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Panels, pricing and project bonds boost US solar

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Until as recently as 2009 small solar photovoltaic (PV) arrays accounted for most of the capacity that had come online in the US. But by that year, and despite the small installed bases, lenders and investors knew that larger solar deals were coming. Utilities had begun signing power purchase agreements (PPAs), often to meet strict state-mandated renewable portfolio standards (RPS).

But the timing of these impending deals remained unclear. The US had entered its worst recession in decades, and the Lehman collapse had triggered unwelcome changes to lending margins and tenors. Lenders were still not entirely comfortable with PV technology, particularly thin-film modules.

One year later, in September 2010, Eurus Energy America and NRG Energy closed on $209.5 million in debt for the 45MW Avenal PV portfolio in southern California, which benefited from a 25-year panel warranty from Sharp. Natixis and UniCredit were joint lead bookrunners, along with joint lead arrangers Crédit Agricole, Mizuho, Santander and SMBC. Avenal was not the first US solar financing, though it was the first PV financing of more than $100 million, and priced at just above 200bp over Libor, lower than other power and renewables deals in 2010.

Activity picked up in 2011, based on generous grants and loan guarantees, though the political backdrop worsened sharply, in large part because of this government support. Low solar module prices caused the collapse of several solar manufacturers in the US and elsewhere. Solyndra, which had closed $535 million in guaranteed debt with the US Department of Energy (DoE), collapsed. Solyndra was the first recipient of a loan guarantee from the department, and several of its investors were close to the Obama administration. Congressional scrutiny of the departments loan programme office effectively killed off the programme.

Solars moment

Despite its short life, the programme may have achieved its goal of spurring increased activity. According to research firm GTM 1,310MW of financed solar was installed in the US in 2011 (excluding direct purchase systems), a figure that doubled in 2012, with 3,361MW of solar scheduled to come online in 2013. Cynthia Howells, a director at Fitch in New York, says that the DoEs Section 1705 loan guarantee programme, though it has been defunct since 30 September 2011, was the catalyst for the sectors growth.

An equally-maligned part of the DoE guarantee programme the financial institutions partnership programme (FIPP) may have been the most influential. While Solyndras loan came from the Federal Financing Bank, a government institution, the FIPP loans came from private lenders, particularly non-bank lenders, and FIPP gave these lenders their early exposures to the sector. NextEras Genesis and Desert Sunlight plants in Southern California attracted new bond investors, including a growing group of investors with a mandate to invest in clean energy.

Almost five months after the DoE programme ended, in February 2012, MidAmerican Energy closed an $850 million 144A bond financing for the 586MW Topaz Solar Farms. The Topaz bonds did not rely at all on a governmental loan guarantee, though First Solar, which developed Topaz, failed to close a guarantee with the DoE.

The Topaz bond also attracted new investors, mostly insurance companies and pension funds, which had grown comfortable with solar risk from participating in the DoE-backed renewables bonds. Appetite in the Topaz bonds proved robust, prompting MidAmerican to increase the issue from a planned $700 million. Barclays, Citigroup and Royal Bank of Scotland (RBS) led the Topaz issue.

Topaz set a benchmark for greenfield solar issues in the 144A market, though it benefited from the strong financial position of MidAmerican and its parent, Berkshire Hathaway. Citi, Barclays and RBS priced a $250 million issue for Topaz in April 2013, and then in late June closed on a $1 billion issue for MidAmericans 579MW Solar Star, which is also known as Antelope Valley.

Many of the investors in the initial Topaz deal returned for the second Topaz issue and the Solar Star bonds, say bankers familiar with the process. And with each deal came fewer questions from potential investors, which points to increased standardisation for MidAmericans 144A solar issues.

MidAmerican contributed substantial amounts of equity to Topaz and Solar Star, as well as a commitment to provide additional equity in case follow-on bond issues did not close. The developer did not raise all of the senior debt upfront, to avoid the negative carry of paying interest on proceeds before they are required for construction. Still, even with the follow-on issues included, Topaz has gearing of under 50%.

Investors are accustomed to 70% gearing on project bonds, but prefer larger equity commitments from sponsors. When there is a significant amount of equity contributed to a project, debt investors receive substantial comfort from the sponsors commitment and the amount of equity cushion in the transaction, says Christopher Yonan, a director at Barclays who helped put together the Topaz and Solar Star issues.

MidAmerican reached investment-grade ratings on both Topaz and Solar Star, though before Topaz, agencies had issued almost no public ratings on solar financings, and none for unwrapped deals.

The desire for long tenors

Bond issues have not been been limited to the 144A market, and private placements have arguably been more common than 144A issues. And for some greenfield financings, Prudential Capital has paired unrated private placements with Santander-led commercial bank tranches.

Both bond products offer longer tenors than the commercial bank market. Eurus and NRGs Avenal went out to 16 years but that tenor is near the limit for commercial banks. Most European lenders today prefer financings up to 10 years, and no longer than 18 years, though several European lenders, not least UniCredit, have sharply reduced their activity in North American project finance.

