Protecting Solar Rights in California Through an Exploration of the California Water Doctrine

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Introduction

The state of California has one of the most comprehensive solar access regimes in the nation, serving to protect and strengthen California residents' right to solar access. At its most basic, solar access is the concept of guaranteeing landowners the right to unobstructed sunlight on their property and safeguarding against any potential shading that may jeopardize future access.

A guaranteed right to solar access has a long contested legal history and there is yet to be national consensus dictating a comprehensive solar access policy.[1] In spite of the lack of national leadership on protecting solar access, rooftop solar technology including the installation of photovoltaic (PV) solar panels, grows increasingly more efficient and cost effective. Federal, state and local incentive programs make solar installations and attractive and affordable option for a growing number of Americans. Currently there are solar panels on one percent of rooftops in the United States, but Department of Energy's Energy Information Administration projects significant gains due to the unprecedented interest in rooftop solar technology.

The number of solar panel installations maybe increasing, but without protections for these investments concerned policymakers and renewable energy analysts predict this uncertainty will increasingly deter a growing number of interested installers. As it is currently, an increasing number of existing rooftop installations are experiencing either partial or complete shading due to obstructions to sunlight on nearby properties. Without direct exposure to sunlight, the productivity of the PV panels is dramatically reduced. If protections are not guaranteed for both existing and future rooftop

1 For a comprehensive summary of the legal history of solar rights in the United States refer to, "Solar Rights" by Sara C. Bronin.

installments this jeopardizes the ability for cities, states and ultimately the nation to reach their renewable energy goals in the coming decades.[2]

The need for solar protection is particularly necessary in urban areas. Increasing vertical density in urban center creates a greater likelihood for conflicts to occur due to the long shadows cast from tall high-rise buildings. Despite California's leadership on solar access rights, there is currently no protection for solar units that are shaded from shadows cast from nearby buildings under California law. The California residents that have chosen to install PV roof technology therefore are not guaranteed that their investment is fully protected in instances of this type of shading. A well-designed public policy is required to both protect existing installed units and eliminate the current uncertainty that exists for potential installers throughout California.

In order to secure protection for solar units, states such as New Mexico and Wyoming have drawn from the principles of existing water law to establish equitable solar access rights. Policymakers from these states argued they should utilize and leverage the legal frameworks and case law surrounding equitable water allocation. In California, water rights were designed to create an entitlement process that produces socially beneficial results, and compensates burdened landowners equitably when conflicts over distribution of this natural resource occur. In practice, however, water allocation in California still is far from achieving sustainable water distribution through the many successive court cases and legislative acts that have accumulated over the past century. Nevertheless water and solar energy share many similar properties, making the development of water rights a valuable parallel to examine when strengthening solar protections in California.

[2] California's renewable energy goals are particularly ambitious. The renewable standard portfolio was increased this year to 33% statewide by 2020.

This paper will examine existing water rights in California to help envision the possibilities for additional protections as applied to solar access rights. This paper will focus on the evolution of the California Water Doctrine, which simultaneously recognizes both riparian water rights and prior appropriative rights throughout the state. While the application of these two forms of water rights will undoubtedly inform a more comprehensive solar access policy, the utility of their application needs to be primarily leveraged as part of a local planning process. Unlike water that needs to be examined at a regional or state level, access to sunlight requires a more decentralized planning process.

Status of Solar Rights in California

The California Public Utilities Commission is currently administering a ten-year $3 billion solar incentive program called the California Solar Initiative. This demonstrates a significant commitment to realizing additional solar energy generation throughout the state. Additionally, the Federal government is providing 30% tax credits for installing residential solar panels and commercial solar projects.[3] These financial incentive programs combined with the increased affordability of solar PV installation means that Californians are likely to install many more such systems in the years ahead.

Existing solar access laws in California are designed to prevent local governments throughout the state from drafting any policies that could prohibit or deter additional solar installations. The solar legislation outlined below in Table 1 summarize the major pieces of legislation that ensure that rooftop solar capture continues to propel California towards meeting its renewable energy goals.

