

Harvesting Clean Energy

How California Can Deploy Large-Scale Renewable Energy Projects on Appropriate Farmland

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About this Report

This policy paper is the ninth in a series of reports on how climate change will create opportunities for specific sectors of the business community and how policy-makers can facilitate those opportunities. Each paper results from one-day workshop discussions that include representatives from key business, academic, and policy sectors of the targeted industries. The workshops and resulting policy papers are sponsored by Bank of America and produced by a partnership of the UC Berkeley School of Law's Center for Law, Energy & the Environment and UCLA School of Law's Environmental Law Center & Emmett Center on Climate Change and the Environment.

Authorship

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Executive Summary: Where to Plant Renewables

California's ambitious renewable energy goals will require the deployment of large-scale renewable energy facilities. To meet the target of 33 percent renewable energy by 2020, Governor Jerry Brown has called for 8,000 megawatts of energy from such large-scale installations (where one megawatt provides roughly enough energy to power 750 homes for a year). In order to produce the required energy in the next decade, developers of these facilities may need as much as 100,000 acres of land across the state.

While the state and federal governments have strived to accommodate utility-scale renewable energy projects on public lands, developers in California are increasingly looking to agricultural land to site their projects. Since the conditions of the lands may limit alternative uses, farmers and ranchers of some of these lands have determined that renewable energy facilities provide the best opportunity to recoup their capital investment. In the Central Valley and Imperial Valley in particular, developers are proposing large-scale solar projects at an increasing rate. Meanwhile, up to a quarter million acres of impaired lands in the Westlands Water District in the Central Valley may soon have to be retired from agricultural production,¹ leaving significant tracts available for renewable energy production.

However, building large-scale solar facilities on farmland – whether impaired, marginal, or otherwise degraded – can compromise other valuable resources. Agricultural land in the state has been steadily disappearing over the years in the face of encroaching urban development and other pressures. Over 200,000 acres of irrigated farmland were lost between 2006 and 2008 alone, while 1.3 million acres have been taken out of agricultural use since tracking began in 1984, a rate of approximately one square mile every four days.² As result, the state has policies in place to protect prime food-producing regions from these pressures. In addition, many of these agricultural lands also have significant biological value, providing habitat for threatened and endangered species that have adapted to the agricultural use.

Consequently, some proposed large-scale projects on agricultural lands have faced permit delays and litigation due to challenges related to agricultural and biological impacts. California therefore has a strong interest in siting utility-scale renewable energy projects on viable parcels that retain little or no agricultural or biological value. Projects on these sites may have fewer environmental impacts – meaning less mitigation, fewer permitting delays, and a shorter development horizon.

But many renewable energy developers lack incentives or opportunity to propose projects first in these areas. State and local governments must therefore provide direction, mapping, and incentives to facilitate beneficial project site selection and avoid permit delays, litigation, and the potential for inefficient use of existing electricity infrastructure.



Top Five Barriers to Deploying Large-Scale Renewable Energy Facilities on Appropriate Farmland in California

To address the problem, renewable energy developers, agricultural leaders, environmentalists, and federal, state, and local officials gathered at the UC Berkeley School of Law in March 2011. The group identified the key challenges to deploying large-scale renewable facilities in the most appropriate agricultural areas and suggested strategies for overcoming them. The group focused on five key barriers hindering appropriate renewable energy deployment:

- 1) Lack of Definition of Suitable Farmland for Solar Development: State agencies and local governments may employ different definitions of marginal and impaired agricultural lands, prime farmland, water-constrained land, and significant impacts from renewable energy development, resulting in inconsistent and sometimes suboptimal choices by developers in siting projects on farmlands.
- 2) Williamson Act Contracts: Much agricultural land is protected by the Williamson Act, a state law designed to preserve agricultural land for commercial food production and open space through property tax incentives, which may make a renewable energy project on marginal or impaired farmland infeasible through added delays and cost.
- 3) Endangered Species Protections: Many of the potential and proposed renewable energy sites on agricultural land serve as habitat for endangered and threatened species protected by federal and state law.
- 4) Lack of Coordinated Land Use Planning and Analysis: Renewable energy developers can experience permitting obstacles when local governments lack comprehensive land use plans that address renewable energy development, such as county general plans and zoning ordinances, and when local elected officials are reluctant to permit facilities that do not provide sufficient tax revenue to cover municipal costs.
- 5) Inadequate Electricity Infrastructure: Because the existing electricity infrastructure was not built to service remote agricultural regions, some potential renewable energy sites with the least environmental and agricultural value and greatest sun exposure may lack access to needed transmission lines and uncongested substations.

This paper identifies the steps that federal, state, and local leaders should consider to facilitate deployment of utility-scale renewable projects on suitable agricultural lands. Policy-makers will need to:

- Develop criteria for the most suitable agricultural lands for renewable energy development, including impaired lands with poor agricultural and biological value that possess strong renewable energy generation potential;
- Expedite the permit process for projects on these impaired lands; and
- Plan and develop electricity infrastructure upgrades and interconnection processes to accommodate increased energy production from impaired agricultural sites.

This paper summarizes these and other proposed solutions below.

Solutions for Federal, State, and Local Governments

SOLUTION #1: Develop Criteria for Statewide Definition of Appropriate Agricultural Lands for Renewable Energy Development

The state legislature, with input from state and local agencies and affected stakeholders, should define the criteria for land that would be most optimal for renewable energy development, using factors such as access to water, aquifer condition, drainage, and soil quality.

State leaders should ensure that state and local agencies and local governments utilize the criteria for making land use and permitting decisions about renewable energy facilities on agricultural lands

SOLUTION #2: Ease Williamson Act Restrictions for Renewable Development on Appropriate Agricultural Land

The state legislature should utilize criteria for determining appropriate agricultural land to suspend or terminate Williamson Act protections, such as by creating easements for solar development that would ensure that economically viable land could potentially revert back to an agricultural use at the end of the project life.

The state should enact a separate process for suspending or terminating Williamson Act contracts on agricultural lands that meet criteria for transitioning from agriculture to renewable energy production.

The state legislature should develop a funding mechanism to support the California Department of Conservation's efforts to develop criteria and maps to indicate priority areas for renewable energy development on impaired agricultural land.

State leaders should develop a fund to mitigate impacts on agricultural land from renewable energy development, with renewable energy permit fees funding an agricultural mitigation bank to support conservation easements, direct land purchases, and programs to protect water resources for agricultural land near the project sites.

SOLUTION #3: Streamline Endangered Species Permit Processes for Projects on Suitable Agricultural Land

Federal and state leaders should develop criteria for sites with minimal biological value that can transition to renewable energy production, such as land with impaired characteristics that do not damage habitat connectivity, critical habitat, wildlife corridors, listed species, or any intact existing habitat.

The United States Fish and Wildlife Service should use streamlined "low-effect habitat conservation plans" or develop comprehensive regional plans for renewable energy projects on appropriate land, which are streamlined plans specifically targeted to projects that have minor or negligible effects on listed, proposed, or candidate species and their habitats.

The United States Fish and Wildlife Service should expedite endangered species review for appropriate private land proposals by applying streamlined procedures under Section 7 of the Act to select non-federal entities under Section 10.



The United States Fish and Wildlife Service should consider existing streamlining rules for appropriate solar projects, specifically using Section 4(d) of the Endangered Species Act to establish regulations for threatened but not endangered species.

Federal and state leaders should coordinate agency processes and personnel to expedite permitting and analysis for low-impact projects by co-locating state and federal scientists in the same buildings or cities and having them work together on permit teams.

Federal and state leaders should include funding mechanisms with permit applications to hire additional staff to expedite review, including higher permit fees and reimbursable agreements.

SOLUTION #4: Plan and Expedite Appropriate Renewable Energy Development at the State and Local Level

Federal and state leaders should develop incentives for permit streamlining of agricultural parcels that are appropriate for conversion, including guidelines for eligible renewable energy project to qualify for expedited review.

Federal and state leaders should coordinate agency permitting for renewable energy development on agricultural parcels by developing “Memoranda of Understanding” or “Interagency Agreements” among multiple agencies to simplify the permit process, save agency resources, and facilitate the development of desirable development.

Local governments should plan for large-scale renewable energy development in coordination with state-developed criteria for appropriate land through county general plans and zoning ordinances.

The state should consider ending or phasing out property tax exemptions for solar development on agricultural land to encourage local governments to permit these facilities and not face a loss of tax revenue required to fund the necessary municipal services, or alternatively, state and local governments should ensure that that these projects do not place a greater fiscal burden on local governments than the tax revenue they generate.

SOLUTION #5: Plan and Develop Upgrades to the Electricity Infrastructure to Accommodate Renewable Energy Generation in Appropriate Agricultural Regions

Utilities and transmission planning entities, such as the California Independent System Operator, should plan transmission and substation upgrades where renewable energy facilities are likely to be built in accordance with future state plans to streamline permitting for the most optimal sites.

Utilities should prioritize procurement of renewable energy from appropriate agricultural areas identified in the statewide criteria and mapping process.



California Must Increase Deployment of Renewable Energy Facilities to Meet State Energy & Greenhouse Gas Goals

California Has Made Renewable Energy a Priority to Benefit the Environment and Create Jobs

California has committed itself to reducing the greenhouse gas emissions that cause climate change. Through legislation, regulation and executive orders, the state has acted to address the problem out of concern for the negative impacts of climate change on California's economy, natural resources and quality of life.³ Most prominently, the California Global Warming Solutions Act of 2006 (AB 32) mandates that the state roll back its greenhouse gas emissions to 1990 levels by the year 2020, equivalent to a 30 percent cutback from the business-as-usual scenario projected for 2020.⁴ Former California Governor Arnold Schwarzenegger's Executive Order S-3-05 calls for an eighty percent reduction from 1990 levels by 2050.⁵

State leaders have expressed optimism⁶ that actions to address climate change will help California become a leader in developing the technologies needed to make the transition to a low-carbon economy, leading to the possible creation of thousands of new jobs.⁷ Among these technologies, renewable energy from solar and wind resources represent some of the most promising options, both to reduce greenhouse gas emissions and stimulate local economic gains.

California's electricity sector is one of the largest sources of greenhouse emissions, contributing almost one quarter of the statewide greenhouse gases (see Figure 1).⁸ Any effort to reduce aggregate greenhouse gas emissions will likely require the state to reform this sector, first by reducing demand for energy through energy efficiency and second by switching from fossil fuel-based energy to cleaner renewable sources.

