

# Power Finance & Risk

The weekly issue from **Power Intelligence**

[www.powerintelligence.com](http://www.powerintelligence.com)

## LS Hunts \$400M Debt For Ariz. PV

**LS Power** is talking to lenders and insurance companies about more than \$400 million in financing to support 127 MW at its Arlington Valley photovoltaic project in Maricopa County, Ariz.

The New York-based developer has tapped **Banco Santander** to lead a bank tranche and **Prudential** to lead a bond component, deal watchers say. The 127 MW of ground-mounted PV will cost roughly \$550 million to build.

The bank tranche is expected to have a 12-year tenor, while the

bond component will extend for 25 years, matching the life of **San Diego Gas & Electric's** offtake agreement for the project. Pricing, the financing timeline and how LS will fund remaining project costs couldn't be learned. **Rich Roloff**, LS v.p. of

finance, couldn't be reached by press time. Officials at Santander and Prudential declined to comment or couldn't be reached.

The project reportedly will be built in 25 MW segments, with the first installment operational by the end of the first quarter of 2013. Each additional segment is expected to be built within two months of the prior phase.

### LS Power PF Deals 2011

Project	Location	Debt Amount
CREZ (234 Miles Transmission)	West Texas	\$433M
One Nevada (235 Miles Transmission)	Nevada	\$343M
West Deptford (738 MW Gas)	West Deptford, N.J.	\$300M
Various (Gas)	Illinois, Connecticut	\$73M
<b>Total</b>		<b>\$839M</b>

Source: Project Finance Deal Book-<http://powerintelligence.com/projectfinancedeal.html>

## Financiers Target Bigger, Bond Plays

Project financiers are zeroing in on bonds to buoy large non-recourse deals this year.

Snagging more than \$600 million for project finance deals, absent a creative structure, will be tough with several European lenders sidelined by the debt crisis, said **Donald Kyle**, senior managing director at **GE Capital Markets** in Stamford, Conn. Financiers estimate that at least 30% of project lenders have

*(continued on page 12)*

## Bicent Debt Holders Scout Restructuring Advisor

First lien debt holders in **Bicent Power** are taking pitches from restructuring advisors ahead of a potential covenant breach. Bicent is the power company arm of **Beowulf Energy**, the investment shop of energy veteran **Paul Prager**.

**Strategic Value Partners**, **GSO Capital**, the credit unit of **Blackstone**, and **Barclays Capital** are among first lien lenders that heard pitches on Thursday and Friday. The identity of other lenders in that tier could not be learned.

The firms vying for the advisory mandate include several that pitched for a similar role in **AES Eastern Energy—Capstone**, **Rock Point Associates**, and **Miller Buckfire**. **Houlihan Lokey** did not pitch for AES Eastern, but is thought to have its hat in the Bicent ring, says an industry official. **Moelis & Co.** was hired in the summer to lead a restructuring (PI, 7/26). The status

*(continued on page 12)*

### THE BUZZ

**B**ankers, developers and executives are scoping funding options outside of the traditional project finance model of bank loans as the industry faces expiring subsidies and the European debt crisis. See *PI's* take on the market, page 2.

## Projects & Money 2012

Check out what bankers and executives in New Orleans had to say about gas-fired prospects, mezz debt, generation calls and more in the year ahead.

*See story, page 9*

## Industry Current

This week's authors wrap up their discussion on solar thermal projects with storage capabilities.

*See story, page 7*



Felicia Bellows

## Generation Sale DATABASE

Check out the latest asset trades in *PI's* weekly calendar, compiled from our exclusive Generation Sale Database.

*See calendar, page 3*

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## THE BUZZ

**P**hit the road this week to take the pulse of project finance decision makers at **Infocast's** Projects & Money 2012 conference in New Orleans. Last year's expiration of federal subsidies, such as the U.S. **Department of Energy's** loan guarantee program and the U.S. **Department of Treasury's** cash grant, combined with the effects of the European debt crisis have given many project financiers and developers a dim outlook for 2012. However, strong sponsors with projects backed by solid power purchase agreements should be able to cobble together funds.

Larger deals will likely sport a combination of bank debt and bonds this year. Two are already starting to make their way through the market: **AES Solar** is targeting \$1.3 billion in bank debt and bonds backing the first phase of its \$1.3 billion Imperial Valley project in Southern California, while **LS Power** is hunting hundreds of millions from those pools for its Arlington Valley solar project in Maricopa County, Ariz.

In addition to creative structures, mezz debt will likely play a more prominent role in project finance. **Energy Capital Partners**, **USRG Renewables Group** and **The Carlyle Group** have all been in the midst of raising or deploying mezzanine debt funds in the past few months. Carlyle stepped in to a biomass deal with an injection from its \$750 million mezz fund after **Société Générale** made an exit from the transaction late last year (PI, 10/26).