[3] See SF Environment's webpage: www.sfenvironment.org

Table 1. California Solar Legislation		
Solar Law	Description	Reference Document
Solar Rights Act (1978)	Ensures that any covenant, restriction, or condition, do not limit the installation of a solar energy systems.	Civil Code Section 714
Solar Easement Law (1979)	Provides for easements to ensure the right to receive sunlight for any solar energy system.	Civil Code Section 801.5
Solar Shade Control Act (1979)	Provides protections against shading from vegetation.	Public Resources Code Section 25980-25986

These laws both prohibit restrictions on solar installations and recognize legal agreements such as easements that protect a property holder's investment in solar technology. Additionally, the Solar Shade Control Act passed in 1979 protected rooftop solar systems from shadows cast by trees and other types of vegetation on neighboring properties. Shading resulting from buildings, however, continues to remain outside the legal protections recognized by the state of California. When systems are shaded by neighboring building additions, or from high-rise building construction, the investment of solar owners is put at risk.

Water Rights and Drawing from Existing Legal Frameworks

In order to best address the challenges surrounding solar access protections, other western states such as New Mexico and Wyoming turned to existing water rights

regimes as examples of legal frameworks that have fairly adjudicated conflicts between competing uses of this natural resource. Water and solar energy share several properties leading policymakers in New Mexico to assert that, "Just as the owner of a water right does not 'own' water, but rather has a right to divert it and put it to a beneficial use, so the owner of a solar right does not own sunlight, but has the right to an unobstructed line-of-sight path from a solar collector to the sun."[4]

There are several important properties that both water and solar energy share that make the established water entitlement process an important legal precedent to examine. These similarities provide the foundation for legislation such as the New Mexico Solar Rights Act and the rationale for drawing from the legal frameworks surrounding water in order to strengthen solar access protection.

First both water and solar energy are shared common resources. In the case of water in California, the legislature has declared that "[a]ll water within the State is the property of the people of the State," but "the right to the use of water may be acquired by appropriation in the manner provided by law" (CA Water Code § 102). Establishing the precise legal definition of ownership of water on private property is thus a significant legal challenge since water is by nature diffuse and spreads across multiple properties.

Similarly, sunlight travels in beams often across multiple legal parcels. Sunlight is among the most ubiquitous of natural resources and inexhaustible, but is growing increasingly difficult to access. Traditionally the right to solar access was associated with the airspace rights and followed the *ad coelum* rule that stipulated that surface private property owners held exclusive rights to the airspace above their land.[5] As long as one owned the property and complied with all the existing restrictions that ran with that particular

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[4] Grout, Deborah S. "Access to Sunlight: New Mexico's Solar Rights Act." *Natural Resources Journal* 19 (1979): 957.

[5] Rule, Troy A. "Airspace in a Green Economy." *School of Missouri Legal Studies Research Paper* 5 (2011).

parcel, the right to the air above this property was part of their bundle of rights. However the high-rise construction that occurred in the early twentieth century prompted a different set of airspace governance rules to further supplement the *ad coelum* rule. Opposition to tall buildings that obstructed views and access to natural light created political pressure to initiate height and bulk restrictions to provide limitations for the buildings being constructed. These restrictions are now commonplace and are among the primary regulatory mechanisms that municipalities utilize to resolve issues of equitable distribution of the use of sunlight, given that it is a shared resource desirable to all citizens.

Another characteristic that water and solar energy share, making legal precedents relevant in both cases, is the required flexibility that legal frameworks must develop in order to accommodate the variability of these elements throughout the year. Water in California is highly variable across seasons and across years. Droughts occur in the summer months, with peak flows taking place during the winter season when the majority of the precipitation is falls. Additionally large winter storms increase runoff volumes and often result in flooding. While water does follow fairly predictable paths throughout the year, calculating the precise availability at any given time remains an uncertain task. Similarly, positional changes of sun paths occur both hourly and seasonally as the earth rotates and orbits around the sun, making sunlight availability dependent on the time of day and the time of year.

Any set of regulations that comprehensively addresses water distribution, and likewise solar access entitlements, must accommodate the diffuse and variable nature of these elements. Thus it is worth examining the evolution of water rights in California as an important parallel for securing additional solar rights in the same local communities.

Earliest Forms of Water Rights: Riparian Rights

The California Water Doctrine is a system of water rights that recognizes two main types of surface water rights: riparian rights and appropriative water rights. This system has evolved whereby both the riparian doctrine and the doctrine of prior appropriation apply simultaneously. Riparian water rights was established first under the common law system and adopted after the end of British rule. This regime of water rights gives the owners of riparian land the right to use water from the rivers and streams that flow along the boundaries of their property. Riparian water rights are collectively shared with other property owners that also abut the water source and prioritization amongst riparian users does not occur. Additionally water must be used on the parcel where the water is located and cannot be stored or transferred for use on other properties. Currently, riparian water rights holders in California are not subject to any permitting authority, but as dictated by the California Constitution, Article X, § 2 amended in 1928, all water use must be both reasonable and beneficial in order to balance the water allocation needs of individual property holders with those of the general public.[6]

