

## Solar Project Land Acquisition and Permitting:

### A Case Study of Four Cooperatives Participating in the Solar Utility Network Deployment Acceleration Project

Hundreds of utilities, including many cooperatives, are exploring options to install utility-scale photovoltaic (PV) systems. This marked increase over just a few years ago is due to falling solar prices, increased demand, and the approaching reduction of the federal investment tax credit (ITC) from 30 percent to 10 percent. One major part of any solar PV project that is often overlooked is acquiring and permitting land for the project. Consideration should be given to dedicating a resource to manage the process, establishing a clear process, and setting goals for meeting project timelines. This includes defining the quality and quantity of land needed; developing a fair process for evaluating and acquiring land if needed; and working with the local Authority Having Jurisdiction (AHJ) to meet permitting regulations. This paper explores how four co-ops have overcome barriers and challenges to land acquisition and permitting.

#### Introduction

NRECA is currently working with 14 cooperatives, the National Rural Utilities Cooperative Finance Corporation, PowerSecure Solar, and Federated Insurance on the Solar Utility Network Deployment Acceleration (SUNDA) project to deploy more than 20 megawatts (MW) of utility-scale solar PV (250 kW to 3 MW installations) across the country, and to develop tools that will reduce cost and make it easier for co-ops to design, finance, deploy, and operate utility-scale solar PV systems.

One of the project's goals is to collect "lessons learned" and disseminate them to other co-ops interested in deploying utility scale solar. Four co-ops participating in the SUNDA project have already acquired land and agreed to share their experiences with acquiring and permitting land for utility-scale solar arrays.

Cooperative	Array Size	Time to acquire and permit land
Anza Electric	1 MW	2 years
CoServ	2 MW	6 months
Eau Claire	.75 MW	5 months
Vermont Electric	Phase 1: 1 MW and 1.5 MW	7 months

**Table 1** – Time to Acquire and Permit Land for Four SUNDA Participants

As indicated in Table 1, the time to acquire and secure land permits varies considerably. Typical time lines are as follows:

- Land acquisition – three to nine months
- Permitting – one to three months
- Preliminary engineering for permit applications – one to two months
- Obtaining special-use permits and re-zoning land (if necessary) – two to four months

Due diligence is critical from the outset. Working with local agencies, engineers, and real estate attorneys is recommended. They can assist with:

- Red flag analysis, including zoning determination and permitting requirements. (In many areas, installing a PV array requires a special use permit or re-zoning to an industrial class that is required for electric utility generation.)
- Title search
- Phase I environmental study, including review of wetland, streams, hydrology, archeological, and endangered species
- Determination of State environmental permit process, requirements, and associated timelines

The purchase price of land typically accounts for only 2 to 3 percent of total project cost (assuming six acres for a 1 MW solar array at a cost of \$10,000/acre). Yet the acquisition of suitable, appropriately zoned land and required permits is critical to completing the project on schedule. The four case studies that follow illustrate experiences in land acquisition and lessons learned.

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### **Anza Electric Co-op, California**

Anza purchased land for the SUNDA project that was encumbered with tax liens and challenges involving site preparation and land use. Total liability of liens placed on the land, including a tax lien, a chemical supplier lien, and others, amounted to more than the value of the land. Finding a common solution required months of negotiation involving the co-op, the previous property owner, and lien holders.

Other challenges:

- The land fell into a special taxation category designed to limit development of agricultural land in California. The owner stopped participating in the program in the 1980s, but failed to complete the necessary paperwork to remove the taxation category.
- The land is unincorporated, making the county supervisor's office the Authority Having Jurisdiction (AHJ). The previous supervisor was elected to the state Senate. While meetings are scheduled, the co-op has yet to petition the new supervisor for their assistance.

The above challenges illustrate the importance of having local land brokers, commercial real estate agents or attorneys as part of your development team, who understand the local jurisdiction and the politics that might come into play and can help co-ops navigate the legal ambiguities of an area.

Despite the challenges with this parcel, Anza believes it is the best choice in the area. It adjoins the headquarters' property, is close to their main substation, and is zoned for agricultural use, which allows for solar development. Other land in the area is zoned rural-residential, which does not allow for solar development and would require Anza to seek re-zoning. In addition, every other reasonably-sized parcel is owned by a common company and is not currently for sale. Anza is seeking a conditional-use permit required of any electric-generating facility associated with a utility. Local land prices have recently been driven higher due to a local Native American tribe suing land owners in the area for water rights, further reinforcing Anza's decision to go with the existing parcel.

Anza advises cooperatives to obtain a title report early in the selection process and to work with reputable real estate attorneys and land developers that understand local laws and politics. In addition, prior to final negotiations, it is advised to check again for liens. In Anza's case, another lien was added to the property prior to them closing.

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### **CoServ Electric, Texas**

CoServ acquired 16 acres for its 2 MW AC solar farm at the end of 2014, and finished installing its array in May. The land acquisition process took longer than they had anticipated.

