



UNDERSTANDING SOLAR ENERGY AGREEMENTS

Shannon L. Ferrell
Professor, Oklahoma State University
Department of Agricultural Economics



This publication is developed through support provided by the National Agricultural Law Center

INTRODUCTION - THE "SOLAR ENERGY

For this guide, “solar energy agreement” will refer to the document or documents that work together to govern the relationship between the landowner and the party (or parties) constructing and operating the solar power project. These agreements are sometimes called “solar leases,” “solar easements,” or “solar power contracts.”

Before beginning this discussion, it is important to note that a solar energy agreement is an important and complex legal agreement with a long duration that can have significant economic impacts. You should strongly consider contacting an attorney with experience in negotiating solar energy agreements to assist you before executing such a document.

HOW DO SOLAR ENERGY PROJECTS WORK?

To understand a solar energy agreement, it helps to understand how solar power generation works.

SOLAR POWER TECHNOLOGIES

Most solar projects are classified as either photovoltaic (PV) or concentrating solar power (CSP) based on how they use the power of the sun to generate electrical power.

PHOTOVOLTAIC TECHNOLOGY

A photovoltaic cell works by “sandwiching” two semiconductor materials (usually based on silicon, which is common in sand) together. The semiconductors are formulated so that when the photons that form light strike their atoms, electrons are released from one semiconductor atom to the next. By sandwiching a semiconductor that develops a negative charge to one that develops a positive charge, a flow of these electrons can be formed and electrical current is generated. When these negative and positive semiconductors are connected together and covered with an anti-reflective coating (this helps the cell absorb light rather than reflect it), they compose a “solar cell.” When several of these cells are connected together, they form the kind of “solar panel” you have probably seen in use to pump water for livestock, used on rooftops to provide home power, or perhaps even in a utility-scale solar power project.

As you would expect, the more intense the sunlight is, the more power a PV cell can generate. The intensity of sunlight is sometimes measured in terms of how much power it is providing per unit of area (most often, in Watts or kilowatts per square meter, such as w/m^2 or kW/m^2). The light being absorbed by a PV cell is most intense when the line between the cell and the sun is directly perpendicular to the panel. You can think of

this as when the panel is directly facing the sun rather than being at some angle relative to the sun.

PV panels can be mounted on stationary structures such as the rooftops of existing buildings or on their own stationary frameworks. Mounting the PV panels to a stationary object reduces the cost of installing the panels, but the tradeoff is that the panels will not be able to collect as much energy during portions of the day when the sun is not directly perpendicular to the panels. On the other hand, some PV panels are mounted to moveable frames that track the sun so the panel is always directly facing the sun no matter where it is in the sky (such systems are sometimes called “heliostats”). These systems are more expensive to build, but they are also optimized to collect the maximum amount of power by always facing directly into the sun.

Some PV cells are designed to capture even more of the sun’s energy by using a lens built into the cell to focus even more of the sun’s light onto a high efficiency/high capacity solar cell. These cells are called Concentrated Photovoltaic (CPV) cells. CPV cells are almost always mounted to moving frames to track the sun as CPV cells work very well when pointed directly at the sun but are much less efficient when they do not directly face the sun.

CONCENTRATION SOLAR POWER (CSP)

While PV directly converts the power of sunlight into electrical power, Concentrating Solar Power (CSP) converts the power of the sun into heat, and then uses that heat to generate power. In a typical CSP system, large mirrors (called “reflectors”) are used to direct sunlight toward a central receiver. In some systems, a field of reflectors focus light onto a central receiver mounted on a tower. In other systems, curved mirrors called a “parabolic trough” focus light onto a receiver tube that runs down the length of the trough. The focused light is used to heat a fluid in the receiver (which is often an oil, molten salt, molten metal, or sometimes water) and the heated fluid is then run through a heat exchanger to convert the heat energy into steam that then drives a turbine to produce electrical power.¹

LAND NEEDS FOR SOLAR PROJECTS

A solar project developer has come to you because they need land either for the primary generation equipment (either an array of PV panels or for a CSP system) or for a system that will support the project, such as an electrical transmission line, substation, maintenance and operation (M&O building) or the like. We will discuss some of the specific land impacts of solar energy development later in this guide, but for now, we’ll focus on what a solar project developer is likely looking for as a good site for solar power development. First, they are looking for an area with bright and abundant sunlight. A large function of that is simply where the project is located on Earth, since areas closer to the equator get more direct sunlight than areas to the north or south. For information on

¹ See K. Vignarooban et al., *Heat Transfer Fluids for Concentrating Solar Power Systems – A Review*, 146 APPLIED ENERGY 383-396 (15 May 2015).

the amount of solar radiation received by your area, you can consult the National Renewable Energy Laboratory's solar maps, available at <https://www.nrel.gov/gis/solar.html>. While geography and astronomy have much to do with how much solar energy an area may receive, the climate of the area has an impact as well. Areas often overcast with clouds will receive less light or have light that is frequently disrupted (which can also be a concern for developers). Land-based obstructions such as mountains, hills, trees, or buildings can also block light from reaching the project, and developers will often work to avoid those obstructions.

