

investing in clean energy

## Current financing of distributed solar energy projects

By Ed Feo, Milbank Tweed Hadley & McCloy LLP



*Ed Feo is a partner in the international law firm of Milbank, Tweed, Hadley & McCloy LLP. He co-chairs the Firm's project finance and energy practice and is a member of the Firm's Global Executive Committee.*

Last year was a record year for investment in renewable energy, with more than \$117 billion invested in the sector. Of that amount, \$54.5 billion was invested in financing renewable energy assets, an increase of 40 percent over 2006. While much of the renewable energy asset financing went to wind energy projects, a significant amount also went to the financing of solar energy projects. In 2007 a record 314 solar energy projects were installed in the United States – an increase of 125 percent over 2006. Today there are over 80 utility-scale solar projects planned in the U.S., plus over 5,000 MW of retail PV projects are expected in states such as California, New Jersey, Colorado, Connecticut and Maryland, including incentive programs for the support of distributed solar energy projects. These projects will require a significant amount of capital in 2008. Where will the capital come from and what will be the structures of these solar energy deals?

### The foundation of financing distributed generation

Financing of a solar energy project is based on sales of energy and green attributes, subsidy payments and tax benefits. Cash revenues are most typically derived from the sale of energy, renewable energy credits or other “green” attributes of the solar project. These various products can be bundled together, as is commonly the case in utility power purchase agreements, or they may be separately sold, as is the case with many retail energy projects. The financeability of the revenue stream will be dependent on the credit of the purchaser, the price paid and the term of the purchaser’s commitment. At the wholesale level, power purchase agreements are often now including minimum performance obligations on the seller – such as an obligation to achieve an aggregate level of output or availability over time (which may be adjusted to remove the effect of resource variances). Utility purchasers subject to renewable portfolio standards have been especially keen on assuring a level of performance from the renewable energy seller. Retail level purchase agreements have not included such performance standards, mainly because the purchaser is not dependent on the solar energy production (having the ability to pull electricity from the grid) although we are seeing the start of a trend for retail customers to look for a minimum level of seller performance.

Subsidy payments are also financeable, assuming the credit of the buyer is acceptable and there is a reasonable price and term. The issue with financing of many subsidy programs has been the firmness of the commitment of the subsidy provider. To the extent that payments are subject to appropriations, or the terms of an agreement to provide subsidies are terminable at will by the subsidy provider, then these sources of revenues will be subject to a significant discount by the financing party – assuming they can be financed at all. This was one of the key challenges, for example, with the financing of the supplemental energy payment program in California.

Tax benefits constitute a significant portion of the value of a solar energy project. There are two principal benefits: the federal income tax credit for 30 percent of the cost of new equipment used to generate electricity from solar energy, and the five year MACRS depreciation. The investment tax credit reverts to ten percent for projects placed in service after December 31, 2008, and understandably the solar energy industry is lobbying for an extension of the larger investment tax credit. The solar investment tax credit cannot be used by a utility in its own service territory under the current law. The passive loss rules and the at risk rules under the Internal Revenue Code make the investment tax credit difficult for individuals to use, and many smaller developers do not have sufficient tax basis or income to utilize the credit. Customers of distributed generation PV projects may also not qualify for, or have the tax obligations sufficient, to use the credit generated by a solar energy project. There is, however, an entire investment industry focused on monetizing these and other tax credits. These investors typically are large financial institutions, insurance companies and industrials with significant U.S. federal tax bills. The investment tax credit (unlike the production tax credit applicable to wind and certain other renewable technologies) can only be claimed by the taxpayer who owns the asset at the in-service date of the solar energy facility. An exception is available for sale leaseback transactions in which the owner of a solar energy facility enters into a sale to, and then lease of the facility back from an investor vehicle – in these circumstances the credit can be claimed by the investor if the sale leaseback is consummated within 90 days of the in-service date.