California has taken major steps to encourage renewable energy generation. The state developed "renewable portfolio standards" (RPS) that require retail electricity sellers, with the exception of municipal utilities, to procure 20 percent of their electricity from eligible renewable energy resources by 2010.⁹ Governor Jerry Brown signed legislation on April 12, 2011 to increase the percentage to 33 percent by 2020 for all utilities.¹⁰ The California Air Resources Board, charged with implementing AB 32, stated in its AB 32 scoping plan that achieving the 33 percent goal "is a key part of CARB's strategy for meeting the AB 32 targets."¹¹

The state has ambitions to exceed this target and become a global leader in generating renewable energy. In his signing statement for the 33 percent legislation,

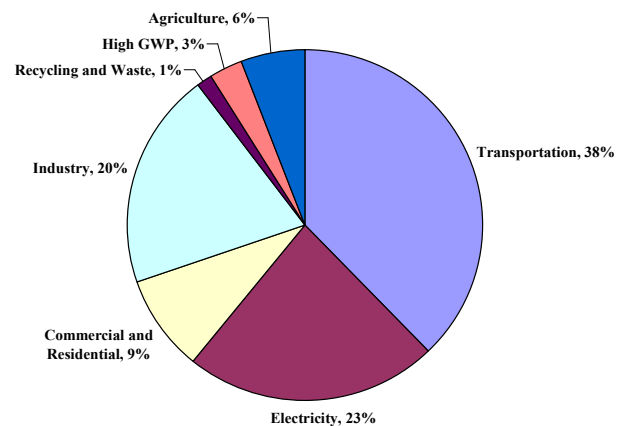


Figure 1. California's Greenhouse Gas Emissions (2002-2004 Average)

Source: California Air Resources Board

Governor Brown expressed a belief that reaching 40 percent renewable energy in the near future could be achievable in a cost-effective manner.¹²

California has Raced to Permit Large Central Station Renewable Energy Facilities

To meet the 33 percent renewable energy goal, California will need a mix of centralized, large-scale projects as well as localized renewable energy generation, such as from solar panels on large buildings or along highways (see *In Our Backyard*,¹³ a previous white paper on this topic). In his campaign platform for achieving a broader renewable energy portfolio, Governor Brown called for 8,000 new megawatts of renewable energy from large-scale facilities and 12,000 megawatts of localized generation,¹⁴ out of the approximately 20,000 megawatts needed to meet the 33 percent RPS. This paper focuses on meeting the large-scale renewable facilities goal, although agricultural land can accommodate localized generation as well.

California's renewable energy program has come in the context of a nationwide push to build large, central station renewable facilities, such as concentrating solar plants in the Mojave Desert. Federal decision-makers have facilitated the construction of these facilities through Department of Energy loan guarantees and the American Recovery and Reinvestment Act (ARRA, also known as the "stimulus"). The stimulus created a program to provide developers with cash grants equal to the lifetime amount of existing tax credits.¹⁵ To qualify for the incentives, projects must begin construction within the 2011 calendar year (a deadline recently pushed back from 2010). As a result, renewable energy companies have experienced considerable time pressure to select sites quickly and expedite the permit process.

The federal government has steered many of these projects toward federal land. For example, Secretary Ken Salazar of the United States Department of Interior created a task force to identify prime sites on public lands for renewable energy generation and to foster agency collaboration to expedite permitting.¹⁶ Partly in response to this effort and available stimulus funds and federal loan guarantees, the United States Bureau of Land Management (BLM) has received requests to build approximately 34 large solar thermal power plants, totaling roughly 24,000 megawatts, on more than 300,000 acres.¹⁷ By December 2010, the California Energy Commission approved 10 solar-thermal projects totaling 4,192 megawatts of generating capacity,¹⁸ with seven of the facilities located on BLM land.¹⁹ In addition, developers proposed another 8,000 megawatts of renewable energy projects using wind and photovoltaic technologies.²⁰

Local governments have also witnessed a surge in proposals to build utility-scale facilities on private land. In 2010, California local governments permitted 1,097 megawatts of non-thermal renewable energy capacity on private land sites. Kern and Los Angeles Counties approved an 800 megawatt wind project, a 230 megawatt photovoltaic project, and a 10 megawatt photovoltaic project, while Solano County permitted a 37 megawatt wind project and Kings County approved a 20 megawatt photovoltaic project.²¹ In March 2011, Kern County permitted the 6,047 acre Maricopa Sun project in the Central Valley, estimated to generate 700 megawatts of renewable energy.²²

Permitting Delays and Lack of Adequate Transmission Infrastructure have Created Obstacles for Large-Scale Projects

Despite the rush to permit these projects under federal incentive deadlines, project developers have experienced delays resulting from agency processes and opposition from local land owners, environmentalists, and other groups. Because California had not permitted a new solar thermal plant between 1990 and 2008,²³ the wave of proposed facilities required permitting agencies to develop new expertise and protocols and to partner with other agencies without the benefit of prior collaboration.

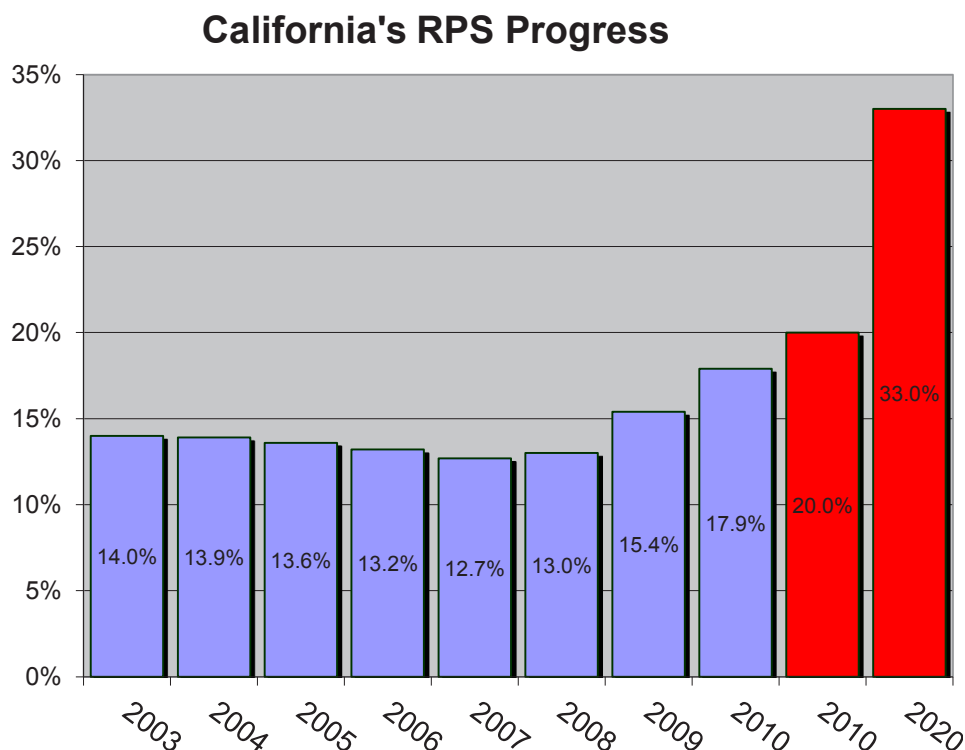


Figure 2. California's Progress In Meeting The State's Renewable Portfolio Standard

In addition, the state's lack of comprehensive master planning for renewable facilities meant that developers chose project sites on an ad hoc basis. Partly as a result, these sites often entailed significant complications and impacts, such as from endangered species and lack of water.

Access to transmission lines has also been a problem. With many projects located in remote parts of the state, developers often need new, expensive transmission lines or upgrades to existing lines to bring the electricity to the grid. Like the facilities themselves, transmission lines face significant, multi-year planning, permitting, and construction challenges and potential public opposition, although California has made significant progress expediting the process through its Renewable Energy Transmission Initiative stakeholder process. Once built, they can experience significant electricity line losses associated with transmitting electricity over long distances between states (less so within the state).²⁴ Yet they are essential for large, central-station renewable energy generation. In 2009, the California Public Utilities Commission predicted that meeting the 20 percent RPS would require four new "major" transmission lines at a cost of \$4 billion, while meeting the 33 percent RPS would require "seven additional lines at a cost of \$12 billion,"²⁵ although recent statements by the California Independent System Operator indicate that these transmission lines may not be necessary before 2020.²⁶

California's investor-owned utilities did not meet the 2010 RPS (see Figure 2). By March 2011, the large investor-owned utilities reported that 17.9 percent of their electricity came from RPS-eligible generation sources in 2010, representing an increase from 15.4 percent in 2009 but short of the 20 percent goal. Southern California Edison came closest with 19.4 percent, while San Diego Gas & Electric had only 11.9 percent.²⁷ Much of the increases in percentages from 2009, however, resulted from greater small-scale hydroelectric output compared to previous years and a decrease in demand for electricity due to the economic downturn.²⁸ As these temporary conditions dissipate, future percentage decreases may occur.

Large-Scale Renewable Projects on Marginal and Impaired Agricultural Land Face Distinct Challenges

With increased resistance to the construction of large-scale facilities on public lands with important habitat value and continued incentives to generate renewable energy, developers have begun attempting to build facilities on agricultural land. Some developers have demonstrated a preference for marginal and impaired private lands, particularly agricultural parcels that may no longer be economically viable for agricultural production. They are often attracted to this farmland, some of which is located in the San Joaquin and Imperial Valleys, because of its proximity to existing electricity infrastructure such as transmission lines and substations. The developers also hope that the degraded nature of the land will make it less likely to have significant biological, environmental, or agricultural value that would raise the attention of potential project opponents.

