LEX HELIUS: THE LAW OF SOLAR ENERGY
—Power Purchase Agreements: Distributed Generation Projects—

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I. Introduction. The term "distributed generation" is applied to a very wide range of facilities using different technologies and varying in size. The one common element of all distributed generation projects is that they are assumed to be located "on-site." This means that they are designed to make minimal direct use of the existing transmission grid. However, current distributed generation technologies are intermittent in nature. That means they can only produce electricity under certain circumstances: in the case of wind, when the wind is blowing; in the case of solar, when the sun is shining (or at least up). Consequently, distributed generation facilities will typically connect "behind the meter" to the site owner's building systems, aka, the "site host." Connection to the grid "at the meter" is still important for the site host, though, because of the need to access electricity supply when the distributed generation facility is not generating or is not capable of meeting the full needs of the site host.

For distributed generation solar photovoltaic ("PV") installations, the "on-site" nature of the project is typically a far larger complicating factor than the intermittent nature of its output. Unlike larger utility-scale projects, distributed generation solar PV may be located in either urban or rural areas, on rooftops or on the ground, on larger structures or smaller structures, with clear solar access or in congested areas. In addition, the site "host" may or may not be the power purchaser. Consequently, there is a significant potential for strongly conflicting interests between the passive host with no interest in the project and the power purchaser that wants the project output and what each is willing to accept as reasonable risk allocations with the project developer.

Each of these distributed generation aspects must be addressed somewhere in the project documentation. If the power purchaser and the site host are the same, it makes little difference whether the relevant provisions are put in the site lease or the power purchase agreement (the "PPA"). However, the site can always be sold or the site host can lease or sell the premises, so there is no single answer that will work in all situations. In addition, there may be situations where a license, or right to use the project site, may be preferable to an actual lease of the site. The potential for this issue in particularly present when the site host is a municipal or other type of governmental entity. To reflect the particular nature of distributed generation facilities and the growth in larger utility-scale PV or solar thermal projects, we have split our discussion of PPAs into two parts. The first part discusses distributed generation solar PV PPAs. The second part discusses solar PPAs in the context of larger utility-scale projects. To the extent that there are issues in common, the first part will refer the reader to those sections of Chapter Three, Power Purchase Agreements: Utility-Scale Projects for discussion of those issues.

A. The Parties.

1. The Project Owner/Seller. The ownership of a distributed generation solar PV installation is a tax-advantaged investment. Indeed, due to the relatively small electric output of these installations over the past few years the tax benefits have been a far more important element of creating a viable project than were projected revenues from the sale of electric energy. Consequently, the project owner/seller was relatively less interested in structuring the PPA to maximize revenues from electricity sales than it was in protecting and enhancing the available tax benefits. This dynamic may be changing. If reductions in the cost per installed watt of solar PV installations hold for the next few years, the revenues generated from the sale of electricity may become a larger of the value of the project. Since the available tax benefits are set at a fixed percentage of the project costs, the relevant value of tax benefits remains the same. On the other hand, it is unclear how much the current reduction in project costs arises from temporary imbalances in the supply of solar PV panels. It is also unclear how much any technological developments over the next few years will help keep panel costs down. Additionally, at least for projects that can meet the tests by December 31, 2010, there is the option of applying for a cash grant in lieu of federal investment tax credits. Since no tax equity investor return is involved in the cash grant, the amount of cash made available for a project through the cash grant program should

be higher than can be realized through the traditional sale of federal investment tax credits to a third-party investor. However, the cash grant program raises a new problem for developers since it does not attach any monetary value to the accelerated depreciation available on solar PV projects. By electing to use the cash grant program, for the next 18 months the developer must either ignore the embedded monetary value of the accelerated depreciation or must find a tax investor interested in the accelerate depreciation "stripped" from the investment tax credits. These dynamic changes in the underlying economics of solar PV demonstrate that this marketplace has not yet reached a steady state.

Some of these considerations are temporary. For example, the current expiration for the cash grant program is December 31, 2010. For more detail on the cash grant program and other Stimulus Bill impacts on energy, see our publication *Show Me the Money, The Law of the Stimulus Package*. The current expiration date for the federal investment tax credit for solar is the end of 2016. Consequently, after the Stimulus Bill provisions drop off, the distributed generation solar PV market will still be dealing with the current version of the federal investment tax credit, unless some totally new and as yet unforeseen program is adopted by Congress. These existing federal investment tax credit provisions still have relevance, and our discussion below is premised on the application of these provisions.

