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Assessing Solar Incentives

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Commercial solar energy use has grown significantly in recent years and a business, government or not-for-profit organization can go solar by arranging to install a solar array (a rack or assembly of solar panels) on or near a facility that it owns and that uses electricity. The facility would then receive its electricity from a combination of the solar array and the utility. While some organizations have already made the transition to solar, and there is a growing appreciation of the social and environmental value of solar energy, most organizations have not yet made the change.

For many organizations the financial incentives are less clear.

This article summarizes solar financial incentives. It also describes how organizations that are not otherwise involved in renewable energy can take advantage of these incentives, whether through a power purchase agreement or directly. This article does not address the very significant benefits to an affordable housing developer of including solar in a low-income housing tax credit (LIHTC) project. (As previous articles in the Journal of Tax Credit Housing have pointed out, when solar tax credits cover 30 percent and LIHTCs effectively cover 70 percent of the development costs, affordable housing projects that install solar for common area loads can cover all the capital solar costs, then use the free solar energy to benefit the affordable housing project.)

Financial Incentives

The financial motivation for an organization to go solar is that the cost of electricity will be less than what the cost would have been without the solar update. Specific financial incentives, which can offset most of the up-front cost of the solar facility, are summarized in the following.

Federal Tax Credit or Grant

The owner of the solar energy facility can claim a credit against its federal tax liability generally equal to 30 percent of the solar equipment cost. The full tax credit may be claimed when the solar facility is placed in service. Thanks to the recent stimulus legislation, the owner now has the option to receive instead of the tax credit, a cash grant in the same amount. The grant is not included in the owner's gross income for federal income tax purposes. The Treasury Department is to pay the grant to taxpayers who have submitted a grant application within 60 days of the date on which the solar equipment is installed. Installation must occur prior to 2011. The grant, like the tax credit, is not directly available to government entities and not-for-profit corporations, and is subject to recapture if the owner sells or transfers its interest in the solar equipment, or if the equipment fails to qualify as energy property within five years of installation.

Depreciation

A portion of the solar equipment (approximately 85 percent) qualifies for depreciation deductions over a five-and-a-half-year period, with an additional 50 percent first-year bonus depreciation available for 2009, if the owner elects it, and can take it.

State Incentives

Several states offer an array of incentives for solar-produced electricity. For example, California, through the California Solar Initiative, requires that regulated utility companies provide their electricity customers with either an up-front payment based on expected use (for smaller solar facilities) or periodic payments over a five-year period based on actual use (for larger solar facilities). Oregon, Hawaii, New Mexico and Vermont have state income tax credits, and Arizona, Colorado, Connecticut, Massachusetts, New Jersey, Wisconsin and a growing number of other states have their own programs. In addition, municipal, county

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and local utility company rebates may be available.

Net Metering

In more than 40 states, the local utility will credit the customer for electricity that is generated by the solar equipment and not used by the customer. This excess energy is re-directed by the utility to other customers. The credit amount is based on retail electric prices (which can provide customers with a significant benefit during peak solar months), or it may be capped at some lower amount.

Renewable Energy Credits

As the solar equipment generates electricity over time, renewable energy credits, also known as RECs, that establish the "environmental attributes" of the electricity are available. REC certificates can be sold and traded or retired. Potential purchasers include utilities (to demonstrate meeting renewable portfolio standards) and, in some cases, other electricity customers (to authentically represent that their electricity is generated from renewable sources). The market for RECs is new and growing and the value of RECs varies substantially by state. It is also subject to significant change based on future government renewable energy policy.

Energy Savings/Cash Flow and Residual Value

Solar energy is free and creates no carbon effluent. Thus, a solar update can immediately reduce the amount of electricity purchased from the utility. As described later in this article, an organization that decides to go solar may enter into a power purchase agreement or in some cases, own the equipment directly. With direct ownership, an organization that has the resources to pay for, or finance, capital costs, will realize the full benefit of electricity cost savings. With a power purchase agreement, capital costs are funded not by the host, but by investors and then amortized, with cash flow generated from the energy, incentives, and the residual value of the solar equipment upon sale being used to repay the investors.

