

**LAVA LAW**  
**—Signing Up:**  
**Power Purchase Agreements and Environmental Attributes—**

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## I. The Parties.

A. **The Seller.** The seller is often the developer and owner of a geothermal power plant that will generate energy and environmental attributes (“output”). But the seller may also be a power marketer that is buying the output of a plant and selling it to one or more buyers. If a company is reselling output, the resale power purchase agreement (the “PPA”) will usually track the relevant terms of the underlying PPA, because the marketer will not want to promise more than it has the right to deliver. As a result, the marketer will often use a “back-to-back” PPA for the resale. The resulting terms will be almost the same as those in the underlying project PPA, except for price or other unique items that the marketer does not wish to pass through to the ultimate buyer.

B. **The Buyer.** The buyer is often a utility that purchases the geothermal plant’s output to serve its load. The utility may also be motivated by a “renewable-portfolio standard” or other regulatory policy that encourages the development of geothermal power and other forms of renewable energy. The significance of this driver is growing, as 29 states and the District of Columbia now have renewable portfolio standards, and a national renewable energy standard in some form is likely to be enacted in the near future. In a state that permits direct access or allows renewable energy to be sold at retail, the buyer may be a retail buyer, such as a manufacturing facility that wishes to hold itself out as a “green” company. Power marketers may also buy output for resale to one or more third parties. Power marketers sometimes can purchase all of a project’s output (something that no other single-market player may be able to do), taking a “merchant position” and enabling the owner to finance the plant.

C. **Credit Support Provider.** The PPA will require the buyer to buy the output that the seller delivers. It may also require the seller to pay the buyer if the project is not built on schedule, or fails to achieve certain output levels or other performance standards. Each party will be concerned about the other’s ability to satisfy these payment obligations. If one party is not creditworthy, the other may require it to provide a guaranty, or post a letter of credit or other security to ensure that amounts due under the PPA will be paid.

D. **The Lender.** Frequently the project will be financed. The lender will be concerned that it has rights to protect its collateral in the PPA and in the project itself before the buyer’s exercise of remedies under the PPA, especially if any specific seller event of default entitles the buyer to terminate, or to exercise other extraordinary remedies such as “step-in” rights.

## II. The Term.

A. **Relationship to Project Financing.** If the geothermal plant is financed with limited-recourse financing, the term of the PPA needs to be sufficiently long to amortize the project debt. In project financings, the debt amortization period generally needs to be shorter than the PPA term, to allow “work-out time” in case the project encounters financial difficulties in later years. Thus, for example, if the term of the PPA is 20 years, lenders will generally be willing to amortize the debt over a 15- to 16-year period. Generally, only the base term of the PPA is taken into account, because the lender has no assurance that the buyer will elect to continue the PPA into a renewal term.

B. **Useful Life.** Because the buyer under a PPA effectively pays for the entire capital cost of the project (plus a profit to the project owner), the buyer will normally want the PPA to capture the entire value of the project by covering the entire economic life of the project facilities. Because the entire capital cost of the project will generally be amortized over the base term of the PPA, it is possible to eliminate the cost elements that relate to the original project debt from the power price during the renewal terms, and the buyer may

therefore seek a price during the renewal term that is less than the power price during the base term. On the other hand, the seller will want to consider that new debt may be required to enable the plant to keep producing, as well as the fact that the market price for power at the expiration of the base term will very likely be much higher than a price that is reduced to reflect the elimination of the original project debt.

**C. Effective Date.** The PPA will be binding on the date it is signed (often called the “effective date”). This ensures that the buyer will buy the output once the project is built, and that the project owner will build the project (subject to negotiated conditions) and not sell its output to anyone other than the buyer.