In addition to looking for areas with strong, consistent sunlight, the terrain upon which the project will be built can affect how easily it is constructed and maintained. Generally speaking, both PV and CSP projects are built on relatively flat areas, with less than 1 percent slopes. CPV projects may be able to use slightly rougher terrain.

Another location consideration for solar projects is how close the proposed site is to electrical transmission lines. The capacity of the project will dictate the capacity of the lines needed to transmit the power to users; some projects may require large-scale lines that are expensive to construct. Thus, developers may want to secure land that is closer to the transmission lines rather than building the project far away and constructing the lines to reach the project. Developers are constantly working to balance the potential revenues from a project (locating the project with optimal sunlight characteristics) versus the project's costs (such as costs of constructing on a rugged site or building miles of transmission lines to reach the project site).

HOW CAN I LEARN ABOUT THE DEVELOPER WHO WANTS TO USE MY LAND FOR THEIR PROJECT?

Whenever a solar energy developer approaches you, find out as much as you can about the company and their "track record." Ask the developer for information about their other projects, and ask them for contact information for other landowners with whom they have done business. Contact those landowners for their experiences, then ask *them* for additional landowners you can contact (obviously, the developer will suggest landowners they know will give a favorable reference, but the references you get from those landowners may have different experiences). Contact the office of the Secretary of State for your state to see if the developer is registered to do business in your state and is in good standing. Use the Internet to find additional information about the company (but also consider the sources of information – be a smart consumer of internet-based information).

The solar industry has an industry association – the Solar Energy Industry Association (SEIA) – that requires any members to abide by the SEIA Code, available at <https://www.seia.org/initiatives/seia-solar-business-code>. Ask the developer if they are a member of the SEIA, and review the Code as well.

In some cases, a land broker or a “landman” may be negotiating agreements rather than the developer itself. In some cases, they are doing this under a contract for a developer, and in other cases, they are trying to assemble “packages” of agreements for sale to a developer. Whenever a land broker or landman contacts you, ask him or her which arrangement applies. If they are negotiating for a developer, the developer has likely provided the agreement to be used, which in a way may be an advantage for you; the developer is more likely to have the required experience and knowledge to craft a mutually beneficial lease. In some cases, land brokers or landmen trying to package agreements may have drafted the agreements themselves (or engaged an attorney to do so) without the same level of experience. This does not mean a landowner should never negotiate with such parties but may mean the landowner must take extra care to understand the requirements for a successful agreement.

HOW ARE SOLAR ENERGY AGREEMENTS STRUCTURED?

When offered a solar energy agreement, remember attorneys working for the solar energy developer drafted the agreement. The attorneys’ professional obligation was to prepare an agreement that was as favorable as possible for their client – the developer, not you. While it is in the best interest of the developer to craft an agreement that is fair to the landowner and will create a situation that is good for both developer and landowner, *you* as the landowner must look out for your own best interests. Never sign a solar energy agreement without discussing it with an attorney who has experience in solar energy agreement negotiations as well as with your tax professional and any other professional advisors who might be able to help you.



For many landowners, any prior experience with resource development agreements may be in the form of oil and gas leases, and as a result, they try to apply those experiences to examining the solar energy lease. To some extent, this makes sense. A company wants to enter a landowner’s property, construct facilities, extract an energy resource, and send that resource to market. However, when you compare a typical “Producers 88” form oil and gas lease side-by-side with a solar energy agreement, the differences between them can be quite apparent. Landowners who have negotiated wind power agreements might have more relevant experience, but again those agreements can also differ significantly from solar energy agreements.

When you sit down to review a solar energy agreement the first thing you will likely notice is the length. Many solar energy agreements are 20 pages or longer, with some over 40 pages long, while an oil and gas lease may often be a two-page, “fill-in-the-blank” document. The difference? First, the oil and gas lease comes with a century of case law, statutes, regulations, and industry custom “built” into it, while the solar energy agreement is often an entirely new creation of the solar energy developer. Second, while the primary duty for a mineral interest owner is often “just stay out of the way,” the relationship between solar power developer and landowner is much more complex and must be (or at least, should be) spelled out, in detail, within the agreement. Finally, the typical financing arrangements for an oil and gas well differ starkly from those for a solar power project, and a great deal of the language and terms contained in the solar energy agreement may be dictated by lenders or investors rather than the developer itself, complicating the negotiation process.

As you look at your solar energy agreement, you must understand that you may be looking at something that may function as an option, easement, and lease simultaneously. As each of these tools can have very different impacts on your property interests, you must make careful note of the potential interactions among them all.

Many solar energy agreements commence with an option contract between the developer and the landowner in which the landowner grants an exclusive right to the developer to investigate the suitability of the project for development, and if the developer should so choose, to enter into a full development contract and commence project construction and operation. During this option period, the developer will likely survey the property and may deploy sensors to verify their estimates of the solar capacity for the location. They may also conduct environmental and wildlife impact studies, and analyze construction suitability for the site. Option periods often vary widely, in some cases as short as one or two years, and extending to ten years in other cases. Almost every solar energy agreement that contains an option will make the option “exclusive” which means the landowner cannot enter into any other agreement for solar development on the land (and perhaps any other form of energy development) during the option period.