According to recent estimates provided by the Office of the Governor, the state may need roughly 100,000 acres of land for large-scale development to meet the 2020 renewable energy goals, and up to 1 million acres for the 2050 greenhouse gas targets, without factoring localized generation. Out of approximately 30 million acres of farmland and other suitable private and public lands, the potential impact on California's agricultural resources due to conversion to utility-scale renewable energy may not be significant, particularly if much of the land to be converted is no longer viable for food production. Meanwhile, the California Council on Science and Technology estimated that the land area necessary to meet all of California's 2050 electricity needs from renewable sources would displace approximately 1.3 percent of the state's total land area.²⁹ Another 3.7 percent of the land would be needed for less disruptive renewable energy generation, such as from wind turbines, dual-use solar with farming, and localized generation.³⁰

To date, however, the few attempted projects on impaired agricultural land have faced distinct challenges, due in part to the high biological values of some of the proposed sites. A proposed 400 megawatt, 5,000 acre solar photovoltaic facility on ranching and farming land with poor water access in the Panoche Valley in San Benito County engendered strong opposition from local ranchers and farmers. These individuals expressed concern about the project's potential impact on their agricultural land. Environmentalists opposed the project due to the presence of endangered species on the property like the San Joaquin kit fox and giant kangaroo rat, arguing that the valley represents one of three core recovery areas for these critically imperiled species. In addition, the Audubon Society opposed the project due to the richness of the avian resource in the area (the Panoche Valley is known as one of the world's best birding sites). The local Farm Bureau representatives and elected officials supported the project, and the state Department of Conservation approved the cancellation of Williamson Act contracts on the land due to its marginal character (the Williamson Act is a state law designed to preserve agricultural land from development through property tax incentives). However, the California Farm Bureau Federation opposed the project and the cancellation of the Williamson Act contracts.³¹

Other projects on agricultural land have faced similar hurdles. In the Carrizo Plain in San Luis Obispo County, the board of supervisors approved a solar photovoltaic project of 250 megawatts in April 2011, and the planning commission approved a 550 megawatt project in July 2011, both on ranching and dry farming land. While the land is not under Williamson Act contracts, lacks access to water, and is marginally productive, county ordinances designate the grazing land as "prime," resulting in extensive farmland mitigation requirements. Opposition from some local groups concerned about loss of open space and impacts on endangered species sparked litigation – and an eventual agreement with project proponents and key environmentalist groups – over the approvals (environmentalists often refer to the Carrizo Plain as the "Serengeti" of California due to its biological

"We're not seeing productive agricultural land that is trying to convert to renewables, with only a couple of exceptions. There's just too much money to be made in productive agriculture."

*-- Brian Leahy
California Department
of Conservation*

"There's a whole mess of acres that aren't productive as agriculture lands, so it may be better to site renewable projects on them instead."

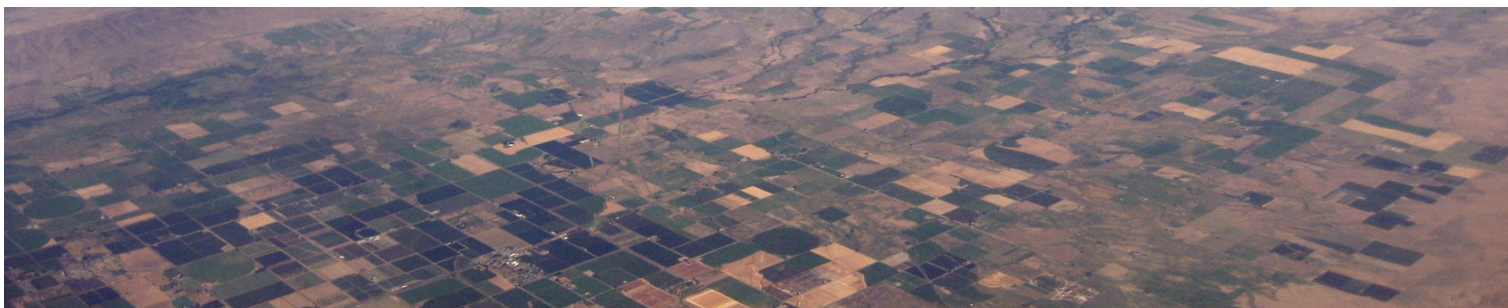
*-- Michael Delbar
California Rangeland
Trust*



resources).³² Meanwhile, Maricopa Sun, discussed previously, requires Williamson Act cancellation on over 6,000 acres of farmland that has not had sufficient water access since 2003.³³ As of August 2011, the Department of Conservation recommended approval of the cancellation and awaits fee payment and compliance with any stipulations placed on the landowner by the county.

Some projects on agricultural land have experienced more success. The Westlands Solar Park, for example, has avoided some of the more contentious siting battles plaguing other projects on impaired or marginal agricultural land, in part because the site has minimal biological attributes compared to other proposed project sites. The project encompasses 30,000 acres in the Kings County portion of the Westlands Water District, an area roughly the size of San Francisco with the potential to deploy between 3,000 and 5,000 megawatts of large scale solar photovoltaic arrays. The project may ultimately benefit from its location on degraded land (the accumulated soil contamination from the leaching of naturally-occurring selenium under impaired drainage conditions makes agriculture challenging if not impossible) with junior water rights that have resulted in severe shortages of imported water deliveries from the federal Central Valley Project. In addition, the project is near existing transmission lines.³⁴

Given the push to develop these marginal agricultural lands, state and federal policy-makers will need to resolve the conflicts and steer development toward consensus areas. If specific impaired farm land is appropriate for siting renewable facilities, policy-makers should steer projects toward these areas and away from more sensitive sites with competing values and resources.



Barrier #1: Lack Of Definition Of Suitable Farmland for Renewable Energy Development

Because many different counties and agencies differ in their definitions of marginal and impaired agricultural lands, developers often lack clear guidance and incentives to choose the most optimal project sites for large-scale facilities. In addition, government entities differ on what constitutes prime farmland, significant impacts from renewable energy development, and water-constrained land. The result of this inconsistency in definitions and standards is sometimes suboptimal choices by developers to site projects on a variety of farmlands.

SOLUTION: Develop and Utilize Criteria for Appropriate Agricultural Lands for Renewable Energy Development

The legislature, state agencies, agricultural leaders, and renewable energy advocates should work together to develop a list of criteria for suitable agricultural lands that may be appropriate for renewable energy development. They should note that future advances in solar technology may allow certain types of large-scale facilities to coexist with agricultural operations. Ultimately, this state guidance should serve as the basis for expediting permitting among multiple agencies and entities for projects on lands that meet the criteria.

The state legislature, with input from the California Energy Commission, California Department of Conservation, California Department of Food and Agriculture, California Department of Fish & Game, and the Governor's Office, should define the criteria for land that is appropriate for renewable energy development

At the workshop, participants cited a number of factors that could be used to develop criteria for appropriate agricultural land to convert to renewable energy development. These factors included access to water, drainage, and soil quality. For example, some participants suggested that land should not convert to renewable energy development if it has Class 1 or 2 soil under the United States Department of Agriculture classification system, is considered "unique" under state farmland mapping (produces one of the state's "Top 40" crops), or is capable of meeting California Department of Conservation definitions of prime farmland.

By contrast, land may be appropriate for renewable energy development if it has not been farmed for a certain number of years due to poor drainage, topography, flooding, lack of water access "for the right reasons" (as one participant stated, noting the potential for some landowners to game the system by deliberately withholding water to qualify), or chemical or physical impairment. These factors generated by workshop participants represent a starting point for developing comprehensive criteria and are not meant to be exhaustive or definitive.

"The problem has been a vacuum at the state level. The state should identify the "go" lands and the "no-go" lands. Otherwise, the state is relying on lawsuits by citizens groups to determine renewable energy policy."

*-- Bill Powers
Powers Engineering*

"The term "marginal" doesn't get it. The question is, does it have food producing capability? Land in Kern County that was classified as unusable 20 years ago now grows pistachios."

*-- Corry Gallagher
Bank of America*



State leaders should develop legal mechanisms to ensure that state and local agencies and local governments utilize the criteria for making land use and permitting decisions about renewable energy facilities on agricultural lands

The multiple state and local entities responsible for permitting should utilize the state-determined criteria to facilitate siting on appropriate agricultural lands, discussed in more detail below. For example, the state should ensure that the criteria form the basis for permitting expediting under diverse statutes and regulatory regimes, from the Williamson Act to the California Environmental Quality Act (CEQA). CEQA also cross references the definition of prime farmland in the Williamson Act, using this definition as the basis to find the loss of such farmland from renewable energy development to be a significant unavoidable impact that requires mitigation or a statement of overriding consideration. Improving and coordinating these definitions could therefore result in expedited and less costly permitting across multiple jurisdictions and statutes. Finally, the criteria should form the basis for local government planning for renewable energy.



Barrier #2: Williamson Act Contracts

For renewable energy projects on certain agricultural lands, developers must comply with the Williamson Act, a state law designed to protect agricultural land from development through property tax incentives. Largely as intended, the Act can make renewable energy projects difficult to permit, and in some cases financially infeasible, by assessing financial penalties for landowners who cancel their contracts. An early cancellation of a Williamson Act contract must meet a public purpose test, which often includes the acquisition and preservation of like-kind agricultural land by at least a one-to-one ratio. Local governments have the discretion to make the cancellation, based on a presentation of evidence to justify and support the required findings.³⁵ In addition, any cancellation on a property over 100 acres triggers CEQA review.

The state passed the California Land Conservation Act, also known as the Williamson Act, in 1965 to protect agricultural land from urban development and to preserve open space. The Act created a voluntary program that allows agricultural landowners to enter into agreements with cities and counties to restrict the use of their land in exchange for lower property tax assessments. The lower tax assessment is based on agricultural use instead of the potential market value of the property, which typically would be substantially higher given development pressure on agricultural lands. In addition, until the recent budget shortfalls, the state provided “subvention” payments under state law to eligible counties to compensate them for the loss of property tax revenue.³⁶ Today, the Act restricts development on 16.6 million acres, or nearly one-third of all private land in the state.

Renewable energy developers face challenges building facilities on land affected by the Williamson Act. The first challenge comes from land located within a Williamson Act “agricultural preserve.” Under the Act, cities or counties must designate a minimum of 100 acres as boundaries within which they can accept Williamson Act contracts. Within two years of signing the first contract within a preserve, the city or county must restrict any other land not yet under contract within the preserve by “zoning or other suitable means” to ensure that the land use is not “incompatible with the agricultural use of the land...” As a result, even landowners that have not entered into Williamson Act contracts will face compatible use restrictions on their land if it is located within a preserve.

