Solar Industry®

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Global Solar Sector Expects Full Recovery This Year

Although 2009 was full of worrisome indicators, the industry now expects healthy levels of investment.

Adam E. Bergman

This 11 MW solar PV project was developed by OPDE in Valtierra, Spain. Photo courtesy of OPDE.

The global solar sector endured a tough year in 2009, and the North American market was no exception. Twelve months ago, the outlook was bleak, with a deepening global economic recession, frozen financial markets and questions of whether government subsidies for renewable energy in Europe and North America would continue at such generous levels.

Today, conditions are improving, as many developed economies have returned to positive economic growth, the financial markets have seemingly recovered, initial public offerings (IPOs) again are a viable option, and strong government support for the solar sector in China, the U.S. and elsewhere appears set to continue for the foreseeable future.

As 2009 started, the ramifications of the global financial meltdown for the renewable energy sector soon became abundantly clear: The period of easy equity and debt capital for solar technology companies and project developers, which had fueled 35% annual growth in U.S. solar demand, was over.

The bankruptcies of Bear Stearns and Lehman Brothers and the distressed sales of Merrill Lynch and Wachovia caused the overnight disappearance of a number of major investors in - and debt providers to - the sector. In addition, once the likes of AIG, Goldman Sachs, JPMorgan and Morgan Stanley accepted U.S. government funds, these firms effectively also ceased to be sources of capital.

Adam E. Bergman

Furthermore, with the deepest recession since the Great Depression and a number of developed countries looking at ways to cut costs, many feared that governments would reduce support for renewable energy to preserve cash for unemployment benefits and other social programs.

Another challenge for the solar sector was the significant decline in the price of oil, which dropped as low as $48 per barrel on February 18, 2009, from a high of $145 per barrel in 2008, which meant that high fossil-fuel prices became a less compelling reason for switching to solar power.

The fact that the U.S. Congress waited until October 2008 to renew the federal investment tax credit also added to the despondent mood going into 2009.

Favorable capital raises

North American public and private solar companies raised a mere $200 million in equity and equity-linked capital in the first quarter of 2009, compared to $2 billion in the first quarter of 2008, reflecting just how hard it became to raise capital.

In fact, this was the smallest amount the North American solar sector had received since the third quarter of 2006. Solar companies raised just under $2.7 billion from North American investors by the end of 2009, as the financial markets recovered and incentives for renewable energy were clarified. May and June

were particularly strong, with companies raising over $1.2 billion.

Nevertheless, despite this improved performance during the last nine months of the year, total North American solar investment was 62% less than the $7.1 billion received in 2008 and 51% less than the $5.5 billion received in 2007.

Solar remained the largest recipient of cleantech investment, with roughly 36% of total invested capital, although this percentage was much lower than the roughly 59% it received in 2008 or 48% in 2007.

This trend reflected a shift by investors into other sectors, such as batteries, energy storage, energy efficiency, and grid infrastructure and management, which all received an increasing proportion of the overall cleantech investment, due to their high growth potential, more capital-efficient business models and increased government support following the passage of American Recovery and Reinvestment Act.

The financing figures reveal some interesting trends. The first trend of note is that follow-on equity transactions accounted for over 43% of all solar financings. Although the U.S. IPO market was virtually closed to solar companies throughout 2009, a number of established public solar companies were able to raise significant amounts of capital from public market investors.

Significantly, many of these deals, including transactions completed by solar bellwethers Suntech and SunPower, occurred during just two months - May and June - as a means to shore up balance sheets, rather than for growth and capacity expansion.

In the case of Suntech, as of Dec. 31, 2008, its $1.6 billion of bank and convertible debt dwarfed the roughly $500 million in cash on its balance sheet and was a major factor in causing its share price to drop as low as $5.09 in the first quarter of 2009. Following its $288 million capital raise on May 22, Suntech saw its refinancing risk greatly reduced, and its share price quickly climbed to close the year at $16.63.

Although it had significantly less debt than Suntech, SunPower also suffered from investor concerns regarding refinancing risk. Its share price had declined to $22.61 by April 28, when the company raised a combined $458 million through separate equity follow-on and convertible offerings. Subsequently, SunPower's share price rebounded to $32.22 on July 31.

Despite the shareholder dilution that typically decreases a company's share price after an equity or equity-linked offering, both Suntech's and SunPower's investors viewed these capital raises favorably because they eliminated concerns about the ability to repay debt maturing in the near term to medium term.

IPOs fall

The stock prices of other public solar companies, especially those with significant leverage, were down considerably more than the broader markets. Several had issued convertible debt securities in previous years, when their stock prices had been two or three times higher and at sizes considered material compared to their current equity value.