Another feature often included in solar energy agreements is a confidentiality agreement covering the site data obtained during the option period and, in many cases, most of the terms of the overall agreement. Many landowners are unfamiliar with confidentiality agreements. Understand that by signing an agreement with a confidentiality clause (or a separate confidentiality agreement), you will be bound by its terms and may not be able to discuss your solar energy agreement with others whose advice you may need. Confidentiality agreements can also restrict landowners’ ability to negotiate together. Consider whether you should strike the confidentiality provision (or separate agreement), or if the developer is unwilling to consider that, make sure you reserve the right to consult with your attorney, accountant, and any other professional that would be bound by a professional obligation of confidentiality.

Some developers take an approach of negotiating the agreement in its entirety before execution of the option, while other developers provide only the option agreement with a term sheet for the subsequent, full agreement with the details to be negotiated if and when the option is triggered. Another alternative is an option agreement along with a “letter of intent” that spells out the items to be negotiated before executing a full contract. The trend appears to be towards negotiating the agreement in its entirety before the option period starts. Understand that if you choose to leave terms open after the agreement begins, factors can change, perhaps to your advantage, but perhaps to the advantage of the developer.

If the developer’s investigations indicate that the project will indeed work, the developer will then trigger the option and enact the full agreement. In many solar energy agreements, the assurances needed by the developer to enable project construction and operation may take the form of a collection of easements and/or a general lease of the affected property. A brief summary of some of the typical terms (be they presented as easements, covenants, or contractual lease terms) follows:

Table 1 – Common Landowner Terms

Term	Description
Access	Developer has right to access the property and construct roads, for evaluation of site, and construction, operation, and maintenance of equipment.
Construction	Developer may use portion of surface for access to construction equipment and “lay-down” areas.
Transmission	Allows for construction of underground and above-ground transmission lines, construction and operation of substations.
Non-obstruction	Landowner will not construct any improvements that could interfere with light patterns on property, nor permit obstructions to occur.
Glare / aesthetics / nuisance	Landowner acknowledges that certain reflected light levels, noise, or other issues may be caused by the project and agrees not to file suit for any such effects.

Most of the solar energy agreement will likely revolve around securing these terms, establishing the compensation package for the landowner, and defining the other parameters of the parties’ legal relationship. While hundreds of pages could be written about the issues to be considered in evaluating a solar energy agreement, this guide will focus on what are arguably the five most important questions for you to analyze as you evaluate the proposed agreement. These questions are:

1. How will current uses of the property be affected by the project?
2. How long will the agreement last?
3. What are the landowner’s obligations under the agreement?
4. How will the landowner be compensated?
5. What happens when the project ends?

HOW WILL THE SOLAR ENERGY AGREEMENT AFFECT THE USE OF MY LAND?

Assuming that the developer builds and operates the project, you will be “sharing” the surface of your property with the project to some extent. Unlike with wind energy projects, which often allow for crop, livestock, and even hunting operations to occur around the turbines, a solar project typically restricts or prohibits use of property immediately around the solar equipment (although the area or “footprint” of the project may be relatively small). Thus, while wind energy projects often provide a *supplemental* revenue stream in addition to the agricultural or recreational uses of the property, a solar project may represent a *replacement* of the agricultural or recreational revenues from the land it occupies, since those uses may no longer be possible.

To maximize efficiency, a developer will likely seek to install as many solar panels in an area as possible so long as they do not cast shadows on each other and thus reduce their efficiencies. While solar energy projects may have a smaller overall “footprint” than a wind energy project, they occupy a greater percentage of that footprint than a wind energy project. For example, one wind energy land use study showed the maximum number of wind turbines on a quarter-section (160 acres) of land was four turbines; combined with the access roads for the turbines, this added up to 3.85 acres of the 160 acres being used or a land use percentage of 246 percent.² By comparison, evaluation of one solar project found the fenced area of the project was 15.51 acres, with 6.81 acres of that area taken up by panels, transformers, and roads for a land use percentage of 43.92 percent. A 2013 study by the National Renewable Energy Laboratory found that on average, large PV projects (defined as projects with a capacity of 20 megawatts or more) used approximately 8 acres of land per megawatt of capacity, while CSP projects used approximately 10 acres of land per megawatt of capacity.³ Compared to the 0.46 acres per megawatt of capacity found in the wind energy land use study mentioned above,⁴ this illustrates the point that while solar projects are relatively small, they do occupy a greater proportion of that area.

² See Shannon L. Ferrell and Joshua Conaway, “Wind Energy Industry Impacts in Oklahoma,” Oklahoma State Chamber Research Foundation report (November, 2015).

³ Sean Ong, et al., “Land-Use Requirements for Solar Power Plants in the United States,” National Renewable Energy Laboratory Technical Report NREL/TP-6A20-56290 (June, 2013).

⁴ See Ferrell and Conaway, *supra* at 2.