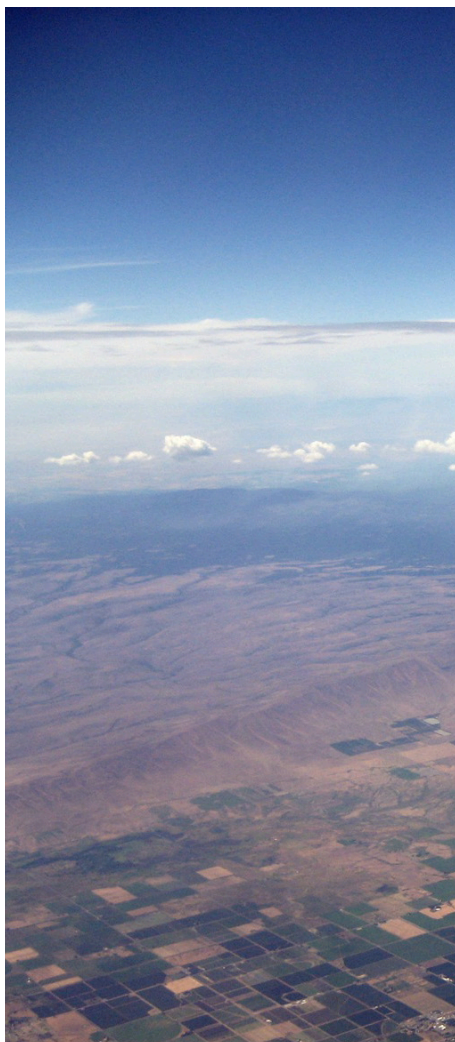
Renewable energy developers can site renewable facilities on agricultural land located within an agricultural preserve under three conditions. First, if the land is not subject to a contract, they can qualify their project as a “compatible use” electric facility, provided the local government has a broad definition of electric facility that encompasses more than just transmission lines and utility substations. Second, for contracted land, the project may be consistent with statutory “principles of

“The 12.5 % cancellation fee combined with mitigation land costs are still issues for Williamson Act land. It may change the viability of a project.”

*-- Renee Robin
Sunpower Corporation*

“The Williamson Act is supposed to be a barrier.”

*-- Brian Leahy
California Department
of Conservation*



compatibility” with underlying agricultural operations, as ultimately interpreted by the local government. For example, if a proposed project would displace only a small percentage of the overall agricultural operation, the local government would likely determine that the project represents an allowed use. Finally, even if the project is not consistent with the principles of compatibility, the city or county may approve the project if it is located on non-prime land and is approved pursuant to a conditional use permit with mitigation for agricultural impacts.³⁷

State law provides some guidance to help local governments determine which land uses are “compatible” with agriculture within preserves, although local governments can engage in a public process to make contrary determinations.³⁸ Compatible uses include the erection, construction, alteration, or maintenance of gas, electric, water, communication, or farmworker housing facilities.³⁹ Of consequence to renewable energy developers, the state did not define “electric facility” in the Act. However, some local governments have generally interpreted these words to mean electrical transmission lines and related transmission improvements, while others have indicated that wind and solar electrical generation can be consistent with the contract where the impact on the continuing agricultural use is *de minimus*. The presence of these utility lines and substations in agricultural preserves ironically helped to create the present demand to build large-scale solar developments on farmland under Williamson Act protection.

If a determination of compatibility is not possible, the only alternative for landowners with renewable energy projects is to terminate the Williamson Act’s contract restrictions. Landowners wishing to end their Williamson Act contracts have three options. First, they can have their Williamson Act contracts either administratively or unilaterally “non-renewed” by their own actions or by the city or county. Non-renewal starts a nine- or nineteen-year process to terminate the contract. During this time, property taxes gradually return to their full amount, although landowners must still abide by the land use restrictions during this period. Due to the extended time frame, many renewable energy developers are unlikely to want to wait for expiration of the contract.⁴⁰

Landowners can cancel their Williamson Act contracts, subject to discretionary approval by the local agency with jurisdiction over the contract. With this option, local governments must make specific cancellation findings and landowners must pay a cancellation fee of 12.5 percent of the unrestricted value of the property to the state. State law allows for cancellation only when cancellation is consistent with the purposes of the Act, such as when the landowner can show the city or county that the cancellation would not lead to a “domino effect” of more agricultural land conversions, is consistent with the local general plan, and would not result in more urban development. Alternatively (or in addition, depending on the jurisdiction), the landowner must demonstrate that cancellation is in the public interest, including a showing that there are no proximate non-contracted lands available.⁴¹

Cancellation can entail significant mitigation costs. Many counties require landowners to combine cancellation with a mitigation requirement for farmland protection to meet the public interest test. CEQA may result in lead agencies determining that cancellation will create a significant environmental impact that results in additional farmland preservation requirements as mitigation, essentially doubling the land costs for renewable energy developers.

Cancellation becomes even more difficult for land located within a Williamson Act “Farmland Security Zone” or FSZ. Landowners who voluntarily enroll in a Farmland Security Zone are restricted by a 20-year automatically renewed contract, which provides greater protection from urban development pressure and

offers greater property tax reductions than traditional Williamson Act contracts. Twenty five counties have adopted the Farmland Security Zone program, with a total of 800,000 acres under contract. The process to cancel a Farmland Security Zone contract is more stringent than a Williamson Act contract: in addition to the requirement that the local government approve a cancellation subject to the process described above, the California Department of Conservation, which administers the Williamson Act, must also approve the cancellation.⁴²

In its rulings on the use of cancellation as a means to terminate a Williamson Act contract, the California Supreme Court concluded that the Legislature intended local governments to approve cancellation only in the most extraordinary circumstances.⁴³ The court stated in *Sierra Club v. Hayward*, “To insure that the Legislature’s action is not eroded by lax administration, we have construed the cancellation provisions of the Act narrowly. We believe the Legislature included those provisions in the Act because it foresaw extraordinary situations in which the ordinary nonrenewal and expiration procedures would pose insurmountable obstacles to the accomplishment of pressing public needs.”⁴⁴ The Court’s rulings therefore constitute a high legal hurdle for renewable energy developers seeking to terminate contracts under the Act.

Finally, public agencies can void Williamson Act contracts by taking contracted lands through eminent domain. With this option, a public agency with authority to condemn land acquires the land by or in lieu of eminent domain, thereby rendering the Williamson Act contract void. This process entails no cancellation fees.⁴⁵ As an example, the Westlands Water District acquired impaired agricultural lands pursuant to this provision.

As a result of the complicated, costly, and uncertain process to build renewable energy facilities on land protected by the Williamson Act, many projects may not be financially viable. While that outcome serves to protect agricultural interests more broadly, it may not be optimal for either the landowner or the state if the specific land being protected is no longer viable for producing food.

“We have acres, and if we had water, we wouldn’t be here and would be growing food. We’re lucky we have a ‘Plan B’ option with solar.”

*-- Jeff Roberts
Granville Homes*

SOLUTION: Utilize State-Determined Criteria for Determining Appropriate Agricultural Lands to Suspend Williamson Act Contracts

The state has a clear mandate in the Williamson Act to protect agricultural land from development. However, given the rush to develop on agricultural land, the county-by-county differences in the implementation of the law with respect to solar development, and the fact that some lands under Williamson Act protection may be permanently impaired for agriculture, the state also has an interest in clarifying standards and directing renewable development toward limited, appropriate agricultural parcels that may be under Williamson Act protection. Agriculture advocates insist that any changes to the Williamson Act preserve the integrity of the Act to ensure that any new method for suspending or terminating a contract is reasonable and consistent with state constitutional protections for open space and agricultural land and its related property tax valuation (pursuant to Section 8 of Article XIII of the California Constitution). Agriculture leaders and renewable energy advocates should use the definitions of suitable agricultural land for renewable energy development, discussed above, as a basis for determining suitable lands that may be appropriate for lifting Williamson Act restrictions. They should also develop mechanisms to ensure protection for existing agricultural land and to allow the land to revert to agricultural uses if possible.

The state legislature, with input from the California Energy Commission, California Department of Conservation, California Department of Food and Agriculture, California Department of Fish & Game, and the Governor's Office, should utilize criteria for determining appropriate agricultural land to suspend or terminate Williamson Act protections

SB 618 (Wolk), signed by Governor Brown on October 8, 2011, provides a list of criteria for allowing suspension of Williamson Act contracts that is similar to the list generated at the UC Berkeley workshop.⁴⁶ State leaders and stakeholders should use lists such as that contained in SB 618 or the state-directed list discussed above to prioritize the renewable energy projects on agricultural lands that would be most suitable for renewable energy development.

Following the UC Berkeley workshop, the Department of Conservation began this process with the California Energy Commission. Using criteria such as farmland impaired by soil contamination, adequate slope necessary for productive solar energy capture, and lack of biological resources, the department created preliminary maps indicating priority areas for development. The agencies, along with the California Department of Food and Agriculture and other relevant entities, will need to correlate these maps with access to existing transmission facilities with capacity in the short and medium term.

The agencies are also working to quantify the likely demand for agricultural land for renewable energy facilities, including utility-sized solar projects specifically. The department will need to continue to work with stakeholders, including agricultural interests, environmental groups, and renewable energy developers, to refine the criteria. Once these stakeholders develop the criteria for the most appropriate lands, the state can assist local jurisdictions in applying them to project review.

The state should enact a separate process for suspending or terminating Williamson Act contracts on agricultural lands that meet criteria for transitioning from agriculture to renewable energy production

Current processes for terminating Williamson Act contracts for solar development are either too lengthy under the non-renewal option or legally difficult under the cancellation provisions. The state should create a separate track for suspending or terminating Williamson Act contracts on severely impaired land for renewable energy development. SB 618, mentioned above, provides a process to create easements for solar development that would suspend Williamson Act contracts for fixed terms. The easements must be backed by financial down payments by project developers, and they would guarantee that the land will revert to agricultural uses or forfeit the payment. This type of mechanism may help preserve the integrity of the Williamson Act as well as the agricultural future for parcels that may still be viable for food production.

The State should develop a funding mechanism to support the California Department of Conservation's efforts to develop maps or criteria to indicate priority areas for renewable energy development on agricultural land

Because the Department of Conservation receives funds in part from Williamson Act cancellations, the decline in revenue from these cancellations, coupled with limited state budget resources, means that the agency may not be able to continue this mapping process or execute it comprehensively. The legislature, particularly as it works to resolve the conflicts over Williamson Act lands and renewable energy development, should devise a funding mechanism in the compromise to ensure that the Department of Conservation can continue this mapping work and criteria development. For example, the legislature included a "rescission fee" in SB 618

"At the end of the day, we need them to return to farming and not to housing."

-- Lisa Belenky
Center for Biological
Diversity

"If you build homes, you lose the land. But the Carrizo Plain with its old dismantled solar site, you wouldn't recognize it. It looks like the plain. And wind turbines are also not permanent intrusions."

