Institutional Investor

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Exclusive Insight on Power M&A and Project Financing

Power Finance & Risk

The weekly issue from Power Intelligence www.powerintelligence.com

In This Issue

Conference Coverage

PI sprinted across the Americas to attend **Euromoney Seminars**' Brazilian Energy & Infrastructure Forum in Sao Paulo and **Infocast**'s Green Energy M&A Outlook conference in Santa Clara, Calif.

Detailed coverage, pages 8-10

 ISSN# 1529-6652

Top Stories

Brazil Energy & Infrastructure Forum

Project Bonds Touted To Meet Brazil Financing Demand

Sofitel Sao Paulo

Firms are working to stoke up institutional investor interest in the nascent Brazilian project bond market to fund hundreds of billions of dollars of power and infrastructure projects in the country's pipeline.

Banco Nacional de Desenvolvimento Econômico e Social has been the traditional source of cheap long-term loans. However, because of BNDES' historically large and singular

(continued on page 9)

JPM Asset Management Launches Loan Advisory

Bob Dewing

JPMorgan Asset Management has formed an infrastructure debt team offering advisory services to institutional investors looking to buy infrastructure project finance loans. The unit has named **Bob Dewing**, a consultant for the bank and a former long-time project financier at **Citigroup**, as portfolio manager for infrastructure debt.

Institutional Investors' portfolios would likely feature debt diversified across geographies and sectors, including transmission, electrical and gas distribution, ports and hospitals to mitigate risk, Dewing told *PI*. Infrastructure loans are typically stable assets with predictable returns over long periods. Tenors of the loans ideally would stretch at least 20 years. Pension funds, insurance

(continued on page 12)

Regional Banks Eye Tax Equity

Regional banks are looking at renewable energy tax equity investments, according to participants at a California conference last week. Several banks, including local regional **East West Bancorp**, have approached industry officials with questions about how the space works, attendees said.

The interest stems as returns from traditional investments such as low income housing have fallen into single digits, said **Rich Mull**, principal at **KPMG.** His remarks came at **Infocast**'s *Green Energy M&A Outlook for 2012* in Santa Clara. The renewable energy tax equity positions offer returns in the double digits, he told *PI* on the sidelines.

Tax equity investors have dwindled over the last few years, leading to surplus of capacity,

(continued on page 8)

At Press Time

Scotia Picks Up BNP Loans

Scotia Capital has picked up several loans from **BNP Paribas**' project finance portfolio in the Americas. The loans back power and infrastructure assets and were sold to Scotia at a significant discount, says a project financier familiar with the deal. Pricing could not be learned.

The Canadian lender, which has been relatively unscathed from the financial crisis in Europe, is looking to grow its project finance business in Latin American and has capital to put to work. Scotia recently opened a wholesale banking operation in Sao Paulo that will focus on project and infrastructure and other business lines, in the region.

BNP Paribas has been looking to offload its project finance portfolio in the Americas to cope with the effects of the European debt crisis and upcoming capital requirements under Basel III (PI, 10/14).

enXco Circles Gamesa Project

enXco has agreed to buy a 38 MW wind project in Cambria and Blair Counties, Penn., from **Gamesa Energy USA**. The acquisition could close in December pending regulatory approval, according to a filing Wednesday with the U.S. **Federal Energy Regulatory Commission**.

The Chestnut Flats project is expected to be online next month and has a power purchase agreement with **Delmarva Power & Light Co**., although when talks began with enXco in the spring, the project was merchant (PI, 4/28).

Details regarding how the purchase is being financed could not be learned. Calls to spokespeople for Gamesa and enXco were not immediately returned.

Four Banks Close Gas Storage Deal

ING, **Royal Bank of Canada**, **Sumitomo Mitsui Banking Corp**. and Swedish lender **SEB** have wrapped a $160 million financing backing **Peregrine Midstream Partners**' Ryckman Creek gas storage facility. The **EQT Infrastructure Fund** has a 70% stake in Peregrine.

The financing is priced between 275 and 300 basis points and has a five-year tenor. It comprises a roughly $120 million term loan and $50 million in letters of credit (PI, 8/29).

Peregrine will apply the financing toward the conversion of Ryckman to a gas storage facility from a partially-depleted oil and gas reservoir. The financing will also support at least 18 billion cubic feet of gas storage.

Ryckman will interconnect into four pipelines—Kern River, Questar, Overthrust and Northwest—upon operation next year. It will add an interconnection to **El Paso Corp**.'s Ruby pipeline in 2013. The initial 18 bcf is contracted to undisclosed customers.

Luke Saban, Peregrine cfo in Houston, couldn't be reached for comment, while **Chuck Sawyer**, v.p. of development, didn't return a call by press time. **Glen Matsumoto**, EQT partner, declined to comment. Bank officials or spokespeople declined to comment or didn't immediately address inquiries.

Tell Us What You Think!

Do you have questions, comments or criticisms about a story that appeared in *PI*? Should we be covering more or less of a given area? The staff of *PI* is committed as ever to evolving with the markets and we welcome your feedback. Feel free to contact **Sara Rosner**, managing editor, at (212) 224-3165 or srosner@iiintelligence.com.