While there are a handful of examples where landowners have been allowed to graze small livestock such as sheep or goats around solar panels or other equipment in a solar energy project, the majority of solar energy agreements appear to prohibit any agricultural use of property within the area of the solar equipment. Landowners should work closely with the project developer in the design of the project to minimize the amount of land occupied by the solar equipment in order to maximize the amount of land still available for agricultural use. This can include requirements for the developer to fence off the areas where livestock or crop operations are not allowed, and to construct such fences to maximize the amount of land available for such operations.

Similarly, landowners and developers need to work together to minimize inconveniences caused by changed fencing configurations, the fragmentation of crop areas, blockages to irrigation systems, and changes to drainage patterns. These concerns should be raised during the initial contract negotiations to determine if reasonable accommodations can be reached either to minimize these disruptions or for additional compensation for them, in the form of “liquidated damages” language. Liquidated damages language that provides agreed-to compensation for each event (for example, a specified dollar amount for each fence breach, each linear foot of terrace repair needed, etc.).

Another frequent use of land that may be impacted by solar power development is recreational leasing, frequently in the form of hunting agreements. In many solar energy agreements, hunting may be completely prohibited on the affected property during the construction phase to minimize risk to construction crews. However, solar energy agreements may also contain broad indemnification language that makes the landowner responsible for injuries of project personnel or damage to project equipment caused by hunting lessees or other assignees of the landowner (for a discussion of these indemnity issues, see the section “What are the landowner’s obligations under the agreement” below). Landowners should discuss compensation for loss of lease revenues to the extent such losses are caused by the project. They should also consider adding an indemnity agreement to any hunting leases specifying if the hunter causes any damage to the solar equipment they will pay any damages rather than the landowner. It may be wise to work with the developer to craft the language of such indemnity agreements and to make the agreement part of the solar energy agreement with a provision stating if the landowner requires any hunters to sign the agreement the developer will agree not to hold the landowner liable for any damages caused by the hunter.

Aesthetic uses of the property (sometimes called “beauty” or “scenic” uses), as well as of surrounding property, may also be a concern. Noise is not a concern for solar projects because they usually have few or no moving parts; in the case of fixed mount PV projects, they may have no moving parts. Visual impacts are far more difficult to address. In the case of *Rankin v. FPL Energy, LLC*, Texas’ Eleventh Court of Appeals refused to stop the operation of a wind power project on the basis that aesthetics were not a sufficient basis to award damages based on negligence.⁵ Several other cases have also

⁵ See *Rankin v. FPL Energy, LLC*, -- S.W.3d --, 2008 WL 3864829 (Tex. App. 2008).

cited the subjectivity of aesthetics claims in suits involving wind power projects – in other words, “beauty is in the eye of the beholder.”⁶ It is likely courts would follow similar principles in evaluating the aesthetic issues surrounding solar projects.

One of the most frequent concerns expressed about solar projects is whether the PV panels or CSP reflectors will cause light reflection onto neighboring properties. In the case of PV panels, this is usually not a problem as the panels are coated with an absorbent coating to make sure the panels absorb light rather than reflect it. With CSP projects, the goal of project design is to maximize the amount of light directed to the central collector; this usually means minimizing the amount of light directed anywhere else. That said, though, reflectors can sometimes cause reflection of light to areas outside the project itself. In many cases, developers will construct maps showing the potential area of light reflection, and landowners should ask to have access to those maps. While aesthetic considerations should not be a problem for a well-designed solar project, both developers and landowners should consider possible opposition to projects by neighbors.

The landowner’s participation in governmental programs can also have an impact on the use of the property for solar energy development. Several USDA programs such as the Conservation Reserve Program (“CRP”), Environmental Quality Incentives Program (“EQIP”), the Grassland Reserve Program (“GRP”) and other common programs for landowners require participants to have multi-year contracts and plans for the use and maintenance of the land under contract. Constructing solar power equipment on such lands in violation of those contracts or plans could cause landowners to forfeit future payments, return of past payments, or even pay penalties.⁷ If the project lands are any under USDA program contracts, the appropriate agencies should be contacted to discuss integration of the project under the contract plans or an amendment of the government program agreement before execution of the solar energy agreement.⁸ Landowners should consider negotiating agreement language providing that the developer should compensate any loss of revenues from such programs caused by the solar power project.

Finally, landowners should explicitly reserve the right to use the property for agricultural, recreational, and other uses to the maximum extent possible. From the landowner’s perspective, such a reservation should be as broad as possible while still

⁶ For a compilation of such cases, *see generally* Stephen Baron, *New Meets Old: Wind Turbines and the Common Law of Nuisance*, University of Texas Wind Energy Institute (February 19-20, 2008, Austin, Texas), available at http://www.utcl.org/eLibrary/preview.php?asset_file_id=15069.

⁷ *See, e.g.*, 7 C.F.R. § 1410.32(h), providing that termination of a CRP contract will trigger repayment of all amounts received by the landowner under the contract, plus interest.