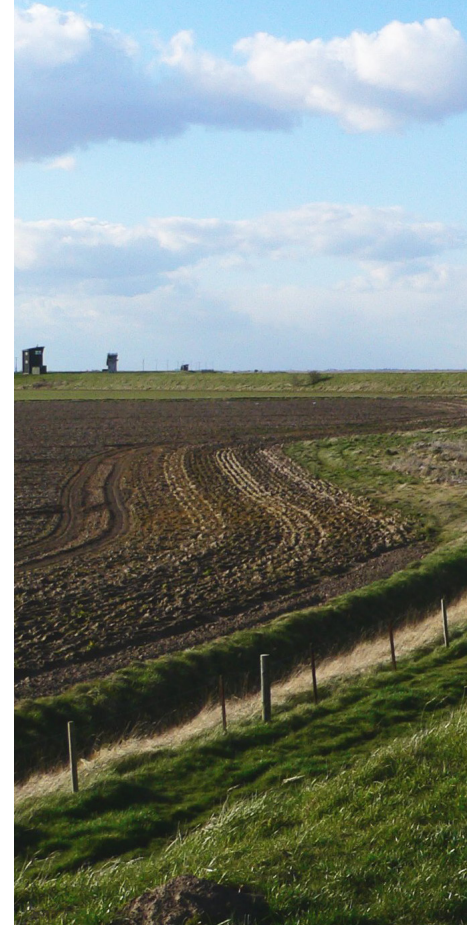
-- Alex Levinson
Pacific Environment
(Formerly Sierra Club)

for agricultural land owners who wish to develop renewable energy facilities and suspend their Williamson Act contracts without incurring the cancellation penalty.

State leaders should develop a fund to mitigate impacts on agricultural land from renewable energy development

Renewable energy developers, as part of the permit fees for a project on agricultural land that retains some productive capability, could fund an agricultural mitigation bank that would provide long-term protection for agricultural land. These mitigation measures could take the form of conservation easements, direct land purchases, and programs to protect water resources for agricultural land near the project sites. Policy makers should ensure that the programs maintain adequate criteria for land acquisition and sufficient organizational capacity for ongoing monitoring and enforcement of any development restrictions on preserved land.

Some renewable energy developers note that policy makers have not considered current payment of fees to mitigation banks for the impacts on agricultural land sufficient to offset significant impacts under CEQA. In order to make the mitigation banking option viable by obtaining enough funds to acquire and protect key agricultural lands, policy makers should develop a legal mechanism to ensure that the mitigation bank will satisfy requirements under CEQA.





Barrier #3: Endangered Species Act Protections

Some of the agricultural land proposed for renewable energy development functions or may function as habitat for endangered and threatened species. The federal Endangered Species Act of 1973 provides protection for these species as well as their critical habitat. The California version of the Act protects species located solely within the California borders. A species is “endangered” if it is in danger of extinction throughout all or a significant portion of its range and “threatened” if it is likely to become an endangered species within the foreseeable future. Today there are approximately 1,970 total species listed under the Act. The United States Fish and Wildlife Service (USFWS) is generally responsible for managing all endangered and threatened land and freshwater species, in addition to migratory birds.⁴⁷ The California Department of Fish and Game (CDFG) manages species within California and all state-listed species and native plants.⁴⁸

“A lot of species have adapted to agricultural lands due to loss of their natural habitat. Hawks now use alfalfa fields, so we can’t just tear them up.”

*-- Kim Delfino
Defenders of Wildlife*

If a proposed renewable energy project might “take” a listed species or impair its designated critical habitat, the project will require detailed, sometimes multi-agency studies of possible impacts on habitat and species before the CDFG or USFWS can grant permits (or for projects on federal lands or that include other federal agency approvals, an incidental take statement). The result of these processes is that permitting under the law can sometimes take years of effort and study, as well as coordination among multiple agencies, particularly when the impacts are significant.

The delays can sometimes jeopardize otherwise viable projects on lands where the projects may be well-situated to avoid harming listed species. In addition, because projects on private lands may take longer for the USFWS to permit than on public lands (due to the need to prepare a federal habitat conservation plan under Section 10 of the Endangered Species Act), developers may ironically enjoy faster permitting on public lands with more intact habitat and listed species (or if the project is funded in part through federal loan guarantees or grants) than privately funded projects on impaired private lands that may appear to have less biological value.

SOLUTION: Expedite Review and Improve Agency Staffing

State and federal agencies should expedite endangered species review of proposed developments on appropriate agricultural land in order to encourage development there and not on sensitive habitat and intact public lands. The agencies could focus and prioritize their work on projects on lands that fit the criteria described above as the starting point for evaluating appropriate project sites. These agencies could utilize statutory authority to streamline management plans on this land and work with each other to simplify the application process and share resources as much as possible. Finally, federal and state policy makers could use higher fees from permit agreements to fund expanded staff to speed the process.

Federal and state leaders should develop criteria for sites with minimal biological value that can transition to renewable energy production

As discussed, workshop participants identified specific factors for project sites on appropriate agricultural land that also may have less biological value. Policy makers could use the criteria as a basis for steering projects toward these lands and away from more sensitive habitat. As an incentive to lure developers to these sites, federal and state leaders could employ various streamlining methods for permitting, as discussed below.

To enhance the criteria discussed above, workshop participants voiced support for steering development toward land with impaired characteristics and away from important habitat areas. Appropriate siting would avoid areas with intact grasslands and rangeland that provides habitat for a suite of endangered species (the California Rangeland Conservation Coalition issued a map⁴⁹ that provides important information to developers to avoid siting developments in areas that will generate controversy). Participants also cited the need for renewable energy projects to avoid or minimize damage to habitat connectivity, critical habitat, wildlife corridors, listed species, or any intact existing habitat. The development activities should also maximize protection of groundwater, employ appropriate mitigation measures for impacts on species, and ensure long-term monitoring of wildlife impacts, both before and after construction. Land that meets the criteria listed here may be well-situated for streamlined review of impacts on wildlife, although these factors are not comprehensive.

The United States Fish and Wildlife Service should use streamlined “low-effect habitat conservation plans” or develop comprehensive regional plans for renewable energy projects on appropriate land

“Low-Effect Habitat Conservation Plans” are streamlined plans specifically targeted to projects that have minor or negligible effects on listed, proposed, or candidate species and their habitats and on other environmental values or resources. In order for a private party or a state or local agency to receive a permit to build on private lands in an area that may harm listed species, an applicant must submit a Habitat Conservation Plan (HCP) that offsets harmful effects on the listed species, indicates how these measures will be funded, and discusses alternatives to the proposed plan pursuant to Section 10 of the Act.⁵⁰ The USFWS considers each HCP on a case-by-case basis to determine if it is eligible for the “low-effect” category, which requires less review. Criteria for determining eligibility include the geographic size of the project and the scope of its likely impacts. The purpose of this category is to expedite the approval process for low-impact activities.⁵¹

In recent years, according to some renewable energy developers, the USFWS significantly reduced the use of low-effect HCPs and ceased its use altogether in some regions. Some participants believe that the USFWS should revive this mechanism under new guidelines and use it to encourage renewable energy development on impaired lands rather than on sensitive habitat. However, other participants argue that projects sited on degraded lands may still have more than minor or negligible impacts to listed species. As a result, low-effect HCPs may not be appropriate. One solution might be to develop a more comprehensive regional HCP, which could expedite project approval for multiple projects for decades (albeit involving a significant upfront investment of resources to develop).

The United States Fish and Wildlife Service should apply expedited endangered species review used for federal public land projects to appropriate private land proposals

The Endangered Species Act has a separate provision under Section 7 governing any federal agency that proposes an action that might affect a listed species. Under this provision, the action agency (such as the United States Army Corps Section 404 process, Bureau of Land Management, or Department of Energy)



"We want to create a situation where project proponents are not ping-ponging back and forth between agencies and biologists are not talking together. It's just too much work."

*-- Kim Delfino
Defenders of Wildlife*

"We need to hire employees who know what they're doing. Temp workers don't help sometimes. In some cases, they could make things worse."

*-- Michael Fris
United States Fish and
Wildlife Service*

must consult with the USFWS under specific procedures.⁵² The USFWS must ensure that the proposed action does not jeopardize the continued existence of a species or destroy or adversely modify critical habitat. If it does, the USFWS must provide terms and conditions and "Reasonable and Prudent Alternatives" that would not violate the Act. This review has built in timelines and is somewhat simpler than the applicable review for all non-federal entities under Section 10, primarily because USFWS does not need to undertake independent NEPA review and because the process does not result in a conservation plan.

Applying Section 7 procedures to appropriate renewable energy projects instead of the Section 10 process could fast-track applications for development on impaired lands that have limited biological value.⁵³ Where a federal nexus exists (such as where the project requires an Army Corps of Engineers permit or a Department of Energy loan), a project on disturbed or impaired sites may have a legal basis for applying Section 7 procedures. However, federal leaders should also consider ways to provide a functional equivalent to allow the USFWS to utilize the expedited timelines found in Section 7 for the Section 10 process. In doing so, they should note that Section 7 procedures provide less opportunity for public input than the Section 10 process.

The United States Department of Interior and the Fish and Wildlife Service should apply existing streamlining rules for appropriate solar projects

Section 4(d) of the Endangered Species Act allows the USFWS to establish special regulations for threatened but not endangered species. These rules can substitute for the normal protections of the law and have the flexibility to either strengthen or weaken the standard protections. The USFWS can implement them under the law if the rules are "necessary and advisable to provide for the conservation of such species."⁵⁴ For example, these rules have been used to allow ranchers who conduct specific grazing and stock pond practices to avoid regulation by the Endangered Species Act because the USFWS determined that these practices benefit the tiger salamander.⁵⁵ In the case of appropriate solar development, the USFWS could use 4(d) rules to expedite permitting and ensure standard mitigation and protection for threatened species and their habitat, if appropriate for specific threatened species. This provision of the Act could provide some immediate permit streamlining for suitable projects. However, many of the species affected by projects on agricultural lands in California's Central Valley may be endangered species that are not subject to 4(d) regulations.

