Section 30113 defines “prime agricultural land” as those lands defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code.

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- Does the project site provide any form of public coastal access, such as a road, trail, or parking area? If so, does the SSREI project ensure public access will be maintained during and post-construction (e.g., no permanent loss of public parking spaces or accessways, public access and safety plan to avoid or minimize temporary access obstructions during construction)?
- Does the proposed project plan clearly delineate any hazard areas, cultural resource areas, areas of prime agricultural land or timberlands, and public access and recreation facilities that are within or in close proximity to the project site?

V. LCP Considerations

Local governments can support the development and use of SSREI by including the CDP expediting opportunities described above in their certified LCPs. Local governments can also update their LCPs to identify appropriate land use designations and development standards for SSREI in a manner that promotes and facilitates such infrastructure. LCP policies and ordinances that address these issues will help developers make informed decisions during their design process and avoid barriers to obtaining the required permits in a timely fashion.

Relevant LCP amendment examples include:

- [LCP Amendment No. LCP-6-SAN-15-0035-4 Part C](#) (City of San Diego, 2016): Implementation Plan (IP) amendment to establish a new, separately regulated land use of “Solar Energy Systems” to implement AB 2188; the new land use supports the installation of small-scale solar energy systems by identifying such systems as a permitted use subject to certain regulations in all zoning districts, exempts such systems from utility undergrounding and screening requirements, and provides appropriate allowances for encroachments into setbacks and building envelopes where there are no coastal resource impacts; approved as submitted.
- [LCP Amendment No. MNB-MIN-11-01](#) (City of Manhattan Beach, 2012): IP amendment to incorporate a comprehensive set of Sustainable Building Measures to encourage “green” building practices, including appropriate exceptions to height limits for solar panels and objective development standards and permit application requirements for small wind energy systems; approved as submitted as a minor LCP amendment.

Local governments are also encouraged to apply for the Commission’s [LCP Local Assistance Grant Program](#), which provides funding support for local governments to develop and update their LCPs to incorporate coastal resiliency strategies. This may include land use policies and development regulations that advance climate change adaptation by facilitating SSREI.

For more information on SSREI planning and development, please contact the Commission’s Statewide Planning Unit at statewideplanning@coastal.ca.gov or the appropriate [District Office](#).

Attachment 1: Examples of Small-Scale Renewable Energy Infrastructure

Solar arrays or solar photovoltaic (PV) systems are typically composed of one or more solar panels, an inverter, battery storage, and other hardware that converts solar energy into electricity. Solar arrays can be roof-mounted (e.g., on a roof of a structure or carport), pole-mounted, or ground-mounted.



Residential roof-mounted solar



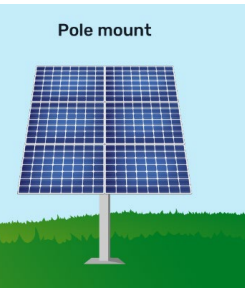
Carport roof-mounted solar



Ground-mounted solar

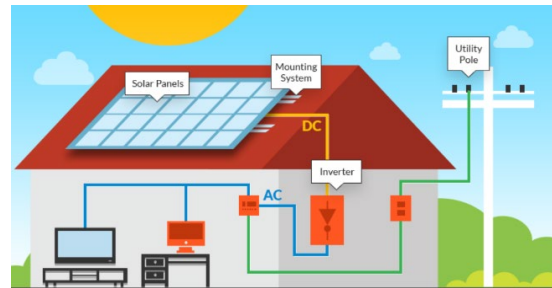


Standard ground mount



Pole mount

Ground-mounted vs. pole-mounted solar

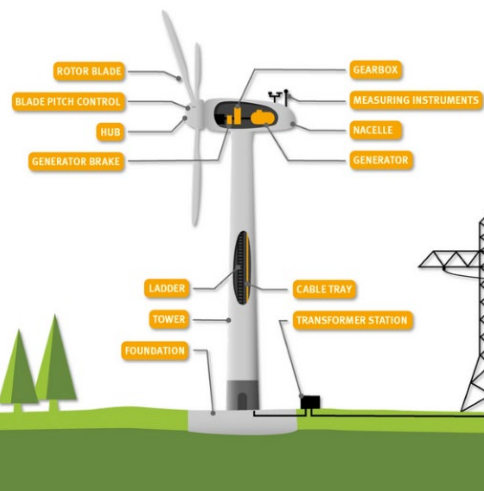


Typical components of a solar PV system

Wind turbines are typically composed of a foundation, a tower, rotor blades and hub, and a nacelle that houses a gearbox and generator that converts wind energy into electricity. Wind turbines can also be roof-mounted or ground-mounted.



Roof-mounted wind turbine



Typical components of a wind turbine



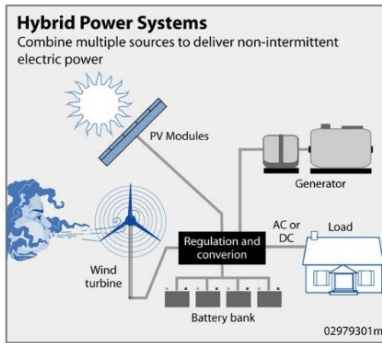
Ground-mounted wind turbine

Small-Scale Renewable Energy Infrastructure Permitting & Planning Opportunities

Hybrid solar-wind power generation systems are typically composed of one or more solar panels, one or more wind turbines, an inverter, battery storage, and other hardware that converts both solar and wind energy into electricity. Hybrid systems can be roof-mounted, ground-mounted, or a combination thereof.



Roof-mounted solar and ground-mounted wind



Typical components of a hybrid system

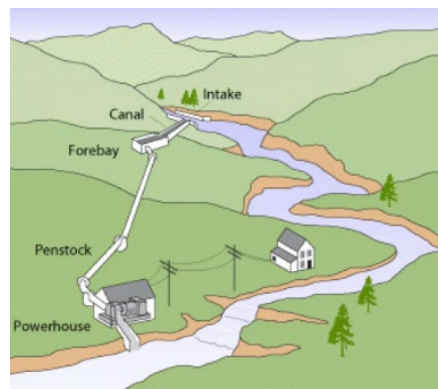


Ground-mounted hybrid

Microhydropower systems are typically composed of a water conveyance system (such as a channel or pipeline) that delivers flowing water to a powerhouse containing a turbine or pump that converts the energy of flowing water into rotational energy, an alternator or generator that converts the rotational energy into electricity, an inverter, and wiring to deliver the electricity. These systems require proximity to sources of flowing water for water intake and outflow. Microhydropower turbines or pumps can also be located in-stream, eliminating the need for a water conveyance system.



Microhydropower powerhouse



Typical components of a microhydropower system



In-stream microhydropower turbines

Attachment 2: Coastal Act Authorization Flowchart for SSREI Projects