⁸ For an excellent discussion of these programs, *see generally* Farmers Legal Action Group, Inc., *Farmers’ Guide to Wind Energy: Legal Issues in Farming the Wind* and its discussion of “Impact[s] on Farm Program Eligibility” at pp. 4-8 *et seq.*, available at <http://www.flaginc.org/topics/pubs/index.php#FGWE>.

allowing the developer the rights necessary to construct, operate, and maintain the project. Similarly, landowners should also be careful not to grant away access to other resources on the property without fair compensation. Some solar agreements may attempt to give developers free access to water, rock, and other materials without any additional payment to the landowner.⁹

HOW LONG WILL THE SOLAR ENERGY AGREEMENT LAST?

With some of the early solar energy leases, the lease terms were 99 years; others called for terms of 50 years. This fact alone frequently shocked landowners to the point of rejecting any further consideration of the lease. Long lease terms reflect the classic struggle, seen for many years in the oil and gas industry as well: a resource developer wants to secure access to the resource at a fixed price for as long as possible, while the landowner would like to continually offer access to the resource back to the market if a better price may be secured. While some leases with these 99-year terms may still be offered, they are becoming rarer. The general trend seems to be toward shorter periods, often ranging between 20 and 50 years. From the developer's perspective, a lease period must be of sufficient length to recapture the project's costs and return an acceptable profit to project investors. Additionally, the contract the developer has to sell power to a utility (sometimes called a "power purchase agreement" or "PPA") may last for 20 years or more. A developer will likely insist on a lease term as long as the PPA so the developer can be guaranteed access to the project site for as long as they are obligated to provide power to the purchaser under the PPA.

Some leases have an "initial" or "primary" term that may last for a significant period (such as 20 years) followed by options to renew the lease at the developer's option. These renewals may be for a second period equal to the primary term, or for a shorter period (such as five or ten years). The effect of these circumstances may lead to long-term leases with renewals that are solely at the discretion of the project developer. However, while it may be difficult to get initial terms in smaller increments, there may be opportunity for negotiating the terms of lease renewals. Thus, the first step for the landowner is to analyze the duration of the agreement carefully. Be sure to account for not only the primary term but also for any renewal periods as well (and assume for the

⁹ Agreements that seek water rights from the landowner are of particular concern. PV energy facilities do not require water for their operation, and thus landowners confronted with such a provision must undertake special care to determine the proposed use of, and compensation for, their water by a project developer. CSP projects may require water for cooling or for heat exchange fluid purposes, but again the landowner should carefully consider the amount of water use to be allowed as well as the water rights the landowner has and his or her ability to transfer those rights to a developer.

sake of discussion that the developer will execute any and all renewals to which they may be entitled).

If the project developer is unwilling to negotiate the overall length of the agreement, it may be possible to negotiate a “reopener” term that allows for negotiation of some commercial terms at renewal periods. It is important to tie such reopeners to the compensation terms of the agreement to minimize downside risk with a price floor for the landowner if electrical markets should trend downward at the time of lease renewal. The landowner may also wish to reopen the entire agreement if the project is to be “repowered” (that is, if existing project equipment is removed and replaced with new, larger, or more efficient systems).

Finally, many landowners may overlook the fact that entering into a solar energy agreement may impact their estate plans. The length of these agreements makes it quite possible that successors to the land in question will take the property subject to the agreement. Thus, landowners may need to involve those successors in discussions about the agreement as part of their succession planning efforts.

WHAT ARE YOUR OBLIGATIONS AS A LAND OWNER?

As mentioned above, solar energy agreements differ from oil and gas agreements in that there may be many more on-going duties faced by the landowner under a solar energy agreement. First among these obligations is likely the non-obstruction term of the agreement that requires the landowner to avoid (and in some agreements, actively defend against) the creation of any condition that could interfere with the light reaching the solar equipment. While this may not seem like a significant constraint, landowners may be unaccustomed to thinking about the shadows cast by a windmill, granary, barn, home, or other structure. Depending on the size of the parcel in question, this principle, or an express set-back provision in the agreement, may effectively block the construction of any new improvements on the land unless an agreement is in place that allows for discussion of potential improvements with project engineers. If you have any plans for improvements, such plans should be raised to the attention of the developer as the agreement is considered. You may also need to examine the agreement to see if it requires you to affirmatively eliminate other obstructions, such as trees and if it prohibits the leasing of the land for any other uses such as cellular towers.



Another significant issue may be the indemnification provisions of the solar energy agreement. The concept of indemnification itself may be new to many landowners. Adding to this is the fact that the indemnification provisions of many solar energy agreements are the provisions developers are least willing to negotiate.¹⁰ Indemnification, in an agreement to reimburse another party for damages they sustained as the result of another party's actions. Indeed, some agreements will effectively hold the landowner liable for any damages or injuries that are not the result of negligence or willful misconduct by the developer. Landowners may also be required to take on increased insurance limits to satisfy these indemnification obligations.