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Generation Auction & Sale Calendar

Generation Sale DATABASE

These are the current live generation asset sales and auctions, according to *Power Intelligence*'s database. A full listing of completed sales for the last 10 years is available at www.powerintelligence.com/AuctionSalesData.html

Seller	Assets	Location	Advisor	Status/Comments
AES	Cayuga (306 MW Coal) Greenidge (105 MW Coal) Somerset (675 MW Coal) Westover (83 MW Coal)	Lansing, N.Y. Dresden, N.Y. Barker, N.Y. Binghamton, N.Y.	Barclays Capital	Talks are on-going with prospective buyers as a January interest. payment looms (PI, 11/14)
AES Solar, Riverstone Holdings	Stakes (Solar pipeline)	Variou, Europe	Morgan Stanley	Bids for a partnership stake are due the week of Sept. 19 (PI, 9/12).
AES Thames	Thames (208 MW Coal-fired)	Montville, Conn.	Houlihan Lokey	Less than a dozen shortlisted bidders are preparing second round bids (PI, 9/26).
AE Investor II	Astoria Energy II (4%, or 23.3 MW)	Queens, N.Y.	Whitehall & Co.	First round bids were scheduled for Fri., Sept. 16 (PI, 9/19).
ArcLight Capital Partners	Waterside (72 MW peaker) Crockett (162 MW Cogen) Hobbs (604 MW CCGT) Hamakua (60 MW CCGT) Borger (230 MW Cogen) Neptune (391 MW, 65-mile transmission line)	Stamford, Conn. Crockett, Calif. Hobbs, N.M. Honokae, Hawaii Borger, Texas Sayreville, N.J., to Long Island, N.Y	Citigroup, Barclays Capital	Final bid deadline pushed to November (PI, 10/17).
Black Hills Corp.	Stake (29 MW Wind project)	Huerfano County, Colo.	None	Entities with tax appetite have bid for the 50% stake (PI, 11/14).
Boralex	Various (186 MW Biomass)	Maine	TBA	ReEnergy Holdings is buying the five facilities for $93 million.
Cascade Investment	Altura (600 MW Cogen) Twin Oaks (305 MW lignite-fired) Cedar Bayou 4 (275 MW natural gas-fired)	Channelview, Texas Bremond, Texas Chambers County, Texas	Evercore Partners	Cascade is considering its options, including restructuring and a sale of its stake (PI, 7/11).
Conti Group, Grupo Arranz Acinas	Development pipeline (550 MW Wind)	Texas, Kansas, Minnesota	Alyra Renewable Energy Finance	Teasers went out in late July (PI, 8/1).
Coram Energy	Stake (102 MW Wind project)	Tehachapi, Calif.	Marathon Capital	Coram is selling a 50% stake in a wind project co-owned by Brookfield Renewable Power (PI, 8/22).
EDF EN Canada	50% Stake (300 MW Wind)		TBA	Enbridge is paying $330 million for the stake in Lac Alfred (PI, 11/14).
First Solar	Topaz (550 MW PV)	San Luis Obispo County, Calif.	No advisor	Enbridge is in talks to buy the project (PI, 9/26).
GDF Suez Energy North America	Hot Spring (746 MW CCGT) Choctaw (746 MW CCGT)	Malvern, Ark. Ackerman, Miss.	UBS	UBS is releasing CIMs to interested parties (PI, 5/15).
LS Power	Bluegrass (495 MW Simple Cycle)	LaGrange, Ky.	TBA	The Kentucky utility subsidiaries of PPL will jointly own the assets (PI, 11/14).
Macquarie Capital, Fomento Económico Mexicano	Stakes (396 MW wind project)	Oaxaca, Mexico	TBA	Bidders are in due diligence (PI, 10/10).
NextEra Energy Resources	Blythe (507 MW Combined-cycle) Calhoun (668 MW Peaker) Doswell (708 MW CCGT & 171 MW Peaker) Cherokee, (98 MW CCGT)	Blythe, Calif. Eastaboga, Ala. Ashland, Va. Gaffney, S.C.	Credit Suisse, Citigroup	LS Power is looking to put debt on two of the assets (PI, 10/3).
	Risec (550 MW CCGT)	Johnston, R.I.		Entergy Wholesale Commodities is buying the plant for $346 million (PI, 10/31).
Newind, WindRose Power	CCI (120 MW wind project)	Childress County, Texas	RedWind Consulting	Teasers have gone out for the project (PI, 9/19).
PNM Resources	Stake in Optim Energy	Texas	Morgan Stanley	Teasers are out as Cascade Investments considers exiting (PI, 5/23).
Signal Hill Power, CarVal Investors	Wichita Falls (77 MW CCGT) Rensselaer (79 MW Peaker)	Wichita Falls, Texas Rensselaer, N.Y.	Scotia Capital	Teasers out in late June; first round bids said to be in (PI, 8/8).
Starwood Energy Group	Thermo Cogeneration (272 MW CCGT)	Fort Lupton, Colo.	None	Tri-State Generation and Transmission Association is buying the plant (PI, 10/10).
Tenaska	High Desert (800 MW CCGT) Rio Nogales (800 MW CCGT)	Victorville, Calif. Seguin, Texas	Barclays, Citi	Teasers dispatched and preliminary bids expected early to mid-November (PI, 10/31).
Third Planet Wind Power	Petersburg (40.5 MW Wind)	Petersburg, Neb.	Morgan Stanley	Edison Mission Energy is buying the project (PI, 10/10).
Tuusso Energy, Akula Energy Ventures	TA High Desert (209 MW Solar)	Tehachapi, Calif.	Marathon Capital	Said to be close to a purcahse sale agreement (PI, 10/17).
U.S. Power Generating Co.	Astoria Generating (2.1 GW Gas-fired)	Queens, N.Y.	Perella Weinberg Partners	Perella Weinberg has been hired to advise on strategic alternatives (PI, 9/26).

• **New listing**

The accuracy of the information, which is derived from many sources, is deemed reliable but cannot be guaranteed. To report new auctions or changes, contact Senior Reporter ***Holly Fletcher*** *at (212) 224 3293 or e-mail hfletcher@iiintelligence.com.*

Project Finance

Lenders Wrap Invenergy Ill. Wind Deal


GE 1.5 MW Turbines

Joint bookrunners **BayernLB**, **Rabobank** and **Banco Santander** have closed a $422 million financing supporting Invenergy's 200 MW Bishop Hill wind project. **CoBank**, **Dekabank**, **Royal Bank of Canada** and **Siemens Financial Services** are participating in the deal—Invenergy's largest single wind fin ancing.