Institutional investors have liabilities that extend beyond even the most generous power purchase agreements. If projects have attractive enough economics beyond the terms of power purchase agreements, institutions may be persuaded to go beyond PPAs. Given the current cost structure of solar capacity, and the speed with which newer plants economics are improving, PPAs tend to be the limiting factor on bond tenors.

The 26-year Topaz bonds, whose tenor includes some construction, will benefit from the plant selling power to Pacific Gas & Electric under a 25-year PPA. Bonds for hydro plants, on the other hand, often go out as far as 40 years, a reflection both of hydros longer PPAs and hydros lower costs.

We want to match the contract life of the assets with the term of the debt, says Mark Noyes, vice-president at Con Edison Development. The terms of these contracts are often 25 years, so thered be a seven-year difference with the maximum (length) of bank debt. Con Edison Development is looking to grow its solar portfolio, and will probably use bonds to fund additions.

In April, Con Ed closed a $220 million private placement, with a tenor of more than 20 years, for a 150MW portfolio of solar PV projects in Bakersfield and Fresno, California. Citi advised on the issue, which refinanced balance sheet

resources that Con Ed had used to build two new projects.

Commercial banks have traditionally been able to offer increased acceptance of construction risk, staggered draws and tighter pricing. But the pricing gap, in particular, has considerably narrowed in recent years, as banks cope with a higher cost of capital and impending Basel III regulations. Pricing in the bond market has come down as investors allocate more money to structured project finance paper in their quest for yield, notes Stuart Murray, a director at Citigroup who worked on the MidAmerican and Con Edison issues. The initial Topaz bond had an all-in interest rate of 5.75%, the second priced for 4.875%, while Solar Star carried a 5.375% coupon.

Increased understanding

At the time of the Avenal deal, in September 2010, US project finance lenders were comparatively unfamiliar with solar, though they were anxious to add exposure to solar projects. But banks wanted to finance the second project featuring a newish technology, not the first.

Three years later, lenders and investors know and understand panel manufacturers First Solar, SunPower, SunTech, Yingli, Trina and Canadian Solar. Their products have each been the subjects of multiple financings.

But concerns over panel degradation persist. Investors are sensitive to the potential for PV modules to underperform. Just as ratings agencies will look to a bond financing of any type to feature a debt service reserve, they will look to a bond financing to feature a degradation reserve that supplements a warranty from a financially shaky panel manufacturer.

The C$171.8 million bond financing for NextEra Energys St. Clair PV project in Ontario could serve as a model in this respect. That bond incorporates a degradation reserve, which essentially serves as a shadow warranty. If St. Clair endures degradation above 8% per year, the reserve could cover repairs, and then be replenished with the proceeds of any warranty claim against First Solar, St. Clairs panel supplier and developer.

Still, solar bonds have gained popularity despite the slew bankruptcies among PV manufacturers. The oversupply of modules has eased the concerns surrounding PV manufacturer bankruptcies, as access to new panels is easy and can be obtained in short order, says Yvette Dennis, a director at Fitch. The modules are becoming commoditised.

Investors find PV simple to understand, Dennis says, noting that they perceive the technology as having a simple construction and low maintenance risk. Investors view PV panels as less risky than wind turbines, according to bankers and analysts, though this perception is probably exaggerated.

Some of the earlier generation of wind deals suffered from both production that fell short of projections and technical mishaps. Many investors assume that defective panels are easier and cheaper to replace than broken wind turbines. Certainly resistance to solar projects in the US, while not uncommon, pales compared to wind.

While the series of bankruptcies in solar manufacturing may still have time to run, no commonly financed PV technologies share the sorry record of Clipper Windpower turbines, which have become infamous for their gearbox failures. Most turbines used in US wind farms including those from GE, Siemens and Vestas are considered dependable, however.

The next wave

Most of the larger solar projects in the US those above 200MW have already come to market, because many states are close to meeting their renewable energy portfolio standards. Some states may mandate higher renewables targets, though the persistent higher costs associated with procuring renewable power will discourage most.

Most regions in the US have experienced sluggish demand growth since the onset of the financial crisis, limiting the need for new capacity. In the regions dominated by coal capacity, including the industrial mid-west, gas-fired plants are the most obvious candidates to replace retiring units, because they can be dispatched at will rather than when weather permits.

Projects in the 50MW range still await financing, and the investment tax credit, the most common incentive available to solar developers, is available until at least 2016. While refinancings are possible, portfolio financings for greenfield assets, in both the bank and bond markets, are likely to be more common. Ric Abel, who is head of energy finance at Prudential, says his conversations with sponsors have focused on new deals.

PV has dominated US solar financings, and will continue to. Recent non-PV solar project financings, including deals from NextEra. BrightSource Energy and SolarReserve, required federal government participation. SolarReserve, advised by Morgan Stanley, is looking for debt and equity for its $750 million Rice concentrated solar project in southern California. BrightSource Energy is looking to finance the 500MW Palen solar thermal project in California next year, after shelving the nearby 500MW Rio Mesa project because of permitting struggles.

Investment bank attention is increasingly focused on smaller and more distributed solar assets, mostly in the commercial, industrial and residential markets. These use a variety of lease- and PPA-based installation agreements, and have often been financed using tax equity from US financial institutions. Bond securitisations of these assets may be next.