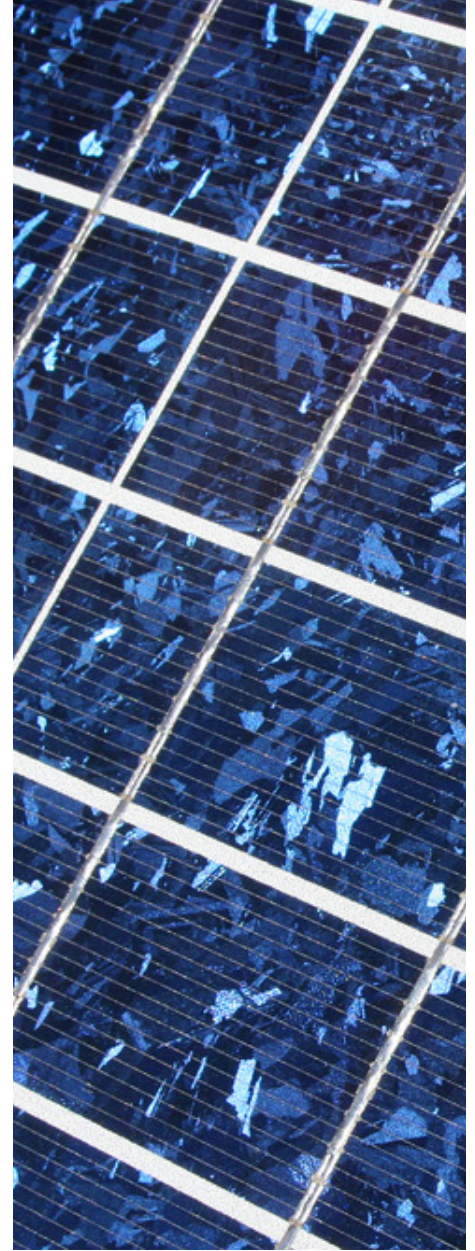
The United States Fish and Wildlife Service and the California Department of Fish and Game should coordinate agency processes and personnel to expedite permitting and analysis for low-impact projects

To help expedite the analysis of impacts on listed species under both federal and state law, policy makers should consider co-locating state and federal scientists in the same buildings or cities to help filers and co-detailing them to permit teams to allow the agencies to share information more easily. This co-locating and resource sharing could also assist staff working to analyze the impacts on endangered species for any environmental impact report or statement required under state and federal environmental laws. The agencies should also commit to even more coordination and consistency in the conditions of approval contained in the permits and timelines.

The United States Fish and Wildlife Service and California Department of Fish and Game should include funding mechanisms with permit applications to hire additional staff to expedite review

Federal legislation to increase permit fees to bring in more revenue would pay for more staff at the relevant agencies and presumably speed the permit

processing time. Developers may be amenable to paying higher permit fees if it leads to quicker processing and therefore saved costs from minimizing delay. In California, the governor signed AB 13 (V. Manuel Perez) on August 29, 2011⁵⁶ and the companion bill SB 16 (Rubio) on September 22, 2011⁵⁷ to allow fee increases for certain types of renewable energy projects in order to speed the incidental take permits.⁵⁸ Similar legislation at the federal level could accomplish the same objective. Reimbursable agreements could also serve a comparable function where parties pay the agencies for their costs incurred on each specific permit agreement. In addition, the agencies should consider using the funds to hire qualified outside contractors who have a history of working with the departments. Notably, co-locating personnel from the agencies and co-detailing them to teams on the same projects, as discussed above, would save the agencies resources and allow for greater staff capacity at each one.





Barrier #4: Lack Of Coordinated Land Use Planning And Analysis

Many counties in California lack comprehensive land use plans to determine where renewable energy development should occur and to forecast what the impact of that development will be on the environment and the local government finances. Local governments may also be wary of siting renewable energy facilities because these facilities enjoy state property tax exemptions that cost the local governments revenue (although renewable energy developers argue that the projects generate significant economic activity for local governments). As a result, developers lack guidance as to where to site projects in accordance with state and local priorities. They also face extensive environmental review at the project level that can be exacerbated by insufficient agency coordination and lack of programmatic planning and review.

SOLUTION: State and Local Leaders Should Plan for and Encourage Appropriate Renewable Energy Development

Both state and local governments in California should facilitate the planning process for appropriate large-scale renewable energy development. State agencies and local governments can utilize agreed-upon criteria determined by stakeholders and policy makers, discussed above, to identify appropriate land for development within their jurisdictions and to use permit streamlining incentives to encourage development on those parcels. Local governments, potentially by including an energy element in their general plans, should also plan for renewable energy development in advance to encourage appropriate development and analyze impacts at a broad scale. These local plans should also be consistent with state criteria and mapping efforts. Finally, state and local leaders should devise mechanisms to fund this additional planning effort and promote existing resources. Ultimately, the state has an interest in removing permitting barriers for desirable projects that do not compromise biological, environmental, or agricultural resources.

Federal and state leaders should develop permit streamlining incentives for agricultural parcels that are appropriate for development

Once the state and stakeholders determine that certain agricultural areas would be particularly suitable for renewable energy production, the legislature and key agencies should develop permit streamlining conditions that would promote these sites for renewable energy development. For example, with authorizing legislation, the Office of Planning and Research could issue guidelines specifying the qualities of an appropriate renewable energy project to make it eligible for streamlined review or exemptions under CEQA.

State leaders can also work with the United States Congress to authorize coordinated and streamlined environmental review under the National Environmental Policy Act (NEPA) to mirror state efforts. If environmental review

is required under both CEQA and NEPA, such as when state and federal agencies both have jurisdiction over a project, an exemption or streamlining under one statute will therefore require a similar streamlining under the companion statute. State leaders must therefore ensure that federal environmental review contains the same provisions as state law.

Federal and state leaders should coordinate agency permitting for renewable energy development on agricultural parcels

State agencies should coordinate environmental review of projects among multiple agencies both at the state level and when state and federal agencies have joint jurisdiction over a project. “Memoranda of Understanding,” “Memoranda of Agreement,” or “Interagency Agreements” between agencies have worked in other contexts to delineate responsibilities among various agencies. Coordinated environmental review for appropriate projects will simplify the permit process, save agency resources, and facilitate the development of desirable development. It may also eliminate duplicative environmental analysis. In addition, state and federal leaders should consult with the United States military to ensure that renewable energy facilities do not interfere with training operations, which often take place at low altitudes in the Central and Imperial Valleys. For example, the Navy has developed specific geographic information system-based (GIS) planning tools, called the Mission Compatibility Analysis Tool (MCAT), that can quickly provide information to policy makers and project proponents about the impact of their proposals on military operations.

Local governments should plan for large-scale renewable energy development with state guidance

County general plans represent an appropriate vehicle for broad-level planning for appropriate renewable energy development. General plans represent the vision for overall development in unincorporated county jurisdictions, where most agricultural parcels are located. The state could assist by requiring renewable energy planning to be an element of general plans and by issuing guidelines about how to undertake this analysis to ensure development in appropriate parcels. The state should also ensure that local government plans are consistent with state mapping efforts and/or criteria for converting farmland to renewable energy production. AB 13 (Perez), discussed above, authorizes up to \$7 million for qualified counties to engage in this type of planning, with funds coming from project impact fees.⁵⁹

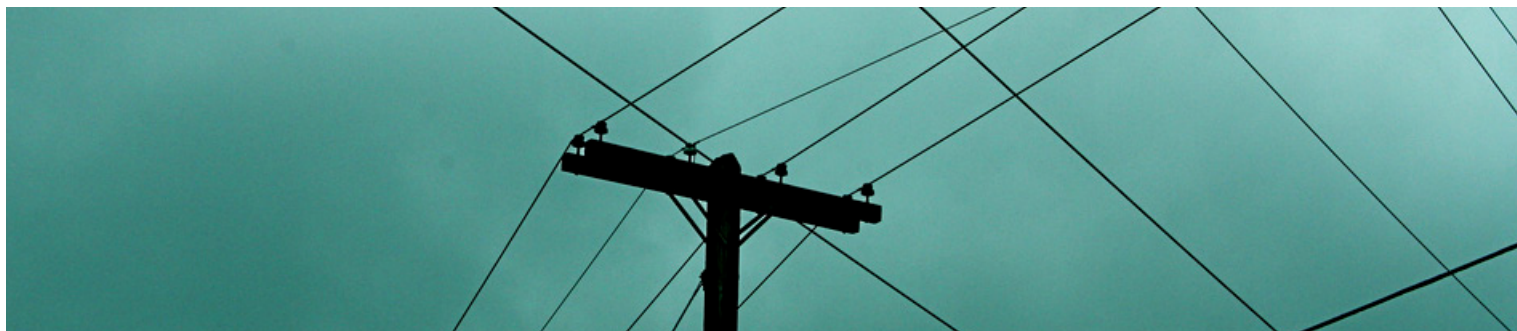
The state should consider ending or phasing out tax exemptions for solar development on agricultural land

The current property tax exemptions for solar energy projects, while advantageous to renewable energy developers, deprive local governments of opportunities to assess solar facilities as new construction to raise property taxes once the solar facilities are operational. As a result, local governments have less incentive to permit these projects since their costs in terms of municipal services may not be reimbursed in the tax revenue.

As an alternative or complement, the state should coordinate cost-sharing information among local governments to help them evaluate the likely budget impact of servicing a large-scale renewable energy development. The state and local governments could also develop standard fiscal services agreements as part of the conditions of project approval, which some counties have already developed. In addition, some counties have required supplemental community benefits packages and have used development agreements to ensure that the counties receive adequate support for local services. These agreements, as well as assurances in the form of letters of credit or escrow accounts, could help ensure that local communities do not face fiscal losses by approving the projects.

“I’ve had county planners ask why we should approve a project if we’re not getting anything out of it. How do we gauge the costs of rescue or fire for a solar project? We don’t know. We’re guessing.”

*-- Andy Horne
Imperial County*



Barrier #5: Inadequate Electricity Infrastructure

Because the existing electricity infrastructure was not built to service remote agricultural regions, some of the renewable energy sites with the least environmental and agricultural value and greatest sun exposure may lack access to transmission lines and substations. In addition, because grid planners did not envision significant electricity generation from remote, agricultural regions, the substations serving these regions may be congested and unable to handle additional electric capacity.

SOLUTION: Federal and State Leaders Must Upgrade California's Electricity Infrastructure to Service Appropriate Areas for Renewable Energy Development

Federal and state leaders must ensure that the entities responsible for maintaining and building the electric grid and transmission system account for future increases in electricity generation from these remote and large-scale renewable facilities. If existing policies continue to focus development in the Central Valley, policy makers will need to implement a suite of upgrades to accommodate the increased supply, as well as incentives to locate projects near transmission corridors with available capacity (although many Central Valley stakeholders prefer these new lines to be a last resort due to their potentially significant impacts on the environment). This forecasting and building should occur in conjunction with state efforts to steer projects toward areas with the least impacts.