With its headquarters in the Dallas suburb of Corinth, Texas, the 160,000 member co-op, recommends using a land broker who knows the area and local community. CoServ's broker identified a suitable parcel of land and began the acquisition process, but the city planning department made demands that were unacceptable to the co-op, such as requiring construction of a masonry wall and living screen (trees, brush etc.) around the entire system. The deal fell through.

The six-month search eventually culminated with the selection of an alternate site in the extra-territorial jurisdiction (ETJ) of another city.

The second city supported the project and provided assistance to expedite the approval process. Since the land is not in the city limits, there were fewer restrictions. CoServ also took advantage of an agriculture zoning exemption that permitted solar facilities. Neighbors who were concerned that the land would be developed commercially or turned into a rock quarry welcomed the proposed solar array. To date, surrounding neighbors have raised no complaints.

To prepare the land, CoServ removed an existing house, cellar, and barn and implemented a storm water pollution prevention plan (SWPPP) prior to construction. Several large trees were also removed and milled. The lumber will be repurposed to commemorate the Solar Station. Due to the sandy composition of the soil and unseasonably heavy rains, erosion caused some issues during construction, but CoServ countered with erosion-control measures. It is installing a hybrid ground cover of partial gravel and partial planting of vegetation to provide more stability and reduce soil erosion.

For cooperatives looking to acquire land, CoServ recommends having a knowledgeable land broker who understands the market and deal structure. CoServ also emphasized the importance of having a strong civil engineer, a competent surveyor, a solid title company, and an attorney to work through title and legal issues. They also predicate the success of the project on having a dedicated employee to manage the project for at least six months.

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### Eau Claire Energy Cooperative, Wisconsin

Eau Claire used land on their main campus, a 40 acre spread that had five acres of unused land that appeared well-suited for this project. One challenge was leasing the land to themselves as part of the tax-equity flip project structure. Fully explaining the tax-equity flip model is beyond the scope of this paper (see [Volume I of the PV Field Manual: Business Models and Financing Options](#) for more guidance at [www.nreca.coop/SUNDA](http://www.nreca.coop/SUNDA)), but at a high level, the cooperative creates a wholly-owned blocker corporation which forms a project company in conjunction with a tax-equity partner. This is done in order to take advantage of the Federal Investment Tax Credit (ITC) for solar. However, since the project company actually owns the array, they must lease the land from the cooperative.

This created several challenges. First, the co-op had to explain to the county planning office and other stakeholders why the process was necessary. Then, they discovered that any long-term lease (defined in their area as a lease of 10 years or more) becomes subject to sub-division zoning requirements. These requirements mandate access roads and land easements. To avoid the requirement, Eau Claire's land is under a 9-year lease agreement with an option to renew the lease when the term ends.

In addition, Eau Claire was required to notify all local landowners and neighbors of their project and list possible public nuisances (e.g., fencing the array). The good news is that, to date, no one has stepped forward to challenge the proposed project. For cooperatives considering a similar project, Eau Claire's CEO Lynn Thompson recommends understanding the whole land acquisition and zoning process, as well as working with a qualified outside consulting group. National Renewable Cooperative Organization (NRCO) guided them through this process with specific flowchart steps. The permitting process took five months (including two months after submitting their application), and they have now received all necessary permits, including the conditional use permit. Eau Claire expects to begin construction mid-summer 2015.

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### Vermont Electric Cooperative

Vermont Electric Cooperative (VEC) has plans to develop 5 MWac of solar PV. An array of this size requires 35 to 40 acres and access to a high-voltage transmission line, requirements that drove the decision to split the project across multiple sites in two phases. VEC performed the acquisition work in-house. A group of potential partners emerged, some with an interest in selling property to VEC and working with the co-op. Many of the landowners believed that selling property to the co-op would result in a financial windfall, which complicated negotiations and the ability to agree on a fair market price. In the end, most of the proposed sites were inadequate for one reason or another.

After VEC selected a site, a few board members criticized the staff for not being comprehensive enough in their site evaluation, saying they should have advertised more. Based on this experience, VEC will hire an outside firm (land broker) to assist with land acquisition for future projects.

VEC's original plan was to build Phase 1 on two sites in 2015 and Phase 2 in 2016 at one or two sites. A final environmental inspection earlier this year discovered a complication: a vernal pool (a Type 2 wetland) in the middle of one of their intended initial sites that the environmental firm they hired to assess the site had missed.

Since the vernal pool cannot be developed, they are currently attempting to re-configure the PV system around this restriction. VEC continues working toward its goal of having a PV system in commercial operation at their second site within 2015.

Meanwhile, the co-op is taking steps to mitigate their risk with future solar projects. Mike Bursell, VEC's chief financial officer, cautions other co-ops that co-op owned projects have a high level of exposure to potential risk.

VEC is now working with a local third-party developer, who will build the system and from whom VEC will purchase the output through a power purchase agreement (PPA). Adding to the challenge of developing solar projects in Vermont, regulations have recently passed that place greater restrictions and on where solar arrays can be built and set additional requirements for 50- and 100-foot setbacks. VEC is far enough along in their siting process to be grandfathered.

