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EXPLORE A SOLAR SYSTEM

With the price of solar panels down and incentives likely hitting their peak, this may be the best time to invest in solar energy.

By Jaime Lackey

These days, clean energy seems more about politics than business. But politics can influence the business climate — and businesses' bottom lines. In particular, incentives created to drive growth in clean energy are creating opportunities for property owners to install cost-effective solar energy systems that can save thousands on energy costs — or even bring in additional revenue.

Through the end of 2011, companies that install solar panels are eligible to receive a 30 percent federal cash grant, which can be used as a down payment on the solar installation. The cash grant is set to expire at the end of the year, but it will be converted to an investment tax credit, which reduces the amount a business owes on its taxes. Several states across the Northeast offer additional incentives, with Solar Renewable Energy Certificates being the most lucrative for property owners.

While incentives make solar installations more affordable, economic factors have also driven the actual cost of traditional solar panels down significantly.

For building owners and operators that want to reduce energy costs or increase the profitability of their buildings, solar is a viable option. "Installing solar is like putting another tenant in the building," says Adam Putter, president of Fort Lee, New Jersey-based Solar Roof Development. "It is profitable and it increases the value of the property."

Any commercial or retail building can benefit from solar, says David Wei CEO of Iselin, New Jersey-based of U.S. Solargy. "This includes hotel and motel properties, office buildings, manufacturing buildings, malls, schools, churches, car dealerships and warehouses."

According to Chad Gessin, vice president with Manhasset, New York-based Chatham Energy Solutions, "Any building with great solar access and continuous open roof space is a good candidate for solar. The electric profile of the building is not important; the property doesn't need to have a tremendous energy demand."

However, companies that own and operate their own buildings — especially those with high electricity usage — may see the greatest benefit from solar, says Putter.

Matthew Jarmel, principal with Livingston, New Jersey-based Jarmel Kizel Architects and Engineers, notes, "Single-story buildings with large roofs have the opportunity to make the greatest amount of energy from a rooftop installation, but any building can make a dent in its use of grid electricity."

He adds, "Of course, the companies who pay their own power bills are often most interested in solar. The landlord for a net-leased retail building typically has little interest in solar. But we can show building owners how they can profit by selling power to tenants — and the tenants benefit because the rates are cheaper than those offered by utilities."

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Cost

Costs for traditional solar modules have decreased dramatically, says Jarmel. He notes that increased supply and growing competition among solar panel suppliers have driven prices down 40 percent in the last 18 to 24 months.

"Prices are very inconsistent," adds Gessin. "It is hard to say if dropping prices are a result of supply increases or if they are long-term drops. Recent price decreases are related to the economic crisis, austerity measures in Europe and the earthquake in Japan. Many factories in the U.S., China and Germany will cut production in response to falling demand. As a result, prices may come back up."

Prices certainly will not continue to drop, he says. "Commodities like solar panels are eventually reduced to the value of their materials, and we are probably getting near the bottom of what they actually cost."

Cost is obviously a large part of the equation, Gessin says. "And its a hard thing for most building owners to analyze because different solar proposals will likely not be for the exact same system, and maybe not even for the same type of system. If you're just comparing annual energy production versus initial cost, you may not be seeing the whole picture. You really want to look at the project holistically and analyze the most cost-effective, time-effective and lowest impact design that meets the goals of the project."

When it comes to return on investment, the key factor is the payback period, Gessin notes. "As system costs go down and incentives go away, the internal rate of return will be impacted due to the timing of cash outflows and inflows. But at the end of the day, if you've gotten your investment back in 2 to 5 years and then have another 25-plus years of life on the system with minimal maintenance costs, that's the key."

Incentives

Incentives are critical for shortening the payback period and making solar affordable. "Right now incentives are probably as good as they are ever going to get," Putter says.

Solar Renewable Energy Certificates (SRECs) are an incentive offered by some states in order to spur the use of solar energy. These states have Renewable Portfolio Standards, through which they mandate that utilities sell green energy. For example, 20 percent of the power sold in New Jersey must be clean energy by 2020. If utilities don't meet the requirement in any given year, they must pay a significant fine. In order to meet the requirement, utilities can install solar or they can buy SRECs, or essentially pay consumers who install solar.

