SOLAR LEASE NEGOTIATIONS FROM THE LANDOWNER'S PERSPECTIVE

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I. INTRODUCTION

Landowners in certain regions of Texas are now accustomed to the presence of wind towers and high-voltage overhead transmission lines that necessarily accompany such activity. Maps depicting the average strength of wind flow across the state almost invariably match up with the locations where initial wind farm development has occurred during the past two decades. Just as with oil and gas deposits, developers are drawn to areas where the most valuable resources are located. However, solar radiation is more evenly distributed across the surface of the Earth than mineral deposits and wind flow patterns.[1] While solar resources are more plentiful in sunny West Texas, it is entirely possible to collect sunlight and operate a viable solar facility in just about any corner of the state. For this reason, the burgeoning solar industry will soon make its presence felt on a diverse range of properties in Texas and will impact a broad range of landowners over coming decades. Competitive Renewable Energy Zone (CREZ) transmission lines were initially constructed along routes designed to reach the location of specific wind energy generation sources located far from the eventual consumers.[2] But now that the range of available energy resources includes solar radiation, generation facilities can be seemingly located anywhere—so long as the chosen collection site is near a transmission line with enough spare capacity. In this sense, the situation for the solar industry is the reverse of the wind industry, with the location of solar projects dictated by the routes of existing transmission lines and only to a limited degree by the relative strength of the resource in the area.

Several factors recently combined to unleash an explosion in solar energy leasing and development activity statewide. Congress extended tax credits to solar developers that provide incentives covering up to thirty percent of the cost of solar facilities. The impending step-down of these credits between 2019 and 2022[3] has motivated developers to build facilities sooner in order to avoid missing out on claiming these incentives. Local school districts and taxing authorities may offer tax breaks and incentives to developers in return for investment in the local economy and the creation of new jobs.[4] Utilities, municipalities and corporations face mounting political pressure

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[1] *See Global Horizontal Solar Irradiance–National Solar Radiation Database Physical Solar Model*, NATIONAL RENEWABLE ENERGY LABORATORY (Feb. 22, 2018), https://www.nrel.gov/gis/assets/images/solar-annual-ghi-2018-usa-scale-01.jpg (demonstrating that some of the best solar resources in the United States are located in West Texas, but that collection rates of at least 4.50 Kilowatt hours per square meter per day can be found in just about any region of the state).

[2] *See Texas as a National Model for Bringing Clean Energy to the Grid*, AMERICANS FOR A CLEAN ENERGY GRID (Oct. 13, 2017), https://cleanenergygrid.org/texas-national-model-bringing-clean-energy-grid/ (describing the passage of Texas Senate Bill 20 in 2005 that designated areas for renewable energy development and spurred the construction of transmission lines to reach the state's most valuable wind resources).

[3] 26 U.S.C. § 48 provides for a tax credit equal to thirty percent (30%) of the basis price of the energy property for projects placed into service prior to the end of 2019. Beginning in 2020 the incentives step down to twenty-six percent (26%), then to twenty-two percent (22%) in 2021 before settling permanently at ten percent (10%) in 2022. 26 U.S.C. § 48(a)(6).

[4] Texas law provides a property tax abatement program for developers under Chapter 312 of the Texas Tax Code and for school district taxes under Chapter 313. The Chapter 312 program was recently extended by the Texas Legislature through 2029. *See Advanced Energy Perspectives*, ADVANCED ENERGY ECONOMY (June 5, 2019), https://blog.aee.net/in-texas-incentives-for-wind-solar-development-were-extended-but-storage-questions-go-back-to-puct (recounting developments in renewable energy during the 2019 Legislative Session).

to purchase electricity from renewable sources, creating a captive market in search of long-term power purchase agreements with solar projects. In addition to the foregoing elements, the unique nature of the Electric Reliability Council of Texas (ERCOT) marketplace allows developers, utilities, lenders, buyers and sellers to rapidly expand the solar industry on a scale that would be almost inconceivable in other states—in a manner similar to the exponential growth of the wind industry during its early years in Texas.

To demonstrate the coming wave of project development, consider that only 2,281 megawatts (MW) of installed solar capacity existed in Texas at the beginning of 2020.[5] At that time, an additional 9,360 MW of solar projects had obtained interconnection agreements to access high-voltage transmission lines and are now nearing construction and operation.[6] This means that the total capacity of installed facilities will likely quintuple in the very near future. But the true extent of the leasing boom is only apparent when considering proposed facilities that have yet to obtain an interconnection agreement with a transmission line operator, which total tens of thousands of megawatts in planned capacity.[7] Published statistics indicate that an enormous number of proposed projects are now competing for financing and limited transmission capacity. These proposed solar facilities comprise the majority of the generating capacity for all power plants and energy facilities being considered for connection to the ERCOT grid.[8] While solar power only contributed a small portion of the total generating capacity of power facilities on the grid in 2020, all indications are that it will constitute a large share of the added capacity from this point forward.

It can be inferred that many of these projects are unlikely to complete the lengthy process of obtaining financing, permits, tax incentives, interconnection agreements, site control and power purchase contracts that are necessary to support construction of a facility. At the beginning of 2020, a total of 246 solar projects were under consideration by ERCOT out of the total 584 interconnection requests for power generation facilities in the overall queue,[9] with the proposed solar facilities ranging in size from 2 MW to 1,200 MW in capacity.[10] The average generation capacity of a facility in the permitting queue at that time was approximately 220 MW, requiring around 1,500 to 2,000 acres of open land for panels and supporting facilities. Altogether, the combined megawattage of all proposed solar projects constituted around sixty percent of the interconnection volume under consideration by ERCOT.[11] This is no small fact, considering that the queue covers a wide variety of energy generation sources including natural gas plants, coal plants and wind farms.

For the landowner and attorney alike, it can be anxiety-inducing to negotiate a long-term lease agreement for the construction and operation a large facility used in an emerging and technology-driven industry. Unlike when leases are negotiated for oil and gas exploration or other

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[5] *See Generator Interconnection Status (GIS) Report*, ERCOT (December 2019), http://www.ercot.com/gridinfo/resource (providing a monthly listing of all proposed interconnection projects for the generation of electricity).

[6] *Id.*

[7] *Id.*

[8] *See ERCOT: Quick Facts,* ERCOT (Feb. 4, 2019), http://www.ercot.com/content/wcm/lists/172484/ERCOT_Quick_Facts_02.4.19.pdf (describing the characteristics of the ERCOT grid and revealing that despite rapid growth in capacity, peak demand during summer months often comes close to exceeding available supply).

[9] *See* GENERATOR INTERCONNECTION STATUS (GIS) REPORT, ERCOT (December 2019), *available at* http://www.ercot.com/gridinfo/resource (listing all proposed solar facilities and other energy generation facilities that are requesting interconnection to the grid).

[10] *Id.*

[11] *Id.*

established energy development practices, the landowner's counsel does not have the benefit of hindsight provided by several decades of previous lease transactions, governing statutes, court decisions and development history on which to base the desired contractual terms. There is additional concern that the lease will fail to capture the full potential value of the transaction for the landowner, or that a critical omission will result in real harm to the landowner's ownership interest in the property or its natural condition. However, an experienced transactional attorney can take comfort in the fact that a typical solar lease has many similarities to a ground lease, a wind lease, an oil and gas lease, a surface use agreement and other contracts involving the use of real property for energy development activities. The important task for the drafting attorney is to master the nuances of this particular industry and determine how they will translate into contractual terms that protect and benefit the landowner.

The purpose of this article is to provide guidance to the landowner's counsel with respect to important contract terms negotiated within each solar lease. These specific lease terms address fundamental questions considered by the landowner, such as: the proper degree and method of rental or royalty compensation; securing the eventual removal of facilities, cleanup of the property and its return to the landowner in a desirable condition; limits on the scope of the operator's easement rights with respect to the leased premises and surrounding lands; assignment of the lease, termination and lender-related issues; protection of the landowner from property damages and other liability concerns; and the interplay between solar facilities and mineral development activities on the same property.

II. RENTALS AND ROYALTIES

For many landowners, the primary focus of initial contract negotiations will be compensation—and justifiably so. The landowner will surrender exclusive control of the property to the solar developer and expects to receive value in return that will far exceed existing income from agricultural operations, grazing leases and hunting activities. The standard solar lease may last for three to five decades once all of its renewal terms and option periods are exhausted, so it is important to make sure the contract provides for payments to the landowner that remain satisfactory for the life of the lease. The following material examines several different methods for obtaining such compensation, which present varying degrees of complexity.

The first principle to recognize is that the solar lease is a "ground lease" in the most basic sense of the term; the lessee will fence its facilities off from the surrounding lands and the acreage will be productive for electricity generation in direct proportion to the amount of land covered by the lease. For this reason, rent is typically offered and paid to the landowner on a per acre basis for the portion of the property used for the lessee's operations, including all acreage covered by solar panels, inverters and related equipment. The rent obligation may also cover areas used for transmission lines or portions of the property that are otherwise rendered off-limits for the landowner's continued use. The negotiated rent price per acre can depend upon several factors, including the fair market value of the underlying land, the experience and financial capability of the lessee, and the general attractiveness of the project area and surrounding infrastructure for the generation, storage, transmission and marketing of electricity.