Meanwhile, **Bicent Power**, an affiliate of **Paul Prager's** **Beowulf Energy**, joined several entities that have recently been confronted with the effects of high leverage and prolonged low power pricing, such as **AES Eastern Energy** and **Astoria Generating**. Bicent debt holders have been hunting for an advisor for a potential restructuring ahead of a potential covenant breach. Prager levered up the company to fund a \$636 million acquisition of gas-fired generation from **MDU Resources** in 2007.

## TELL US WHAT YOU THINK!

Do you have questions, comments or criticisms about a story that appeared in *PFR*? Should we be covering more or less of a given area? The staff of *PFR* 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@iintelligence.com](mailto:srosner@iintelligence.com).

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## GENERATION AUCTION &amp; SALE CALENDAR

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](http://www.powerintelligence.com/AuctionSalesData.html)

Seller	Assets	Location	Advisor	Status/Comments
Abengoa Solar	45% Stake (250 MW Solana Solar CSP)	Gila Bend, Ariz.	TBA	Banco Santander is taking a 45% stake to fund construction and will look to sell slices (PI, 11/28).
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	Creditors are the \$300M stalking horse bid for Cayuga and Somerset in a bankruptcy process that will leave the other two plants shuttered. (PI, 1/9)
AES Thames	Thames (208 MW Coal)	Montville, Conn.	Houlihan Lokey	A Texas refurbishment company has bid \$2.35M in cash (PI, 12/12).
AE Investor II	Astoria Energy II (4%, or 23.3 MW)	Queens, N.Y.	Whitehall & Co.	First round bids were scheduled for 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 (65-mile Transmission)	Stamford, Conn. Crockett, Calif. Hobbs, N.M. Honokaa, Hawaii Borger, Texas Sayreville, N.J., to Long Island, N.Y.	Citigroup, Barclays Capital	First Reserve is buying everything except Hamakua and Neptune (PI, 12/19).
Beacon Power	Stephentown (20 MW Storage)	Stephentown, N.Y.	CRG Partners	Private equity shops are in due diligence preceding a court-run sale (PI, 1/16).
Black Hills Corp.	Stake (29 MW Wind)	Huerfano County, Colo.	No Advisor	Entities with tax appetite have bid for the 50% stake (PI, 11/14).
▶ CIT Group, Carlson Capital	Stakes (Gas-fired peakers)	Various, Calif.		Calpine is buying out the investor stakes (see story, page 6).
Constellation Energy Group	Rio Bravo Fresno (24 MW Biomass)  Rio Bravo Rocklin (24 MW Biomass)  Chinese Station (22 MW Biomass)	Fresno, Calif.  Lincoln, Calif.  Jamestown, Calif.	No advisor	The company has reached out to prospective buyers as it considers selling its stakes (PI, 1/9).
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) Farms (22 MW Wind)	Tehachapi, Calif. Tehachapi, Calif.	Marathon Capital	Brookfield Renewable Power is buying out the development project as well as buying two operating farms (see story, page 6).
Edison Mission Group	Stakes Mountain Wind I (60 MW Wind) Mountain Wind II (79.8 MW Wind)	Uinta County, Wyo.	TBA	Teachers Insurance & Annuity Association of America and Cook Inlet Region, Inc., are taking preferred equity stakes (PI, 12/19).
First Solar	Topaz (550 MW PV)	San Luis Obispo County, Calif.	No advisor	MidAmerican Energy has agreed to buy the project (PI, 12/12).
GDF Suez Energy North America	Hot Spring (746 MW CCGT) Choctaw (746 MW CCGT)	Malvern, Ark. Ackerman, Miss.	UBS	Quantum Utility Generation has agreed to buy Choctaw while an Arkansas muni is circling Hot Spring (PI, 12/5).
▶ Juwi Solar	Queen Creek (25 MW Solar PV)	Phoenix, Ariz.	TBA	PSEG Solar Source bought the project for \$75M (see story, page 6).
Kelson Holdings	Dogwood (620 MW CCGT)	Pleasant Hill, Mo.	TBA	A trio of munis is buying minority stakes (PI, 1/16).
Macquarie Capital, Fomento Económico Mexicano	Stakes (396 MW Wind)	Oaxaca, Mexico	TBA	Bidders are in due diligence (PI, 10/10).
Perennial Power	Mid-Georgia (300 MW CoGen)	Kathleen, Ga.	Fieldstone	Shortlist will submit bids in February (PI, 1/16).
Recurrent Energy	Ajo (5 MW Solar) Bagdad (15 MW Solar)	Pima County, Ariz. Yavapai County, Ariz.	Credit Suisse	Duke Energy Renewables completed the acquisition (PI, 12/19).
Ridgeline Energy	30% Stake (79.8 MW Wind)	American Falls, Idaho	TBA	Atlantic Power Corp. is taking the stake although Ridgeline has a repurchase option (PI, 12/12).
RPM Access	Elk (41.25 MW Wind)	Edgewood, Iowa	No advisor	MidAmerican Energy bought the Vienna project last month and RPMA is holding onto Elk (PI, 1/9).
	Vienna (150 MW Wind)	Iowa	No advisor	
Signal Hill Power, CarVal Investors	Wichita Falls (77 MW CCGT)  Rensselaer (79 MW Peaker)	Wichita Falls, Texas  Rensselaer, N.Y.	Scotia Capital	Louis Dreyfus Highbridge Energy is buying the Rensselaer plant (PI, 12/26).
Tenaska	High Desert (800 MW CCGT) Rio Nogales (800 MW CCGT)	Victorville, Calif. Seguin, Texas	Barclays, Citi	First round bids came in just before Thanksgiving (PI, 12/12).
Terra-Gen Power	Alta VIII (150 MW Wind)	Tehachapi, Calif.		Brookfield Americas Infrastructure Fund is buying the project (PI, 12/26).
Third Planet Wind Power	Petersburg (40.5 MW Wind)	Petersburg, Neb.	Morgan Stanley	Gestamp is buying the project after EME deal unraveled (PI, 12/26).
Tuusso Energy, Akula Energy Ventures	TA High Desert (209 MW Solar)	Tehachapi, Calif.	Marathon Capital	Said to be close to a purchase sale agreement (PI, 10/17).
▶ Tyr Energy	Stake (100 MW Biomass project)	Gainesville, Fla.	Fieldstone	Starwood is buying 40% of the project (see story, page 5).
U.S. Power Generating Co.	Gowanus Barges 1 (160 MW Oil) Gowanus Barges 4 (160 MW Oil)	Brooklyn, N.Y.	Tier One Capital Management	First round bids for the two barges are expected in February (PI, 1/9).