Riparian Solar Rights

Applying the established riparian water rights framework to solar rights illustrates several possible benefits that could be adopted to resolve the current conflicts surrounding the competing demands for sunlight. Riparian solar rights could assert a right to access all the sunlight that naturally followed onto their property. As long as that property owner used the sunlight in a way that was reasonably necessary and did not impinge too greatly on a neighboring property owner's rights, a policy based upon the riparian principles would deem the use reasonable. This would vest the right to solar with the property owner and protect this right from any obstructions that may prevent access to sunlight.

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[6] Littleworth, Arthur L., and Eric L. Garner. *California Water II*. Point Arena, CA: Solano, 2007.

One potential drawback, however, from establishing solar access based on riparian principles is that this can create a situation whereby the paramount ownership of solar access rights can prevent beneficial developments from occurring. Riparian solar rights create a clearly stated and strongly protected right to solar. However there are likely going to instances throughout the state whereby this right to solar is too strongly protected and creates an imbalance with other needs that may provide a greater benefit to the general public. Developments such as affordable housing and transit-oriented developments, for example, provide social and environmental benefits that may need to be prioritized above an individual's right to solar.

One solution could be creating a well-designed list of ranked priorities in each municipality. This would create a hierarchy of uses and exemptions, allowing for the continuation of developments with desirable uses. New Mexico's Solar Access Law passed in 1978 clearly established a property owner's right to solar, but was criticized for not providing a detailed list of exemptions that would be allowed throughout the state. This led critics to assert that the right to solar was overstated and would have adverse affects on desirable growth within New Mexico, arguing that the Solar Rights Act "makes solar rights the dictator of land development on adjacent property. Such an interpretation probably reaches beyond what the legislature intended."[7]

In order to prevent these types of conflicts from occurring, a riparian solar rights regime is not best suited for areas that contain many competing uses for solar access. Instead it may be more appropriate for rural or suburban areas that have similar land uses and where sky space is plentiful. This is likely to be areas that are zoned residential and have minimum lots sizes that are large enough to provide sufficient space between homes. These local municipalities could then design a comprehensive list of all the exemptions that are most appropriate for their community. Riparian solar rights establishes a

[7]Hillhouse, Karin, and William Hillhouse. "New Mexico's Solar Rights Act: A Cloud Over Solar Rights." *Solar L. Rep.* (1979).

universal right to solar access, but will allow local authorities to specifically address their own needs and determine when exemptions that benefit the general public outweigh the needs of an individual property holder.

Evolution of Water Rights: Prior Appropriation Rights

During California's gold rush in the 1840s, miners developed a system of claiming rights to transport the large amounts of water they required for hydraulic mining. These miners were not property holders and could not claim riparian water rights, but even still they posted notice at diversion points from which they claimed "first in time, first in right." The diversion and transport of water in this manner was recognized as a prior appropriative right and is based on physical control and beneficial use of water. Although the rule of prior appropriation did not displace common-law riparian rights, prior appropriation would become, over time, the dominant form of water rights in California.[8]

In contrast to riparian rights, appropriative rights holders are entitled to use specific amounts of water that may be sold or transferred. Allocation of water in times of scarcity is based upon seniority and this is established by requesting a permit from the State Water Resources Control Board. Issuance of a permit by this state regulatory agency confirms the right to divert and use the allotted amount until the permit is renewed. If this right is not used then it is lost after a period of five-years. Appropriative rights must also ensure that water use is both reasonable and beneficial, guaranteeing the availability of this resource over the long term.

Appropriative Solar Rights

The differences between the riparian and appropriative rights frameworks create alternative visions when these principles are applied to solar rights. Under the appropriative rights framework property owners do not have a paramount right to

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[8] *Managing California's Water*. San Francisco, CA: Public Policy Institute of California, 2011.

sunlight, but instead have a right to divert it for beneficial use. This is likely to create an administrative procedure whereby a successful applicant would receive a permit from a local permitting agency and then the use of the solar energy would be freely transferable. This energy could be used on-site or sold to another interested party. The right to use this energy only lasts for as long as the use remains beneficial and if it is not used for a designated period of time, the right is lost.[9]

An appropriative solar rights system is best suited for urban areas where there is less airspace per capita and more competing uses. Unlike the riparian framework, prior appropriation is based only on the beneficial use of solar and does not a grant a paramount right to ownership. This would prevent property owners from asserting their right to solar based simply upon their ownership of the land. Instead they would first have to establish seniority by demonstrating they were actively using the energy prior to construction, and then prove that it was used in a reasonable and beneficial manner.