Utilities and transmission planning entities should plan transmission and substation upgrades where renewable energy facilities are likely to be built

Public utilities and investor-owned utilities should focus their efforts to build transmission lines to service priority agricultural areas for renewable energy generation that meet the criteria for marginally productive or physically impaired. They should consider supporting appropriate agricultural areas as high-value Competitive Renewable Energy Zones (CREZ), which leaders in a statewide planning effort are identifying and prioritizing for transmission siting. Transmission planning entities should coordinate with transmission owners and planners to prioritize the least impact areas for transmission and substation upgrades, such as the congested transmission corridor from the Midway to Gregg substations. These entities should also develop policies for transmission lines in the Central Valley in accordance with future state plans to identify the best sites.

As part of this effort, the state should consider selecting a central entity for final transmission planning authority to create a forum for evaluating the portfolio of transmission proposals. Otherwise, the existing authority for transmission planning suffers from multiple and sometimes overlapping jurisdiction. For example, the nonprofit California Independent System Operator (CAISO) is

"We can upgrade existing infrastructure, but it's hard to site new transmission lines. Close to existing transmission lines, you're more likely to find disturbed lands appropriate for development."

*-- Carl Zichella
Natural Resources
Defense Council*

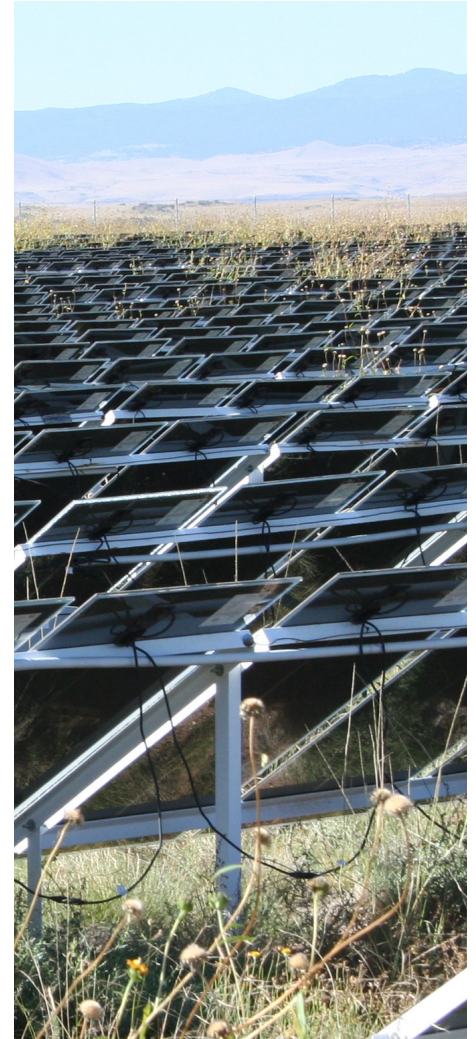
responsible for operating the vast majority of the state's wholesale power grid and providing the link between utilities and power plants; the California Public Utilities Commission has responsibility to authorize new power purchase agreements (PPAs) in specific locations; and the California Energy Commission is responsible for developing a statewide transmission plan. Various municipal utilities such as Los Angeles Department of Water and Power and Sacramento Municipal Utility District have their own independent authority as well outside of CAISO and CPUC jurisdiction. These municipal utilities partner with the investor-owned utilities on many projects, and compete with them on others, leading to a patchwork of results. As a result, the state may need to centralize the process to achieve greater coordination and results.

Utilities should prioritize procurement of renewable energy from appropriate agricultural areas

Utilities should consider prioritizing PPAs from developers siting projects on suitable farmland. PPAs involve contracts between a power purchaser and an electricity generator for a defined term and a set rate for the electricity. Utilities should consider accepting a slightly higher cost on these agricultural PPAs in return for recognizing that the siting, permitting, and mitigation costs may likely be less in these areas and that these projects possess greater certainty of meeting delivery deadlines. Utilities would also experience less risk that the owners would need to renegotiate the contracts. Ultimately, a proliferation of PPAs in these areas would provide further incentive for identifying these lands as high priority for transmission investments.

Conclusion: The Future of Renewable Energy Siting

Siting renewable facilities on agricultural land may be inevitable as farmers and ranchers seek opportunities to recoup capital investments on such lands or exit the agricultural sector altogether due to their particular circumstances. The state has an interest in ensuring that this development proceeds without harming critical biological, agricultural, and environmental resources, while also encouraging sensible renewable energy development to proceed. Federal, state, and local planning efforts, however, will require funding sources to ensure that this work can proceed and do so in a comprehensive and reliable fashion. Cash-strapped state agencies and local governments will therefore need policy mechanisms that provide financial support for their planning and permitting efforts. Without those resources, the state will have difficulty ensuring that renewable energy facilities are built only in the most appropriate agricultural areas.



Participant Bios

Tina Andolina

Office of State Senator Lois Wolk

Prior to coming to work for State Senator Lois Wolk, Tina was the Legislative Director for the Planning and Conservation League where she directed the League's efforts to successfully pass bills improving energy and water efficiency and use, protecting habitat and critical watersheds, and reforming unsustainable land use policies. She also led the League's efforts to prevent rollbacks to the California Environmental Quality Act, our state's primer environmental and public health protection law. Before her work as a lobbyist in Sacramento, Tina worked to help pass the Northern California Coastal Wild Heritage Wilderness Act in Washington DC. In her role as the Outreach Coordinator for the Wilderness Campaign, Tina worked with organizers, local elected officials, and constituents to build support for wilderness and wild rivers protection and bring that support to DC. She has a bachelor's degree in Political Science Public Service from the University of California at Davis, and currently lives in Woodland with her two sons.

Lisa Belenky

Center for Biological Diversity

Lisa T. Belenky is a Senior Attorney at the Center for Biological Diversity. Her work focuses on the protection of rare and endangered species and their habitats under state and federal law. In the last two years, she has been heavily engaged in the siting and approval processes for large-scale solar and wind developments throughout California and Nevada with the goal of ensuring conservation of our fragile desert ecosystems through a science-based landscape level approach to renewable energy siting. This work includes representing the Center as an intervenor for four large solar thermal projects before the California Energy Commission, providing comments to the BLM and other agencies on large-scale renewable projects and planning documents, and serving as an alternate member of the DRECP stakeholder group. Ms. Belenky received her J.D. from the University of California, Boalt Hall School of Law and her B.A. in philosophy from University of California at Santa Cruz.

Michael M. Delbar

California Rangeland Trust

As the California Rangeland Trust's Chief Operating Officer, Michael Delbar oversees day-to-day operations and provide landowner outreach and legislative support to the organization. Most recently, Delbar was elected and served three consecutive terms as the First District Supervisor for the Mendocino County Board of Supervisors and was Second Vice President of the California State Association (CSAC). Delbar served on the state and national agriculture policy advisory boards for California State Association of Counties and the National Association of Counties. He is a former Lake County Farm Bureau executive director and part of a six generation Mendocino County ranching family, raising beef cattle, timber and hay where they recently celebrated 150 years of family ownership of the original homesteaded land. Additionally, Michael currently serves on the board of directors for the Potter Valley Rodeo Association, was a former director of Mendocino County Farm Bureau and was state chair of California Young Farmers and Ranchers. Michael is a member of the California Ag Leadership Program, Class XXIV.

Kim Delfino

Defenders of Wildlife

Kim oversees the work of Defenders' six-person California program team in protecting and restoring California's imperiled wildlife and the places in which they live. Since joining Defenders in 2000, Kim co-authored the revision of the California Natural Community Conservation Planning Act and helped create the Salton Sea Coalition and Defenders' California desert program. She was also one of the key leaders in establishing the California Rangeland Conservation Coalition. Core California program issues include restoration of the Salton Sea; promoting wildlife conservation on agricultural and ranch lands, particularly in the Central Valley; protecting California's desert; promoting regional conservation planning; and protecting California's coastal waters. Before joining Defenders of Wildlife, Kim worked for the U.S. Public Interest Research Group as a staff attorney and for CALPIRG as Legislative Director. She began her career as

an associate attorney in Washington, D.C. with the public interest law firm of Meyer & Glitzenstein, where she specialized in cases involving the Endangered Species Act, Clean Water Act and other environmental laws including NEPA. Kim Delfino holds a B.A. in Political Science, Public Service (Environmental Policy Emphasis) from the University of California-Davis and a J.D., cum laude, from McGeorge School of Law at the University of the Pacific.

Cornelius Gallagher

Bank of America

Cornelius (Corny) Gallagher is the Global Agribusiness Executive for Bank of America. He is a member of a national team that coordinates management of the Bank's \$20 billion agribusiness and food products portfolio. Corny is the Bank's key representative in dealing with government agencies and elected officials on agribusiness and food system issues. He leads the Bank's Ag Appraisal team that provides appraisal and evaluation services for the Bank. He represents Bank of America on numerous state and national agricultural leadership boards and committees. He was appointed by Governor Arnold Schwarzenegger to the California Exposition and State Fair Board of Directors. He is a commissioner on the UC President's Advisory Commission on Agriculture and Natural Resources. He is chair of the California Bankers Association Agricultural Lending Committee. Corny is a member of the Food Foresight global strategic trends panel, the Farm Foundation national board of trustees, the UC Davis College of Agricultural and Environmental Sciences, the CSU Agricultural Advisory board, the UC Ag Sustainability Institute and the UC Ag Issues Center Advisory board. He serves on the California Roundtable for Agriculture and the Environment working group. Corny joined the Bank 40 years ago and is a co-owner of his family's six-generation Iowa farm. He lives in Fair Oaks, CA.

John R. Gamper

California Farm Bureau Federation

As a staff member of the California Farm Bureau Federation since 1978, John has served the state's agricultural community in various problem-solving capacities. For the past 25 years John has served as Farm Bureau's tax and land use specialist. In this capacity he has successfully sponsored numerous changes in law on issues such as redevelopment, right-to-farm, income tax and parcel tax reform, and the compatible use guidelines for the Williamson Act. Among John's most important accomplishments were assisting in the creation of the Delta Protection Act, drafting a \$21 million augmentation to the Open-Space Subvention Act, and sponsoring the historic changes in the Williamson Act to allow for the creation of Farmland Security Zones. John is a graduate of UC Davis where he studied plant physiology of vegetable crops.