**D. Commercial Operation Date.** The term of the PPA usually begins on the effective date, but the length of the term is often defined by reference to a “commercial operation date.” For example, the term might end on the 25th anniversary of the January 1 following the commercial operation date. Thus, if the term was 25 years and commercial operation began on November 1, 2010, the term would end on January 1, 2036. In other PPAs, the term begins on the commercial operation date and extends for a specified number of years from that date. In general, geothermal facilities require a longer lead time to develop and construct than do wind projects, and this fact should be taken into account in establishing the mechanism for determining the term.

The commercial operation date often starts the PPA’s term, determines whether the project has avoided liquidated damages by achieving its “guaranteed commercial operation date,” and establishes the point at which the price switches from a “test energy rate” to a “contract rate,” or the point from which any capacity payments are made. It is therefore important to define “commercial operation date” carefully. Generally, “commercial operation date” can be defined as the date on which all portions of the project necessary to put it into operation, along with the interconnection facilities and the transmission system, have been constructed, installed, tested, and commissioned, and are both authorized and able to operate and deliver energy in commercial quantities to the transmission system in accordance with prudent industry practices. The parties often negotiate more specific standards for judging whether commercial operation has been achieved and occasionally require that an independent engineer be engaged to make findings that support the achievement of commercial operation.

**E. Termination Before the Commercial Operation Date.** PPAs usually include “off-ramp” provisions that enable one or both of the parties to terminate the PPA if certain events occur or fail to occur. Common reasons for early termination include the (1) failure of a public utility commission to approve a PPA or allow its costs to be passed through to ratepayers; (2) inability to obtain an interconnection agreement or needed transmission rights; (3) inability to obtain leases, rights-of-way, or other land rights required to build the project; (4) inability to obtain permits required to build or operate the project; (5) inability to obtain an authorization to sell power at market-based rates; (6) project’s failure to reach a certain minimum size by a certain date; (7) project’s failure to achieve commercial operation by a certain date; and (8) failure to qualify for the production tax credit (the “PTC”) (although this is less of a concern now since the PTC has been extended through December 31, 2013), the investment tax credit (“ITC”) or for the grants in lieu of ITC (“Grants in Lieu of ITC”) now available for certain eligible projects that (i) start construction by the end of 2010; and (ii) are “placed in service” on or before December 31, 2013. Geothermal projects usually have a fairly high capacity factor (unlike wind or solar projects), so they are much more likely to use the PTC rather than the ITC or a Grant in Lieu of ITC.

Termination rights require careful negotiation to make sure that all possibilities have been considered. A party is usually required to use diligent or reasonable efforts to satisfy the conditions set forth in the PPA before it can invoke the failure to satisfy such a condition as a reason to terminate the PPA (*e.g.*, the seller cannot assert the inability to obtain a permit as a basis for terminating the PPA unless the seller has used diligent efforts to obtain

the permit). In cases where the buyer can invoke a termination right after the seller has exhausted its right to pay delay damages, careful attention should be paid to limiting the developer's liability and the buyer's remedy to the delay damages already paid to the buyer or to some other clearly defined payment.

### III. Purchase and Sale.

A. **Delivery Point.** The PPA will require the sale of energy to occur at a specified delivery point. If the energy is to be delivered at the plant in a "busbar" sale, the delivery point will usually be the high side of the transformer at the project's substation. In a busbar transaction, the buyer provides the transmission required to transmit the energy from the plant to the point where the buyer intends to use it (or to deliver it to another party in a resale transaction). The PPA may also require the seller to provide necessary and adequate transmission to take the energy away from the project's busbar or otherwise assign to the seller the curtailment risk associated with inadequate transmission away from the project. Alternatively, the PPA may also require the seller to deliver energy to a specific point some distance from the plant, in which case the seller will be responsible for securing the required transmission to the delivery point, and the buyer will be responsible for obtaining the transmission required to take the energy at that delivery point. The risk of curtailment of the transmission service to and after the delivery point is a risk that should be carefully allocated in the PPA. Transmission ancillary services can be fairly costly and should be specifically allocated in the PPA. Title and risk of loss pass from seller to buyer at the delivery point.