Again, many investors were deeply concerned about refinancing risk, because they were unsure about these companies' ability to raise additional capital prior to the convertible's maturity date in two to three years' time.

A number of companies, including China Sunergy, Evergreen Solar and Trina Solar, had convertible securities trading at more than a 70% discount of their initial value, as their stock prices were so far below the equity conversion price that it was considered debt by investors. As the financial markets recovered, some solar firms chose to raise equity capital to strengthen their balance sheet, with the result that by the end of the year, their convertible securities were all trading above 50% and their stock prices had improved substantially.

The number of IPOs shrank yet again in 2009 to one, down from six IPOs in 2007 (worth $1.3 billion) and three in 2008 (worth $700 million). The only IPO, completed by STR Holdings for $140 million, occurred in November, six months after activity started in the follow-on equity arena.

Nevertheless, many private investors and companies took this IPO as a positive sign, because it was the first U.S. solar IPO since GT Solar went public in July 2008. Although at the end of 2009 there was negative news that amorphous silicon thin-film manufacturer Trony Solar pulled its planned $195 million IPO, there was positive news that copper indium gallium diselenide (CIGS) thin-film manufacturer Solyndra filed a $300 million IPO.

Overall, solar companies should benefit from an improved IPO market in 2010 and expect this trend to accelerate in 2011 and 2012 as financial markets improve and companies have more time to scale their businesses.

In contrast to 2008, when convertibles were the security of choice, the difficult credit markets and decreased risk tolerance of investors meant that convertible offerings were not even an option for most companies in 2009. Additionally, many hedge funds, which had been significant buyers of convertible offerings, never recovered from the financial crisis.

Another factor making convertibles less appealing was that the solar companies that had issued this security in previous years now faced refinancing risk, forcing them to issue more dilutive equity to shore up their balance sheets.

It is, therefore, not surprising that just one transaction occurred in 2009, by SunPower, a U.S. solar blue-chip name, which raised $200 million. This was a steep drop from the pricing of nine convertible offerings, worth $2.3

billion, in 2008, and seven offerings raising $1.2 billion in 2007.

However, as credit markets and the economy improve and as most solar companies return to profitability in 2010, the convertible offering should return as a capital-raising option for public solar companies.

Margin concerns

One of the most interesting developments of 2009 was the rapid price decline of crystalline PV modules, which were selling for as little as $1.50 per watt by the end of the year, down from almost $3.50 per watt one year earlier.

Much of the price decrease was due to the drop in spot silicon prices, which fell to $56/kg from $332/kg a year earlier. Additionally, significant new production capacity came online in 2009, while global demand remained relatively flat at around 6.1 GW, which caused further downward pricing pressure and margin compression along the crystalline value chain, including silicon, ingots, wafers, cells and modules.

As a result, by Sept. 30, 2009, the latest 12-month (LTM) average gross profit margins for public solar companies dropped to 17% from 28%, and earnings before interest, taxes, depreciation and amortization (EBITDA) margins declined to less than 1% from 14% the previous year.

Although public solar companies ended 2008 at historic low valuations - based on a median trading multiple of 1.2x LTM revenue, 6.5x LTM EBITDA and 8.1x LTM net income - figures at the end of 2009 turned out to be even worse, with negative LTM EBITDA and net income multiples.

This meant that, after enjoying several years of profitability, most public solar companies reported a net income loss. There are concerns that if new supply outpaces demand, which could occur based on the new capacity being developed in China, companies will struggle to return to EBITDA and net income profitability, let alone 2008 margin levels.

Nevertheless, because global demand is likely to resume its annual 35% growth rate, public solar companies should fare much better in 2010. The negative valuations were symptomatic of the challenges faced by the sector last year, and companies should take comfort in the fact that equity research analysts forecast that companies will return to profitability and trade at positive multiples again in 2010.

The tough market conditions, limited access to capital and declining margins weighed heavily on public solar companies in 2009. Many firms lost over 50% of their value from Jan. 1 through the middle of March, when the financial markets were at their lowest point.

After several years of strong stock-price appreciation, which some might even consider a bubble, solar companies faced an uncertain future, unsure when their end markets would recover and whether they would ever return to the high-margin business models achieved during 2006-2008.

Consequently, investor sentiment turned negative during the first half of the year in this once high-flying sector. In particular, the upstream components of the crystalline value chain were hard hit, as increased competition from many new entrants from low-cost locations in Asia led to fears that production elsewhere might disappear.