The approximate value of solar financial incentive components is summarized by the graphic on page 3:

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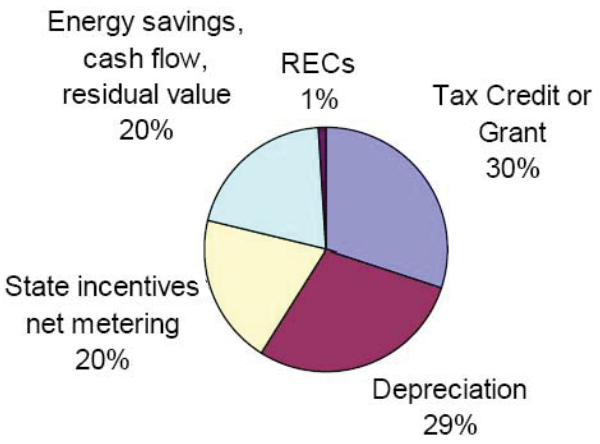

Realizing the Benefits

One way for an organization to realize the benefit of solar financial incentives is to directly purchase the solar equipment. However, government entities, not-for-profit corporations and even some for-profit businesses cannot realize the full value of the tax credit and the depreciation deduction. This is due to certain tax limitations (known as the at-risk and passive-loss rules) and the fact that realizing the full benefit of credits and deductions requires sufficient taxable income.

In recent years, a market has developed for institutional investors (who are not subject to the at-risk and passive-loss rules) to provide electricity through solar equipment that is effectively owned by the investors. A host organization that will use electricity enters into a power purchase agreement with a partnership or limited liability company formed for investors. This special purpose entity (referred to here as a PPA entity) agrees to sell to the host solar-produced electricity at predetermined rates. A solar developer (a PPA provider) manages the PPA entity and brings together various parties to design, install and maintain the solar equipment. The PPA entity allocates tax credits, depreciation deductions and cash flow to the investors. The power purchase agreement requires a long-term commitment, typically 15 to 20 years. At the end of the term, the host has an option to purchase the solar equipment for fair market value.

Due to the current credit crisis and the downturn in the economy, the number of active institutional investors for solar tax incentives has decreased. This has limited the availability of the power purchase agreement for certain organizations, but it is nevertheless a growth industry. The recent stimulus legislation addresses the downturn of tax appetites by providing an option to receive, instead of the tax credit, a cash grant in the same amount. More for-profit organizations can realize the benefit of a grant than a tax credit, so direct ownership will in some respects be more attractive to organizations that have resources to pay for, or finance, the solar facility cost. However, for some organizations a power purchase agreement will still be the most effective approach.

Power Purchase Agreement or Direct Ownership

The primary benefits to the host of entering into a power purchase agreement are:

- *Lock in Predictable Energy Rates.* Market energy rates are unpredictable and—most agree—rising. Under the power purchase agreement, the host locks into a starting rate for solar energy it uses and a set escalator for the long term. The rates reflect the monetized value of the financial incentives described above to the institutional investors (other than net metering benefits, which always belong to the host). On the other hand, if the host owns the solar equipment, it may not be able to realize the full benefit of the financial incentives. For example, government entities and not-for-profit corporations cannot receive the tax credit or the grant, or the depreciation deductions.
- *Low Up-Front Cost*. The up-front cost to an organization of entering into a power purchase agreement is very low (zero capital cost, and only some legal and planning costs). However, if the host owns the solar equipment, it will need to purchase the equipment and pay for installation with cash or through a loan.
- *No Maintenance Responsibility*. Under the power purchase agreement, the PPA provider, as manager of the PPA entity, is responsible for maintaining the solar equipment. A host that owns the solar equipment will need to either purchase long-term

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warranties for the equipment, or pay technicians for ongoing maintenance, or both.

The primary benefits to the host of owning the solar equipment are:

- *Simplicity*. Owning solar equipment is in some respects simpler than entering into a power purchase agreement. The power purchase agreement is a complex arrangement, requiring negotiation. Institutional investors often have strict requirements, but they do not sign the power purchase agreement. Instead, the host contracts with the PPA entity that is owned by investors and managed by the PPA provider. Negotiations can be complicated by the number of parties at the table.
- *Control*. If the hosts owns the solar equipment, the host can maintain a high degree of control over the area in which the solar equipment is located, especially if the purchase of the solar equipment is not financed with debt. A power purchase agreement, on the other hand, requires that the host provide to the PPA entity access to the area where the solar equipment is located. In addition, if the host desires to sell the facility, then it will need to assign its obligations under the power purchase agreement to the new owner, which the PPA entity may need to underwrite as an acceptable credit risk.
- *Possible Long Term Cost Savings*. If the host is able to realize the direct financial incentives described above, and if electricity rates do not increase dramatically, then on a long-term basis, direct ownership can be more cost effective than a power purchase agreement. In order to minimize risk, a host that seeks to realize these savings should have a good indication of its financial status over the next five to 10 years. Financial and tax advisors should also be consulted.

Conclusion

The choice between direct ownership and power purchase agreements is informed by circumstances specific to each organization and its capital and operating budgets. Now is the time to review financing and ownership options with advisors and consultants. During the coming months, the federal government and industry stakeholders will work through the details of the grant program. Once regulations and procedures are in place, organizations that have already started to evaluate their solar options will be well positioned to take advantage of solar financial incentives, one way or the other. ❖

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