#### B. Pricing.

1. **Contract Rate.** Price is usually the most important part of the PPA. The price may be flat, escalate over time, or contain other features. An escalating price is often tied to a "contract year" that begins at a specified point after the commercial operation date is achieved, thus encouraging the seller to lock in the initial price and the escalation rate by achieving commercial operation as soon as possible. The rate may also be differentiated depending upon the time of day or season of delivery of the energy.

2. **Test Energy Rate.** The PPA may require the buyer to buy power from the units included in the plant as they are installed, connected to the transmission grid, and tested. Such energy may be sold at a rate lower than the rate that will be paid once the commercial operation date for the entire project is reached.

3. **Capacity Charge.** Because geothermal energy is a reliable baseload resource, the buyer will sometimes pay a price for the plant's capacity in addition to the energy rate. This price is usually stated in dollars per kW-month or kW-year. However, since geothermal plants are usually run as much as possible to take full advantage of the PTC and the availability of the resource, geothermal PPAs are much more likely to be structured as sales of energy than as sales of capacity.

4. **Excess Rate.** A PPA often requires the seller to specify how many MWhs the plant is expected to produce each year. This output estimate may form the basis of an output guarantee or a mechanical-availability guarantee. To encourage the seller to make an accurate estimate of expected output, the seller may be paid less than the contract rate for each MWh of energy in excess of, for example, 110 percent of the estimated annual output.

C. **Environmental Attributes.** Environmental attributes are the credits, benefits, emissions reductions, environmental air-quality credits and emissions-reduction credits, offsets, and allowances resulting from the avoidance of the emission of a gas, chemical, or other substance attributable to the geothermal project

during the term of the PPA, together with the right to report those credits. Environmental attributes are sometimes called “green tags,” “green tag reporting rights,” or “renewable energy credits.” The PPA should make it clear that the PTCs, any ITCs vs. Grants in Lieu of ITCs, renewable energy incentives (such as those that may be provided under a state program), and any other environmental attributes necessary to generate the quantity of power being sold to the buyer are not part of the environmental attributes and thus are not being conveyed to the buyer.

The PPA should clearly state whether energy generated by the plant is being sold with or without the environmental attributes. Failure to do so can (and has) led to disputes about whether the generator or the offtaker is entitled to the ownership and use of the environmental attributes. If environmental attributes are being sold, the seller will usually warrant title to the attribute, but will not warrant the current or future use or value of the attributes or whether and to what extent they will be recognized by law. In effect, the purchaser assumes the risk that the law or the market might change in a way that reduces the value of the environmental attributes.

The PPA should specify the delivery method of the environmental attributes. In the past this was done through a monthly or quarterly attestation and bill of sale delivered by the seller to the buyer. Today, most buyers will insist on the transfer of environmental attributes through a regional renewable energy registry and certificate tracking system, such as the Western Renewable Energy Generation Information System (WREGIS) or the Midwest Renewable Energy Tracking System (M-RETS), to ensure compliance with state renewable portfolio standards. These regional tracking systems generally involve both the verification of the number of environmental attributes created by a particular project in a particular calendar month and the transfer of such environmental attributes from one account holder to another.

**D. Allocation of Taxes and Other Charges.** The PPA should specify who pays any sales, excise, or other taxes arising from the transaction. Although most states do not tax wholesale energy sales, the parties may wish to consider allocating the tax liability that might result from future legislation.

#### **IV. Permitting and Development.**

**A. Commitment to Develop.** The PPA will make the project owner responsible for developing and constructing the project. The seller usually prefers a PPA that requires it to sell the project’s output only if the project is actually built. A buyer tends to view such a PPA as a put and will usually insist that the seller make some commitment to develop the project. Many tense negotiations revolve around what the seller will or will not be required to do to develop the project, as well as the off-ramps that each party has if the project does not achieve certain stated milestones.