For example, Q-Cells, a Germany-based company, had been an industry leader since going public in 2005, but it is now struggling to compete against a number of new, lower-cost entrants and was recently forced to close a German manufacturing plant and shift production to Malaysia, where labor is cheaper.

It will be very interesting to see how this trend plays out in 2010, as politicians in many developed countries with generous solar subsidies, including Germany, are questioning why, during difficult economic times with high unemployment, taxpayer money is funding solar businesses and green-collar jobs in Asia.

Technology investment trends

The challenges confronting public solar companies paled in comparison to the difficulties faced by most private solar companies, which suffered a 61% drop in investment, down to roughly $1.1 billion from the $2.8 billion received in 2008. With just 49 private financing transactions in the U.S. in 2009, and 29% fewer companies receiving capital year-over-year, it was the least active year for the sector since 2006.

Additionally, the average private deal size in 2009 was just under $24 million, down almost 49% from around $46 million in 2008 and almost back to the 2007 figure of $21 million.

Of particular concern is that many of the solar companies funded from 2004 to 2006 are approaching later-stage growth financing rounds, at which point they will need to raise significant amounts of capital to either initiate commercial production or expand capacity.

However, these companies have found it difficult to raise this critical growth capital from later-stage investors, who remain concerned about their ability to monetize these investments in the next 24 months. This is because investors are unsure when the IPO market will regain its vitality, and whether mergers and acquisitions (M&A) activity, which has been very limited in the solar sector, will become a viable exit option.

As a result, there were only three private solar companies that managed to raise over $50 million, down from 17 in 2008. Unless these growth-stage companies are able to access significant amounts of capital, from either late-stage private or IPO investors, many are unlikely to be around in 2011.

Another major change in 2009 was that investment dropped for both

thin-film and concentrating solar power (CSP) companies, including concentrated solar thermal and concentrated PV. Thin-film companies, which had received as much as 43% of solar investment as recently as 2006 and over 31% in 2008, fell to just under 15% in 2009. CSP received roughly 8%, down from over 11% in 2008.

Concerns about the potential of both technologies make it important to monitor whether this was the start of a trend or just an aberration. A major concern with thin-film technology is whether it will be able to achieve higher efficiency levels.

This issue is critical, as crystalline technologies have cut the cost for modules by more than 50%, while downstream costs, including balance of systems (BOS), installation and project financing, have barely decreased.

Consequently, after years of being significantly more expensive than thin-film technologies on a fully installed system cost, crystalline solar modules are nearing price parity, which could help to reverse their market-share decline during the past few years.

As for CSP, there are concerns about cost-competitiveness now that crystalline prices have dropped sharply. In addition, some investors worry about technology risk, because many of the CSP technologies lack the long history of field performance of crystalline or thin film, which becomes an issue when trying to secure project financing.

Additionally, new transmission infrastructure is required, because many of the top CSP sites are located in deserts and places far from electricity consumers, which is expensive and, at least in California, burdened by an arduous permit approval process, inevitably increasing the time needed to build a CSP solar farm.

Investment in both thin-film and CSP technologies will likely increase as a percentage of total solar investment. There are a number of promising companies pursuing each technology that are likely to appeal to both private and public investors as financial markets improve in 2010 and investors struggle to find other sectors that are likely to undergo double digit growth for the next decade.

Although they remain key elements for decreasing the cost of a fully installed solar power system, investment in downstream businesses (BOS, installers and project financiers) received less than 16% of solar investment in 2009, roughly the same as in 2008.

However, with increased solar demand, investors are likely to inject more capital, as a number of promising new technologies and business models emerge. Investors understand that alleviating this bottleneck would give them first-mover advantage, as well as the ability to generate significant margins, as companies in other parts of the solar value chain have done.

There are some highly innovative private companies commercializing technologies that will reduce the cost and improve the efficiency of crystalline solar cells, but investors have backed fewer private companies in the cells and modules sector, which is more mature and has larger, more established global companies with strong balance sheets.

Consequently, most of the investment opportunities in this area are in public companies, many of which raised large amounts of equity capital in 2009 and do not anticipate capacity expansion at this point.

Raising capital in 2010 could be more challenging for these companies, as margins are unlikely to recover in the face of new competitors from low-cost countries, causing investors to be less willing to fund capacity expansion. Therefore, the long-term success of this sector is likely to depend on the ability of companies in the crystalline value chain to achieve cost parity on a fully installed system with thin film and other lower-cost competitors.

Adam E. Bergman is senior vice president in the cleantech investment banking group at Jefferies & Co. Inc. He can be contacted at abergman@jefferies.com or (415) 229-1429.