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The McGraw Hill Companies

US renewables: new financial models

After record-breaking expansion over the last decade, the US renewable energy industry finds itself on a financial precipice. Conventional credit remains tight and government support is waning. Developers are looking to a number of new innovations for finance, such as Master Limited Partnerships, crowdfunding, solar gardens and municipal bonds. **Elisa Wood**

Although the US wind industry expects impressive growth in 2012, next year looks bleak. Wind farms totaling 2,896 MW were installed in first-half 2012, with 10,312 MW under construction, according to the American Wind Energy Association. However, the industry is bracing for a cataclysmic drop in new capacity next year unless Congress extends the 2.2 cents/kWh federal production tax credit, the industry's prime support in the US.

Politicians are sending mixed signals about continuing the credit beyond its expiration at year's end. In the past, the credit has enjoyed bipartisan backing. However, Republicans are showing an increasing distaste for renewable energy incentives, a mood underscored when Republican presidential nominee Mitt Romney indicated on the campaign trail that he opposes the credit. President Barack Obama favors its extension. In past years, when Congress let the credit expire, wind farm installations fell by as much as 93%. Bracing for a similar dive in 2013, US turbine and components manufacturers have already begun laying workers off.

Without an extension of the tax credit, "the wind industry is pretty much on its heels," said Mike Lorusso, a managing director with CIT Energy, which provides financing to entrepreneurial energy companies. Or as Clean Energy Group put it in a recent report, "For clean energy, the country is facing a financing perfect storm at the federal level, a funding cliff of historic proportions. It is no understatement to call this situation a crisis for the industry."

In contrast, the solar industry currently enjoys a sounder footing because its federal tax credit runs through 2016. The industry saw a 116% increase in installations between second-quarter 2012 and the same period in 2011, and analysts forecast a strong finish for the year. Nevertheless, solar advocates worry that in four years when the solar tax credit expires, the industry could be staring down the same abyss the wind industry is today.

In these circumstances, necessity is again becoming the mother of invention. The renewable energy industry is exploring innovations in business models and financing that some say could spur a new round of industry growth. The ideas borrow from oil and gas, Silicon Valley and public infrastructure financing.

Mimicking big energy

One of the most talked about of these innovations is the master limited partnership, or MLP, a business structure used in oil, gas, coal extraction and the pipeline industries for almost three decades. MLPs are a type of company that appeal to investors because their stock trades like that of a corporation, but with the tax advantages of a partnership. The federal government taxes income from MLPs only at the shareholder level. In contrast, corporations face taxes at both the corporate and shareholder level.

Structuring renewable energy companies as MLPs could win them access to new sources of capital, but the current tax code limits MLP participation to resources that are "depleteable," which disqualifies renewable energy. Senators Chris Coons, a Democrat from Delaware, and Jerry Moran, a Republican from Kansas, introduced a bill in June that would revise the code and allow renewables to use the MLP structure. "Despite all the political rhetoric about the need for an all-of-the-above energy strategy, our current tax code clearly picks winners and losers in the energy space," Coons said. "The MLP Parity Act helps level the playing field by giving investors in renewables and non-renewables access to the same highly attractive master limited partnership business structure."

About 100 MLPs are now traded on major exchanges and represent about $350 billion in capital, according to a white paper accompanying the bill. Investors in MLPs are called limited partners. As such, they provide no management role, but are purely a source of capital for the investment. In return, they receive quarterly distributions.

Energy and natural resources, mostly gas and oil, account for 90% of MLP market capital, according to *Clean Tech Nation: How the U.S. Can Lead in the New Global Economy*, a recent book by Ron Pernick and Clint Wilder. Giving renewables access to MLP structure is a critical next step toward building "the lighter, faster, cheaper technologies of the 21st century," the authors say. "A lot of money has followed that market and it has had pretty good returns on average – five percent on the low end and up to the double digits on the high end," Pernick said.

MLP structures would help renewables become more competitive by giving them access to lower-cost capital, added Felix Mormann, a faculty fellow at Stanford Law School's Steyer-Taylor Center for Energy Policy and Finance and an associate professor at the University of Miami School of Law. "We've come a really long way thanks to very bright minds in science and engineering

driving down the cost of technology. I don't think we're anywhere near as far in driving down the cost of finance related to energy projects," he said.