Pricing on the deal starts at LIBOR plus 275 basis points. It is a 10-year mini-perm. **Rolf Siebert**, BayernLB first v.p. in New York, led the financing. BayernLB was the administrative and collateral agent.

The Bishop Hill deal originally was expected to start at 237.5 bps over LIBOR, with an 18-year tenor, but lenders resisted joining upon learning that Invenergy planned to post 7.5-10% equity to the project (PI, 10/11). The size of lender commitments couldn't be learned. An Invenergy spokeswoman in Chicago declined to comment. Bank officials or spokespeople declined to comment or didn't address inquiries by press time.

The **Tennessee Valley Authority** has a 20-year offtake agreement for Bishop Hill I, in Henry County, Ill. The project will use various types of turbines, including **General Electric**'s 1.5 MW turbines.

NextEra Tags Four For Transmission Deal

NextEra Energy Resources has tapped **Bank of Tokyo-Mitsubishi UFJ**, **Crédit Agricole**, **Mizuho Corporate Bank** and **Royal Bank of Canada** to participate in a roughly $300 million club deal supporting transmission lines in West Texas.

The financing is priced at LIBOR plus 150 basis points, which is well below the recent project finance market floor of 225 bps. NextEra's sterling credit rating is one of several explanations for the tight margin; **Standard & Poor's** rates parent **NextEra Energy**'s local long-term debt A-. A senior financier notes that transmission paper is limited and attractive to lenders and investors. And transmission projects are widely viewed as infrastructure assets, which tend to price 25-50 bps below the PF floor (PI, 3/7).

NextEra began shopping for a sub-200 bps credit in early

(story continued on page 7)

Project Finance Deal Book

Deal Book is a matrix of energy project finance deals that *Power Intelligence* is tracking in the energy sector.

Live Deals

Sponsor	Project	Location	Lead(s)	Loan	Loan Amount	Tenor	Notes
Bloom Energy	Unidentified (Fuel Cell)	TBA	RBS	TBA	TBA	TBA	Sponsor taps RBS to lead financing (PI, 10/31).
Boralex, Gaz Métro	Unidentified (272 MW Wind)	Seigneurie de Beaupré, Quebec	BoTM, DB, KfW	TBA	$710.34M	18-yr	Deal wraps (PI, 11/14).
• Edison Mission Energy	Portfolio (Wind)	U.S.	WestLB	TBA	$220M	TBA	Siemens commits to deal (see story, page 7).
Enova Energy Group, NuPower	Plainfield (37.5 MW Biomass)	Plainfield, Conn.	Carlyle	TBA	$170M	TBA	Carlyle tapped as lender after SocGen drops out (PI, 10/31).
First Wind	Palouse (100 MW Wind)	Whitman County, Wash.	KeyBank	TBA	$180M	20+-yr	Key Wind to lead financing (PI, 10/24).
Gradient Resources	Patua (132 MW Geothermal)	Reno, Nev.	BNP, Dexia, Scotia	TBA	$600M	TBA	Project to be financed in phases (PI, 10/17).
Inkia Energy	Unidentified (400 MW Hydro)	Cerro del Aguila, Peru	BBVA, Crédit Agricole, HSBC, Scotia, SocGen, SMBC, WestLB	TBA	$525M	12-yr	Sponsor mandates lenders (PI, 9/26).
• Invenergy	Bishop Hill I (200 MW Wind)	Henry County, Ill.	BayernLB, Rabo, Santander	Term/Bridge	$422M	10-yr	Deal wraps (see story, page 5).
	Hardin Wind (300 MW Wind)	Hardin County, Ohio	TBA	Term	$500M	TBA	Sponsor reaches out to lenders (PI, 9/19).
Macquarie Mexican Infrastructure Fund, Macquarie Capital, Fomento Económico Mexicano	Oaxaca (396 MW Wind)	Oaxaca, Mexico	Banorte, BBVA, Crédit Agricole, HSBC	TBA	TBA	16-yr	Four lenders join financing (PI, 10/10).
MPX	Castilla (2.1 GW Coal-Fired)	Chile	TBA	TBA	TBA	TBA	Sponsor talks to lenders about $1 billion first phase (PI, 9/26/11).
• NextEra Energy Resources	Lone Star (300 Miles Transmission)	Texas	BoTM, Crédit Agricole, Mizuho, RBC	TBA	TBA	TBA	Sponsor mandates banks to lead financing (see story, page 5).
	Various (230.8 MW Wind)	California and Oklahoma	TBA	Refi	TBA	TBA	Sponsor reaches out to lenders about refi (PI, 10/14).
Northland Power	Manitoulin Island (60 MW Wind)	Maitoulin Island, Ontario	Manulife	TBA	TBA	TBA	Manulife expects to name a second lender (PI, 10/31).
• Odebrecht	Chaglla (406 MW Hydro)	Peru	BNP	TBA	$650M	TBA	Deal slated to close in February (see story, page 7).
Pattern Energy	Ocotillo (315 MW Wind)	Imperial Valley, Calif.	TBA	TBA	TBA	TBA	Sponsor targets financial close in 2012 (PI, 10/24)
	Santa Isabel (75 MW Wind)	Santa Isabel, P.R.	Siemens	Construction	TBA	TBA	Deal wraps (PI, 10/24).
• Peregrine Midstream Partners	Ryckman Creek (18-35 bcf Gas Storage)	Uinta County, Wyo.	TBA	TBA	$160M	TBA	Deal wraps (see story, page 2).
Tenaska Solar Ventures	Imperial Solar Energy Center South (130 MW Solar PV)	Imperial Valley, Calif.	BBVA, BoTM, Lloyds, MUFG, MS, RBS	TBA	$600M	TBA	Sponsor mulls bond component to deal (PI, 10/31).
Westar Energy, AEP. MidAmerican	Prairie Wind (Transmission)	Wichita, Kan. To Oklahoma	TBA	TBA	TBA	TBA	Westar to scout financing in late 2012 (PI, 10/14).
Wind Capital Group	Post Rock (201 MW Wind)	Lincoln and Ellsworth, Kan.	BayernLB, Rabo	Term/ Construction	$300M	TBA	Mizuho, NordLB, UniCredit and Union Bank join deal (PI, 10/17).
	Unidentified (150 MW Wind)	Osage County, Okla.	BayernLB, Rabo	TBA	TBA	TBA	Sponsor mandates BayernLB, Rabo (PI, 8/15).