**B. Status Reports.** The buyer is typically interested in the ongoing development of the project because it needs to know when the energy will be delivered onto its system or when it will need to take a hedge position. As a result, the PPA usually requires the seller to deliver regular reports to the buyer about the status of permitting and construction.

**C. Milestones and Delay Damages.** The PPA often includes a schedule of certain project milestones (*e.g.*, the date by which the seller must secure project financing, the date by which major equipment for the project must be ordered, the date by which all permits and the interconnection agreement must be in place, and the commercial operation date). If the seller fails to achieve a milestone, the buyer may have a right to terminate the PPA, collect delay damages, or require the seller to post additional credit support. The seller will therefore want to limit the number of milestones and bargain for some flexibility, especially in cases when a delay

in achieving an interim milestone is not likely to delay a project's completion date. Sellers sometimes prefer PPAs that provide that the buyer's only remedy if the seller fails to meet a project milestone is to terminate the PPA without recovering damages. Buyers are concerned that this gives the seller a right that resembles a put and strongly prefer to require the seller to suffer some consequences if project milestones are missed. In addition, Sellers often insist that there be no remedy for failure to meet interim milestones leading up to the commercial operation date, because unless and until the commercial operation date is actually missed, the Buyer suffers no damages. Many interesting negotiations revolve around the off-ramps that the seller will have versus the damages it will pay to the buyer if it fails to build the project in accordance with the PPA. A common middle ground is for the seller to agree to pay delay damages up to an agreed-on cap, which defines the limits of the seller's exposure if the project is not built, but gives the seller an incentive to use diligent efforts to finish the project on time.

**V. Interconnection and Transmission.** The PPA usually requires the seller to bear the cost of interconnection (including any network upgrades required by the new project) and all costs of transmitting the energy to the delivery point. If the seller is the project owner (as opposed to a marketer), it will also be responsible for negotiating the interconnection agreement with the transmission provider. The buyer will be responsible for arranging and paying for transmission from the delivery point. (For more information on interconnection and transmission-related issues, *see Chapter 7.*)

**VI. Performance Incentives.** A seller will usually prefer to enter into an "as-delivered" PPA, which means that the seller is obligated to deliver only what the project actually produces. A buyer will often require the seller to warrant or guarantee that the project will meet certain performance standards. Such guarantees usually enable the buyer to recover all or part of its incremental cost of purchasing replacement power and environmental attributes in the market to the extent that the project fails to perform as expected. Performance guarantees enable the buyer to plan around the plant's expected output for both load and, if applicable, renewable portfolio standard compliance, and strongly encourage the seller to maintain a reliable and productive project.

**A. Output Guarantees.** The PPA may include an output guarantee to the buyer. An output guarantee requires the seller to pay the buyer if the project's output over a specified period fails to meet a specified level, after taking into account output lost because of force majeure, maintenance, or other agreed-on subtractors. The period may be annual, biannual, or any other period fixed by the parties. The seller's engineering and other technical data regarding the characteristics and capabilities of the geothermal resource comprising the project will be crucial in determining appropriate levels of output guarantees and should factor in, at least, any expected normal degradation over the term of the PPA.

**B. Availability Guarantees.** The PPA pricing may be linked to a periodic availability test that enables the buyer to receive liquidated damages, which may be provided by means of a partial refund of any capacity payments, if the facility is not available at least a certain percentage of the time. The PPA will then address how scheduled maintenance outages, forced outages, and force majeure events are to be taken into account when determining the facility's availability.