"Typically, when a company installs solar and sells its SRECs to a utility, the company will see a 4- to 8-year payback on the solar system. After the payback period, the power is free for the remainder of the life of the system," Jarmel explains. The company may continue to generate SREC income for several years, depending on the state. For example, New Jersey's solar projects can earn and sell SRECs for 15 years.

One SREC is earned for every 1,000 kilowatt hours of generated solar power. SRECs are derivatives that are sold as commodities. The problem with SRECs is that the value fluctuates. Currently, there is concern about oversupply in New Jersey and the value of SRECs in the state has dropped from approximately $700 in 2009 to $204.72 on the spot market. (Source: www.FlettExchange.com on Friday, September 23.) Some states have a floor price on SRECs. "Massachusetts has a floor of $285, which takes a lot of the volatility out of the market," Jarmel says.

"SRECs are the most important variable to estimating the return on investment for a solar system. It is like playing the stock market. You build your system and then you produce your own stock," says Jarmel. "Due to the volatility of SRECs, power savings alone are usually not enough to justify the cost of installing solar."

New Jersey has one of the most successful SREC programs in the country, Jarmel says. Other states are implementing incentive programs as well. Gessin notes that New York City offers a 20 percent property tax credit to solar system buyers through 2012. Putter adds that New York is trying to pass a bill that mimics New Jersey's SREC program and that Massachusetts recently implemented new incentives. (For more information about state incentives, visit The Database of State Incentives for Renewables and Efficiency at www.dsireusa.org.)

Federal grants and tax benefits are also a large factor in the affordability of solar panels. Currently the federal government offers a 30 percent cash grant on the cost of the system as well as accelerated depreciation. (This year, commercial systems can be depreciated 100 percent in the first year.) At the end of the year, the cash grant is set to expire. (Systems do not need to be installed by the end of the year to get the grant, but you must have an irrevocable contract by December 31.) Thereafter, the federal government will offer a 30 percent investment tax credit until 2017.

Jarmel believes that the expiring federal incentive will push the value of SRECs back up. "I think solar installations will slow in 2012 when the cash grant expires and there will be a shortage of SRECs," he says.

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Financing & No-Cost Options

The solar industry has developed creative financing options that ensure the success of the industry. For example, Putter has seen clients combine the 30 percent cash grant with 10 percent down and a 60 percent loan through New Jersey-based Public Service Electric & Gas Company that uses SRECs as collateral. The property owner then owns the solar system outright, gets full depreciation and does not pay anything for electricity. On a $4 million system on an 85,000-square-foot roof, the property owner would put $400,000 down. The depreciation would be more than $1 million. And the company could save $150,000 each year for 25 to 30 years on electricity costs. The loan would be at an 11.3 percent interest rate, but SRECs would pay off the loan and should generate some income before the end of the SREC term. "Even if there is no income from the SREC after the loan is paid off, it is still a great return with very little risk because the SREC risk is taken out of equation," Putter says.

There are as many types of financing for solar systems as there are potential configurations for the panels on a property. In addition to an outright purchase of a solar system financed by incentives and loans, there are arrangements where building owners lease solar equipment or sign a power purchase agreement (PPA) with a third-party solar system owner.

In the case of equipment leases, a property owner pays a certain rental rate for the equipment each month, Putter explains. There is no money down and generated electricity is free.

With a power purchase agreement, a third-party pays for, installs and maintains the solar system. The user purchases power at a discount of up to 50 percent. The solar system owner receives guaranteed income for 15 to 20 years, Putter says.

U.S. Solargy offers a no-cost solar system. The company negotiates a PPA with customers, guaranteeing that customers will save at least 15 percent on electricity costs. In some cases, customers will save up to 50 percent on electricity costs. U.S. Solargy then installs, owns and maintains the solar system, and the contract is transferable if the building is sold.

"With our no-cost solar system, building owners avoid the risk of fluctuating SRECs, and it's really worry free," Wei says.

With both PPAs and equipment leases, the third-party benefits from the federal and state incentives.

Solar Stability

Recent media reports have focused on of the bankruptcy of Solyndra, a solar company with $535 million in loans guaranteed by the U.S. government. What effect does this have on the solar industry? Not much.

Solyndra produced cylindrical panels of thin-film solar cells. Because the cells were cylindrical, they could absorb sunlight from all angles, including light bouncing off a reflective roof. Theoretically, this new technology could produce more power on a smaller area than traditional panels.