Keep in mind that a solar developer will need to obtain financing partners for the project in order to proceed with development.[12] Every solar lease begins with a built-in option period

[12] *See* Lisa Chavarria, *Solar Leases for Utility Scale Installations: Legal Considerations for Developers*, presented at UNIVERSITY OF TEXAS SCHOOL OF LAW CLE CONFERENCE ON RENEWABLE ENERGY LAW, Jan. 31–Feb. 1, 2017,

typically lasting three to five years, allowing the lessee to study the property, obtain permits and tax incentives, secure financing and negotiate an interconnection agreement with the owner of a nearby electric transmission line. The lessee may also need to obtain mineral subordination agreements from severed mineral owners other than the landowner.[13] Given the number of proposed projects in the ERCOT queue, it is probable that a great number will never be constructed because of a failure to complete one or more of these tasks.

During the option period (often referred to within a solar lease as the development period), the developer's presence on the property will be limited to occasional visits to conduct environmental surveys, collect soil samples and perhaps monitor solar and weather data collection equipment placed on the property for the purpose of evaluating the quality of the resource available for collection. It is not customary for the landowner to receive substantial bonus consideration, unlike in the oil and gas industry where considerable amounts are often delivered to the lessor in return for execution of lease. Instead, the landowner may only receive a few thousand dollars as a means of reimbursing all or a portion of its attorney's fees incurred in negotiation of the lease form. Most developers are willing to offer this type of reimbursement in recognition of the difficulty of evaluating and editing such a lengthy contract. During the development period, the landowner will be compensated with per-acre payments that may amount to less than ten percent of the annual rent received following construction of the solar facility. These development period payments typically increase a steady rate throughout the period in order to encourage more rapid development of the project by the developer.

For the above reasons, the lease contract should recognize the reserved rights of the landowner to continue its normal uses of the property during the development period, so long as there is no unreasonable interference with the due diligence activities of the developer. The reserved uses can include agricultural, ranching, hunting or recreational activities, whether conducted by the landowner or its tenants and lessees. It is a common but unfounded assumption of many landowners that their income from other surface activities on the property will be immediately curtailed by execution of a solar lease. Furthermore, if the commencement of construction will cause the cancellation of other surface leases that produce income for the landowner, the landowner should attempt to obtain reimbursement of lost income for the remaining term of any such lease. These benefits are most commonly extended for crop damage during a curtailed growing season. For continued surface activities during the development term, the lessee will require that competing leaseholds be terminable at will by the landowner and limited in duration. Any new leases may require lessee consent or the express subordination of the tenant's rights within the contract.

Once the project is financed and completes the permitting process, it may eventually be constructed, owned and operated by entirely different entities than the lessee initially named in the lease form. The development and financing process described above must be considered in relation to the landowner's preferred rental rate. Higher rental rates provide direct benefit to the landowner, but if they are too elevated then the project will be unable to obtain the financial support and investment necessary for its consummation. A constructed solar facility with a lower rental rate is substantially more valuable to the landowner than a facility that never breaks ground.

Austin, Texas, at 7 (recognizing that the participation of a mortgagee and the broad range of rights afforded to lenders under the standard solar lease agreement are issues of concern for the landowner).

[13] *See* Gregory Friend, *Mineral Issues' Impact on Energy Development*, presented at STATE BAR OF TEXAS ADVANCED OIL, GAS AND ENERGY RESOURCES LAW COURSE, Oct. 3–4, 2013, Houston, Texas, at 3–5 (recommending that developers obtain subordination agreements, surface waivers and accommodation agreements from severed mineral owners in order to prevent interference with renewable energy development).

Consequently, it is important to advocate for the highest rental rate possible for the landowner, while also keeping a reasonable perspective on the lessee's ability to secure participation from investors and lenders.

In the realm of upstream lease acquisition and development, the solar industry bears some resemblance to the oil and gas business. The parties making lease offers to landowners face no restrictions or qualifications that restrain them from participating in the marketplace. The landowner may receive offers from multibillion-dollar energy companies that have the independent capability to build, own and operate utility-scale wind and solar farms. In the same mailbox, lease offers and proposed contracts may arrive from solar developers that, while reputable and experienced, will need third parties to finance, construct and operate the facility in their stead. Finally, the landowner may be dealing with small land companies or agents that either represent the foregoing entities or are independently gathering up a leasehold position with no ability to provide assurances concerning eventual project development. Any landman or attorney with experience in the oil and gas business can intuit that smaller or less-reputable parties will offer more attractive rental terms and other lease benefits in an effort to lure landowners away from bigger companies that provide a more realistic path to project development. It follows that an important part of the attorney's evaluation of initial deal terms should include a comprehensive assessment of the identity of the developer, its experience level and potential for actually developing the facility—whether on its own or through established relationships with renewable energy companies and investors. The landowner must also consider how its property fits together geographically with leases in the nearby area held by competing solar developers, in the same manner that rival oil and gas lessees often assemble competing blocks of acreage for mineral development.

Lessees unquestionably prefer a predictable rent obligation consisting of a price per acre with a fixed annual or periodic increase. Under this approach the rent payment due each year can be predicted with clarity by the parties over the entire life of the lease, lessening the opportunity for a monetary default by the lessee and allowing certainty with respect to its long-term financial obligations. The solar lessee will propose a series of periodic or annual increases in the rental price per acre to account for inflation over the several decades covered by the lease term. Given the low rate of inflation during recent years,[14] this increase is typically offered between 1% and 2% per year. Small changes in this rate of increase can make a dramatic difference in rental income over the passage of time. It is preferred by the landowner that the increase occurs on an annual basis throughout the lease term and any extension periods, although some lessees instead offer a defined monetary increase in the rental rate per acre every few years. Differing arrangements of annual rent and percentage increases can be evaluated by building a spreadsheet model of lease income and considering factors such as net present value and the expected rate of inflation.

Nevertheless, inflation is largely unpredictable. The lengthy term of the solar lease makes it quite possible that inflation will exceed the fixed annual increase during several lease years. For this reason, the landowner prefers that the annual increase be no less than the published Consumer Price Index (CPI) during each lease year, regardless of the set percentage of annual increase afforded by the lease. In the alternative, the landowner can negotiate for usage of the any other

[14] *See Databases, Tables & Calculators by Subject*, U.S. BUREAU OF LABOR STATISTICS, https://www.bls.gov/data/#prices (indicating that annual inflation has been steady since the end of the Great Recession and remains below the long-term annual average since tracking of inflation began in 1913).

market index that it reasonably believes will appropriately reflect future inflationary trends.[15] This provision ensures that the landowner will continue to receive the bargained-for value of the rent obligation during the entire term of the lease. But for many developers the fixed percentage increase model is a non-negotiable component of the lease.

It is entirely acceptable for the landowner to negotiate and execute a solar lease that contains a simple rental formula based upon a price per acre and a fixed annual (or periodic) increase, as described above. So long as the landowner will continue to be satisfied with the amount of payment received each year, there is nothing wrong with using this type of provision as the primary or sole means of compensation. Indeed, this is by far the most common method for paying the landowner under a solar lease arrangement. If the lease includes a sufficient mechanism for increasing payments over time, the landowner will likely be insulated from the harmful effects of inflation and other unforeseen economic circumstances.

However, many other types of energy industry leases allow the mineral owner or landowner to receive a percentage of the revenue obtained by the lessee from sale of the product.[16] This basic concept is the central means of compensation for the mineral owner under an oil and gas lease.[17] The concept of revenue sharing also appears in most wind lease agreements, which are often held by the same renewable energy companies now pursing solar development. Although rarely encountered in practice, some pipeline agreements incorporate a "throughput" payment to the landowner depending upon the volume of hydrocarbons transported through the line. In addition, aggregate mining leases will generally base royalty payments on the weight and price of product that is removed and sold. Depending upon the degree of leverage held by the landowner in negotiations and the willingness of the lessee to consider sharing a portion of its revenue, the solar lease can also incorporate similar compensation.

The appropriate percentage of gross revenue received by the landowner will be analogous to the percentage typically received under a wind lease, beginning in the single digits and slowly stepping up on a periodic basis as the lease term continues. The landowner must decide how revenue sharing will interact with the basic rent obligation that requires payment of a specified amount per acre. The percentage of gross revenue can simply act as a replacement for the acreage calculation, but this is an atypical approach that exposes the landowner to risk that the lessee's revenue could drop precipitously for unforeseen reasons. Instead, consider making the rent obligation equal to whichever method of calculation produces a higher resulting income for the landowner during each annual period. In the alternative, the percentage of gross revenue or the payment per acre can be used as a price floor. This means that rent will "never be less than" the selected amount. It is also possible to mix the two factors, such that the landowner receives rent based upon one-half of the usual price per acre, plus a percentage of gross revenue equal to one-half of what would be bargained for separately.

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[15] The landowner is welcome to negotiate for incorporation of a different index that it anticipates will more accurately reflect the future price environment, such as a mortgage index, the London Interbank Offered Rate (LIBOR) or even an agricultural commodity price that is directly tied to current uses of the subject land.

[16] *See, e.g.*, Frank Z. Ruttenberg, *Advanced Real Estate Law: Water Rights in Texas*, presented at STATE BAR OF TEXAS ADVANCED REAL ESTATE LAW COURSE, July 10–12, 2008, San Antonio, Texas, at 25 (describing the option of the owner of the groundwater estate to collect royalty from a lease of its groundwater rights for development); Judon Farmbrough, *Wind Rights and Wrongs*, TIERRA GRANDE, April 2008, https://assets.recenter.tamu.edu/documents/articles/1856.pdf. ("In the case of both mineral and wind leases, landowners reserve a portion of the production for which they receive a royalty.").

[17] *See* Bruce M. Kramer, *Interpreting the Royalty Obligation by Looking at the Express Language: What a Novel Idea?*, 35 TEX. TECH L. REV. 223, 229 (2004) (noting that the basic "Producers 88" oil and gas lease form provides for payment to the mineral owner of a portion of gross proceeds from gas production).

