

SolarTrust

Solar Trust poised

Next year is poised to be a big one for large-scale solar thermal developments in the US. Federal funding sources are now in place to support the financing of the billion dollar schemes, and the Federal Bureau of Land Management, which administers the federally owned land that hosts many of the proposed plant sites, has hired new staff and accelerated permitting.

However, behind the expectation that the new year will bring in a boom in solar thermal construction is a lingering question: Which of the many proposed project sponsors now touting their own proprietary new or sparsely tested technology will actually get their projects built? Solar Trust of America, which was formed in mid-2009 through a joint venture with majority owner Solar Millennium and minority owner MAN Ferrostaal, appears to be poised to pull away from the pack of hopeful project sponsors to become a project developer.

Like many of the hopeful solar thermal project sponsors in the US, Solar Trust of America has signed 20-year power purchase agreements – originally inked by Solar Millennium. The company has signed 20-year PPAs with Southern California Edison for two 242MW parabolic trough solar thermal power plants in Blythe and Palen, California, with the option to build a third in Ridgecrest. These facilities are expected to reach commercial operation in 2013 and 2014. Solar Trust also has in place a memorandum of understanding with Nevada Energy for the development and construction of at least one 242MW plant in Nevada's Amargosa Valley.

While such contracts give the company a boost and lay the foundation for future financing, they are far from a guarantee of a project's success, but rather mark the beginning of a long process including permitting and financing, which are often subject to disruptions outside of project sponsors' control. In fact many industry insid-

Armed with deep-pocketed parents with construction management expertise and operating solar assets, the newly created Solar Trust of America is ready to take solar thermal mainstream in the US. By **Deirdre Fretz.**

ers predict that some of the PPAs inked with solar thermal projects will never result in generated power.

Two solar pending projects in California with PPAs have seen lengthy project delays, another has withdrawn its plans with the California Public Utility Commission, and a fourth has had its contract terminated with San Diego Gas & Electric. Indeed, it is the delay in delivery of the promised efficiencies of large-scale solar thermal projects, which use various techniques to turn the sun's heat into steam to run traditional turbines, that has encouraged California's largest utilities to launch large-scale roof-top solar photovoltaic initiatives.

What differentiates solar thermal project sponsors from each other is technology and design – different mechanisms for concentrating the sun's heat, from curved mirrored troughs, to dishes, to towers surrounded by mirrored sheets, as well as different liquid mediums for absorbing the heat to create steam, which is used to drive turbines as in conventional fossil fuel plants. While parabolic trough technology is seen as a safe technology bet, other project sponsors have used more daring designs to achieve greater efficiencies and reduce the reliance on water.

Solar Trust concentrates primarily on parabolic trough technology, but has made key improvements to existing technology. Among the most recent updates Solar Trust has announced is its planned adoption of dry-cooling technology, which will use 90% less water than originally projected for its Amargosa Valley, Nevada projects. Water conservation is a key advantage for the arid sites that traditionally host large-scale solar thermal projects, especially when the sites are near population centres that already severely tax local water resources.

In addition to generating power, Solar Trust plans to augment its projects with 50,000 pound molten salt storage pits that allow the facilities to continue to generate energy 7-1/2 hours after the sun goes down, sub-

In addition to its **contracted** projects, Solar Trust **has four others**

stantially mitigating concerns about the intermittency of renewable energy in general and solar power specifically. The projects will be designed to produce excess power during the day, enabling them to fill their reserves for evening use. Solar Millennium currently operates such storage facilities in Europe.

The first of Solar Trust's projects also have the advantage of being "fast-tracked" under a newly accelerated permitting programme launched earlier this year by US Department of the Interior Secretary Ken Salazar – in fact, four of the 12 renewable energy projects proposed on federal lands that have been identified by Salazar for fast-track approval are Solar Trust schemes. The fast-track programme was announced in mid-2009 in response to a long-standing lag in permitting by the Bureau of Land Management. The American Reinvestment and Recovery Act (ARRA) included funds to increase staff in the Bureau's western offices in order to expedite renewable energy permit applications for projects on federal lands.