• New Financing

*To report updates or provide additional information on the status of financings, please call Senior Reporter **Brian Eckhouse** at (212) 224-3624 or e-mail beckhouse@iiintelligence.com.*

(story continued from page 5)

August (PI, 8/10), before exposure to Greek sovereign debt began sidelining several European lenders from the U.S. project finance marketplace (PI, 10/14).

The tenor of the financing and whether the leads are planning a retail syndication couldn't be learned. A NextEra spokesman in Juno Beach, Fla., declined to comment. Bank officials declined to comment or didn't return calls.

NextEra's Lone Star transmission lines will traverse 300 miles and cross through 17 counties. The project will feature double-circuit, 345 kV lines.

Siemens Joins EME Wind Deal

Siemens Financial Services has joined a roughly $220 million financings supporting a portfolio of **Edison Mission Energy** wind projects. **WestLB** is leading the financing and has secured commitments from a handful of lenders, says a deal watcher. **CIT Group** is among the lenders looking at the deal.

The financing is priced at LIBOR plus 250 basis points and has a 10-year tenor (PI, 10/20). **Krish Koomar**, EME managing director in Irvine, Calif., and **Craig Howard**, treasurer, are leading the financing for the sponsor. The identity of the other banks in the deal couldn't be learned. Howard declined to comment, while Koomar didn't return a call seeking comment. Financiers or spokespeople declined to comment.

FAST FACT
Krish Koomar, **Edison Mission Energy** managing director, and **Craig Howard**, treasurer, are leading the financing for the sponsor.

The EME financing backs the 130 MW Taloga wind project in Dewey County, Okla., the 55 MW Pinnacle farm near Keyser, W.Va., and a third farm. **Oklahoma Gas & Electric** has a 20-year offtake agreement for Taloga. The identity of the third project couldn't be learned.

US Wind Force, a Greensburg, Pa.-based sponsor, is jointly developing Pinnacle with EME. The **University of Maryland System** and the Maryland **Department of General Services** have 20-year offtake agreements for Pinnacle. **Dave Friend**, chairman and ceo of US Wind, declined to comment.

Developers Circle Colombia

Sponsors and relationship lenders are targeting Colombia for power project development as the country plots a multi-billion dollar infrastructure program and enjoys investment grade credit ratings for the first time in over a decade.

Spanish developers such as **Abengoa**, **Acciona** and **Isolux Corsan** are reportedly considering developing projects, said deal watchers, adding that the government is likely to hold tenders for developing projects in the 12-18 months. Their relationship lenders include **BBVA**, **Banco Santander** and **La Caixa**.

Moody's Investors Service and **Standard & Poor**'s raised Colombia's credit rating to Baa3 and BBB-, respectively, earlier this year citing the country's economic growth and reduction in organized crime and guerilla threats. The rating adds confidence to sponsors and banks looking to do business in the country, the deal watcher said. Colombia's credit rating had been cut to junk 11 years ago when a banking crisis and insurgency caused its economy to contract.

Infrastructure development has essentially been dormant for several decades, the deal watcher noted, creating a large demand for new facilities. The lack in economic growth in the past has also reportedly left several of the local banks in the country with plenty of liquidity to fund project development.

Peruvian Hydro Deal Details Surface

The financing package backing **Odebrecht**'s $1.25 billion Chaglia hydro project in central Peru is slated to close in February. **BNP Paribas**, **BBVA** and **Société Générale** are participating in the $650 million deal, says an observer.

The export credit arm of the **Banco Nacional de Desenvolvimento Econômico e Social** is considering making a $250 million commitment to the deal and the **Inter-American Development Bank** is planning to provide an additional $150 million in financing (PI, 9/30). The project will use turbines and equipment manufactured by a Brazilian supplier, which allows the project to qualify for export credit. The observer said.

Pricing of the 17.5-year commercial bank piece had been slated to start at 275 basis points over LIBOR. **Electroperú** is the offtaker for the 406 MW project.

Mergers & Acquisitions

NextEra Hooks JPM Tax Equity

NextEra Energy Resources has landed the promise of a tax equity investment from **JPMorgan Capital Corp**. for three operating wind projects in California. JPMCC will take 100% of the passive investments in NextEra subsidiary **Golden Winds** that owns three projects totaling 205.9 MW, according to a filing earlier this month with the U.S. **Federal Energy Regulatory Commission**. The transaction is slated to close around Dec. 8.