### Financing structures

In the distributed solar energy industry, the current

model for optimized financing of such projects is the combination of a power purchase agreement for the sale of energy to a retail customer, and an investment vehicle owning the solar energy facility, in which a tax motivated investor makes its investment. This model permits a solar developer to deliver green energy to a customer at a price the customer finds attractive and which reflects the monetization of the tax benefits by the investor.

The financeability of the power purchase agreement with the customer will depend on the terms of the contract and the credit of the customer. A financeable power purchase agreement is for a term of 10 to 20 years, with energy being sold at a specified price, which may be subject to an escalator. A number of these contracts have priced energy at a discount from the customer’s tariff, but investors and lenders have been concerned about the risk of a drop in the tariff and the related loss of revenue by the seller. Hence, in tariff discount deals a floor price is included to assure the financing parties that the energy price will be no less than a level they consider to be sufficient to support the financing of the project.

The credit of the customer is a fundamental issue for these transactions to work. The market thus far has focused on investment grade or near investment grade customers. Large retailers are an example of the type of customer currently being financed. But with the bulk of the potential distributed generation market being with middle market companies, or even smaller and less creditworthy entities, developers are exploring how to structure power purchase agreements and related financing to be able to extend this model to the much broader customer market. Figuring out how to mitigate customer credit risk is a significant challenge.

In terms of investment vehicle structures, there are two basic models in the market: disproportionate allocation partnerships and leases. In the first, the solar facility is owned by a partnership or limited liability company in which the developer and the investor are partners, and in which the investor makes its investment. The investor receives a disproportionate allocation of the income and loss (including tax benefits) until a target rate of return is achieved, after which the allocations “flip” to a ratio more favorable to the developer. The IRS issued guidelines in October 2007 for wind energy production tax credit transactions, in which allocations of 99/1 flipping to 5/95 were considered within a safe harbor from challenge by the

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IRS. The financial market is extrapolating from those guidelines to solar energy transactions. The sponsor/developer frequently has an option to buy out the investor's interest for fair market value, determined when the option is exercised.

In the lease structure the solar energy facility is sold by the developer to an investment vehicle that either leases the facility directly to the ultimate customer or to a lessee entity, which in turn has a power purchase agreement with the customer. The lessee makes lease payments for the use of the facility, and either keeps the benefits of the electricity or sells the electricity under a power purchase agreement to a third party. The lease is typically a net, "hell-or-high water" lease, whereby the lessee is obligated to pay fixed rent (or specified termination value in the event of a loss of the assets) to the lessor for the term of the lease, irrespective of the actual performance of the facility, existence of force majeure events, etc. Lease rules require that the lease term not exceed a specified portion of the useful life of the asset and that the residual value be in the range of 20 percent or greater. At the end of the lease term, the lessor becomes the sole owner of the facility, but the lessee is given an option to purchase the relevant assets at the end of the term (and sometimes at one or more specified times before the end of the term) at fair market value at the time.

Each of these structures has advantages and disadvantages. The advantages of a partnership structure include:

- The investor residual value of five percent is significantly less than a lease residual interest.
- The developer will have a cheaper purchase option at the time it is to be exercised.
- A partnership arguably has less default risk than in a lease because there is no fixed rent schedule.
- Typically a partnership is less document-intensive than a lease transaction.
- A partnership can provide greater visibility of the tax investor's return.
- The investor may not always require an appraisal of the project.

The disadvantages of a partnership structure include:

- The deal must be closed and investor must have funded before the facility is placed in service.
- Management rights and powers (issues related to who has the power to manage the company and run the projects and what level of consents is needed for what actions) can be difficult to negotiate.
- The developer has to fund its portion of the partnership/LLC interests.
- The developer does not have the immediate ability to keep for itself all of the upside generated by the project as would be the case in a lease, where rent payments are fixed upfront.