Landowners should seek a balanced and fair indemnity relationship. For example, if the project site is under a hunting lease, the landowner and developer may consider a standard indemnification agreement to be executed by the hunting lessee that provides the lessee will be responsible for any damages or injuries caused by its presence on the property. Landowners should also consider negotiating indemnity language that explicitly exonerates the landowner from liability for the actions of trespassers and any other parties that are not under the direct control of the landowner. Finally, increases in insurance requirements for the landowner should be a consideration in compensation negotiations. Further, indemnity should work both ways; landowners should also insist on indemnification language protecting them from any damages caused by the solar energy project or the actions of the developers and any one on the property at the invitation of the developers. Further, landowners should insist that the developer secure and maintain commercial liability insurance with the landowner made a "named insured" on the policy. Landowners should also have the right to request a certificate of insurance (verifying that the insurance is in place and names the landowner as an insured) from the developer.

Another potential hazard for landowners may come from the legal interests created in the property by the solar energy agreement. If the land is subject to an agreement with a secured creditor, such as a mortgage, entering into a solar energy agreement could mean creating an "interest" in another party that violates the terms of the mortgage. In the case of some mortgages, this default may make the entire amount owed due and payable immediately. As a result, creditors' consent may be needed prior to execution of a solar energy agreement. If the land sought for a solar energy project is subject to a mortgage, consult with the lender to ensure the mortgage will not violate the solar energy agreement or to see if the mortgage can be modified to allow the agreement. Conversely, many solar energy agreements often require the landowner to secure "subordination" agreements from creditors, sometimes called "subordination, non-disturbance, and attornment agreements" or "SNDAs." These agreements usually state that if the creditor forecloses on the mortgaged property, they will not evict the developer from the solar project and will not interfere with the

¹⁰ For an analogy in wind energy agreements, see Neil Hamilton, "Roping the Wind: Legal Issues in Wind Energy Development in Iowa," American Agricultural Law Association Symposium, (October 25, 2008, Minneapolis, Minnesota).

operation of the project. The solar energy agreement may restrict or prohibit the creation of any new encumbrances (such as mortgages or liens) on the property.

Landowners' equity in real property may be a significant source of capital, especially in agriculture, and such provisions could pose challenges for accessing that equity. At a minimum, landowners should involve their lenders in the solar energy agreement discussion and work out an arrangement that will allow the landowner to meet their lending and liquidity needs, prior to executing the solar energy agreement. Further, requesting an SNDA from a lender can be a difficult or awkward conversation with a lender; landowners may want to consider negotiation for language that says the landowner will not interfere with the developer seeking an SNDA from a lender but is not obligated to get the SNDA themselves.

Finally, a natural concern for developer and landowner alike is the potential conflict between development of the surface for solar energy projects and the development of the property's oil and gas resources. In many states, the mineral estate is dominant over the surface estate.¹¹ However, in some states it would also appear that a shift towards a greater accommodation of surface interests has been underway. Early cases in predominantly "oil and gas" states held that an oil and gas lease necessarily implied that a lessor or claimants under him would not improve land *at all*, thereby interfering with lessee's rights to the surface.¹² However, those rights have been increasingly limited by the concept of reasonableness, "surface damage" statutes, or the "accommodation doctrine."

Thus, one must wonder what would happen in the event that a solar project and an oil well needed to occupy exactly the same location. Optimal solar equipment placement is critical to project profitability. It is also conceivable that geologic conditions could dictate that a mineral interest owner place a well at the same location in order to access the oil and gas resource. Holding to a strict "dominance" concept would mean that the solar equipment loses in this scenario, but one must ask whether asking a surface estate owner (or in this case, his or her lessee) to move or at least deactivate a multi-million dollar project would constitute an "unreasonable" interference with surface use.

Some solar energy agreements purport to override any previously-granted rights to develop the mineral estate underlying the surface property, but these provisions should be struck as a nullity under many states' law. On the other hand, some newer solar energy agreements ask that the developer be forwarded notice of any indication that the mineral interest owner intends to undertake development of mineral estate so that the parties can arrive at a mutually-agreed upon plan to develop all of the parcel's resources. It seems that in all but the most extreme cases, this strategy can allow for the development of the property to the satisfaction of all parties.

¹¹ For example, in Oklahoma, see, e.g. *Enron Oil & Gas Co. v. Worth*, 947 P.2d 610 (Okla. Civ. App. 1997).

¹² See *Conway v. Skelly Oil Co.*, 54 F.2d 11 (10th Cir. 1932).

In evaluating the potential problems between solar development on the surface and development of the mineral estate on property, the landowner needs to consider what roles he or she *can* and *should* play. If the landowner owns both the surface and minerals, they have the ability to control mineral development, and should make sure that any mineral leases entered after the solar energy agreement make sure mineral development will not interfere with the solar project (and the solar energy agreement will likely require as much). If the landowner owns only the surface, they do not have the power to impose any obligations on the mineral estate, and should carefully avoid agreeing to any language in the solar energy agreement that holds them responsible for anything relating to the mineral estate.

HOW ARE PAYMENTS SET UNDER THE SOLAR ENERGY AGREEMENT?

At the core of every solar energy agreement is the issue of compensation, and there are almost as many different ways to calculate landowner payments as there are landowners. One of the most common questions asked is “what is the ‘going rate’ for solar leases?” Since the solar industry is still growing and there are relatively few leases available for review relative to oil and gas leases or wind energy agreements, there has yet to form a body of data to determine market trends in solar energy agreements. Nevertheless, there are a number of considerations landowners should consider in the payment terms of their agreements.