Today's renewable energy investment deals are structured around the production tax credit, meaning they rely heavily on finding investors with large tax appetites who will benefit from the credit. But such tax equity investors are scarce in a slow economy. Aware of their exclusive positions, they also charge high premiums. As a result, financing can account for almost half of a renewable energy project's overall cost, according to Mormann.

"You can either try to rally other tax investors, or you can look beyond and say maybe we can get other types of equity, get those players that are currently sidelined in the game – pensions funds and other sources that have a lot of capital, but right now are not allowed to play. This is where MLP's can make a huge contribution," he said.

Moreover, allowing renewables to structure MLPs will put technologies on a quicker path to subsidy independence, he said. "We can build that much more for less. Building more for less means we scale at a higher pace. We can further reduce our cost of the technology in the process and we eventually can achieve subsidy independence."

Given its bipartisan support, he thinks the Coons/Moran bill "has legs" in Congress. However, he said he's concerned that lawmakers may pit the MLP bill against any legislation to extend the production tax credit, leaving only one standing as winner. Congress would be wiser to allow a transition period so that the industry can adjust from one form of finance to the next, he said.

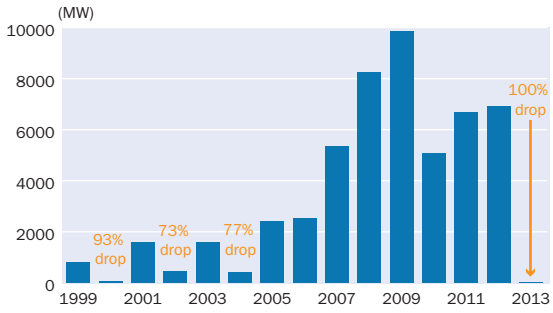
"The question is whether we can gamble with investment certainty. Part of why you get cheap cost of capital is that your financers are confident things will pan out the way you expect. A lot of wind developers heavily rely on the existing tax credit regime. It's what they've gotten used to. So I think it's okay to phase it out eventually – I think we want to do that – but again a phase out is not the same as an abrupt ending."

He added that MLPs are expected to have "an enormous effect," but "the jury is still out as to what the numbers are exactly – whether that effect is sufficient to bridge the current gap in terms of cost competitiveness between renewable and our conventional energy sources."

Crowdsourcing & solar gardens

Small renewable energy projects may benefit from a different approach, one that has its roots in the online culture: crowdsourcing. The term speaks to the idea of relying on a collective source for ideas or resources. Businesses who use a variation on the theme – crowdfunding – seek small amounts of money from a large online pool of investors, who often share an ideology or other common reason to support the concept.

Historic impact of PTC expiration on annual wind installation



Source: AWEA, EIA

Mosaic, an Oakland, California company, is in the beta stages of launching an online crowdfunding platform for solar energy projects. With $5.4 million in backing from Spring Ventures and the US Department of Energy, the company has raised funding for six small rooftop projects, totaling about $390,000.

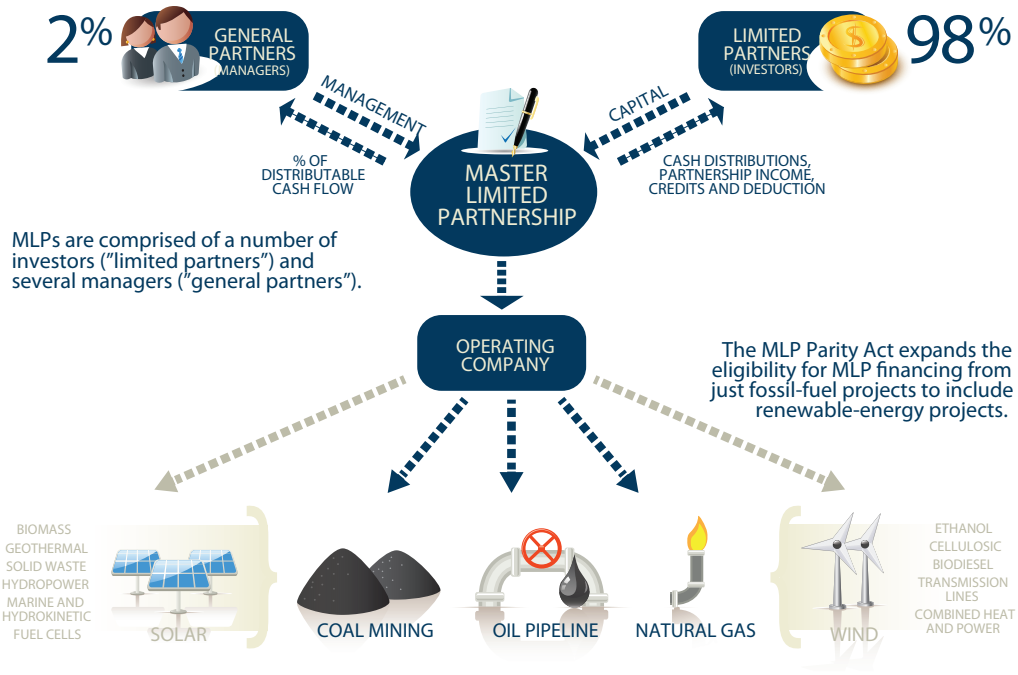
Investors provided financing for zero interest loans for the first five projects. For the sixth project, a 47 kW rooftop installation for a youth job training agency, Mosaic is attempting a new crowdfunding approach that is being carefully watched by the solar industry because it offers returns to investors. Mosaic raised $40,000 in 'Solar Power Notes' in less than a week for the project through a private offering to a small group of investors. The company is in quiet mode following its April 24 filing with the Securities and Exchange Commission on the investment.