The advantages of a lease structure include the following:

- The sale/leaseback transaction can be closed within three months after the facility being placed in service, whereas a partnership transaction must be closed before the facility is placed in service.
- Financing is available at full value.
- Fixed rent and the ability to stretch out the term of the lease result in the lessee being immediately able to keep the upside if the project generates greater returns than is anticipated.
- Tax guidance for leasing is generally thought to be clearer and results in greater tax certainty.

The disadvantages of a lease include:

- The lessee's purchase option is more expensive than in a partnership structure.
- The developer is required to make scheduled rent payments and comply with extensive covenants.
- The developer may not have visibility with respect to the tax investor's return.
- Leasing deals have traditionally been document- and time-intensive.
- An appraisal is almost always required for each project.

Beyond the choice of structure being used in financing of distributed solar energy projects, there are a number of other issues to be addressed.

Because distributed generation projects are small, transaction costs tend to be relatively high on a per project basis. As noted above, the credit of the ultimate purchasers of the energy may be an issue with financing parties. Sponsors have found that using a portfolio approach can address both issues to some extent. Transaction costs associated with a portfolio financing can be spread over a larger asset base. And the low performance of any one asset in a portfolio can be mitigated by the performance of other assets in a portfolio – the so called "portfolio effect".

A standard approach in today's distributed generation market is for a solar developer to obtain a commitment from one or more tax equity investors to fund a portfolio of solar energy projects. Given the mechanics of the investment tax credit (requiring that the credit can only be earned by the entity owning the asset when it is placed in service), the developer does not have the ability to warehouse projects to put in a portfolio when they are operating, as is common practice in wind energy portfolio transactions. Instead, the developer obtains a forward commitment of the investor to fund or purchase future projects before they go in service or to do a sale leaseback within 90 days thereafter.

We have seen the firmness of funding commitment and the conditions to funding vary widely in these transactions. In most of the transactions where the portfolio is prospective, the developer may offer projects for invest-

ment by providing a pro forma, a copy of a signed power purchase agreement, information regarding the creditworthiness of the customer, and a description of the technical aspects of the project. Certain customers may be pre-approved up to a specified investment amount. The form of power purchase agreement may also be pre-approved. The more the criteria for qualifying projects can be set in advance, then the more firm the financing commitment will be. However, if the investor return is set based on a set of parameters such as credit quality, form of agreement and other factors, then the pricing for each project may be formulaic. To the extent that there is no specific return target, the benefit of having very specific deliverables for a project to qualify for a portfolio is diminished as the investor may effectively re-price the transaction at will.

Our experience is that the conditions precedent are being mitigated as investors gain greater familiarity with these transactions. In the first of the portfolio solar deals done in 2005, the conditions tended to mimic those in a larger project financing, so that the developer was not achieving the desired overall reduction of transaction costs. For transactions of less than a million dollars, the developer was being compelled to deliver legal opinions, appraisals, updated expert reports and the like – just as in a billion dollar project financing. Today the conditions are more streamlined and consistent with those for moderate sized equipment leases.

Simply put, investors are looking for the benefits of performing projects to cover the shortfalls from defaulting projects. The investor may desire a cross-collateralization across all projects such that each project secures the performance of all others. This may result in lessees or customers being jointly and severally liable for one another, which may not be a commercially viable solution if such entities are unrelated to each other.

The market for financing of distributed solar generation projects has evolved quickly in the past two years. The financial structures necessary to monetize tax benefits for retail customers are known and continue to be refined. The terms of the deal continue to be advanced in a manner that provides the developer with a financing commitment and streamlined terms for bringing projects to the financing vehicle. We expect 2008 to bring continued improvements in these products, as well as a continued robust growth in the financing market for these projects.

■ **Milbank, Tweed, Hadley & McCloy LLP**  
www.milbank.com

**Edwin F. Feo, Partner**  
Milbank  
601 South Figueroa Street, 30th Floor  
Los Angeles, CA 90017-5735  
Tel: +1 213 892 4417  
Email: efeo@milbank.com