When evaluating the payment terms of a lease, one should consider whether the payments vary by the “phase” of the project. Often, solar power projects are divided into an “option” or “pre-construction” phase (during which the project’s viability is evaluated), a “construction phase” (occurring after the option has been exercised but before commercial production of energy has commenced), an “operation phase” (during which the project is generating and selling power), and possibly a “decommissioning” phase (when the project has wound up and is dismantled). Other agreements may combine the option and construction phases with a separate operation phase, and may omit the decommission phase entirely. The landowner should be aware of how the project’s phases will affect payments, and what milestones trigger each phase. Those milestones need to be clearly defined, and a landowner should be able to determine if those milestones have occurred (with the developer required to provide notice of those milestones and with the landowner given access to the records needed to determine when those milestones).

One common factor used as a compensation basis is the acreage involved. For some solar energy leases, acreage is the foundation of landowner compensation, rather

than the amount of generating capacity installed on the acreage. In these cases, the landowner should make sure the acreage in question is clearly defined so the landowner knows what acres are “in” and what acres are “out.” This should include not only a precise legal description of the land considered for payments but also a map of the land. Given that solar energy development on land is much more intensive and potentially carries higher revenues and greater liabilities than agricultural uses, any per-acre lease rate should be higher than prevailing agricultural lease rates. Conduct a diligent search of any other solar projects in the area to determine what prevailing lease rates may be. Also, consider a “most favored nations” clause requiring the developer to match the highest lease rate and/or lease terms given to a landowner within a specified distance of the proposed project.

Other solar energy agreements may base payments on the “nameplate” capacity of the solar equipment on the property rather than on the acreage leased. “Nameplate” capacity is the estimated generation capacity of the equipment if it is operating under optimal conditions. Agreements based on nameplate capacity may offer a flat amount of payment per unit of capacity (often denominated in megawatts). As with acreage payments, landowners should investigate the local “market” for rates and consider the most favored nations clause.

Lastly, some solar energy agreements may provide for a “royalty” payment to the landowner based on the production of the solar equipment on his or her property. At this stage of development in the solar energy industry, this payment method appears to be less prevalent than the acreage or nameplate methods. This is a significant difference between solar energy agreements and wind energy agreements, with wind energy agreements widely using the royalty payment methods. This element of the landowner payment is often the most complex to understand, calculate, and verify. While the concept of a payment based on the electrical production of the project seems fairly simple, there are some variables that may be in play. First, the landowner must understand the basis of the payment, which may be the megawatt- or kilowatt-hours of power produced, “gross proceeds” from sales of electricity, “net revenues” from the power sold, *etc.* It is critical that the definition of these terms within the agreement be analyzed thoroughly. If basing a royalty on “gross proceeds,” do those proceeds include revenues from the sale of transferable tax credits or renewable energy credits (“RECs”)? If the payment is based on “net revenues,” what costs are deductible by the developer – and if the project sells its power on the spot market rather than under a long-term power purchase agreement (“PPA”), will the landowner be at the mercy of market fluctuations? Market-based measures may give landowners the opportunity to participate in favorable price swings but should be tempered with minimum-payment provisions to secure against downside risk. In solar energy agreements with a royalty provision, there is often a “base” or “minimum” payment that sets a floor for landowner payments, with any additional royalty owed above the minimum amount paid at the end of the project year. Royalty-based payments may provide upside potential for landowners, but also present “downside” if the project does not perform up to expectations (as in the case of a cloudy year), so minimum payments are especially crucial in a royalty-based agreement.

Regardless of the payment mechanism, some agreements may include an inflation adjustment that increases the amount of payments for acreage or capacity based on a measure of inflation (often the Consumer Price Index). Agreements with a royalty provision may include a royalty “escalator” clause that increases the royalty percentage at specified intervals. The escalator clause can prove to be a mutually-beneficial provision for both developer and landowner, allowing for more rapid cost-recovery by the developer while allowing the landowner to increase his or her participation in project profits during later years. Escalators need to include either an explicit function for increases (specifying the intervals at which royalties will increase and in what proportion) or be indexed to an objectively-determinable, publicly available number (ex. the U.S. Bureau of Labor Statistics Consumer Price Index, U.S. Energy Information Agency wholesale electrical price, *etc.*).



Acreage payments may be fairly easy to verify, but capacity payments and especially royalty payments are accompanied by the need for landowners to audit payments. Make sure you have the right to access any developer records needed to verify the accuracy of your payments, and that such records are made available to you at a convenient location. In the Information Age, most if not all records can be made available electronically rather than requiring you to go to an office in New York or Houston to examine them physically. Landowners should also consider negotiating for a provision that adds interest to late or low payments discovered in such an audit.