**C. Liquidated Damages.** If a guarantee is not met, the PPA usually provides a mechanism for determining the damages suffered by the buyer. First, the parties determine the output shortfall (stated in MWhs) relative to the amount of output or capacity that the buyer would have received had the project lived up to its guarantees. Second, the shortfall is multiplied by a price per MWh determined by reference to an agreed-on index or other pricing factor. Because market indexes currently cover only power prices and do not include the value of environmental attributes, the PPA may also include an adjustment to account for the assumed value of

the environmental attributes or may use a firm price index as a proxy for the value of the energy plus the environmental attributes. The amount of liquidated damages is usually determined once per year. The seller pays the liquidated damages to the buyer or credits the damages against amounts owed by the buyer under the PPA. The seller may in addition seek to include the right to cure any output shortfall through delivery of replacement energy and environmental attributes at its option where seller and buyer can mutually agree on the time and place for such replacement deliveries. In any case, the seller will likely seek to cap liquidated damages or its replacement obligation on an annual or aggregate basis or both.

**D. Termination Rights.** To protect against chronic problems at an unreliable plant, the PPA may allow the buyer to terminate the PPA if the output or availability of the project is below a stated minimum for a certain number of years.

## VII. Curtailment and Force Majeure.

**A. Curtailment.** The PPA often describes circumstances in which either party has a right to curtail output. For example, the seller may have a right to curtail deliveries if the plant is affected by an emergency condition. Or the PPA may permit the buyer to curtail for convenience, in which case the PPA usually requires the buyer to pay the purchase price for the curtailed generation, together with the after-tax value of any corresponding lost incentives. Facility curtailments caused by transmission congestion or conditions beyond the point of delivery are often handled in the same manner, although the topic of curtailment is frequently a difficult issue in PPA negotiations.

**B. Force Majeure.** If energy is curtailed at a party's discretion or because the party is at fault, the PPA usually requires the curtailing party to pay damages to the other. If curtailment is caused by an event beyond a party's control, the party's duty to perform under the PPA may be excused. For example, if a disaster disables the transformer at the delivery point, the seller would be excused from delivering energy, and the buyer would be excused from taking and paying for energy, until the transformer is repaired. The party responsible for maintaining the transformer would, of course, be required to use diligent efforts to make repairs. For geothermal projects, sellers will often want the definition of what events comprise "force majeure" to include unexpected depletions of the geothermal resource that fuels the project, but buyers will want to ensure that normal degradation of the resource over time does not provide a force majeure off-ramp to the seller.

Parties often heavily negotiate force majeure provisions. Good provisions should carefully distinguish between events that constitute "excuses" (which relieve the affected party from its duty to perform) and those that are "risks" (which are simply allocated to a party). The ability to buy energy, capacity, or environmental attributes at a lower price, or sell them at a higher price, is generally not a force majeure event. Moreover, a party's inability to pay should not constitute a force majeure event under the PPA. A well-drafted force majeure clause will usually list a number of items that both parties agree are force majeure events, as well as list items that the parties agree are *not* force majeure events.

## VIII. Operation and Metering.

**A. Operation and Maintenance.** The PPA generally outlines the seller's responsibility to operate and maintain the project in accordance with prudent utility or electric industry practices. Such duties typically include regular inspection and repair, as well as completion of scheduled maintenance. To make it clear that the parties do not intend to allow the buyer to use the prudent utility or electric industry practice standard to improve on the output guarantee or mechanical availability guarantee, the PPA will often provide that the

liquidated damages due for a failure to achieve guaranteed output or mechanical availability is the buyer's sole remedy for an underperformance by the project.

**B. Metering.** The metering provision is used to determine the quantity of output for which the seller will be paid. The PPA usually requires one party (typically the seller) to install and maintain a meter. The other party typically has the right to install a check meter. If the seller's meter is out of service or generating inaccurate readings, the PPA should specify how the parties will determine the project's output. Tests should be conducted regularly to verify the accuracy of the seller's meters. The PPA usually states how often such tests will occur and at whose expense, and what form of notice will be given to each party. The PPA should specify how much variance in the meter's accuracy will be permitted and how repair or replacement of defective meters will be handled. The PPA may also provide that the plant's meter will be governed by third-party meter standards, such as those imposed on power plants located in California by the California Independent System Operator.