The Assets

- 78.2 MW Montezuma II, Solano County, PPA with **Pacific Gas & Electric**
- 78.2 MW Vasco, Contra Costa County, PPA with PG&E
- 49.5 MW San Gorgonio, Riverside County, contracted to **Southern California Edison**

NextEra, based in Juno Beach, Fla., is also in the market looking to refinance a portfolio of three operational farms in California and Oklahoma (PI, 11/7). The amount of the investment could not be learned. Spokesmen for NextEra and JPMCC could not immediately comment.

Green Energy M&A Outlook

***Infocast** hosted about 50 executives and bankers from the renewable energy sector, including developers, investment banks and advisory shops, law firms and consultancies at its first two day Green Energy M&A Outlook for 2012 in Santa Clara, Calif. The rush to meet deadlines under the production tax credit program, tax equity transactions were hot topics as well as where acquisition opportunities could arise. Senior Reporter **Holly Fletcher** filed the following stories.*

PTC Sunset To Spur Dash For Tax Equity

The countdown is on for wind developers looking to bring in a tax equity investor into debt structures by the end of next year in order to qualify for production tax credits. The process to line up financing, complete construction while negotiating and closing a tax equity transaction will be a sprint, said **Partho Sanyal**, director in the global energy and power group at **Bank of America**. "It will be a mad dash to the finish line to get that done," he told the conference.

The PTC program imposes a Dec. 31, 2012 online date on potentially qualifying projects. Tax equity transactions are typically consummated at the time of commercial operation, allowing the investor to take advantage of the tax attributes. **NaturEner** has secured a $250 million tax equity investment from **San Diego Gas & Electric** for its 189 MW Rim Rock wind project in Kevin, Mont., and preliminarily filed with the U.S. **Federal Energy Regulatory Commission** for approval ahead of the transaction so everything can be consummated when the project goes online (PI, 11/4). To pad for construction delays, NaturEner is preparing for an October start date, leaving two months of wiggle room.

In terms of arranging construction financing, sponsors with projects that have all the requisite contracts, of course, can feasibly expect to see hybrid options, fixed and floating rates, on the table, said **Frank Napolitano**, managing director and group head of U.S. power and utilities investment banking at **RBC Capital Markets**.

GCL Scopes $1B Solar Financing 2012 Playbill

GCL Solar Energy is planning to take about 400 MW, or roughly $1 billion, of solar photovoltaic projects through the project finance market next year. The portfolio is 10-15 projects, with about 60% of the MWs in California and Puerto Rico, **Jimmy Chuang**, director and head of structured finance at GCL told *PI* on the sidelines. The remainder is in states including Arizona and Texas.

The aim is to raise 40-50% debt and the same amount of tax equity. The company will front the remaining cash equity, Chuang said.

It also anticipates finalizing the financing of a 77 MW project in Puerto Rico by year-end and an early first quarter close on a 54 MW project in California, he said, declining to comment on deal specifics.

The unit of Chinese poly silicon producer **GCL-Poly Energy Holdings** has primarily built its pipeline through project acquisitions although is interested in greenfield development. It has a joint venture to build PV new build with **SolarReserve** (PI, 11/24/10).

GCL has worked with **Wells Fargo** on tax equity deals in the past (PI, 3/25).

Regional *(Continued from page 1)*

panelists said. Investment banks such as **JPMorgan** have long been tax equity investors, and before 2008 corporates were routine faces. With the economy still weak, corporates have reduced capacity while regional banks see lower returns in usual investment haunts, making renewable energy an attractive frontier. The entry of regional banks—which have generally had little exposure to the energy space—would expand the roster of entities that are available to take stakes, ameliorating a bottleneck of deals.

Wind developers are in a rush to line up tax equity investors as the production credit program sunsets at the end of 2012 (see story, above left). For solar, though, the credit period remains open until 2016. The PTC is a federal subsidy program that allows third party balance sheet investments to receive tax credits.

The prospective players are new to the space and are trying to get comfortable with the risks and technology, said **Jimmy Chuang**, head of structured finance at **GCL Solar Energy**, who has spoken with several regionals about investments in photovoltaic installations. Chuang said that advisory shops such as **Cornerstone Advisors** and **CP Energy** have brought prospective investors to the table. Mull added that he had been approached by several banks from California and the Midwest as well as others "sprinkled around the country." Neither, however, would provide names.

Not all regional banks are in a position to take investments as they have been hit hard by the financial crisis. "Some just aren't healthy," Chuang said. Tax equity investments—generally in the $50-150 million neighborhood, although they can be higher—could be too big a ticket for a single small player, he told *PI*, adding that he wouldn't be surprised if several regional banks teamed up on a single investment.

Tax equity investments in solar projects are a key piece of financing alongside debt for many developers, including GCL, which plans to arrange about 40-50% of debt, similar amounts of tax equity and fronting the remaining equity itself.

Calls to officials at Cornerstone and CP Energy were not immediately returned while an East West representative in Pasadena, Calif., couldn't be immediately reached.

—Holly Fletcher

For more coverage, go to www.powerintelligence.com

Brazilian Energy & Infrastructure Forum

*Project finance bonds and Brazil's upcoming generation auction created the most buzz at the **Euromoney Seminars**' 4th Annual Brazilian Energy and Infrastructure Finance Forum in Sao Paulo. In addition to representatives from local banks, financiers from institutions in the U.S., Canada, Europe and Asia made a strong showing at the event, which was held at the Sofitel Sao Paulo Nov. 10-11. Managing Editor **Sara Rosner** filed the following stories.*

Project Bonds *(Continued from page 1)*

role in project financing in the country, the institutional investor market for project bonds is under-developed. Financiers are looking to alternatives for project financing because BNDES will likely be unable to accommodate the volume of project financing needs, said **Sergio Monaro**, head of project finance in Brazil for **HSBC**. Brazil will have roughly $100 billion of power and infrastructure project costs every year for the next five years, said **Arthur Simonson**, managing director of **Standard & Poor's**.