Rent based upon acreage is typically paid at the beginning of each lease year (or during more frequent intervals) and is easily calculated in advance. On the other hand, rent based upon a percentage of revenue cannot be calculated until the end of each applicable period. For this reason, a solar lease that bases rent upon a share of revenue should provide for an up-front payment each year based on acreage, followed by a "true-up" payment at the end of the year if additional payment is owed. The landowner will want to receive as much detail as possible regarding the computation of each true-up payment, preferably in a format that can be easily interpreted by the landowner and its representatives.

Gross revenue is also difficult to verify, so the revenue sharing obligation will necessitate inclusion of several other provisions that allow the landowner to determine if it has been properly calculated. First, the lease must include a detailed definition addressing what is (and is not) to be included in the calculation of gross revenue. This definition should address sale of electricity, battery storage income, transportation costs, tax credits, renewable energy credits, depreciation and overhead, warranty coverage, insurance proceeds, claim settlements, contractual adjustments and other conceivable sources of credit or deduction to the revenue stream. The more detailed the definition within the lease form, the less likelihood for a dispute in the future over what elements count towards the landowner's share of revenue. The lease should also address the location of the point of sale and metering concerns so that only proper deductions are taken and valuation can be verified. If the project area covers tracts owned by several landowners, the common electricity is likely fed into a single substation or point of interconnection to the grid. In this circumstance, the lease should include a method or formula for determining what percentage of the delivered electricity and resulting revenue is attributable to the landowner's tract within the overall project area.

Even with a detailed definition of gross revenue and a defined method for calculating same within the lease, the landowner will be left in the dark unless the lease agreement provides for periodic exercise of a right to audit that permits the landowner or its agent to inspect the operator's records in order to verify that the landowner's share of revenue is being paid in the proper manner. This right is typically restricted to exercise on a periodic and limited basis, but the landowner must be cautious that the period does not exceed the applicable statute of limitations on nonpayment.[18] The landowner may also request that its costs in performing the audit be reimbursed if the audit reveals an underpayment exceeding a specified threshold amount or a stated percentage of annual rent payments made to the landowner during the period in question.

The landowner must also consider the possibility that the project could be owned by a utility company at some point during the life of the lease, regardless of applicable regulations in place when the lease is executed.[19] In this situation, electricity could be sold to an affiliated entity—or might not be sold at all and instead will be consumed by the same utility. As a result, proper calculation of gross revenue will be challenging. With respect to affiliated transactions, an energy lease would usually deal with this situation by instituting a "market value" mechanism that

[18] *See* TEX. CIV. PRAC. & REM. CODE ANN. § 16.004 (2019) (providing for a four-year statute of limitations for breach of contract, debt and fraud).

[19] *See* PUBLIC UTILITY COMMISSION OF TEXAS Control No. 48023, Item 1, Control Cumber Request Form: Rulemaking to Address the Use of Non-Traditional Technologies in Electric Delivery Service, *available at* https://interchange.puc.texas.gov/ (soliciting input for rulemaking related to the ownership of battery storage facilities by regulated utilities and other issues related to energy storage related to renewable projects).

substitutes for the affiliated transaction price.[20] But in the solar leasing context, this could be difficult to determine without adequate guidance within the lease. Without a specifically prescribed method for determining market value, the landowner would presumably be required to obtain comparable pricing from similar transactions in the same geographic area.[21] In the alternative, the lease can institute a published spot price (such as the ERCOT price for a particular hub or region)[22] to stand in for gross revenue if the project is operated by a utility that consumes the power that it produces or if power is sold through affiliated transactions or not in an arm's length arrangement. This spot price simplifies the calculation of gross revenue for both parties and decreases the chance for disagreement over market value determination.

Another recommended method for locking in a floor value for rental payments is the institution of a minimum rent obligation in the lease. In theory, the lessee should be interested in maximizing the amount of acreage that it exercises for inclusion in the project. With this motivation in mind, the landowner can request a guaranteed minimum number of acres to be exercised and used for the project. But the lessee may discover natural conditions, mineral ownership issues or other factors that prevent usage of a portion of the acreage covered by the lease. For this reason, the minimum acreage obligation can instead address the amount of acreage that will be *considered* when calculating the amount of rent owed, as opposed to the number of acres actually *exercised* by the lessee and used for its facilities. The minimum rent obligation can also be expressed as a total dollar amount instead of a per-acre determination, although the chosen amount will be tied to an underlying assumption regarding the amount of acreage likely to be exercised. Be careful that any stated minimum monetary amounts are made subject to the same annual increase as the base rent obligation in the lease.

The minimum rent obligation also protects the landowner during a repowering event where solar equipment is replaced or upgraded while the lease continues in effect.[23] The reported lifespan and warranties for solar equipment are approximately twenty to twenty-five years,[24] while the typical lease term can run between thirty and fifty years when all extension terms are exercised. This means that at some point, most of the equipment on the premises will need to be replaced to facilitate further operation of the project. It is all but certain that solar technology will greatly advance over the coming decades, as will battery storage techniques employed by the industry.[25] It is therefore likely that an operator will be capable of producing the same amount of power in the

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[20] *See* Laura H. Burney, *The Interaction of the Division Order and the Lease Royalty Clause*, 28 ST. MARY'S L. J. 353, 361–64 (1997) (describing the tortured history of market value determination in Texas oil and gas legal jurisprudence).

[21] *See* ERCOT NODAL PROTOCOLS: ERCOT NODAL 101 at 29, available at http://www.ercot.com/content/wcm/training_courses/109518/Nodal_101.pdf (directing users to ERCOT's Market Information System (MIS) tool for day-ahead market settlement prices and real-time locational marginal pricing).

[22] *See id*. at 56–58 (depicting the ERCOT market as being divided into four separate regional hubs: North, West, South and Houston).

[23] *See* Kent Knutson, *Wind Farm Repowering and Decommissioning is Big Business*, ENERGY CENTRAL (Nov. 5, 2019), https://www.energycentral.com/c/cp/wind-farm-repowering-and-decommissioning-big-business (recognizing that advances in the efficiency and generating capacity of wind tower equipment may render facilities obsolete in as little as ten years following installation).

[24] *See* Tyler J. Formica, *The Effectiveness of Warranties in the Solar Photovoltaic and Automotive Industries*, UNIVERSITY OF MARYLAND GRADUATE SCHOOL OF SCIENCE (2017), https://drum.lib.umd.edu/handle/1903/19504 (explaining that solar panel warranties that extend for twenty-five years will be based upon diminishing power output over time, while inverter warranties will be significantly shorter in duration).

[25] *See Growth of Energy Storage Resources in the ERCOT Region*, ERCOT (Jan. 2019), http://www.ercot.com/content/wcm/lists/164134/Storage_One_Pager_FINAL.pdf (comparing the existing 89 MW of utility-scale battery resources to the 2,300 MW of proposed projects in the ERCOT queue at the end of 2018).

future using a much smaller footprint comprised of more efficient panels and equipment. If rent is only determined on an acreage basis that corresponds directly to the amount of land actually used for solar operations with no minimum required payment, this would greatly decrease the landowner's rental income if the facility is eventually downsized.

Another approach to minimum rent is to institute a component of the annual rental payment that is calculated according to the installed nameplate capacity of the solar equipment on the property, expressed in dollars per megawatt. This type of compensation is nearly universal in the wind power industry because the density of wind turbines per acre can be highly variable across a project area. While the same principle of uneven distribution may not apply to a field uniformly covered with solar panels, enforcement of the per-megawatt payment guards against the scenario above involving downsizing of the facility and increased efficiency of collection and storage equipment after a future repowering event.

The rent obligation within the lease can also be supplemented to encourage operation of the facility for as long as possible, so that landowner income can be maximized over the passage of time. It is a central feature of virtually every solar lease agreement that the lessee has the right to terminate and surrender the lease in its sole discretion at any point in time. However, this does not preclude the landowner from instituting a cancellation fee if the lease is terminated before a specified number of years have elapsed during the operations term. The lessee can be required to pay a sum equal to a defined number of years of future rent in order to discourage it from unilaterally electing to shut down the facility during a lease interval when it is reasonable to expect that the continued operation of the facility would remain profitable.

Finally, the landowner's compensation under the lease can be enhanced by the inclusion of a garden-variety "most favored nation" provision that guarantees the landowner will receive the highest rent rate, annual escalation percentage or share of gross revenue paid by the lessee. If the lessee entertains this type of protection for the landowner's interest, the parties must negotiate the proper geographic scope and duration of the guarantee. It may be limited to the contiguous or nearby project area, a radius of a number of miles from the boundaries of the property, or even the entire county where the project is located. The protection may last through the development period, until the commencement of commercial operations, or for the entire life of the lease. The landowner should also consider whether the improved terms will be applied prospectively upon the granting of the superior lease terms or if it will instead require delivery of additional true-up payments covering the elapsed portion of the landowner's lease term.

Despite the challenge of understanding solar facility operations and associated transactions, the rental and royalty obligations of a solar lease are a financial point of negotiation like any other lease term. A more creative formula or mechanism for calculating and allocating payments can be entertained, so long as the parties to the lease are in agreement. It is conceivable that future solar lease rental and royalty provisions will delve further into power purchase agreement prices, market rates and other matters that are not typically considered within today's standard lease forms. The same evolution occurred in similar industries as they matured and the associated contracts became more detailed and nuanced.[26] Nevertheless, it is expected that the basic rental determination procedures described above will continue to be the primary mechanisms used to compensate the landowner for participation in a solar project, just as the fractional royalty

[26] *See* Shannon Ferrell, *Understanding Solar Energy Agreements*, OKLA. STATE UNIV. DEPT. OF AGRIC. ECON. 5, https://nationalaglawcenter.org/wp-content/uploads/assets/articles/ferrell-solar.pdf (recognizing that "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").

rate under an oil and gas lease has remained the central means of payment throughout a century of change in that particular industry.