Solar Trust of America chairman and chief executive officer Uwe T Schmidt says that the company's biggest strength comes from its global partners, Solar Millennium and MAN Ferrostaal. The latter, a global provider of plant construction and engineering services, will extend its in-house EPC capabilities to Solar Trust.

Also key to the company's ability to successfully manage project construction, says Schmidt, is MAN Ferrostaal's supply chain management expertise as well as its current relationships with steel component suppliers in the US, which Schmidt says will be able to be tapped to supply the projects. He notes further that MAN Ferrostaal's industrial solutions group, which specialises in just-in-time, just-in-sequence delivery, will aid in cost effective plant construction.

"Other solar companies may not have the project management capabilities, the metals expertise and the experience in assembling components during construction" that Solar Trust's partners have, Schmidt says, adding: "Such expertise gives us comfort." Solar Millennium's expertise will be tapped to supply operations and maintenance services to the plants once they are built.

Solar Trust's deep-pocketed parents will also be able to put substantial amounts of equity into the projects, allowing it to escape delays due to lack of funding that have sidelined others in the field. Solar Trust's owners have the internal capability to put US\$150m in equity into each of its proposed solar thermal power plants, which will have price tags of US\$1bn–\$1.2bn. Schmidt notes that Solar Trust expects to retain 20%–25% equity stakes in each project.

In addition to in-house equity financing, Solar Trust announced in November that it had engaged Citigroup Global Markets and Deutsche Bank Securities as advisers to assist in securing more than US\$6bn in financing for the construction of the first of its planned solar thermal

power projects to be built in California and Nevada. The company expects to begin construction of the first of the plants in 2010, and to close its first US\$1bn project financing in the fourth quarter of 2010. Citigroup will advise the company on raising debt, including tapping the DOE Loan Guarantee Program, while Deutsche Bank will focus on assisting the company tap equity investors. The company is also working with UBS on an overall corporate financing plan.

In addition to its contracted projects, Solar Trust has four others in advanced stages of development, and plans a total roll-out of 15 plants in the Southwestern US. The company's goal is to begin construction of two plants every year, with construction taking three years to complete.

Solar Trust's current demonstration project in Kramer Junction uses sufficient technological improvements to allow the company to tap the US Department of Energy Loan Guarantee Program for new technologies. This programme, called the 1703 Program for its corresponding section of the 2005 Energy Act legislation, is significantly more beneficial than the newest DOE loan guarantee solicitation for commercial technology, called the 1705 Program or the Financial Institution Partnership Program (FIPP).

Among the differences is that the 1703 Program allows project sponsors to tap the Federal Financing Bank rather than commercial banks, providing long-term debt at significantly lower rates than would be available elsewhere. While each deal with the Federal Financing Bank is different and there are no statutory guidelines for lending spreads, the FFB is said to have offered loans at less than 100bp over comparable US Treasuries.

New changes in the 1703 Program, under which 80% of project debt can receive guarantees by the DOE, give substantially more flexibility for commercial lenders to participate in the remaining 20% unguaranteed portion of project debt, and offers more enticing terms for banks.

Schmidt expects that in addition to long-term project financing, the company will seek bridge loans to grants in lieu of tax credits for the projects over the near term. He expects that as the appetite for tax equity investments improves over the next few years, the company will probably begin to seek traditional tax equity investors to help monetise additional tax benefits related to accelerated depreciation that are not covered by the current 30% ceiling on cash grants in lieu of investment tax credits.

In addition to power sales, the company also expects that it may be able to create additional earnings from carbon credits to be produced by the projects, as its partners currently are able to do in the European market. "It is inevitable that the US should pass some form of cap and trade legislation, and when that happens we will have that revenue stream," says Schmidt.

The
company's
biggest
strength
comes from
its global
partners.