To facilitate the pass-through of tax benefits and available subsidies, the project owner/seller in a distributed general solar PV project will usually be a limited partnership or limited liability company. The entity will expect to be able to pass through to its partners or members the tax benefits, revenues from power sales, and revenues from the sale of Renewable Energy Credits that represent the environmental benefits and attributes of the noncarbon-based electricity generation ("RECs"). Depending on the particular forms of subsidy (such as state tax credits, state cash subsidy payments, or solar carve-outs in the locally enacted renewable portfolio standards designating the amount of generation local utilities must derive from renewable sources by certain benchmarks), the project owner may have more or less interest in actually owning the facility after the tax credit recapture and direct subsidy period has ended (though there are other tax considerations relating to the "profit motive" test that may require the project owner/seller to need a longer-term ownership of the installation). In other words, the project owner/seller typically has little interest in actually operating or structuring itself as a utility. Solar PV lends itself well to this lack of interest in being a "real" power generator since solar PV is generally considered to have an extremely low level of required maintenance and an extremely high level of reliability. Consequently, the project owner/seller wants to minimize risks to its expected stream of tax benefits, power sales revenues, and REC sales, particularly those that the project owner/seller considers to be within the control of the site host or power purchaser to prevent or avoid.

The project owner/seller's willingness to allow the tax benefits and subsidies available to a project to be passed through to third parties is fundamental to a tax equity investor being willing to provide financing to a transaction. The tax equity investor typically has an even larger desire to exit the transaction after the tax and subsidy benefits have been extinguished than a developer/owner. For this reason, many distributed generation solar PV transaction have been structured using a "flip structure" where the tax equity investor starts with typically 99 percent of the ownership interests in the pass-through-project-owning entity, which "flips" to a 5 percent interest after the tax equity investor has received the return that has been negotiated between the parties.

Additionally and regardless of the specific structure utilized, the party that expects to be entitled to the federal investment tax credit must be the "owner" of the installation on the date the installation is "placed in service" for federal income tax purposes. Consequently, all structures for distributed generation solar PV projects that are premised upon the need to have the tax equity investor in ownership prior to the placed in service date. Many

potential investors want to avoid any construction period risk by delaying their contribution until after the installation is completed and proven to be functioning at its intended design specifications. Project developers should be aware of the problems that can arise if the investors are not willing to put any funds at risk prior to completion of the project.

2. **The Buyer.** The power purchaser typically is interested in supplementing its power off-take from the grid at a specific location. This can be a single manufacturing facility, an office building, an automobile dealership, a warehouse, a school, a hospital, or a public facilities maintenance building. As the market is realizing, there is an enormous opportunity to place safe and passive solar PV installations in a wide range of locations. The physical constraining factors are the relatively low output of current solar panels and the resulting large amount of space required to install enough panels to generate a significant output. In addition, there frequently are state regulatory hurdles that make it difficult to install as many panels as a site host might have room for because of limitations on the number of possible power purchasers (customers) that can be served without becoming subject to state public utility commission regulation. See Chapter Five, Regulatory and Transmission-Related Issues. For these reasons, the power purchaser from a distributed generation solar PV facility will usually be either a party whose power needs fit extremely well with the daytime generation curve of solar PV, or a party that is looking for a supplement (or hedge) against its exposure to uncertain future market rates for electricity charged by its local serving utility. In essence, this power purchaser just wants to receive the power with the minimum amount of additional risk and financial obligation. It wants green power but has only a limited interest in paying significantly more for that power than it would cost to just "flip the switch" and take it from its local utility.

3. **The Site Host.** If the site host and the power purchaser are not the same, the site host can become a silent partner (or at least an ever present consideration) in the negotiation of the PPA. Although not as true for a ground-mount installation, a rooftop installation is generally in place for a long time on a structure that was probably not specifically designed to accommodate a solar PV installation. This can raise a number of questions regarding the timing and need for routine rooftop repair, maintenance, and replacement (both the costs of having to move the installation to allow repair or replacement and the lost revenues from power sales while the repair or replacement is going on); the possible need for structural improvements to support the solar PV array; the susceptibility of the solar PV array to high wind conditions and other climate factors where it is located; and the problems of changing ownership or occupancy of the structure during the term of the PPA. The project owner must recognize that these situations pose objective risks that may disrupt the production of electricity from the installation temporarily or permanently.