If the landowner prefers to realize the net present value of future lease income in a more immediate fashion, it is not uncommon for solar developers to purchase real estate in fee simple. The transaction is essentially the same as a sale of raw land for any other industrial purpose, although it will include the same option period and due diligence considerations that are applicable under a solar lease. Essentially, the developer will only be required to pay the full purchase price once it has decided to move forward with construction of the facility. Beyond basic concerns in any real estate transaction of this nature, it is important to remember that the conveyance should only extend to the surface estate of the property. The landowner is advised to reserve all oil, gas and other minerals associated with the tract sold, subject to the reservation of drill sites and other mineral development concerns noted later in this article. In addition, the landowner should consider the reservation of the groundwater estate so that commercial development of water can occur in the future—whether from reserved pad locations on the property or through the allocation of the reserved groundwater rights to water wells on surrounding lands that are retained by the seller or that are otherwise included within a common groundwater development project.

III. SECURITY, REMOVAL AND REMEDIATION

One of the more attractive features of solar development is that at the end of the life of the lease, the property will presumably be returned to the landowner in a condition suitable for continued agricultural and ranching activities or for residential, commercial or industrial development. The property will be "intact" in the sense that no physical resource has been mined or removed. In fact, the land will almost certainly be more valuable than it was at the inception of the lease, even for additional solar farm operations since the resource never requires replenishment. However, the lease must be drafted to specifically address the removal and remediation activities required of the operator so that future land use and value are protected. The solar lease should impose a reasonable timeline for the removal of all equipment, typically ranging between six to twelve months following termination or expiration. It is recommended that this obligation be made to apply to any partial release of acreage as well, so that reclamation is performed on an interim basis.

The removal obligation should address whether buried cables, concrete foundations and other footings will be removed and to what depth (typically between three to four feet below the surface). The extent of buried improvements necessary to support operations will depend upon the soil and subsurface characteristics of the property and the lessee's project engineering specifications. If any buried improvements are abandoned in place, the landowner should require the delivery of a survey or map depicting their location on the property. This will be helpful in avoiding interference with future agricultural operations (such as plowing and burial of water lines) or other subsurface activities. The lessee should be required to preserve topsoil during the burial and subsequent removal of all cables and improvements. This means double-ditching and segregating topsoil from subsoil, then replacing it in the same order as it was removed.

Reseeding of the property can be mandated where appropriate, using native grass seed varieties designated by the landowner, the National Resources Conservation Service (NRCS) or another local agricultural authority. The seed should be distributed at the recommended pure live seed rate (PLS) during a time of year when revegetation will be supported by climate conditions. Some landowners will have highly specific remediation preferences depending upon the nature of the

property and the activities conducted thereon. The landowner must also consider whether valuable vegetation will be removed to facilitate construction of the project, such as a stand of mature oak trees. If so, the landowner can request some means of immediate compensation upon clearing of the land or the lease could require the planting of replacement trees within its instituted remediation practices. This variety of compensation can also be structured in the same manner as a termination penalty under the lease, so that the lessee is only required to recompense the landowner for the value of the removed trees or other items of value if the lease is unilaterally terminated by the lessee during the initial years of the lease term.

The landowner can request the right to elect whether roads will be left in place or removed by the lessee following cessation of its operations, with the affected area restored as close to its former condition as practicable. The same option can extend to electric lines and other buildings or improvements constructed to support solar facilities that are no longer present. If the lessee has drilled a water well on the premises for its own use, the landowner will want the option to take ownership of the well or elect for its plugging and abandonment by the lessee. The lessee should be required to reasonably assist the landowner in any process necessary for transferring ownership of the well and associated permits.[27] For all of the above remediation practices, the solar lease can include an option for the landowner to perform the work itself or use a preferred contractor, with all costs to be reimbursed by the lessee within a defined period of time following receipt of an invoice detailing the accrued expenses.[28]

On the topic of rent, some solar leases will provide that rent payments continue at the normal rate during the prescribed period for removal and reclamation work. In other instances, no rent will be owed but the landowner can negotiate for holdover rent payments if restoration activities extend beyond the deadline under the lease. Holdover rent under the typical lease will be imposed at a rate slightly higher than the normal rent owed during the previous annual period of the lease, with such amounts prorated on a monthly or quarterly basis and payable in advance. Where payment obligations are imposed on the lessee during reclamation work or as a penalty for failure to remove equipment, be careful to emphasize that acceptance of these funds will not act to waive or delay the underlying removal and restoration obligations.

It must also be recognized that the solar lease will likely change hands many times over the course of several decades of operation. The entities and persons that negotiate the lease on both sides may no longer exist or be alive when termination and remediation activities occur. A high degree of uncertainty exists with respect to the circumstances that will be in place at that time and the landowner must negotiate the lease terms accordingly. Under a number of conceivable scenarios, termination could result because the lessee is insolvent or bankrupt. It could also take place after the solar equipment has lost all salvage value or usefulness, whether because of age or damages incurred following an event of force majeure. The energy industry may evolve to the point that the installed facilities are no longer desirable or profitable to operate, even when they remain fully functional.

In recognition of the foregoing possibilities and the unpredictable range of outcomes involved, the solar lease must include a requirement for the posting of a reclamation bond or security

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[27] *See* TEX. WATER CODE § 36.117(b)(1) (describing the statutory exemption from permitting requirements provided for water wells used for domestic purposes, livestock and poultry, so long as such use does not exceed 25,000 gallons per day). However, if the landowner desires to use the transferred water well for irrigation purposes or the sale of water to third parties, it will likely require a permit from a local groundwater conservation district.

[28] For a detailed discussion of additional topics related to surface use agreements and recommended remediation practices, see Joseph B.C. Fitzsimons & F. Parks Brown, *Surface Use Negotiations from the Landowner's Perspective*, 54 ROCKY MTN. MIN. L. FDN. 285–332 (2017).

covering the cost of the removal and remediation obligations imposed on the lessee. This should be a non-negotiable issue for the landowner, although not all lease forms included in an initial offer from a solar lessee will contain a bonding obligation. While rental and royalty compensation are often the primary focus of landowners when negotiating a solar lease, it must be emphasized that bonding protection should lead all other landowner considerations during initial negotiations.

It should also be noted that no statutory bonding obligation for solar facilities exists under Texas law at this time. The most recent session of the Texas Legislature resulted in passage of a bonding requirement for wind farms following the tenth year of active operations.[29] However, this statute only applies prospectively and will not apply to operations under wind leases that predate the statute.[30] Presumably, a similar statute will one day be applied to solar farms. But even a governmental bond may fail to sufficiently secure or finance full cleanup of the property. The hypothetical statute may not address remediation practices at all, focusing only on the basic removal of the solar facilities. For this reason, the landowner must seek specific contractual protections regardless of anticipated changes in the applicable law. Further, the lease can address any future governmental requirement by expressly stating that the bonding obligations of the solar lease will not be modified or abrogated by a government bond except to the extent that the governmental bonding requirements exceed those already imposed by the lease.

Although many landowners express concern regarding any delay in the posting of security, it would be rare for termination of solar operations to occur during the initial years of the lease operations term. The developer and its lenders will invest millions of dollars in construction of the facility under an assumption that operation of associated equipment will remain profitable for many years to come. The first power purchase agreements related to electricity generated by the facility may extend up to a decade or longer in duration, locking in the buyer and further decreasing the odds that a facility will be abandoned soon after it commences operations. Even if the operator becomes insolvent, files for bankruptcy or disappears altogether, presumably the lender, bankruptcy receiver or another entity will be highly motivated to step in and operate a profitable "turnkey" facility. Each solar lease form typically contains several pages addressing the rights of the lender or mortgagee to take possession of the facility in these circumstances so that operations can continue with minimal interruption.

However, there will come a time when the existing equipment is no longer considered attractive in comparison to newer solar and battery technology, and the project may no longer be as appealing to a substitute operator. By the tenth year of the lease operations term, it is strongly encouraged for the lease to require posting of a bond or other acceptable form of security covering the anticipated net cost of removal and remediation. This amount of security can be manifested in the form of a bond, letter of credit or other method acceptable to the landowner, with evidence of the existence of the security provided upon request. The lease can specify minimum credit ratings for the investment grade security, with required transfer if a holder loses its creditworthiness.[31] An appraisal of the required amount of security should be performed by an independent expert that is reasonably acceptable to both parties, or otherwise appointed by a county judge or an impartial authority if the parties cannot come to an agreement.

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[29] *See* TEX. UTIL. CODE ANN. § 301.0004 (requiring the posting of financial assurance covering the appraised net cost of removal of wind towers and related equipment from wind farm properties located in Texas).

[30] *See id.* (providing that the bonding provision passed in 2019 applies only to wind leases with an effective date after the date of the legislative act).

[31] Long-term bond credit ratings are usually indexed from *Moody's Investor Service* or *Standard & Poors*.