Interest grew in crowdfunding small energy projects after Obama signed into law the JOBS Act in April. The new law allows businesses to sell up to $1 million in equity to the public through accredited crowdfunding platforms. The JOBS act allows companies essentially to advertise for investors using, for example, social media, and make it easier for them to accept investments from unaccredited investors, according to Chris Sloan, a corporate and intellectual property lawyer with law firm Baker Donelson.

"In my opinion, crowd funding will be particularly useful for two types of companies. First, it will be great for companies that may need outside capital to launch but once launched may not need much more outside investment. Second, I think it will help companies that are only going to scale modestly. Both of those types of businesses struggle to find funding, because they typically are not going to grow big enough fast enough for a venture capital investor, but lack sufficient assets for traditional lending," he said.

However, the SEC is still working out specific rules, and crowdfunding advocates say the success of the equity approach will depend on how much red tape the SEC creates. "Given that the JOBS Act limits a company to raising $1 million per year through a crowdfunding transaction, crowdfunding's impact on renewables is

How master limited partnerships work



Source: US senator Chris Coons

likely to be limited to small projects, such as community solar," said David Domansky, an energy finance attorney with Bracewell & Giuliani. "Crowdfunding could be used to source development capital for larger projects, but since the crowdfund equity is likely to be diluted in subsequent financing rounds, crowdfund investors may prefer debt instead of equity."

Another approach that relies on collective funding, although under a different model, is the solar energy garden, also called community solar. These models vary, but generally gather investment from members of a neighborhood or community who buy into a centrally located solar project, often placed on the rooftop of a school, in a parking lot or other local space.

In some cases, the projects rely on virtual net metering. Allowed in only a handful of states so far, virtual net metering is a variation on traditional net metering, which offers billing credits to customers whose solar panels deliver more power to the grid than the customer uses. Virtual net metering extends the credit to a wider network of buildings or utility customers that are not physically connected to the solar panels. So, for example, a city government that places solar panels on its police station may be able to also get net metering credit from the panels for its schools and city hall. Or neighbors may join together to put up solar panels in a central location with all of the homes that invest sharing the billing credit.

But solar gardens can work even in states that do not have virtual net metering, according to Paul Spencer, president and founder of the Clean Energy Collective, a Colorado-based company that has developed several solar garden projects in Colorado and New Mexico. Under the company's model, community members by into a local solar project at a cost of about $500-$800 per panel; in return they receive bill credits for energy produced by the panels and calculated for the local utility via a platform provided by the company. (If they move out of the neighborhood, they can sell their interest.)

The Clean Energy Collective arranges a solar power purchase agreement with the local utility as the off-taker. A third-party tax equity investor also participates in the deal providing capital in return for tax benefits from the federal credit. The 'garden' is maintained by a management company through escrow monies.

For solar advocates, the approach takes care of problems that severely limits the technology. Not everyone can install solar. Apartment dwellers are precluded, as are homeowners with shady roofs. "While studies consistently show more than 90% of Americans want solar energy, only about 25% could put it in their own property," said Hannah Masterjohn, policy advocate for Vote Solar, a group that has been promoting the concept. "Shared solar models provide the pathway to clean energy the other 75% of customers have been waiting for."