Because the typical owner of a distributed generation solar PV installation does not view itself as actually being in the business of power generation, the project owner will tend not to view these as ordinary course risks of doing business. Consequently, the project owner will want to allocate these risks among the parties in the best position to protect against their occurrence, or in the "fairest" position to bear the economic costs caused by their occurrence. Similarly, a site host that is not also the power purchaser will tend to not want to bear any of these costs that may be outside its normal costs and risks of doing business, such as providing for roof repair, maintenance, and replacement. On the other hand, a power purchaser that does not own the building or structure it is occupying is likely to view these as risks that it is not normally asked to assume as a "mere tenant." The fact remains that the project owner is making a significant financial investment that will depend on all of the various economic returns from the project, tax benefits, power sales revenues, and REC sales or other subsidies to make a reasonable return on its investment. No solar PV project is so economically "rich" that allocating these risks can

be overlooked. To make sense of how the power sales aspect of a PPA interacts with these "other" concerns, it is first necessary to discuss how a typical PPA deals with the actual sale of output from the solar PV installation.

B. The Power Sales Aspect of the PPA.

1. **Standard "Take and Pay" Terms.** Most current distributed generation solar PV PPAs simply provide that the buyer will buy all of the electricity generated by the installation at the price specified in the PPA and the electricity will be delivered at the point of interconnection with the buyer's (or site host's) electric system ("behind the meter" delivery). In other words, the obligation to pay is based on the actual receipt of output at the specified point of delivery, and payment is determined by reference to the amount of output delivered. By contrast, a "take or pay" contract specifies a certain amount of money the purchaser is obligated to pay each year regardless of whether or not the installation actually produces output. Although such take or pay contracts are a common feature of the financing of large coal or natural gas fueled generation facilities, the distributed generation solar PV market has taken a different approach, reflecting the distributed generation nature of the assets and the fact that these installations, at least on the distributed generation scale, would probably not be acceptable to power purchasers that did not have some assurances regarding receiving value (output) for their money.

2. **Pricing the Take and Pay PPA.** There are many variations on how the electricity to be delivered is priced under a solar PV PPA. We have seen it priced at a discount to the current market rate with a moderate annual escalator. We have also seen it priced at the current market rate with a more substantial annual escalator, as well as being priced at a fixed rate based on current market rates or at a fixed rate that is initially over the current market rate with the expectation that the rate will cross under the then market rate at some forecast point during the term of the PPA. These examples certainly do not exhaust the potential options. One common element is a pricing constraint that reflects the current and forecast market price of electricity from the local serving utility over a time period equal to that of the PPA. In most situations, even though the power purchaser is motivated to obtain green power, there seems to be a real limit on how much over market the purchaser is willing to pay for this benefit.

It is unlikely these considerations will change significantly going forward. Even if regulatory actions, such as passage of a cap and trade bill by Congress, cause changes in the market rate of electricity, electricity from distributed generation solar PV installations will probably continue to be priced in reference to those (higher) market rates. Even if lower power rates from solar PV installations seem justified by continuing reductions in the all-in cost per installed watt, it is difficult to see the justification, absent pressure to submit a winning bid in a competitive process, for pricing solar PV electricity by a methodology that is intended to ensure that the cost remains substantially below market rates through the life of the PPA.

3. **Pricing Based on Output Levels.** There is debate about whether guaranteed output warranties should be expected to be a standard warranty offered by a solar panel manufacturer. From many power purchasers' points of view, they certainly should be offered because the power purchaser believes that it is paying a premium for obtaining green power, and the utility of that decision goes down dramatically if the power purchaser is not receiving the amount of the benefit (output) it thought it would when it decided to buy green power. Most project owners/sellers would probably agree with this point of view. However, giving an actual annual output warranty can expose the panel manufacturer to a substantial contingent liability that it is largely not in a position to mitigate. Will panel manufacturers continue to offer these actual output warranties? Only time will tell. However, this actual annual output concern can still influence the pricing structure of the PPA even in the absence of any manufacturer's warranty.