The successful executions of recent bond issues backing toll roads in reais and offshore oil and gas assets in dollars and a growing pool of domestic savings in pension funds in Brazil have caused several fund managers to begin looking at project bonds more carefully, said **Alexei Remizov**, managing director and head of Brazil capital markets for **HSBC**. "Banks have the resources to understand every phase of project financing risk. The challenge we face is getting the institutional investors to understand that risk," said the head of global infrastructure at a North American bank.

Buoying the interest in bonds is European banks' growing interest in Brazil and limitations on lending from their balance sheets under Basel III.

PREVI, the **Banco do Brasil** employee pension fund, **PETROS**, the state-controlled **Petrobras** employee pension fund, and **FUNCEF**, the pension fund of state-owned bank **Caixa Economica Federal**, are among the institutional investors being wooed by banks and developers to buy future project bonds. ***—Sara Rosner***

Pricing Pressure Looms For Brazil Wind

Wind developers looking to bid into Brazil's next auction for generation are worried that the downward trend in pricing in contracts will make many projects unfeasible. The next auction is slated to be held on Dec. 20.

The government handed out contracts with an average pricing of BRL99.58 ($62.91) per MWh to 44 wind projects in the last auction in August, a steep drop from BRL148 in the contracts from the first auction in 2009. In comparison, Ontario has a feed in tariff program that awards C$135 ($136) per MWh to qualified projects. The wind generation in the August auction priced lower than the two natural gas-fired projects that secured contracts of BRL 103.26 per MWh.

The pricing has become so low, that it is difficult to find financing to back the project, said **Christiane Aché**, director of project and export finance for **ALSTOM** in Latin America. The participation of Brazilian state-backed companies, which typically seek lower rates of return, and Chinese developers, are putting downward pricing pressure at the auctions, said **William Schmidt**, cfo of developer **Dobrevê Energia**. Chinese developers often have receive cheap financing from home, which allows them to bid low, explained **Thiago Marder**, financial administrative manager, for **Atlantic Energias Renováveis**. Another observer notes that because the auctions are based solely on price, instead of project feasibility, many companies without any experience in wind development are bidding in to the auctions.

Increasing project sizes could be one way of mitigating low pricing, Schmidt said, pointing to increasing economies of scale. However, Aché noted that many projects and the developers will not survive the low-pricing environment.

REPORTER'S NOTEBOOK

• **Lost In Translation**. Headsets that broadcast English to Portuguese and vice versa were available. However, the Portuguese to English translation baffled some: one banker was overheard telling another that he had given up on the headsets and preferred to make it up as he went along.

• **Nelson Fontes Siffert Filho**, head of the infrastructure department at **Banco Nacional de Desenvolvimento Econômico e Social**, packed the house on the last morning of the conference. BNDES, the biggest infrastructure lender in the country, has lent more than BRL91 billion ($51 billion) in the first nine months of this year.

• Attendees enjoyed a cocktail reception that featured caipirinhas, a typical Brazilian concoction that includes sugar cane liquor, sugar and lemon. For a twist, try the caipiroska, which substitutes the sugar cane liquor with vodka.

Caipirinhas time

• One of the photos in PowerPoint presentation given by Dr. **Jose Antonio Simas Bulcão**, human resources official for **Furnas Centrais Elétricas**, featured an uncontacted Amazon tribe. The relationship between the tribe and small-scale hydro financing, the subject of the panel on which Bulcão was presenting, are unclear.

Small Hydro Developers Call For Tailored Auctions

Developers of hydro projects under 100 MW are calling for exclusive auctions because of the difficulty scoring power purchase agreements from general auctions hosted by the Brazilian federal government.

The small hydro projects can't compete with cheaper forms of generation, **Carlos Andrade**, financial director of **EDP Brasil**, told attendees. The low environmental impact of small hydro relative to other resources warrants more government support, he added. Procuring PPAs outside of the auction process only yields contracts of five to six years, said **David Van den Abeele**, finance director for **Omega Energia Renovavel**, adding that such tenors are not adequate to secure project financing.

The auctions, which have been held since 2005, are typically open to all renewable and thermal resources and are purely based on price. In the last auction held in August, two gas plants signed contracts for roughly BRL103.26 per MWh, while a hydro project and 44 wind projects signed contracts for BRL102 and an average of BRL99.58 per MWh, respectively. The average development cost of small hydro is roughly BRL6,000 ($3,405) per kW while large hydro projects, which typically run over 1 GW in the country, cost BRL2,000 ($1,135) per kW.

The regulatory and permitting process is also a barrier to developing projects, Andrade said. The **Agencia Nacional de Energia Eléctrica**, the national agency that regulates power and transmission and helps oversee the auctions, has roughly 1.3 to 1.4 GW of projects under evaluation, he noted. EDP has roughly 400 MW of small hydro projects under development in Brazil.

Industry Current

U.S. Solar: Death Or Adolescence?

*This week's Industry Current is written by **Todd Glass**, partner at **Wilson Sonsini Goodrich & Rosati** in San Francisco.*

Todd Glass

To borrow from **Mark Twain**, the reports of the impending death of the U.S. solar industry have been an exaggeration. Rather than death, the more accurate assessment is that the U.S. solar industry is surviving its awkward adolescence. The solar industry today is marked by rapid growth, aggressive competition, idealistic and frenzied adoption of new approaches, and of course a handful of embarrassing public disasters. Despite the messiness and drama, however, the solar industry is gaining speed and legitimacy. Soon, solar generation will mature into a viable subsector of the energy markets meriting significant debt and equity from the project finance community.