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## Lessons learned

There are many lessons to be learned from these case studies and best practices to follow. Building a solar project on land that a cooperative already owns is ideal, in that the purchase and negotiation process is avoided. Not every co-op has access to suitable land near an appropriate point of interconnection, of course.

When purchasing land, allow sufficient time for verifying the site's viability for the project, to confirm that it conforms to zoning ordinances and to perform necessary geotechnical, environmental, and topographical studies. Local real estate experts can provide much needed guidance and a desirable buffer from the acquisition process. In addition, their due diligence helps ensure project viability, including adherence to the project's budget.

Good sites are typically level, flat or south-facing. They are free of tree cover, loose soil, and large rocks. Ideally, they are near a substation or a distribution line with sufficient load and/or capacity. Furthermore, a good site is surrounded by neighbors who support the project.

CoServ also recommends having a knowledgeable land contractor who knows the market and deal structure. Other recommendations include having a strong civil engineer, a competent surveyor, a solid title company, and an attorney to work through title and legal issues. Throughout the project, be sure to engage with the necessary stakeholders (residents, officials, vendors etc.) early and often. VEC credits the success of its generation projects to time spent working with town residents and officials.

According to PowerSecure, many co-ops struggle with land acquisition and siting, especially if they do not own a suitable parcel of land. While co-ops do have considerable experience securing land for their distribution systems, that process is easier because the location of a substation or new line is often pre-determined. As such, co-ops can take advantage of utility easements rights to acquire the land.

Co-ops looking into a utility-scale solar deployment should consider hiring either a solar site originator or site acquisition specialist to help them find land, work through the legal title and permitting requirements, and make the acquisition. Depending on the land and its jurisdiction, the co-op may need a special use permit or a conditional use permit. The co-op might also have to re-zone the land, obtain approval from a city council, perform a wetland assessment, or any number of other tasks.

As the expiration of federal investment tax credits (ITC) approaches, the time that this process takes is becoming a critical factor in the viability of some solar projects. Cooperatives that want to take advantage of the investment tax credit prior to its reduction (from 30 percent to 10 percent at the end of 2016) need to acquire land and begin engineering work at least nine months prior to the end of 2016.

Energy Renewal Partners, a utility-consultant firm, finds that there are four challenges that often bedevil utilities:

First, they have trouble defining the size boundaries of projects early. Re-defining project boundaries can result in repeating studies that have already been conducted, thereby increasing the risk of running into a sensitive environment, such as a wetland or archaeological site.

Second, utilities should understand all the studies that may need to be conducted on a site, including wetland, habitat, Federal Aviation Administration (FAA) navigation, historical, and more which may be applicable. In addition, the time for each study can vary widely. A wetland delineation (performed by the Army Corps of Engineers) can take one day, for example, but if the Corps has not inspected the land or if their last inspection has expired, the study can take one to two months.

Third, utilities should allow sufficient time to obtain permits at the city, county, and state levels. Some states, among them New York and California, are known for having more intensive permitting processes. Local county zoning offices can be more variable.

Lastly, utilities should anticipate potential disapproval of neighbors who reside near a proposed solar site. Some residents do not want panels to be visible or located near their residence. It is important to secure community buy-in early in the process and to include all stakeholders in communications. After not being consulted about a solar installation nearby, an influential farmer successfully lobbied his county to adopt a restrictive solar ordinance.


#### PERTINENT QUESTIONS

At a base level, cooperatives should answer these questions before and during the land acquisition process:

- Who is the Authority Having Jurisdiction (AHJ)?
- Do you need a special-use permit?
- Do you need a conditional use permit?
- Are there setbacks, easements, encroachments or right-of-ways (ROW)?
- Are there landscaping or tree screening requirements?
- Are there any liens on the land?
- How is the land zoned?
- What is the Storm Water / Erosion Control Plan?
- What is the wetland assessment and stream determination?
- Does your project require a Phase I Environmental Study?
- Is a traffic study required?
- What site prep does the land require?
- Is access to site required?
- If applicable, what are the lease-term rules?



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NRECA, with input from PowerSecure Solar, developed a [PV Land Audit Form](#) that can help with the assessment process. The form provides general site criteria and can be used to assist in evaluating potential sites. The site evaluation should include an electric interconnection evaluation performed early in the process, to determine that the interconnection can support the proposed PV electric generation.

Acquiring and permitting land to build a utility-scale solar system should not be an overbearing task, but it requires judicious planning to avoid delays and reduce project risk.

Following a few basic principles can make for a smoother process:

- Define the quality and amount of land needed based on the intended project size.
- Develop a fair process for evaluating and acquiring the land.
- Work with your local AHJ to comply with regulations.
- Dedicate the proper internal resources and work with a local civil engineering firm to drive a timely and efficient pathway for the deployment of your solar system.

### For More Information on SUNDA

*To learn more about the SUNDA project and obtain documents, tools and guidelines (including the PV Land Audit form, standardized technical designs, a costing model, and a new three volume manual) visit our site [www.nreca.coop/SUNDA](http://www.nreca.coop/SUNDA) or download site [www.nreca.coop/pv-manual-and-sunda-reference-designs](http://www.nreca.coop/pv-manual-and-sunda-reference-designs)*

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