Some power purchasers will insist on a "guaranteed" level of annual deliveries from the project owner, even if the project owner has no manufacturer warranty backing its obligation. Typically these provisions will require a reduction in the price of power or a "make whole" payment from the project owner if actual deliveries drop below a specified percentage of the designated output of the installation during any year. The project owner takes a real risk in agreeing to such a provision. We understand from anecdotal information that weather patterns are subject to significant year-to-year variations, though over a longer three- or four-year period, they will average out to a "norm." Consequently, a project owner may pay penalties for a particularly bad year that cannot be made up from excess deliveries in another year, or cannot be recouped when the installation has produced at the required level over an averaged period of several years. How the project owner will mitigate this risk is usually not clear on the face of the PPA, but is definitely in the project owner's mind when the levels of output at which penalties will become payable is being negotiated. The fact that power purchasers want these types of assurances also influences how the panel manufacturer markets its products.

The typical PPA contains a provision stating that power generation will decrease annually by a fixed percentage, usually 1 or 2 percent, though again there is anecdotal evidence that many manufacturers actually expect panel output degradation to be substantially below this level. Similarly, and again from anecdotal information, many panel manufacturers understate the anticipated output from their panels. After all, if you might be held liable for the output of your product, it is more in your interest to understate expected performance than overstate it for a potential marketing advantage. The project owner will take this possible understatement of actual output capability and overstatement of degradation into account in specifying the size of the annual delivery deficiency that will trigger either a lower price or the payment of penalties. Viewed as a potentially necessary element of comfort to the power purchaser, the project owner should attempt to make certain that the threshold is set low enough that it is never triggered.

4. **Pricing Based on Net Metering Expectations.** Many power purchasers enter into solar PV PPAs with the expectation that any output that they do not use can be sold to the local utility. Net metering is one way in which the power purchaser expects that it can gain a financial benefit from any excess electricity delivered by the solar PV installation in excess of the power purchase's immediate need. Another is the power purchaser's possible expectation that the power can be sold to the local utility by delivering it to the power purchaser's point of interconnection with the local utility's transmission grid ("at the meter" delivery).

The PPA itself will usually not have any provisions dealing with these situations because the typical solar PV installation is delivering behind the meter for the immediate use of the power purchaser without the requirement of any use of the local utility's grid for transmission. However, if the power purchaser has acted on these expectations without investigation in accepting the pricing structure of the PPA, the power purchaser may be in for a surprise. In many situations, a net-metering situation does not produce any actual revenue to the power purchaser (usually referred to as "monetizing" the excess electricity). Although excess electricity may be delivered to the local utility at the meter (resulting in the meter "running backwards"), there may be no obligation under federal or local law for the local utility to pay the power purchaser for those deliveries. For example, in Oregon, at the end of each year, the amount of credit built up by the power purchaser for such deliveries is applied by the local utility to the electricity bills of low-income customers. The delivering power purchaser does not receive any payment. In other states, deliveries to the local utility may trigger a regulatory requirement, though several states also seem to have provisions providing an exception for deliveries to local utilities to avoid this problem. In other words, both the project owner and the power purchaser should carefully investigate the local rules that will apply to any excess electricity delivered to the local utility's grid. There may be surprises for the unprepared.

Net metering and the limited circumstances in which a power purchaser may be able to sell its excess output back to the serving utility are discussed further in Chapter Five, Regulatory and Transmission-Related Issues.

II. Standard Provisions of a PPA.

A. Term of the PPA. The current standard appears to be that the PPA will have a length ("term") of 20 years, though 15 years is also common. To some extent, the term is dictated by the project owner's desire to receive, or need to receive, a certain rate of return from its investment. It is increasingly common, however, to see PPAs with terms significantly shorter than 15 or 20 years. This may arise, in part, from a desire by the power purchaser to "reprice" the PPA at certain intervals as a hedge against having agreed to an annual escalator that produces a price for electricity substantially above the future market price. This may also arise, in part, from a desire on the part of the project owner to be able to forecast future PPA prices at levels above what would be required under the initial contract to gain back some of the benefits flowing to the power purchase from unforeseen dramatic rises in the market rate of electricity. However, shorter-term PPAs rarely occur without the intervening effect of specific purchaser options provisions, which are discussed below. It is standard in solar PV PPAs that the project owner is responsible for paying the costs of removing the installation from the site upon the natural termination of the PPA. However, if termination occurs early due to an event of default caused by the power purchaser or a termination declared by the site host, this cost typically shifts to the party triggering the early termination.