This solar industry's growth has been phenomenal and is continuing. From 2009 to 2010, utility scale, commercial & industrial and residential solar photovoltaic installations increased 246%, 79%, and 68%, respectively. Growth in 2011 and 2012 will follow that trend albeit at a lesser rate as the law of large numbers sets in (see chart, page 11). While the expiration of the U.S. **Department of Treasury** 1603 cash grant program may dampen growth beyond 2012, surging residential installations and the strong pipeline of utility scale projects under development with long-term power purchase agreements will continue the rapid growth assuming tax equity steps in with sufficient tax credit appetite.

The hormone-induced competition in U.S. solar markets is fierce. As a result of worldwide oversupply, module prices have decreased more than 30% in the last 12 months. Indeed, some suppliers are selling at significantly less than cost. The cost of making a polysilicon module today is as low as $1.10-1.15 per watt in China and in other low cost manufacturing regions; yet, some modules are selling at well under $0.90 per watt. Not surprisingly, module cost competition and supplier development capital is fueling frenetic competition in power purchase agreement prices for utility-scale projects. The crazy competition seems to be calming a bit as several module manufacturers are starting to reduce production output, while others are ceasing operations altogether. Anti-dumping investigations will throw additional cold water on the competition, but no one predicts an end to the volatile solar markets.

> "The three [Calif.] utilities wield oligopsony market power, making developers dance."

Perhaps the most surprising aspect of the solar industry is the adoption of new technologies and innovative business models. Some thin-film module companies, such as **First Solar**, have surpassed expectations for a while; yet, quality issues and lack of proven long term track record may dog thin film products. We are starting to see

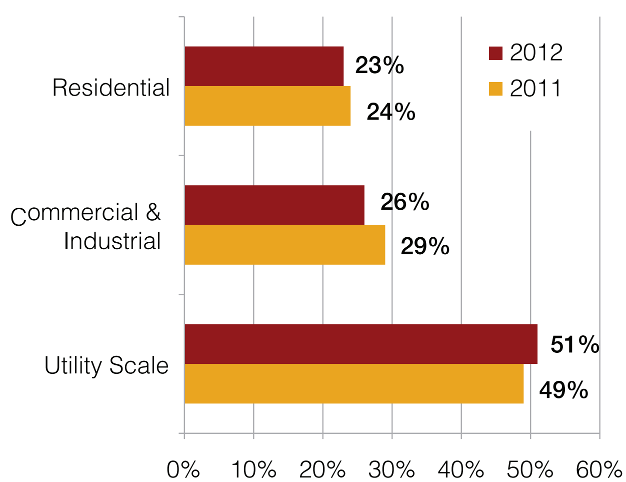
Industry Current is a feature written by industry professionals that highlights and clarifies key issues in the power sector. Power Finance & Risk runs the feature periodically and is now accepting submissions from industry professionals for the Industry Current section. For details and guidelines on writing an Industry Current, please call Sara Rosner at (212) 224-3165 or email srosner@iiintelligence.com.

new technologies and processes affect balance of system costs and there appears to be plenty of room for improvement.

Unlike wind and conventional thermal generation, the U.S. solar industry is growing outside the typical independent power producer model. The remarkable successes of **SunRun**, **SolarCity**, **Clean Power Finance** and others developing new portfolio financing models have accelerated residential to the point that it has been the solar subsector least impacted by financial crises of the last few years. Even utilities, which are not known for progressiveness, have engaged with and even invested in the new distributed solar companies. On the other hand, some venture capital is pulling back from solar because VCs have figured out what we energy people told them years ago: success in the energy industry requires patience, abundant capital, and a willingness to participate in a market dominated and controlled by regulated monopolies and mature companies with balance sheets to weather fluctuating markets.

Of course, we must acknowledge that the embarrassing public disasters are beyond a mere case of acne. The **Solyndra** loan guarantee and bankruptcy, following the **SpectraWatt** and **Evergreen Solar** bankruptcies, and other manufacturing facility closings, are ugly reminders that fierce competition claims victims. Similarly, the announced conversions of concentrated solar power (CSP) projects to PV, like **Solar Millennium**'s Blythe project, reveal that bottom line cost of energy as reflected in PPA price is the name of the game in utility PPA competitions today. The utility-friendly attributes of large CSP projects are largely ignored. For instance,

Solar Growth Forecast



Source: GTM Research

significant energy storage integrated with solar projects will not take off until utilities are willing to pay for capacity and the other positive attributes that energy storage can deliver.

One other disaster merits a special note: the California renewables market seems almost broken. The three utilities wield oligopsony market power, making developers dance gyrations as they compete and accept both low prices (less than a levelized $120/MWh post-time of day factoring) and onerous, unfinanceable PPA terms with a preponderance of the risk. When a handful of inexperienced developers and less savvy lenders accepted **Southern California Edison**'s persistent unbounded buyer curtailment rights the reality of what is financeable became distorted.

Further, the California **Public Utilities Commission** (CPUC) Energy Division has advocated that all executed PPAs must be marked against market up to the day of approval. (A PPA price executed eight months before will be compared against more recent offers received by the utility in other programs.) This apples-to-oranges comparison fuels further speculative, non-cost based PPA pricing to the detriment of real viable projects that can be financed and built. Meanwhile, the utilities and the CPUC recognize that more than half of the projects with PPAs already approved or currently before the CPUC will never get built. Neither the utilities nor the CPUC appear to be willing to deal with the market constipation of non-viable projects. Rather, the projects are dying one-by-one as the projects seek amendment of their PPAs for various reasons and are told that the price must meet today's PPA market prices.

So where is the light at the end of the tunnel? When does the adolescent move out, graduate, get a job, and behave like an adult?