## ▶ New or updated 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@powerintelligence.com](mailto:hfletcher@powerintelligence.com).

## 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: Americas

Sponsor	Project	Location	Lead(s)	Loan	Loan Amount	Tenor	Notes
AES Solar	Imperial Valley (709 MW Solar PV)	Plaster City, Calif.	TBA	TBA	\$1.3B	TBA	Sponsor scouts bank debt and bonds for phase one (PI, 1/16).
Bloom Energy	Unidentified (Fuel Cell)	TBA	RBS	TBA	TBA	TBA	Deal priced at LIBOR plus 250 bps (PI, 12/5).
Boralex, Gaz Métro	Unidentified (69 MW Wind)	Seigneurie de Beaupré, Quebec	TBA	TBA	TBA	TBA	Sponsors expect to finance phase two in 2012 (PI, 11/28).
Compania Energética Veracruz	Veracruz (730 MW Hydro)	Mara ón River, Peru	TBA	TBA	TBA	TBA	Sponsor puts out early feelers (PI, 1/9).
Competitive Power Ventures	Cimarron (165 MW Wind)	Gray County, Kan.	BoTM, Helaba, Lloyds, Siemens	TBA	\$262.8M	Term	Deal wraps (PI, 1/16).
Diamond Generating Corp.	Unidentified (200 MW Gas)	Alameda County, Calif.	TBA	TBA	\$150M	10+–yr	Sponsor to scout funds in March or April (PI, 1/9).
Edison Mission Energy	Unidentified (Wind Portfolio)	Midwest U.S.	BBVA, Key Bank, WestLB	TBA	\$113.5M	TBA	Sponsors taps banks to lead financing (PI, 1/16).
Energy Answers International, Energy Investors Funds	Arecibo (80 MW Waste-to-Energy)	Arecibo, P.R.	BNP	TBA	TBA	TBA	Sponsors mandate lenders (PI, 11/28).
	Fairfield (140 MW Combined Heat and Power)	Baltimore, Md.	TBA	TBA	TBA	TBA	Financing expected to wrap by early 2012 (PI, 11/28).
Enova Energy Group, NuPower	Plainfield (37.5 MW Biomass)	Plainfield, Conn.	Carlyle	TBA	\$170M	TBA	Deal wraps (PI, 1/9).
► GCL Solar	Various (77 MW PV)	Puerto Rico	Union Bank, WestLB	TBA	\$200M	TBA	Financing expected to total at least \$200M (see story, page 5).
Gradient Resources	Patua (132 MW Geothermal)	Reno, Nev.	BNP, Dexia, Scotia	TBA	\$600M	TBA	Project to be financed in phases (PI, 10/17).
Green Energy Team, Standardkessel	Unidentified (6.7 MW Biomass)	Koloa, Hawaii	WestLB	TBA	TBA	TBA	WestLB tapped to lead deal backing \$70 million project (PI, 12/26).
Inkia Energy	Unidentified (400 MW Hydro)	Cerro del Aguila, Peru	BBVA, Crédit Agricole, HSBC, Scotia, SocGen, SMBC	TBA	\$525M	12–yr	Sponsor talks to three additional lenders, including Santander (PI, 12/5).
Invenergy	California Ridge (214 MW Wind)	Vermillion and Champaign, Ill.	TBA	TBA	TBA	TBA	Sponsor reaches out to lenders about deal (PI, 12/19).
► LS Power	Arlington Valley (127 MW Solar PV)	Maricopa County, Ariz.	Santander, Prudential	Term	~\$400M	12–yr, 25–yr	Developer tags Santander and Prudential to lead financing (see story, page 1).
Macquarie Mexican Infrastructure Fund, Macquarie Capital, Fomento Económico Mexicano	Oaxaca (396 MW Wind)	Oaxaca, Mexico	Banorte, BBVA, Crédit Agricole, HSBC, IDB	TBA	\$700M	16–yr	IDB plans to lend \$72M to project (PI, 12/5).
► NaturEner	RimRock (189 MW Wind)	Kevin, Mont.	Morgan Stanley	Construction	\$255M		SDG&E is the tax equity investor (see story, page 5).