The amount of the bond is typically calculated as the net difference between the salvage value of the equipment and the estimated cost of its removal from the property. Under the foregoing method, this net bonding amount could be less than zero if the equipment is still new and would be valuable if salvaged. This is another reason to discount the necessity for a bond during the initial years of the lease. The net value calculation also means that the proper size of the bond will increase over the life of the lease. In recognition of this fact, the lease should mandate that the net removal cost be reappraised every few years and the security amount replenished so that it reflects the current balance of the net removal and restoration cost. Finally, it should be recognized that the landowner will be permitted to take possession of the bond and perform the restoration work on its own if the operator fails to conduct all removal work within the required timeframe specified in the lease.

IV. EASEMENTS, INTERFERENCE AND RETAINED RIGHTS

Outside of the basic financial terms of the solar lease agreement, special consideration must also be given to the scope of the rights and obligations of the parties with respect to the land and towards one another. In particular, the landowner will want to hem in the scope of easement and leasehold rights conveyed to the operator under the solar lease. The operator of a solar facility must necessarily be granted access over and across the leased premises to perform its operations. Within the solar lessee's perimeter fence, this is to be expected. However, most industry lease forms also include a right to cross any surrounding lands belonging to the landowner and to use all access easement rights held by the lessor on outside lands. For larger ranching and farming properties, these broad access rights could result in ingress and egress across portions of the ranch that were never intended to be impacted by solar lease operations. It could also result in a greatly increased burden on access easements held by the landowner across neighboring lands, perhaps beyond their intended scope.[32]

The lessee's standard lease form will request similar easement rights to place transmission and utility lines across the landowner's surrounding acreage at locations selected by the operator or third-party transmission companies. Regarding both road access and the placement of electric lines on surrounding acreage, the landowner should make every effort to have the path or general location of these routes designated prior to execution of the lease. If the operator's logistics require some flexibility in planning, then the lease agreement should at least contain a specified procedure for the parties to mutually select these routes in good faith using commercially reasonable standards. It is only fair that access easement rights should consider both the operator's needs in conducting its lease operations as well as the landowner's existing and planned surface use of the same areas. If the landowner is careless in its negotiation of the lease, the expansive scope of easement rights granted to the lessee could abrogate even the limited protections available under the accommodation doctrine.[33] When considering that transmission easements and substation

[32] *See, e.g.*, Severance v. Patterson, 370 S.W.3d 705, 721 (Tex. 2012) (noting that an easement "implies a grant of unlimited reasonable use such as is reasonably necessary and convenient and as little burdensome as possible to the servient owner"); Marcus Cable Assocs., L.P. v. Krohn, 90 S.W.3d 697, 701 (Tex. 2002) ("Nothing passes by implication 'except what is reasonably necessary' to fairly enjoy the rights expressly granted."). It is an open question whether use of an access easement road to support heavy traffic associated with construction of a facility would be considered reasonable. The answer may depend upon the express terms of the underlying easement grant.

[33] *See* Landreth v. Melendez, 948 S.W.2d 76, 81 (Tex. App.—Amarillo 1997, no writ) (finding express language in the agreement superseded consideration of the accommodation doctrine, even when the language employed was similar to the tenets of the accommodation doctrine).

locations may need to be conveyed in perpetuity to third-party transmission line operators that are not subject to the solar lease's terms, the landowner should be concerned that such facilities will outlive the solar lease and may interfere with use of the land for other purposes following lease termination.

Another basic component of each solar lease is an easement in favor of the lessee for the collection of the resource covered by the agreement. For solar operations, the easement relates to the right of unimpeded gathering of solar radiation from the airspace above the property (described as "insolation").[34] This easement right is considered non-negotiable and represents a core element of the lessee's motivation for taking a lease in the first place, so it should be expected to remain unrestricted within the final version of the lease contract.

Nevertheless, an inquiry should be made into how these easement rights will be interpreted in connection with the landowner's ongoing use of the property and surrounding acreage. The landowner will be asked to accept a corresponding covenant of non-interference that creates an obligation to refrain from any activity that could interfere with the collection of solar radiation. The pertinent question is what degree of interference will trigger the obligation. The lease agreement may spell out certain types of interference that are specifically forbidden, such as the planting of large trees or the erection of tall structures near the project area. Other lease forms instead focus on any object that casts a shadow on the facility during specified hours or that has a materially adverse effect upon the collection of sunlight. But the basic industry lease form arguably gives the lessee the right in its sole discretion to determine what constitutes "interference" or even *potential* interference, unless the parties to the lease further address how these types of conflicts will be resolved.

For example, consider an agricultural property where crop dusting must be performed on a periodic basis to support the landowner's preexisting agricultural activities on surrounding acreage. Will these operations be tolerated in the immediate area of solar panels or is the landowner obligated to cease these activities pursuant to the covenant of non-interference in the lease? If crop dusting will be tolerated, what will be the procedure for providing notice to the operator and determining the intervals of permitted activity by the landowner? Will the landowner have the ability to conduct prescribed burns on its adjacent lands, or has this right been implicitly forfeited by the covenants contained within the solar lease? Which party will be obligated to control potential encroachment by vegetation in designated buffer areas surrounding the leased premises? Can hunting activities continue in an uninterrupted manner in areas surrounding the solar facility? The above are all questions worth asking during the negotiation of the lease agreement. If a procedure for resolution of these issues is not clearly addressed within the lease agreement, conflict and litigation could ensue at a later date.

The landowner must also consider how solar collection easements and covenants of non-interference will relate to third parties, both on and off the premises. What if interference with the solar project results from dust created by oil and gas operations conducted under a preexisting mineral lease burdening the landowner's adjacent property? If the landowner holds no mineral rights and is not a party to the oil and gas lease, it may not have the ability to control the interference by the oil and gas lessee—even though it has effectively promised to do so by virtue of the terms in the solar lease.

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[34] *See* Ernest E. Smith, et al., *Everything Under the Sun: A Guide to Siting Solar in the Lone Star State*, 12 TEX. J. OIL, GAS AND ENERGY L. 41, 46 (identifying insolation as solar radiation "falling on a ground-based horizontal surface").

Unless the lease provides otherwise, the landowner may find itself obligated to expend valuable time and resources curtailing interference by third parties that are not under the landowner's reasonable control. This could include a neighbor who constructs a billboard or plants an orchard on nearby acreage that partially blocks or otherwise diminishes the sunlight collected by solar panels on the landowner's property. If the landowner has promised to prevent all potential interference with the solar lessee's collection easement without further qualification, does this obligate the landowner to take steps with respect to outside lands or parties not under its control? The lease agreement should be drafted to clearly define interference, including what types of interference must be addressed by the landowner or will be left for the operator to resolve on its own or with the landowner's reasonable assistance.

On the other side of the equation, the solar lease will contain a corresponding section addressing the reserved rights of the lessor with respect to the property. The landowner's counsel must pay special attention to the scope of these rights in order to preserve the landowner's existing and planned uses of its surrounding acreage. If the solar facilities are located within geographically distinct areas or only encompass a portion of the landowner's property, the parties may encounter a large degree of shared use of roads or other areas of the property that must be anticipated within the lease agreement. Failure to address interaction between the solar lessee's rights and the reserved rights of the landowner will create the potential for conflict. The lease must also contemplate shared usage of roads, entrances and other facilities by the landowner, the solar lessee, surface tenants and oil and gas operators. In particular, the solar lessee should have an obligation to coordinate road maintenance activities with existing users and future lessees, tenants and easement holders. Additional concerns about shared use will spill over into the indemnity and insurance obligations of the lessee, which are addressed below.

V. MINERAL AND GROUNDWATER DEVELOPMENT ISSUES

Conversations about surface use and energy development in Texas have traditionally focused on the interplay between the landowner and the oil and gas operator.[35] But the growing presence of solar operations has further complicated the balance of competing rights. Landowners and practitioners must be made aware of how the expansive surface use rights granted to the solar lessee will interact with other property rights of the landowner, mineral lessees and other entities that already hold or later obtain rights to use the surface estate of the same lands. The solar lease must incorporate provisions that anticipate and address the potential for future exercise of mineral development rights by the landowner and third parties not under its control. Unfortunately, this type of material is seldom presented in a comprehensive and coherent format within the solar lease form, or when included it fails to address the situation in a manner that aligns with applicable legal concepts under Texas law.

With respect to mineral rights, the solar lessee should obtain information on the ownership of oil, gas and other minerals prior to execution of the lease so that potential issues can be

[35] *See, e.g.*, Plainsman Trading Co. v. Crews, 898 S.W.2d 786, 788 (Tex. 1995) (judging the mineral estate to be dominant over the surface estate and to include a right to reasonable use of the surface estate for development and production operations); Stradley v. Magnolia Petroleum Co., 155 S.W.2d 649, 651 (Tex. Civ. App.—Amarillo 1941, writ ref'd) (determining that the owner of the mineral estate has the right to any part of the surface estate necessary to produce the minerals from the same property). *See generally* Matthew J. Salzman & Aaron K. Friess, *Shotguns, Locked Gates and Indignation: Litigating Temporary Restraining Orders and Injunctive Relief in Surface Use Disputes*, 54 ROCKY MT. MIN. L. FOUNDATION J. 257 (2017) (discussing disputes and remedies of the parties with regard to reasonable use of the surface estate of oil and gas activities under an oil and gas lease).

evaluated. Preferably, the lessee will obtain a title abstract or other mineral ownership report from an experienced landman or mineral title attorney. The reasons for this are obvious, but solar companies—particularly those not familiar with oil and gas law in Texas—often fail to recognize the potential for interference presented by severed mineral owners that are not a party to the solar lease or a corresponding subordination agreement or surface waiver.[36] If these investigations are left to the development period following lease execution, the developer may find itself subject to extortion by mineral owners or oil and gas companies demanding excessive compensation in return for a subordination agreement. Because Texas law remains unclear in this respect, the developer may also have trouble convincing its lenders or the title insurer to allow the project to proceed.