The transformation of the solar industry is starting now. The vigorous competition and plummeting installed system prices are driving to the point where solar starts to make sense economically—for residential and non-residential retail customers and utilities. Module prices, balance of system costs, and PPA prices are expected to continue to decline for the next three years. Grid parity depends upon where you are on the grid, but we are getting closer faster than anyone expected.

Unlike wind, solar does not hit the wall at the end of 2012. While the 1603 Treasury grant program expires then, the federal investment tax credits for solar property extend through the end of 2016. An estimated 2,000 MW of utility-scale solar projects in the U.S. will be project financed in 2011 and 2012 without the benefit of federal loan guarantees. Corporate income in the U.S. has regained strength, so it would appear that appetite for tax credits should be substantial. My industry colleague, **Keith Martin** of **Chadbourne & Parke**, has publicly stated that there are 18 tax equity providers in solar today. Good projects, with sound PPAs and acceptable returns, are getting financed and built. From our recent experience, it would appear that appetite for solar investment tax credits is substantial for solid projects that have financeable PPAs and minimum unlevered rate of return of 8 to 9%.

The new business models are working in residential, other distributed solar, mobilizing billions of dollars in capital through tax-advantaged portfolios. Some of the leaders in the distributed solar space are thinking about the next step: securitization of such portfolios to bring in yet more capital into the U.S. solar industry.

Massive industry consolidation is starting. The leaders in the industry are building vertical integrated capabilities, assembling teams of experienced developers and financing experts, and connecting them to strong balance sheets. **Total**'s investment acquisition of 60% of **SunPower** and its provision of a line of credit guarantee demonstrates the direction that the leading industry players are going. On another front, the leading independent power producers in the U.S., such as **NextEra Energy**, **NRG Energy** and **AES Corp**., are moving into solar aggressively and publicly stating that solar PV assets appear to be less risky than most other renewables. My estimation is that solar commercialization is 8 to 10 years behind the wind industry, so I predict that in another few years, we will have 5-10 leading solar companies dominating the utility-scale and distributed solar markets.

I am hopeful that the CPUC is going to start to fix the largest renewables market in the U.S. In the conversations surrounding and the decision on the **Pacific Gas & Electric**—**NorthStar Solar** PPA (which was renegotiated after the CPUC Energy Division proposed to reject it because the price in the September 2010-executed PPA was higher than bids into the utility's 2011 tender), it appears that the CPUC knows it needs to: 1) fix how the utilities, independent evaluators and the CPUC staff assess project viability; 2) create more transparency and predictability on pricing and PPA approval process; 3) accord skepticism to speculative bidders; and 4) clean out the PPA and project queue that has led to a false assumption that the California utilities will meet their goals en route to a 33% renewable portfolio standard.

Finally, I predict that the capital will step up to support the adult solar industry as it nears cost competitiveness. Unless the wind industry is successful in Washington, D.C., in extending tax credits for that industry, investment in wind projects will decline significantly after 2012. Yet, state renewable portfolio standard goals will continue to drive markets for renewables in most states. At some point, U.S. electric load growth will resume its 1-2% per year predictable march, while natural gas prices will not stay at $4 forever. Meanwhile, solar investments will look less risky and increasingly attractive compared to alternative investments inside and outside the energy industry. Accordingly, as demand for solar grows, solar projects and portfolios of projects will meet the demand. The money will follow the opportunity—to invest in the more mature solar industry.

JPM Asset

(Continued from page 1)

companies, sovereign wealth funds and foundations are among the investors that have tapped JPM for advisory services.

Transmission loans, Dewing says, are favorable because lines "operate generally in all economic climates… and are not prone to competition." That isn't necessarily true for generation projects, which will not be included in potential portfolios for JPM's clients. Lenders looking to sell bundles of existing debt are willing to concoct packages suited to potential buyers. "They don't mind if we [take] some assets and not others," Dewing says.

The secondary market is flooded with available project finance loans, as lenders—particularly European lenders burdened with exposure to Greek and Italian sovereign debt—look to offload assets in an effort to increase capital reserves (PI, 10/14).

Loans have sold close to par, reflecting a low default rate and the quality of the assets available. Some banks have cherry-picked some of the best performing loans to ensure sales at or near par and to buttress the perception of their portfolios. Dewing, though, has a more nuanced view: available loans with margins at LIBOR plus 200 to 300 basis points—the existing market for infrastructure loans—will sell at or near par, while debt priced below market will be cheaper.

Dewing reports to **Gary Madich**, chief investment officer of the global fixed income group, and **Mark Weisdorf**, ceo of OECD infrastructure in the global real assets group. Dewing's unit will look to add staffers with expertise in infrastructure debt. He declined to specify the number.

—Brian Eckhouse

ALTERNATING CURRENT

Renewables Power Thanksgiving Football

Storylines aren't lacking before the Thanksgiving tilt between the **Baltimore Ravens** and the **San Francisco 49ers**. It'll be the first time the **Harbaugh** brothers coach against each other in the **NFL**. At press time the 49ers had won seven consecutive games and seem poised for a deep playoff run, while the Ravens have wobbled in recent weeks despite an elite defense.

Baltimore, which hosts the nationally televised game, decided to add another newsy wrinkle: **Constellation Energy** will buy renewable energy credits covering the power usage that night at M&T Bank Stadium. Constellation estimates that the RECs will avoid roughly 30 metric tons of carbon dioxide emissions, or the equivalent of more than 1,200 tailgaters with propane grills.

So if your family has tired of you watching football since midday Thursday, you could try this approach: "I'm supporting renewable energy."

Quote Of The Week

"It will be a mad dash to the finish line to get that done."— **Partho Sanyal**, director in the global energy and power group at **Bank of America**, on wind developers' push to line up financing, complete construction and arrange tax equity before the production tax credit scheme expires Dec. 31, 2012 (see story, page 8).