Additionally, this system allows for transfer and negotiations between rights holders. So in the instance of shading of a solar rooftop installation, an appropriative right holder could negotiate for compensation or even relocation of the solar array as part of the terms of their agreement. This allows equitable and balanced negotiations to take place that are site specific and address the particular competing desires at hand.

Similar to riparian rights, an appropriative solar rights regime could still prevent the construction of desirable developments if a first or senior user asserted that new construction would interrupt sun flow and deny their right to solar. However, this would only be possible if the property owner could demonstrate prior use such as installing PV roof technology. Local authorities could also design a list of exemptions that would

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[9] Dunbar, Robert G. *Forging New Rights in Western Waters*. Lincoln: University of Nebraska, 1983.

override individual rights to solar that are most appropriate to the specific needs of their community.

Solar as a Local Issue

While both water and solar energy share many similar properties, protecting their long-term accessibility requires varied levels of governmental intervention. In the case of water, state and federal agencies have historically built and operated some of the largest water projects in California.[10] Overtime, however, many hundreds of local and regional agencies emerged as part of California's water management system; responsible for determining water supply, wastewater treatment, drainage management, flood control, and land use decisions. The decentralization across scales and functions of government has created many responsive, but narrowly focused stakeholders who drive most water policy today. What is now required is centralized leadership at the regional and state level. Agencies at a higher level of government are in the position to more comprehensively address surface water allocation in California, and a strengthened mandate at the regional and state level will help achieve equitable and sustainable allocation of California's water supply over the long-term.

Access to sunlight, on the hand, warrants a very decentralized planning process. As far back as 1981, just after the Solar Rights Act was passed, the California Energy Commission remarked:

> Solar access is a local issue. Climate and topography (both physical and political) vary substantially from one city or county to another. Moreover, each local government had a different history, each city a different age. Some have many large shade trees, some are located on hills and valleys, other are located on flat terrain, some have high-rise centers in concentrated downtown areas- all conditions which directly influence the type of solar access ordinance which is most appropriate for that city or county. Solar access ordinances should, as closely as possible, match local conditions; some areas may not need solar access protection.

[10] *Managing California's Water*. San Francisco, CA: Public Policy Institute of California, 2011. See sections on Hydraulic Era including discussions on Owens Valley and Hetch Hetchy as large-scale California water projects.

> Assessment of the potential for solar access conflicts should be a first step in the local planning process.[11]

Each local municipality has a different set of concerns to meet their renewable energy goals. A localized planning process would allow cities and counties throughout California to develop solar access protection plans that are tailored to their specific topography, density, and climate.

Local solar access protection plans are likely to draw from the riparian and prior appropriative rights regimes discussed previously, depending upon their utility for each particular community. In residential areas, a clearly stated and strongly protected right to solar access afforded through the riparian right framework, may be most appropriate. Riparian solar rights provide great certainty that existing and future solar installations will remain in place over the long-term. This allows local governments to accurately predict the production of renewable energy from existing units, allowing them to meet their renewable energy targets.

In urban areas, however, greater flexibility between landholders may be more desirable. In places where there is greater competition for sunlight, the appropriative rights framework allows for relocation and negotiations that specifically address affected parcels. As the population of California increases and the state continues to urbanize, it is likely that the appropriative solar rights framework would fit the needs of a growing number of communities.

Alternatively, municipalities may also elect to establish zoning ordinances, create a solar easement policy, or address restrictive covenants that discourage solar installment in order to address solar access within their jurisdiction. Recently developed solar access policies in California cities, such as Santa Cruz and Sebastopol, utilize zoning ordinances

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[11] Bradbrook, Adrian. "Future Directions in Solar Access Protection." *Environmental Law* 167 (1988).

and easements to provide additional solar access protection for its residents and to equitably resolve conflicts in instances when shading does occur. [12] These policies serve as examples of the type of localized planning process most effective to protect the existing investments in solar arrays, and further incentivize additional installments. Without timely assessment and implementation of solar access policies at the local level, California's cities and counties jeopardize their ability to offer their residents the protections necessary to make rooftop solar energy capture a substantial contributor towards California's ambitious renewable energy goals.

[12] For further information on the solar access policies of Santa Cruz and Sebastopol refer to: www.dsireusa.org

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