Typically, the lessee will request a surface waiver from the landowner covering mineral development activities, or at least an enforceable covenant preventing interference with its operations. These obligations and covenants are an integral part of the solar lease. But these protections will be ineffective if an oil and gas operator already holds rights to extract minerals using the surface estate of the same property under an existing oil and gas lease. Where the landowner owns an interest in the mineral estate beneath the property that it may want to exploit at a future date, the reserved rights section within the solar lease should also address the retention of the right to explore the mineral estate through horizontal or directional drilling below a specified subsurface depth from wellheads on outside drilling locations—as well as through traditional pooling with other oil and gas leases on surrounding acreage.

Solar farms increasingly consume large amounts of contiguous acreage that could preclude the ability to fully develop the mineral estate beneath a tract.[37] This trend is particularly concerning for mineral owners in areas where vertical drilling is still the preferred method for development of the mineral estate.[38] In situations where several thousand acres will be covered by solar panels, the landowner and lessee should consider designating reserved areas for future drill sites and have them surveyed and depicted in an exhibit attached to the lease form. Corridor areas should also be reserved to allow for the construction of access roads, electric lines and pipelines to reach each drill site. If the landowner owns any mineral interest and makes the recommended designations, this will provide the benefit of securing room for potential development of the oil and gas resources in a manner that does not interfere with solar operations. Even if the landowner owns no mineral interest in the property, designation of sites may help to insulate from claims brought by severed mineral owners who assert that solar development has curtailed their ability to develop the mineral estate. It remains an unsettled issue as to what degree of accommodation must be extended by the solar developer to owners of severed interest in the mineral estate, so this will be a topic of

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[36] *See* Christopher Kulander, *Surface Damages, Site-Remediation and Well Bonding in Wyoming—Results and Analysis of Recent Regulations*, 9 WYO. L. REV. 413, 415 (2009) (recognizing that the owners of the mineral estate and the surface estate are often completely distinct and "may be completely unknown to one another").

[37] *See* GENERATOR INTERCONNECTION STATUS (GIS) REPORT, ERCOT (March 2019), *available at* http://www.ercot.com/gridinfo/resource (reporting on several recently proposed solar projects that would each consume thousands of acres of land and produce hundreds of megawatts of electricity).

[38] *See* H. Phillip Whitworth and D. Davin McGinnis, *Square Pegs, Round Holes: The Application and Evolution of Traditional Legal and Regulatory Concepts for Horizontal Wells*, 7 TEX. J. OIL, GAS & ENERGY L. 177, 179 (2011) ("[A] horizontal well can be exposed to the formation for several thousand feet, limited only by the length of the horizontal wellbore. In tight formations, this extended contact with the reservoir is critical and enables operators to recover many times more hydrocarbons than would be possible from a vertical well."). Horizontal drilling has the cumulative effect of utilizing a much smaller footprint than traditional vertical drilling patters, which could require one or more well pad sites for each forty-acre spacing unit. This type of well density pattern would be highly disruptive for a utility-scale solar facility.

particular interest to practitioners as state courts address the issue in coming years.[39] The answer may depend upon a geological assessment of the value of the mineral deposits, the status of oil and gas leasehold on the property and any existing plans for mineral development.

In connection with drill site designations, the solar lessee must remember to investigate whether the landowner holds enough mineral ownership to bind future mineral lessees to these restrictions. If the landowner owns no mineral interest or a small percentage share of the mineral estate, then promises made regarding designated mineral development locations may prove ineffective to prevent interference by other mineral owners and their lessees. Likewise, if there is an existing mineral lease on the property, the appropriate negotiating partner for the solar developer is the mineral lessee, not the landowner. If mineral subordination agreements, drill site designations or surface waivers will be sought by the solar developer, the lease should only require that the landowner reasonably cooperate with these efforts at no out-of-pocket expense to the landowner.

Many of the concerns detailed above will also apply to the groundwater resources on the property, to the extent that the landowner wishes to use groundwater rights associated with the property for future development. Solar developers will be increasingly likely to investigate potential subordination of severed groundwater estate holders as a part of the initial due diligence process. If the landowner intends to reserve certain areas under the solar lease for its own future water wells and commercial groundwater development, its counsel will need to investigate applicable groundwater district regulations with respect to severance of groundwater rights and the maximum amount of allocable groundwater production per acre in the district, to ensure that the future development potential for both solar and groundwater resources on the property is maximized. The balance of acreage reserved for or devoted to each activity (solar, oil and gas, groundwater) will be dependent upon an assessment of the highest and best use of the particular resources appurtenant to each individual property.

The base lease form offered by the solar lessee will almost certainly request the right to drill new water wells and use existing water wells in the course of the lessee's operations, with no corresponding compensation paid to the landowner. This issue can be approached in the same manner as in modern oil and gas leases and surface use agreements. The landowner should be compensated at a specified rate for each barrel of water produced from the water well by the lessee, with further provisions inserted governing metering, maintenance, liability and the required procedure for drilling of new wells. Upon the cessation of lessee's use of any well that it drills, the well and all appurtenant and down-hole equipment should be left in place and transferred to the landowner. In the alternative, the landowner should be allowed to elect for plugging of the well in accordance with applicable regulations.

If the solar developer will require caliche, gravel or related materials for the construction of its roads or other activities during initial construction and maintenance of the facility, the landowner can request to be the sole provider of such materials for the property or the larger project area. Compensation is typically determined upon measurement of the cubic yardage of materials removed and the lease can require closure and remediation of the pit area upon cessation of use. If the developer needs more flexibility, the parties can negotiate a procedure whereby the landowner is permitted to participate in bidding on contracts for providing materials or related labor to the

[39] *See* Lyle v. Midway Solar, LLC, No. 08-19-00216-CV (Tex. App.—El Paso, Dec. 3, 2019, pet. filed) (considering whether solar development of a large amount of contiguous acreage in Pecos County constituted trespass and breach of contract against owners of unleased severed mineral interest, and whether the accommodation doctrine applies to the facts of the case).

developer. If the landowner's bid is equal to or within a specified percentage of other bids, it can request to be designated as the preferred contractor. However, solar developers are reluctant to accept a binding obligation to purchase materials or otherwise involve the landowner's personnel or preferred contractors in any element of the construction process. It is assumed that the complexity and expense of the solar facilities may preclude participation by the landowner in this respect.

VI. LEASE MODIFICATION AND TERMINATION

When a lessee is granted leasehold rights to enter upon real property and use the land for its own benefit, the landowner is often wary of any unrestricted ability to assign and subdivide these rights among successors, assigns and sublessees. For this reason and others, landowners may desire a right of prior consent to an assignment or transfer made by the lessee, whether that consent is within its sole discretion or instead cannot be unreasonably withheld, conditioned or delayed. Oil and gas leases, pipeline easement agreements and related energy industry contracts often contain this type of requirement in the document's assignment provision so that the landowner maintains some degree of control over the quality and quantity of the parties claiming rights under the lease or easement agreement.

However, solar lessees and their lenders often find this consent requirement unacceptable and it seems to be one of the more objectionable requests that can be made by a landowner in this type of transaction. While an exception might be granted to a landowner that contributes a large amount of acreage to the project or otherwise holds a high degree of leverage in negotiations, most developers require as much flexibility as possible in selling or transferring the project to a potential purchaser or successor in interest. Intuition suggests that this point of view results from the massive amount of initial investment in the project that is recouped over a lengthy period of time. Any lease provision that appears to be an unreasonable restraint upon alienation or that could hold up future financing arrangements and continued operation of the facilities is therefore viewed with much skepticism by developers, lenders and investors in the project.

This skepticism is understandable under the circumstances, and the landowner must focus on potential compromises concerning assignment restrictions that aim at satisfying its most important concerns. It is acceptable for the lessee to make assignments of non-operating interest in the leasehold at any time for the purposes of financing its project. If the landowner is requesting some degree of consent to assignment, it arguably should be restricted to assignments of operating rights made to non-affiliated parties. As an alternative, the assignment of operating rights without the landowner's consent can be restricted to assignees possessing a range of specified characteristics. The lease can incorporate descriptions of these qualifications as they relate to prior operational experience, net worth in relation to the assignor (or as a described monetary amount), or simply the demonstrable ability to fulfill the lease obligations, including, most importantly, the ability to fulfill the bonding, removal and remediation requirements under the lease. This information would preferably be provided to the landowner prior to the date of assignment so that the assignee can be evaluated, and an objection can be filed if warranted. As a final point, no assignment should be permitted if the lessee remains in default under any payment obligation pursuant to the lease. The foregoing rules and qualifications can be applied to any sublease of rights created by the lessee, or even a subdivision of the lease if a transfer of operatorship to an unaffiliated party will take place.

In assembling its leasehold in a potential project area, the solar developer will behave like an oil and gas company staking out territory for a new play. As a precautionary measure, it will typically seek to tie up as much acreage as possible so that it is able to maximize generation of electricity if the desired amount of funding and transmission capacity prove available. Because each solar lease is at first only an option agreement, gaining control of several thousand acres will be comparatively inexpensive next to the eventual operating term payments and construction costs. Landowners are often willing to offer up a large amount of acreage in an effort to increase their own revenue stream from rent. Despite this initial congruence of interests, friction can develop when the lessee eventually creates its formal site plan and portions of a landowner's tract fail to make the cut and are released.