"But the technology was proprietary. No one else made it. It was unproven and more expensive [than traditional solar modules]," says Jarmel. "The technology still has a future, but the company couldn't compete today because it wasn't cost-effective."

The vast majority of solar panels sold are monocrystalline panels, Jarmel adds. "The technology was developed in the 1950s and remains essentially unchanged. Patents have worn off and any one can manufacture them. They have 60 years of data behind them."

Gessin agrees: "Solyndra had a unique photovoltaic technology, but it was more costly. With the lower prices of standard modules, they just couldn't compete. For consumers, it is risky to buy the new thing. You don't know if the manufacturer will be standing behind the technology and the warranty in 25 years. And why would you want to trust a newly deployed technology with a 25-year investment? You want to buy from companies that have been around for years and produce stable, proven technology with incremental advances each year. Traditional panels have a solid track record."

Wei notes that First Solar is using thin film similar to Solyndra's product; however, the company employs a different business model. "First Solar is not just a manufacturer but also builds and holds the solar farm itself. They are able to keep cost down on their product," he explains.

The solar industry must be evaluated by its technology as well as its business models.

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Installing Solar Panels

Solar installers and solar integrators should be evaluated by their overall knowledge and experience. "You need to trust that the installer understands your building," Gessin stresses. "Too many companies are familiar with solar but not with the buildings they put them on."

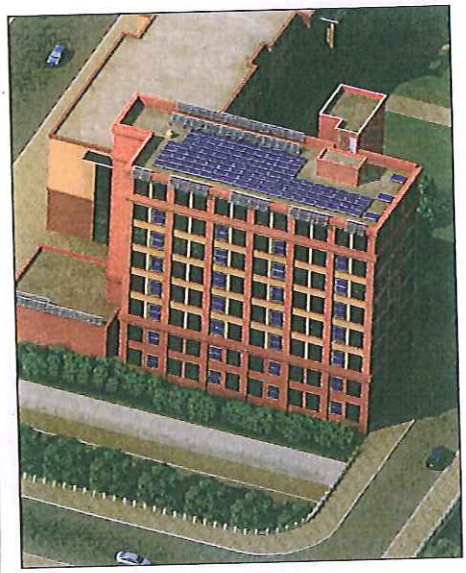
Solar panels are very lightweight so most roofs can accommodate the weight of the panels. The bigger challenges are wind, snow accumulation and water drainage issues. It is also important that the installer work closely with the roofing manufacturer or the roof's warranty holder.

"You want your solar provider to understand the solar technology and how it works — but that may be the least important piece of the puzzle," Jarmel says. "It is crucial that your installer understands building design and construction. You also want to work with someone who understands the financing behind solar — and most importantly you want to work with someone who understands how to harvest SRECs."

More and more, businesses are sensitive to energy costs. Whether tenants or owner/operators, many companies want to reduce electricity costs. "Many owners and managers are tuned into the value of energy and how to turn it into an asset rather than a liability," Gessin says.

For those just starting to look into energy issues, Putter stresses the urgency: "The cost of a solar system might be less in 3 years, but with today's incentives, your whole investment might never be better than it is today."

Solar Photovoltaic System Installed at New Jersey Institute of Technology



Jarmel Kizel has designed a solar photovoltaic system for a New Jersey dormitory.

Jarmel Kizel has designed a solar photovoltaic (PV) system for The New Jersey Institute of Technology at its Oak Hall residence in Newark, New Jersey, to significantly reduce utility costs for the 230-bed dormitory.

Jarmel Kizel's Energy Solutions Studio designed a 50-kilowatt solar PV system that includes roof and building façade-mounted solar arrays, along with a solar thermal domestic hot water system. The system will use the energy generated from the solar panels to preheat city-supplied water before it reaches the water heater. In turn, the water heater requires less energy to run. The solar thermal hot water system is anticipated to reduce annual energy costs for domestic hot water by more than 50 percent.

More Information About Solar

The Database for State Incentives for Renewables & Efficiency (www.dsireusa.org): Provides information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency.

Flett Exchange (www.flettexchange.com): Provides information about Solar Renewable Energy Certificates (SRECs).

SREC Trade (www.SRECtrade.com): Provides information about SRECs and various states' Renewable Portfolio Standards.

The Vote Solar Initiative (www.VoteSolar.org): Provides federal, state and local information about renewable energy.

Each state also has a board of public utilities, which should be able to provide information about SRECs, as well as solar financing rules and regulations.