The concept is so popular in Colorado that in August Xcel Energy closed out a 4.5 MW solicitation for solar garden proposals within 30 minutes. The company reported that it received three times the applications it could accommodate within that time. Over the next two years, the utility plans to support development of about 18 MW of solar gardens.

Solar garden advocates see the approach scaling up significantly if California gets on board. A bill that would

have created incentives for up to 2 GW of solar garden installations, each as large as 20 MW, failed to come up for a vote before the state legislature adjourned in September. However, advocates are already at work pushing for a similar bill for next year's session. "The upside of the legislation was the conversation that happened around it. What it did was raise the awareness about the share solar model," said Lee Barken, energy & cleantech practice leader at Haskell & White, a California-based accounting firm. "I'm certain we're going to see movement in California next year."

Bonds & authorities

No offshore wind farms have been built in the US so far. The project furthest along in development, the 420 MW Cape Wind, has received all of its approvals and is now seeking financing. The project hopes to close on financing next year, begin construction in 2014 and operation in 2015. After being stymied for ten years by well-funded not-in-my-backyard opponents, Cape Wind enters this final stage during difficult financial times.

Clean Energy Group, a Vermont-based advocate for renewable technology, finance, and policy, is pushing for use of government bonds as a means to finance offshore wind projects and other renewable energy developments. The $3 trillion bond market – responsible for bridges, hospitals, libraries and other US infrastructure – offers the kind of scale renewables need, says CEG in a report issued with the Council of Development Finance Agencies.

However, so far, public financing authorities and the bond market have been largely ignored, said the CEG and CDFA report. A new national initiative, the Clean Energy + Bond Finance Initiative, or CE+BFI, is looking at ways to increase bond-financed projects from $5 billion to $20 billion over the next five years by working with institutional investors, public finance agencies, and public clean energy fund managers. The report estimates that 50,000 municipal authorities access capital markets, and offer a potential pool renewable energy can tap into.

For non-government entities, the bond proceeds are loaned to the private entity, which then makes payments that coincide with when principle and interest are due. Bonds for clean energy are already being used in a few places, among them the city of Chicago and states of Washington, Illinois and New Jersey, according to the report.

"It is time to explore a more decentralized, and potentially more durable model to finance clean energy outside of Washington, one that has enjoyed enormous success, bipartisan support and strong institutional loyalty at the state, regional and local levels," the report said "It will not solve all of the funding problems but it could go a long way to solve some or many of them."

The coming months will reveal how quickly renewable energy must move on new financing approaches – MLPs, solar gardens, bonds and others. If Congress and the president extend the wind production tax credit, the industry buys more time. But having been stung by the high cost of money and Congress' repeated stalling, renewable energy is likely to continue to pursue new ways to secure capital. With technology prices now falling, financing is the industry's next frontier to conquer.

Sudan and South Sudan reach agreement

The governments of Sudan and South Sudan have signed an oil and security agreement that reduces the likelihood of all-out war. The deal encompasses oil transit fees, pipeline metering and a reduction in military firepower along their common border. Yet other financial disagreements remain outstanding, while the argument over the sovereignty of three disputed territories continues to irritate their fractious relationship. **Neil Ford**

Sudan has had an unhappy time since independence, even by African standards. Civil war between the South and the national government in Khartoum raged from 1956 until 2005, with only a temporary break between 1972 and 1983. In the pre-colonial era, the north had far more to do with the rest of the Arab world than the south of Sudan, which in turn had far more socio-economic contact with East Africa. The two regions, thrown together by British colonial rulers in order to cement their control over Egypt, never looked like becoming a cohesive modern state.

The conflict was usually depicted as a war between the mainly Christian and animist south and the largely Muslim north, but this picture hides the dozens of smaller, more localised disputes that perpetuated the fighting. About 2 million people were killed before the Comprehensive Peace Agreement was signed in 2005. The CPA provided for a referendum on independence for the southern third of the country, but the process of partition was complicated by the fact that Khartoum stood to lose much of its oil wealth. Oil industry data is used as propaganda by both sides, so figures vary, but it is generally assumed that South Sudan controls about 70-75% of total Sudanese oil production and 75% of combined reserves.

South Sudan finally became independent last July with the town of Juba as its capital, but little really changed. Border clashes and internal fighting have continued to claim lives. The independence