To a degree, this outcome can be discouraged through the incorporation of a minimum rent provision in the manner discussed earlier in this article. The provisions of the lease governing site selection and release of acreage can supplement this effort by addressing the selection and orientation of released tracts. First, an assessment should be made of areas on the property where solar development will be precluded. This could mean floodplain, steep terrain, previously granted easement areas for pipelines and electric lines, or simply portions of the property where the landowner has an insufficient degree of mineral ownership to prevent potential interference with contemplated solar operations. If the property neatly divides itself into separate parcels, the landowner may consider whether each parcel must be exercised by the lessee in an "all or none" fashion. Creating this type of "takedown" scenario with separate parcels can prevent the partial usage of areas of the property where the landowner would prefer them to be released in their entirety.

Any released tracts should also be accessible and of a size and orientation such that they will be useful to the landowner. The goal is to avoid "stranded" tracts that are either impossible to reach or so small or narrow that they cannot be reasonably enjoyed by the landowner. If the released tracts consist of acreage that is unusable or inaccessible by the landowner, the landowner should request that a reduced rent requirement be owed on that acreage since neither party can productively use it as a result of the solar development on surrounding lands. This issue is likely to arise on properties containing terrain prone to flash flooding along dry creeks and other floodplain acreage, which may not even be useful for hunting or grazing activities following a release of isolated or narrow portions of the leased premises.

While the lessee will expect sole discretion on decisions concerning site design and the selection of tracts to be released from the leased premises prior to construction, once the project commences commercial operations its focus will shift to preservation of its leasehold on developed acreage. As previously mentioned, the construction of a utility-scale solar facility may require hundreds of millions of dollars in investment. These investments will be recouped over a long period of time, given that most solar panels, inverters and related equipment have warranties and an anticipated lifespan of approximately twenty to twenty-five years. It follows that lenders and other investors are unwilling to hand over large sums of cash for development unless the lease provides a high degree of security against unwanted termination of the leasehold interest.

This same general outlook is reinforced by examining the onerous default, cure and termination provisions within every lease form. Virtually all solar leases will also contain several pages of "lender terms" that serve as minimum requirements made by the financing party. With respect to the primary-level relationship between the landowner and the lessee, it will first be made clear that termination of the lease will only result from a monetary default for failure to deliver rent or other required payments. The landowner will probably never have the right to terminate the

lease for incidents related to property damage, failure to abide by prescribed surface use procedures, or the lessee's breach of lease obligations that do not involve nonpayment to the landowner. This is another consequence of the degree of initial investment made in the facilities, but the landowner will still be permitted to seek monetary damages or other appropriate remedies from a court of law—unless these rights are otherwise curtailed by the lease.

When a monetary default occurs, the lease will impose a cure period during which the missed payment must be delivered to the landowner. The cure period may be automatically initiated following expiration of the payment due date, or it will instead require written notice delivered to the lessee and all lenders holding an interest in the solar facilities. Beyond the initial cure period, the lenders will likely be granted an extended cure period in order to make the payment on behalf of the delinquent lessee and maintain the leasehold. Even if both cure periods elapse and the lease effectively terminates, the lenders will have another grace period of up to several months to contact the landowner and request a replacement lease that will cover the remaining term of the prior lease—which the landowner is obligated to execute upon demand.

When the foregoing sequence of events and potential outcomes is explained to a landowner by its counsel, the client can be forgiven for judging this web of restrictions to constitute an unreasonable restriction upon its ability to terminate the lease following nonpayment of rent for an extended period of time. But experience in negotiations has demonstrated that lenders and developers view this sequence of procedures as a non-negotiable element of the lease form. What is important for the landowner to understand is that as long as the facility remains functional and potentially profitable, there will almost certainly be some entity—whether lessee, lender, mortgagee or an appointed replacement—that will be willing to step in and resume operations following a payment default that usually portends the bankruptcy, dissolution or disappearance of an operating lessee from the project. Furthermore, this outcome is ultimately to the advantage of the landowner because it should result in the cure of existing payment defaults and the resumption of timely payments of operating rent.

When negotiating lender terms and related default and cure provisions on behalf of the landowner, it is still possible to tighten up deadlines in order to move the process along in an efficient manner. The landowner should make every effort to ensure that no matter what outcome, any resumption of operations or takeover of the leasehold by a successor third party following a payment default must include the cure of the default as a condition of continued operation of the facilities. This means the payment of all delinquent rent owed plus accrued interest at a rate defined in the lease form. It may also be pertinent to address liability concerns during periods between the expiration of the old lease and the resumption of operations under a new lease. There may be an interim period of time where multiple parties—including lenders, contractors, receivers, agents and successor operators—require access to the property, and the landowner should request prior notice and written evidence of each party's authority to access the solar facilities before entry is permitted.

On the subject of bankruptcy, the imposition of a stay order by the court upon the solar facilities and other assets of an operating entity can be expected to delay compliance with some lease obligations and will forestall termination in most situations. When faced with an operator bankruptcy, the landowner will need the advice of specialized bankruptcy counsel and should consider filing proof of its claims for monetary amounts owed. It may be possible to have the bankruptcy receiver or other responsible party affirm or reject the solar lease so that the landowner can move forward with termination (or the resumption of operations) while bankruptcy proceedings continue. The bankruptcy court may also appoint a successor or substitute operator to

continue operations at the facilities in order to maintain the revenue stream and satisfy lenders, creditors and the royalty obligations of the lessee. From the landowner's perspective, the most important point with respect to the bankruptcy process (or any other assumption of the leasehold by a third party) is simple. As long as all monetary defaults are cured and rent continues to be paid in a timely manner, the landowner should generally allow the lessees, lenders, receivers and successor entities to maintain their collective leasehold while any ownership or financial disputes are worked out between them.

Similar delays in lease operations and payment obligations can result from an event of force majeure that affects the project. Treatment of the force majeure provision in a solar lease will be on par with similar provisions in other leases involving real property and energy development. Carefully consider the scope of potential causes that will qualify as force majeure and make sure that the affected party is required to provide written notice of the event within a specified time following its occurrence. The landowner may also want to institute a maximum duration for any force majeure delay, regardless of whether the cause is alleviated. The lessee must act with diligence to attempt to remove the impediment and restore its ability to operate the facilities throughout any such period. The applicable lease provision can even exempt the payment of rent from the excused lease obligations, meaning that royalty payments will continue even while operation of the solar facilities remains suspended.

VII. LIABILITY AND DAMAGE CONCERNS

In contrast to usual arrangements under an oil and gas lease or wind lease, the solar lessee's operations will be conducted behind a locked gate and there will be less opportunity for areas of shared activity by the landowner, the lessee and other surface tenants on the property. For this reason, the liability and damage concerns of the landowner may be somewhat attenuated in comparison with other types of lease agreements. Following this same logic, many solar developers will present a lease form containing limited damage, surface use and liability provisions. However, just because the parties are separated by a fence does not mean that the landowner should cast aside its usual range of concerns.

First, consider that the lessee will need the absolute right to remove structures, improvements, trees, fences and all other impediments to its operations from the portion of the property that will contain the panels and other project facilities. This will also include the right to level the surface and recontour the operations area to its specifications. As a result, when these types of actions are taken within the operations area to prepare for construction of the solar facilities, they will not be considered as compensable damages under the lease unless the landowner specifically requests otherwise. But if these damages occur during due diligence operations and surveys conducted during the development period and the lease option is never exercised, then the lease should include a damage provision requiring the restoration of the property to its former condition in this circumstance.

When the facility is constructed, the lessee should accept a general obligation to construct its facilities using erosion control devices, terraces and detention ponds to the degree necessary to control storm water and erosion, whether occurring within the facility or on surrounding lands. This can include reference to the institution of a Stormwater Pollution Prevention Plan (SWPPP) during construction in the same manner required for sediment and erosion control on other construction sites. Presumably, the clearing of hundreds or thousands of acres of land will have a noticeable effect upon the drainage pattern and flooding potential in the nearby area. If erosion

causes damage to the landowner's surrounding lands, restoration to its former condition should be required by a general damage and restoration obligation of a type that would typically appear in a surface use agreement. This general obligation should extend to any other incidents that stem from the operation of the facility and cause damage to the landowner's surrounding lands. If any third-party claims are brought against the landowner for property damage to neighboring lands resulting from the lessee's operations, this subject can be addressed within the indemnity provisions of the lease.

There are certain categories of interference that the lessee will expect the landowner to accept without complaint. Often referred to as "project effects", these include flicker, glare, noise or electromagnetic signals that emanate from the facility and might otherwise be considered a nuisance.[40] These effects will be carved out as an exception from the damage and liability obligations of the lessee in order to permit operation of the facility. But a landowner should always be wary of preemptively waiving its legal remedies, regardless of the subject matter of the agreement. It should be considered whether all project effects should be indisputably accepted, or if certain limitations can be placed upon the waiver to make it more palatable for the landowner. What if the facility is operated in a negligent manner such that an effect of the project becomes a threat to safety or health of persons on the surrounding land? Should the landowner be required to waive its remedies if the unwanted project effect results from a failure to operate the facility in accordance with applicable laws and regulations? In these instances and other defined exceptions to the waiver, the landowner should have the right to protect itself through legal action.

Returning to the topic of shared use of land by the parties, negotiation of the solar lease will be greatly simplified where the transaction involves a piece of raw land that will be entirely consumed by the lessee's facilities. As long as a few basic rules are being followed by the lessee and its agents, the landowner may have little care with respect to how operations are conducted behind the fence. Even in this situation, the lease should include a set of baseline "ranch rules" that prevent uncivilized conduct on the landowner's property. The typical range of concerns covers trash collection and removal, speed limits for vehicles and prohibitions on hunting, fishing, firearms, drugs, alcohol and other activities and paraphernalia that have no place on the leased premises. The landowner may also want to define certain categories of persons that may not be present on the leased premises, such as minors, guests, invitees and persons participating in educational or training exercises.