B. Installation, Testing, and Start-up. Most PPAs contain an obligation on the part of the project owner to cause the project to be installed, set out the conditions relating to pre-operation testing, and define when the project will be considered "placed in service" (important for tax considerations and not requiring full actual operation) or in "commercial operation" (which relates to when the power sales provisions of the PPA become effective and usually requires that the project produce and deliver electricity at the designated standards set forth in the PPA). The project owner will usually satisfy its obligation to construct and install the project by entering into an installation agreement with an experienced solar installer. The installer will then undertake the obligations of testing the project, obtaining certification that the project has reached commercial operation, and completing the final punch-list items necessary to complete the installation contract. Pre-operation testing for a solar PV installation is usually quite simple: hook the system up for a period of at least four hours and meter the output to see if it is producing within design parameters. If it does, it has passed its required pre-commercial operation testing and will be considered placed in service. For more on installation agreements, see Chapter Four, Solar Energy System Design, Engineering, Construction, and Installation Agreements.

Developers and project owners should also keep in mind that an installation may be able to generate some level of output prior to completion of the installation as a whole if the installation is sized to utilize multiple inverters. As each inverter is coupled to "its" bank of panels, the power purchaser may be able to start receiving deliveries, although at a level substantially below designed capacity. PPAs for distributed generation projects are frequently silent regarding this "test period output" due to the relative very small amount of electricity being generated and the relatively short installation period for moderately sized commercial installations. Depending upon the specific circumstances of a particular installation, there may be some benefit to considering a test period output provision pricing these deliveries prior to the actual placed in service date of the full installation.

C. Project Operation and Maintenance ("O&M"). The solar PV PPA typically will also provide that it is the project owner's responsibility to maintain the installation. Several standards are usually specified, such as accordance with prudent utility practice, prudent solar industry practice, or best practices, but they all mean essentially the same thing. The installation will be maintained so that it does not pose a danger to

individuals or the structure on which it is located and will produce electricity at the highest level possible. The project owner will also fulfill this obligation by subcontracting the O&M contract. Many installation contractors will also want to be awarded the O&M contract and will make a longer term for their equipment and installation warranty (two or three years, increasing to five or 10 years), depending on their handling of the O&M.

D. Project Purchase Options. An option for the power purchaser or site host to purchase the solar PV installation at some defined point during the term of the PPA is a common feature of solar PV PPAs. As with the pricing structure, the times at which this purchase option may be exercised varies widely.

1. **Purchase Option Points During the PPA Term.** Project owners that view themselves as being in the power generation business may want to delay this point as long as possible, typically to the end of the initial term of the PPA. A project owner that views itself as being in the power generation business will typically want a 20-year PPA term, though some shorter period may be negotiable. Also common is a purchase option exercisable at the 10th or 15th year or on the natural expiration of the PPA. Some power purchasers that are also site hosts want the purchase option to be exercisable at any time. Granting such a purchase option presents significant issues for the project owner/seller, which are discussed below.

2. **Pricing the Purchase Option.** A project owner considering granting a purchase option is faced with a combination of tax considerations and economic business considerations. These considerations will influence the points during the term of the PPA at which a project owner will be willing to grant a purchase option exercise right. For example, the federal Energy Credit has a five-year recapture; any exercise of a purchase option during the first five years of the PPA will trigger recapture of a percentage of the federal Energy Credit received by the project owner. (This is also the result if a cash grant in lieu of the federal investment tax credit is received.) An exercise of a purchase option before the owner has realized its expected return will not be acceptable to the owner. This issue is frequently dealt with by providing a termination fee in the PPA, which is payable upon exercise of the purchase option before the full term of the PPA. The termination fee can be structured to take into account certain items that the project owner believes should be realized under the PPA. In addition to being payable upon exercise of an early purchase option, the termination fee also has application to other situations, such as a breach and event of default caused by the power purchaser or site host. In addition, we have seen PPAs that provide for a defined purchase price payable upon exercise of the purchase option. This purchase price is separate from the termination fee. As the term of the PPA runs down and the termination fee gets smaller, the project owner is still assured of receiving at least the purchase price upon exercise of the purchase option. The IRS standard is that any purchase option must be for not less than the fair market value of the project at the time the purchase option is exercised.