Andy Horne

Imperial County

Andy Horne was born and raised in the Imperial Valley, attended local schools, then received a B.A. in History from the University of California at Riverside. After completing his education, he returned to El Centro and worked for over 25 years in the real estate business with his father's firm. In 1998, Horne was elected to the Board of Directors of the Imperial Irrigation District, a water and energy utility. He served at IID for eight years including two years as board president. In June, 2007, Horne began work with the County of Imperial in the field of Natural Resources Development. In that capacity, Horne works on facilitating the development of renewable energy projects seeking to locate within the County. Horne has also served as Chair of the Imperial Valley Economic Development Corporation and also as president of the El Centro Chamber of Commerce, the El Centro Rotary Club, the Imperial Valley Board of Realtors and the McCabe Union School District Board of Trustees. He lives in rural El Centro with his wife Alexa, a kindergarten teacher, and has three grown children.

Brian Leahy

Division of Land Resource Protection

Brian Leahy was appointed by Governor Schwarzenegger to the position of Assistant Director, Division of Land Resource Protection, Department of Conservation in September 2006. Prior to his appointment he was one of the pioneering organic and biodiversity farmers in California. He has also served as the Executive Director of the California Certified Organic Farmers and the California Association of Resource Conservation Districts, worked as a Legal Services attorney, helped found a small international fair trade company and help found an inner-city market garden educational non-profit. Mr. Leahy is married to an attorney with the Department of Fish and Game, has two grown daughters and a teenage son.

Alex Levinson

Pacific Environment (formerly Sierra Club)

Alex Levinson is the Executive Director of Pacific Environment. He was formerly a senior attorney and energy program leader for the Sierra Club. He and his organization have taken a lead role among NGOs in seeking to guide solar and wind projects over the finish line in California and the West. This work has involved an intricate and complex dance among solar and wind industry leaders, environmentalists, and government officials. In that dance, the Sierra Club plays an important dual role as a strong supporter of clean energy development and a traditional protector of wildlife habitat on our nation's lands.

Belinda Morris

Environmental Defense Fund

Belinda Morris directs EDF's efforts to increase environmental stewardship on working landscapes in the western United States. Her program's work aims to create and improve incentives for reducing greenhouse gas emissions from land use, advancing land-based carbon offsets, improving water quality, and increasing habitat for wildlife. Belinda's past work experience has focused on market-based incentives for conserving biodiversity and natural resources. Prior to joining EDF, she was Senior Economic Advisor and Ecosystem Services Coordinator at The Nature Conservancy. She has worked for the World Bank, UNEP and WWF International in the US, Switzerland and Indonesia, and has consulted to the UK Department for International Development, the European Union, the World Bank, WWF and others on economic approaches to environmental problems in Africa, Southeast Asia, the Pacific, and South America. Belinda has a M.S. in Environmental Management from Wye College (University of London) and a M.S. in Environmental and Resource Economics from University College London (University of London) in the U.K., and a B.A. in Political Science from University of North Carolina, Chapel Hill.

Bill Powers

Powers Engineering

Mr. Powers is a registered professional engineer in California with over 25 years of experience in the energy and environmental fields. He is involved in siting distributed PV plants and has permitted numerous peaking gas turbine, microturbine, and engine cogeneration plants in California. Mr. Powers organized the first U.S. conference focused exclusively on dry cooling systems for power plants in 2002. He is the author of the October 2007 strategic energy plan, "San Diego Smart Energy 2020," for the San Diego region. The plan uses California's Energy Action Plan as the template for accelerated introduction of local distributed renewable and combined heat and power resources to reduce GHG emissions from power generation in the San Diego region by 50 percent by 2020. Mr. Powers served as an expert witness in a landmark California Energy Commission proceeding where the Commission determined urban PV could potentially serve as a cost-effective alternative to conventional gas turbine peaking power. He has written articles on the strategic cost and reliability advantages of local PV over large-scale, remote, transmission-dependent renewable resources. Mr. Powers has a B.S. in mechanical engineering from Duke University and an M.P.H. in environmental sciences from the UNC – Chapel Hill.

Jeff Roberts

Granville Homes

Jeff Roberts was born and raised in Los Angeles. He moved to Fresno to attend Fresno State in 1973. He graduated in 1976 and then pursued his graduate studies in Urban and Regional Planning. Jeff worked for the County of Fresno early in his career but has spent 18 years as a private consultant and the last 12 years as an employee of Granville Homes. Jeff is a Board member of the Building Industry Association and the Millerton Lake Area Chamber of Commerce. He is a past Board member of the Fresno Arts Council and the past President of the Tree Fresno Board of Directors. Jeff has been married to Tina for 32 years. They have a 25 year old son, Andy.

Renée Robin

SunPower Corporation

Renée Louise Robin, J.D., is Director of Permitting at SunPower Corporation, and is responsible for siting, permitting and environmental policy for the Americas. Prior to joining SunPower, Renée was lead outside counsel for numerous solar and wind energy companies, specializing in land use and environmental law with an emphasis in sustainable development, natural resource management and government relations. Renee has helped to develop SunPower's Light on Land Initiative, and its dual use programs, combining solar and agricultural production in the U.S., Europe, and Israel. In the academic arena, Renée has been visiting faculty in land use and environmental law at the University of California at Berkeley, College of Environmental Design, and was Executive Director of the Program on Public Space Partnerships at Harvard University, Kennedy School of Government. Renee has served on the Agribusiness Committee of the State Bar of California and on Board of Directors of Sustainable Agriculture Education for the last 6 years, and has actively represented organic farmers in certification and government relations matters. Renée received her B.A. in Politics, with a minor in Economics, from Brandeis University, and received her J.D. from the University of California, Hastings College of the Law.

Darrel Sweet

California Cattlemen's Association

Darrel Sweet owns and manages a cow/calf and stocker operation in Livermore. He is a past President of the California Cattlemen's Association and a former Director of the Alameda County Resource Conservation District. Darrel is also a member of the California Beef Council and the Contra Costa-Alameda Cattlemen's Association.

Jim Woodruff

First Solar

Jim Woodruff is Vice President of State & Local Government Affairs in the U.S. for First Solar, the world's leading manufacturer of thin film photovoltaic modules. In that capacity, Mr. Woodruff is responsible for a broad range of policy matters concerning the Company's pipeline of utility scale solar projects in the Western U.S. Prior to joining First Solar, Mr. Woodruff was Vice President of Regulatory and Government Affairs at NextLight Renewable Power, LLC, a privately held development company focused on developing utility scale solar generating capacity in the West. Mr. Woodruff also has extensive experience in the regulated utility sector having served as both an attorney and renewable energy policy manager at Southern California Edison Company from 1996 through 2008. Mr. Woodruff graduated from Yale University in 1978 and received a J.D. from UCLA School of Law in 1982.

Manal Yamout

California Governor's Office

Manal Yamout is the Special Advisor to the Governor for Renewable Energy Facilities. She is focused on shepherding a cohort of large-scale renewable energy projects through the permitting process in time to take advantage of federal stimulus funding and also on advising Governor Brown on state policy related to renewable energy issues. She held this same position in the Schwarzenegger Administration. Prior to

holding this post, Manal served as an Advisor to Governor Schwarzenegger and as the Deputy to his Chief of Staff working on a wide range of issues from education to health care. Specifically, she focused on incentivizing business development in clean technologies and, among other things, was integral in creating the California Green Job Corps and developing the State of California's sales tax exemption for clean technology manufacturing equipment. Manal also served as the state's Assistant Secretary for International Trade, as a Special Assistant to First Lady Maria Shriver and as an Executive Fellow in the Office of the Governor. Prior to state service, Manal worked as a policy consultant for the Vasconcellos Project, a non-profit focused on higher education and civic engagement founded by former California State Senator John Vasconcellos. She holds a masters degree in public administration from the University of Southern California and a bachelors degree in biology with an emphasis in ecology from the California State University, San Marcos.

Lydia Zabrycki

Quad Knopf

Lydia Zabrycki currently serves as Quad Knopf's Director of Business Partnering where she leads efforts to broaden the delivery of multiple services to the firm's diverse client groups. For nearly four years, Zabrycki was the Vice President of Strategic Initiatives for the Economic Development Corporation, serving Fresno County. She brings to Quad Knopf an accomplished record of facilitating the relocation of new employers and expanding existing business opportunities. She has also been active in developing effective coalitions and partnering efforts to advance the interests of the southern San Joaquin Valley toward an improved business environment as well as serving the interests of local government.

Carl Zichella

NRDC

Carl is a native of New York City and attended Humboldt State University. He was Director of Energy and Housing Programs for Redwood Community Action Agency in Eureka, where he directed programs in weatherization, low income energy assistance, and self help housing. He then joined the Midwest office of the Sierra Club, America's oldest and largest grassroots environmental organization, eventually becoming director of the regional office. He then returned to California, where he became the Sierra Club's director for Western US Renewable Energy Projects. He was the organization's lead staff for renewable energy development and transmission siting and development issues. He retired from the Sierra Club and joined the energy team of the Natural Resources Defense Council. Along with Johanna Wald, Carl was a principal environmental representative on the Renewable Energy Transmission Initiative. He advised Senate Majority Leader Harry Reid and Energy and Natural Resources Chairman, Jeff Bingaman, in their efforts to develop comprehensive clean energy legislation. He has also served as the environmental representative to the Western Governors Association's Renewable Energy Transmission project, and for the Western Electricity Coordinating Council's Transmission Expansion Planning Policy Committee. He is a founding director of the American Wilderness Coalition, and a presenter for Al Gore's Climate Project. He lives in Davis, California with his wife Sarah and their dogs Lambchop and Dudley.

Jay Ziegler

The Nature Conservancy

Jay Ziegler, Director of External Affairs and Policy, oversees the California chapter's engagements with governments and other stakeholders at the state, county, and local levels. He helps develop and direct implementation of Conservancy strategies on public policy, legislation, regulatory matters, campaigns, and constituency building. Prior to joining the Conservancy, Mr. Ziegler founded and was principal of Ziegler Associates, a multi-disciplinary public affairs firm focusing on environmental issues, land use, regulatory matters and clean technology. Before that, he worked extensively at the state and federal levels, serving in communications, policy and advocacy roles. He also has substantial campaign experience in California. Mr. Ziegler has served as a senior counselor to policy makers in the State Capitol and Washington, D.C. He worked in both communications and government affairs roles within the Clinton Administration, and served as Special Assistant to Interior Secretary Bruce Babbitt for Intergovernmental Affairs, where he was integrally involved in policy coordination on a number of complex natural resource policy issues, such as endangered species and habitat conservation programs across the West. He holds a B.A. in political science-public service from U.C. Davis.

Endnotes

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