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[40] Plaintiffs attempting to recover for surface damages based on a nuisance theory must prove there is "a condition or conduct that substantially interferes with the use and enjoyment of land by causing unreasonable discomfort or annoyance to persons of ordinary sensibilities attempting to use or enjoy it." *Walton v. Phillips Petroleum Co*., 65 S.W.3d 262, 270 (Tex. App.—El Paso 2001, no pet.). "[A] condition that causes aesthetic changes to the view, scenery, landscape, or beauty of an area is not a nuisance." *Rankin v. FPL Energy, LLC*, 266 S.W.3d 506, 508 n.3 (Tex. App.—Eastland 2008, pet. denied). A nuisance may arise by causing physical harm to (1) property, such as "by the encroachment of a damaging substance or by the property's destruction," or (2) a person on his property from an assault on his senses or by other personal injury. *Walton*, 65 S.W.3d at 270. Further, to support an actionable nuisance claim, the plaintiff must show that the defendant engaged in one of three kinds of activity: (1) intentional invasion of another's interests; (2) negligent invasion of another's interests; or (3) other conduct, culpable because abnormal and out of place in its surroundings, that invades another's interests. When the invasion is intentional, liability depends upon whether the invasion was unreasonable. An invasion is considered intentional when the defendant acts with the purpose of causing the invasion, or knows it will result—or is substantially certain to result—from his conduct. *City of Houston v. Renault, Inc*., 431 S.W.2d 322, 325 (Tex. 1968) (citing Restatement (Second) of Torts § 833 (1979)).

The subject of road construction and maintenance will require some deliberation when putting together the lease form. Once again, the lessee will expect minimal interference with its project design on the areas of the property containing its solar facilities. While the landowner should request the ability to determine whether roads must be removed in connection with termination of the lease, it may have little concern with specifications for installation and upkeep of roads within the facility area that are solely used by the lessee. However, there is always a chance that the lessee and its contractors will require vehicular access across unused or unleased areas of the surrounding property belonging to the landowner. In this circumstance, the lease form should include the type of detailed road provisions normally found in surface use agreements used in mineral development and wind lease operations, designating the width of roads, preferred construction materials and methods, and the requirements for repair and maintenance by parties that share use of the access road.

The solar lease can also address liability by including comprehensive insurance requirements for the lessee's policies, including not only general commercial liability but also workman's compensation and automobile coverage. These can be backed up by an umbrella policy of appropriate size. These matters are of even greater concern when contractors and employees of the solar lessee will be crossing the landowner's surrounding property and sharing use of roads with the landowner and its tenants. Where appropriate, the landowner can be named as an additional insured party on the required policies and presented with a certificate of coverage by the lessee. If policy amounts are described within the lease form, consider that the lease term may run for half a century before it ends. It is assumed that whatever designated policy limit is mandated, it will eventually be worth only a fraction of the coverage that it amounted to when the lease was executed. Consequently, the policies should require periodic revision to adopt industry-standard coverage at that time.

The author lacks specific knowledge concerning the types of potentially hazardous materials that might be normally contained in solar panels and electrical gathering and battery storage facilities, or the degree to which certain fuels, solvents and chemical solutions might be required for the maintenance or repair of the system once in place. But the operational easements granted to the lessee under the solar lease encompass a wide field of potential uses in support of the solar farm and could include new technologies, materials and substances that are developed several decades in the future. Regardless of the known or expected potential for contamination, the solar lease should include extensive hazardous materials and environmental liability provisions as a standard practice that applies to all types of leases of real property for energy production. The lessee must accept full responsibility for compliance with all applicable laws and regulations with respect to usage, storage and removal of hazardous substances. If a release occurs or the property is in some manner contaminated as a result of the lessee's activities, notice must be promptly provided to the landowner and the lessee should restore the property to its former condition—regardless of whether the cost of restoration exceeds the fair market value of the affected portion of the property.[41] Liability for third-party claims related to hazardous materials and any violation of applicable environmental laws should also be specifically addressed within the scope of indemnification coverage provided to the landowner.

Solar developers will approach the subject of indemnity somewhat differently than most landowners expect. In Texas, landowners are unaccustomed to providing indemnity coverage to

[41] *See* Primrose Operating Co. v. Senn, 161 S.W.3d 258, 263 (Tex. 2005) (refusing to award a landowner more than the diminution in fair market value of the property in order to clean up extensive spill damages caused by an oil and gas operator).

oil and gas lessees, pipeline operators and other entities that request rights to use the property for industrial applications. These parties are introducing the possibility of third-party claims by constructing potentially dangerous facilities on the landowner's property. The corresponding expectation of the landowner is that the lessee will be the only party providing indemnity coverage under the agreement. Indeed, most modern oil and gas lease and pipeline easement agreement forms offered by mineral developers do not include mutual indemnification obligations. The same does not hold true in the renewable energy industry, where wind developers and solar developers alike seem accustomed to receiving a similar degree of indemnity protection from the landowner as is given in return.

This is often considered an affront by landowners and most will respond by attempting to entirely remove an indemnity obligation in favor of the lessee. Solar developers may retain local counsel in Texas that are sympathetic to the landowner's expectations, but often the developer's home office is located abroad or in other regions of the country and it may approach the indemnity issue from a different perspective. Depending upon the importance of this concern to the parties, it may end up as one of the final issues resolved during lease negotiations. In extended discussions with developers, it seems that the situation is viewed from a similar point of view as the waiver concerning "project effects" discussed above. Any third-party claim against the lessee is a potential threat to the viability of the solar facility, so it follows that the landowner should be held accountable if these claims result from its own actions or negligence.

Nonetheless, the fundamental relationship between the parties can be relied upon by the landowner in explaining its contrary position. While the landowner will be receiving rental income from operation of the solar facilities on its land, it is not a business partner that will receive a substantial share of revenue from the project. The landowner must recognize that by welcoming a facility on its property that will cost hundreds of millions of dollars to construct and operate, it might be swimming in deep water with respect to potential liability. With such large financial interests at stake, a claim made by a lender, investor or other party with interest in the project could be large enough to wipe out all potential lease income received by the landowner over the full term of the lease. Many landowners profess ignorance about the meaning of the indemnification provision in a lease form, but they must be educated by counsel of its importance and implications.

If the landowner will be forced to extend a degree of indemnification coverage to the solar lessee, it will be the task of its counsel to limit the scope of the obligation as much as possible. The driving concern of the lessee is to protect its investment from situations where the landowner is interfering with the project's viability. Some landowners are willing to accept a limited indemnity obligation with respect to liabilities arising from the landowner's gross negligence or intentional misconduct. This compromise allows the landowner to alleviate its concern that simple contributory negligence will result in excessive liability exposure to third-party claims if damages occur to the solar facilities or the lessee's employees are injured while on the leased premises or while using roads on the landowner's surrounding property. It also gives the lessee coverage where the landowner is clearly acting in a manner that is detrimental to the solar project and the safety of persons at the site.

The landowner and solar lessee must also divide up each party's respective tax liability once the project is constructed. Following the completion of construction, it goes without saying that the lessee will bear full responsibility for taxes that are separately assessed against its improvements and equipment. The landowner will usually shoulder the tax burden for the underlying value of the property in its prior state of usage, although landowners with sufficient bargaining leverage may press the case to transfer this ad valorem liability entirely to the lessee.

A more persuasive case can be made that the lessee should accept responsibility for roll-back taxes assessed against the property upon the loss of an agricultural or other exemption, since this change will be a direct consequence of the presence of the facility. In almost all circumstances, the property covered by the lease will hold some type of existing agricultural or wildlife tax assessment that greatly reduces the taxable value used for computing the landowner's tax bill each year. Many standard solar lease forms do not address this type of tax liability, which may result from out-of-state developers being unfamiliar with the particularities of Texas law. More enterprising landowners may seek to extend this obligation to a period of years following lease termination while the landowner works to restore privileged assessments once the facilities are removed. At minimum, the lessee should have an obligation to reasonably cooperate with the landowner in these exemption restoration efforts.

VIII. CONCLUSION

In examining the evolution of oil and gas leases and related energy industry agreements in the recorded public records, it is interesting to observe when certain clauses begin to appear and how they develop with the passage of time as additional agreements are drafted. These modifications almost always emerge to address concerns that were not apparent to the parties during the early days of the particular industry, but eventually became problematic as basic forms were applied in practice. In this context, necessity remains the mother of invention. In the same manner, it is anticipated that solar lease drafting practices will evolve to address lessons learned by landowners and lessees as a result of the first wave of widespread solar development in Texas. In the meantime, attorneys that represent landowners must anticipate potential problems by employing a creative approach that considers various hypothetical scenarios and outcomes for each unique client and tract of land. This requires a high degree of situational awareness and attention to detail, in addition to a base knowledge of how solar power is generated, stored, transported and marketed.

The standard solar lease agreement will run at least twenty to thirty pages in length, all of which may be necessary to address the litany of issues that can arise over several decades of potential operations. Covering the full spectrum of negotiation points and topics of concern from the landowner perspective would require an even lengthier document than the lease form itself. The foregoing material is meant to address many of the common concerns of landowners encountered during negotiations, but it is by no means exhaustive. The landowner and its counsel are therefore advised to obtain advice from attorneys and other professionals that are experienced in the solar leasing process before entering into a long-term agreement of this variety.