## **IX. Billing and Payment.**

**A. Billing and Payment.** The PPA will describe how invoices are prepared, when they are issued, and how quickly they must be paid. The billing provision often states that an invoice is final if not challenged within a certain period of time (usually one or two years). The PPA usually sets forth procedures for raising and resolving billing disputes, and the interest rate and penalties that apply to late payments.

**B. Right to Audit.** The buyer will typically have the right, upon reasonable notice and agreement as to costs, to access those records of the seller necessary to audit the reports and data that the seller is required to provide to the buyer under the PPA.

**C. Defaults and Remedies.** The PPA will usually list specific events that constitute defaults. These may include:

- failure by any party to pay an amount when due;
- other types of specified material defaults;
- the bankruptcy, reorganization, liquidation, or other similar proceeding of any party; or
- failure to provide or replace credit support within an agreed-on time.

The default clause should specify how long the defaulting party has to cure a default. If the default is not cured within the agreed-on period, the nondefaulting party usually has the right to terminate the PPA and pursue its remedies at law or in equity, or to suspend performance of its obligations. The remedies clause may also limit remedies or place a cap on a party's damages. For example, in some PPAs the buyer's only remedy for the seller's failure to achieve a given milestone is to terminate the PPA without seeking damages. The seller may seek to limit its overall liability to pay damages for its default under the PPA. If the PPA is built around a form such as the Edison Electric Institute form or Western Systems Power Pool form commonly used in trading and short-term transactions, care must be taken to override the termination payment components that are not desirable in a long-term PPA.

**1. Project Lenders and Equity Investors.** Even if the project is expected to be financed off of a developer's balance sheet, the terms of the PPA will usually take into account the possibility that the PPA will be assigned to a lender as collateral for project debt. The PPA will therefore contain provisions authorizing

the seller to assign the PPA as collateral; requiring the buyer to provide consents, estoppels, or other documents needed in connection with financing; and giving the lender various protections (including additional time to cure defaults). The PPA may also include provisions to address the concerns and cure rights of future tax equity investors.

2. **Buyer Options to Purchase the Project or Special Purpose Entity.** In recent years, utilities have shown a growing interest in owning renewable energy projects. In PPAs, this interest often takes the form of an option to purchase the project or the entity that owns it on or after a specified date. Such options should be handled carefully. An option to purchase the project or the interests in the special-purpose entity that owns the project for anything other than the project or entity's fair market value at the time of exercise has been generally disfavored by tax attorneys. Other types of options can raise a fundamental question as to whether the owner of the project is an owner for federal income tax purposes or whether the financing arrangement is something other than "ownership" (*e.g.*, a loan). Revenue Procedure 2007-65 explicitly provides as one of the qualifying elements that there is no developer/investor/related party purchase option for less than the fair market value (at time of exercise).

**D. Boilerplate and Examples.** The PPA will also address "boilerplate" matters, such as confidentiality, representations and warranties, governing law, the limitation of consequential damages, dispute resolution, consent to jurisdiction, and waiver of jury trials. Because the transaction between the parties may involve complex calculations, the PPA should also include a number of carefully considered examples that illustrate how those calculations will work in certain scenarios.

**X. Uniform Commercial Code.** In some states, electricity is considered to be a "good" for purposes of the Uniform Commercial Code ("UCC"). In those states, the UCC would impose an implied warranty of merchantability and fitness for a particular purpose on the sale of electricity (and possibly on the sale of the associated environmental attributes) unless those warranties are conspicuously disclaimed in accordance with UCC § 2-316. In a state that applies the UCC to PPAs, a party with reasonable grounds for insecurity about the performance of the other party may require the posting of adequate assurances of performance under UCC § 2-609. This "reasonable assurances" standard may apply in cases where a PPA does not expressly disclaim the applicability of the UCC's adequate assurances provisions, even if the PPA does not expressly apply a credit support standard to the buyer. In states that treat electricity as a good, the parties will want to give careful consideration to the effect of the UCC on the PPA.