E. Off-Ramps Before Construction, Events of Default, and Other Common Provisions. See Chapter Three, Power Purchase Agreements: Utility-Scale Projects for a discussion of standard event of default provisions that are generally applicable to both distributed generation solar PV PPAs and utility-scale PPAs, other than those dealing with the creditworthiness of guaranties and other financial accommodations, which typically are not found in distributed generation solar PV project documentation.

III. On-site Issues in a Distributed Generation Solar PV PPA. Several issues arise from the on-site location of distributed generation installations that are relatively unique to these types of electric generation projects. They will be encountered in any distributed generation facility regardless of technology, but the large increase in the installation of distributed generation solar PV facilities makes them an excellent template for discussing these issues.

A. Structural Integrity. Installing a solar PV installation on the rooftop of an existing structure will put a significant weight load onto a structure that may not be rated for that weight. Placing a solar PV installation on a structure that cannot easily bear the weight is a clear danger to health and safety, and poses a potential threat of damage to the structure itself. A careful survey of the weight-bearing load capacity of any building on which a solar PV installation will be placed should be done before going very far into the negotiation process. Structural reinforcement may be required, and the costs of those improvements may prevent the installation from being economically viable. The only option other than making structural improvements may be downsizing the proposed installation so it weighs less. The site host, power purchaser, and project owner each have a direct and clear interest in being certain the structure on which the installation will be placed can bear the load for at least the full term of the PPA. In addition, upgrades to the structure's electric system may be necessary for it to handle the delivery of output from the solar PV installation.

B. Repairs and Replacement. Almost every roof will require maintenance and repairs at some point or points during the term of the PPA. In addition, most roof coatings are designed with a known useful life. Exceeding the useful life of the existing roof may require the solar installation to be moved or removed from the rooftop to allow repair or replacement of the existing roof. There is a direct economic cost to either disconnecting the installation and moving it out of the way on the rooftop or disconnecting the installation and moving it off the rooftop while repair or replacement is conducted. That economic cost is the loss of power sales during the period the installation is out of service, as well as the loss of any REC sales or other subsidies that depend on the installation being in production. Most project owners will grant the power purchaser or site host some agreed period of time each year in which there will be no penalties incurred to accommodate ordinary repairs and maintenance. Usually this will not exceed seven calendar days total during each year. If the installation downtime will exceed this agreed-on period, many PPAs will require that the power purchaser start reimbursing the project owner for lost power sales, lost REC sales, and other lost economic benefits. If the power purchaser is not the site host, this presents a clear need to coordinate the PPA and the site lease, license, or easement to handle this risk.

C. Sale of the Structure or a Change of Tenant. Distributed generation installations also present the unique problem that ownership of the structure on which the installation is located may change during the term of the PPA, or the tenant that was previously the power purchaser may move out and a new tenant that is not interested in assuming the PPA may move in. There is no single, clear, simple solution to this problem. Typically, the site lease, license, or easement will require that any purchaser of the structure assume the site lease, license, or easement. However, if the existing owner is not motivated enough, it may not be willing to impose this requirement on an unwilling buyer. Similarly, the site host may want to require a new tenant to assume the PPA, but if the new tenant is unwilling and has sufficient leverage with the site host, that may not happen. Consequently, even if the project owner believes it is adequately protected from these situations under the project documents, the project owner is faced with a difficult decision. There is a substantial cost attached to the project owner enforcing its legal rights, as well as immediate lost revenues of various types if the new owner or tenant simply will not accept the delivery of electricity from the solar PV installation. Many PPAs appear to ignore this risk as being too complicated to deal with when everyone wants green power at the time the installation is being negotiated. Other PPAs attempt to anticipate this situation by providing the parties a middle ground. If the installation has to be removed, whichever is liable for damages—the site host or the power purchaser—can limit and mitigate its damages by helping the project owner find a new site for the installation. To further motivate the site host or power purchaser to assist the project owner, the PPA also frequently provides that successful relocation will result in a decrease in damages for being forced to move the installation. Instead of damages being the cost of removal and all lost revenues for the remaining term of the PPA, they are limited to the cost of

removal and relocation together with the differential between any lower price the project owner has to accept for power sales and the power sales price under the PPA.