As mentioned above, negotiating a “most favored nation” clause may be possible in some projects. As the name implies, such a clause enables the landowner to capture the most favorable easement or lease terms granted to any other landowner within the same project. A “most favored nation” clause can help the landowner overcome potential oversights in the negotiating process or a lack of information regarding comparable terms. The problem with such a clause, of course, lies in its verifiability, which is complicated by the confidentially agreements typically tied to the project. “Most favored nation” clauses can be used *against* landowners: “I can’t give you what you are asking for, because if I did, I would have to give it to everyone else in the project.” An alternative for landowners is collective negotiation of a lease with their neighbors. Collective negotiation can increase the landowners’ bargaining power and allows them to spread legal costs amongst themselves. Some developers even favor these arrangements, as they allow the developer to secure large areas of land through the negotiation of one agreement, rather than “piecing” a project together through individual negotiations and risking a checkerboard pattern in the land under lease.

WHAT HAPPENS WHEN THE AGREEMENT IS OVER?

With the length of agreements mentioned above, a landowner may not be thinking much about what happens when the lease is over. However, landowners *should* consider what happens with the agreement is concluded. First, what are the conditions that provide either party the ability to terminate the agreement? Often, agreements will provide a host of potential causes that can enable the developer to terminate the agreement. In such case, landowners should require, at a minimum, the immediate payment of all sums then due to the landowner. Some practitioners have also suggested requiring a “termination fee” that is a function of a historic course-of-payments for the landowner (*ex.* a termination fee equal to the past three years of payments to the landowner).¹³

In virtually every case, the ability of the landowner to terminate the agreement will be extremely limited, and will likely be based on the non-payment of amounts due the landowner within a certain timeframe. Further, the landowner will likely be required to provide written notice of a potential termination event to the developer and provide a specified cure period. Thus, landowners should be advised to keep sound records of payments and project milestones, and to provide prompt notice of any potential defaults so as to preserve their rights if termination is warranted.

Assuming the project operates until the date specified in the agreement, the parties must then ask what happens then. A common fear of landowners is that the developer will default or dissolve, and leaving the landowner with what may be obsolete or inoperable equipment on his or her property. To that end, many landowners have requested that solar energy agreements contain some form of “decommissioning” language that, at the end of the project, requires the developer to remove all equipment, restore the land to its original grade, vegetation, and soil condition, and to remove sub-surface materials to a specified depth. Further, landowners are also seeking a “performance bond” from the developer, the funds from which are to be used to ensure the performance of the decommissioning obligations.

Decommissioning language is not found in all agreements, and frequently must be requested by the landowner. Further, the posting of a bond or other security in an amount sufficient to cover the complete costs of a decommissioning project could become cost-prohibitive for some developers. A compromise offered by some companies is a “salvage value” decommissioning clause whereby the salvage value of the equipment in a project

¹³ For an example from wind energy leases, see University of Texas Wind Energy Institute CLE, The Ultimate Guide to Wind Leases, June 2, 2006 (available from Texas Bar Association).

is evaluated at a specified period (for example, every five years) relative to the estimated cost of decommissioning activities. If the salvage value of the equipment falls below the estimated decommissioning costs, bonds are posted in an amount sufficient to cover the difference.

HOW CAN LANDOWNERS MANAGE THE EXPENSE OF LEGAL ASSISTANCE?

At the risk of stating the obvious, reviewing a highly technical lease presenting a host of novel issues will take more of a lawyer's time than reviewing a two-page oil and gas lease with familiar provisions. Landowners who realize this may be reluctant to engage an attorney for fear of the cost; attorneys may be hesitant to take clients due to the time-intensive nature of the enterprise. Collective action may serve both groups well. If the footprint of a project suggest multiple landowners will be involved, those landowners may enhance their bargaining power by forming a negotiation group that enables them to share in the expense of legal services while providing the developer the ability to negotiate one agreement binding the entire group, rather than numerous individual agreements. Also, landowners should ask developers if they will provide for reimbursement of legal fees incurred in reviewing the agreement; many developers will provide such fees up to a capped amount.

HOW TO FIND AN ATTORNEY TO HELP YOU ANALYZE YOUR AGREEMENT

Finding the right attorney to help you evaluate your solar energy agreement is crucial. As you have probably learned from reading these materials, the solar energy industry, and solar energy agreements are unlike almost any other industry landowners will encounter. Specialized legal experience in the solar energy industry is crucial to providing the best service possible to landowners. As a result, when you are looking for an attorney to help you analyze your solar energy agreement, one of the first questions to ask is "what experience do you have in negotiating solar energy agreements?" Demand specific details; do not settle for generalities like "I do this sort of thing all the time" or "I've negotiated hundreds of oil and gas leases – they're just the same" (they're not, as you have seen here).

The good news for landowners is that the growth of the solar energy industry has brought about an increasing number of attorneys that do have experience in this area. When looking for such attorneys, good place to start is in those areas that already have a significant number of solar energy projects.

Once you have found some candidates, ask them for reference clients that you can contact to discuss the clients' experiences with the attorney, and the quality of their representation. You may also want to ask those references for secondary (or "indirect") references you may contact.

Lastly, when hiring a new attorney, be sure to check with your state bar association to make sure that the attorney is currently licensed, in good standing, and has a clean disciplinary record.

Solar energy agreements are complex, important documents – be sure that you get the help you need in negotiating and executing them!