D. Ground-Mount On-Site Issues. A ground-mount installation obviously presents a smaller range of issues than a rooftop installation. Typically a ground-mount installation is located on a piece of land that was not being used for any significant purpose before the installation. In addition, ground-mount installations do not require a substantial disturbance to the subsurface area of the site. For this reason, it is often proposed that placing solar PV installations on areas that are otherwise considered unusable, such as covered garbage dumps, sanitary landfills, or hazardous substance sites, would be an excellent way to reclaim such sites. Anyone considering this option should clearly understand that the project owner will have absolutely no interest in potentially becoming involved with environmental lawsuits or claims relating to the site. A solar PV installation usually does not involve any substances legally defined as hazardous either during the construction and installation phases or during normal operation, and normal installation does not disturb the soil to the extent it raises a risk of exacerbating any existing contaminated condition. Consequently, the project owner will rightly refuse to take any risk regarding existing contaminants and contamination at the site. The site host will need to understand that the project owner will be seeking full protection through full indemnification for existing conditions and any disbursement of existing conditions to surrounding properties from a creditworthy party, a strong hold-harmless covenant, or some other means of assuring that the project owner will not (or cannot) be pulled into remediation efforts or lawsuits relating to the contaminated conditions.

IV. Hybrid PPAs. Certain utilities, notably Southern California Edison Company ("SCE"), have received authority to enter into PPAs with distributed generation solar installations that are not owned by the utility or located on utility property. The standard form of PPA used for the SCE program combines provisions typical to distributed general solar PPAs with some provisions typically only used in utility-scale solar PPAs, although in a more limited form than usual for a utility-scale PPA. For example, a security deposit calculated at a fixed dollar amount per kilowatt that will be held by the utility is required. This deposit is returned if the installation is completed in full by the defined starting date for power sales. If the developer fails to install any of the equipment or devices required to provide output at the designated gross power rating for the installation under the PPA by the defined starting date for power sales, the entire deposit is forfeited to the utility. If only a portion of the designated gross power rating of electricity is delivered by the defined starting date for power sales, a portion of the security deposit is forfeited. This type of security deposit is common in utility-scale PPAs but is relative uncommon in distributed generation PPAs. Due to the character of the power purchaser as a regulated public utility, regulatory approval of the PPA is required and the power seller is required to operate the installation in compliance with certain regulatory tariffs, each provisions common to utility-scale PPAs but uncommon for typical distributed generation PPAs. In addition, these hybrid PPAs are silent on the issues that typically must be dealt with between the developer/project owner and the site host discussed above. The developer/project owner must solve these on its own, and the purchaser utility has no role or interest in those issues. However, the purchasing utility does have a buyout option similar to those typically found in distributed generation PPAs.

V. Conclusion. The project owner must carefully consider how to integrate the on-site issues presented by a distributed generation solar PV installation with the basic purpose of the PPA, which is to cover the project owner's agreements with the power purchaser regarding the installation, start-up, maintenance, and sale of output from the installation. Any situation in which the PPA will be with a party other than the site host will raise the question of whether these on-site-specific provisions should be in the site lease, the PPA, or a combination of the

two documents, depending on what the project owner is able to negotiate with the site host and the power purchaser.

Simply ignoring these issues is an option for the project owner, but one that needs to be taken knowingly. Failing to address these issues or being unable to satisfactorily address them during negotiations does represent a significant assumption of risk by the project owner.

As to the basic core terms of the PPA, the discussion above indicates that there are many different approaches to each provision being used in the market. At this point, there is no single set of deal points that is generally accepted as the industry standard. There are many different ways the market may react to the relatively large up-front costs and time involved in putting together a solar PV deal. One response will be an increasing trend among developers to offer a one-stop shopping alternative that is intended to allow power purchasers to just "flip the switch" as they do when acquiring service from their local utility. This approach is likely to involve the developer/project owner having a prepared set of documents that it will present as part of a total package. This approach may work when the site host and the power purchaser are the same entity, and there are no special on-site issues or considerations. However, even if the use of fully prepackaged deals and documents increases, there will still be many different options available to address specific issues encountered by the project owner, power purchaser, or site host that wants something more responsive to its own situation. As in every other area, no matter how much the participants want to be able to use a cookie-cutter approach, very few cookie-cutter deals are ever done successfully.