				Equity Bridge	\$31M		
NextEra Energy Resources	Redwood Trails (236.8 MW Wind Portfolio)	Oklahoma and California	BoTM, Lloyds, Mizuho, Siemens	Refi	\$236M	18–yr	Deal wraps (PI, 1/16).
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	Financial close targeted for February (PI, 11/21).
Pattern Energy	El Arrayan (115 MW Wind)	Santiago, Chile	TBA	Term	\$220M	TBA	Sponsor nears mandates for BoTM and SMBC (PI, 1/9).
	Ocotillo (315 MW Wind)	Imperial Valley, Calif.	TBA	TBA	TBA	TBA	Sponsor targets financial close in 2012 (PI, 10/24).
Recurrent Energy	Various (Solar PV)	Northern California	TBA	TBA	\$100M+	TBA	Sponsor discusses deal with BoTM, Lloyds, Mizuho and UniCredit (PI, 1/9).
Sempra Pipelines, Pemex	Various (Gas Pipeline)	Mexico	BBVA	Refi	\$400M	TBA	BBVA snags sole bookrunner mandate (PI, 12/12).
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).

## ► New or updated listing

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@powerintelligence.com](mailto:beckhouse@powerintelligence.com). A full listing of deals for the last several years is available at <http://www.powerintelligence.com/ProjectFinanceDeal.html>.

## PROJECT FINANCE

## NaturEner Nets Wind Funds From Morgan Stanley

NaturEner has lined up \$286 million, as well as an offtake agreement, from Morgan Stanley to fund construction of its 189 MW Rim Rock project in Montana. Morgan Stanley is providing a \$255 million construction loan and a \$31 million equity bridge loan, says a deal watcher. Rim Rock is a \$385 million project in Kevin, Mont.

### FAST FACT

Boulder, Colo.-based **Infrastructure Financial Advisors**, headed by **Richard Ashby**, advised NaturEner.

Tax equity investor **San Diego Gas & Electric** will make a \$286 million investment when the project goes online in September, taking out the debt. **Morgan Stanley Capital Group**, a wholesale marketer, signed a 10-year PPA for the project.

NaturEner needed a power purchase agreement for at least

10-years under the tax equity agreement it has with SDG&E under a California **Public Utilities Commission** directive as a way to ensure a return on ratepayer's money (PI, 11/4). SDG&E is making the tax equity investment and buying the renewable energy credits from the project for 20 years.

The project is using 126, 1.5 MW turbines from **Acciona**. Boulder, Colo.-based **Infrastructure Financial Advisors**, headed by **Richard Ashby**, advised NaturEner. Ashby has been advising companies independently since he left **Renewable Energy Systems Americas**, the Bloomfield, Colo.-based wind developer and EPC contractor, in the fall of 2010 (PI, 11/16/10).

Pricing on the debt package could not be learned. Officials and spokespeople at the companies either declined to comment or could not immediately be reached.

## GCL Deal Details Emerge

**GCL Solar Energy** is looking for at least \$200 million in debt supporting a large photovoltaic project in Puerto Rico.

The financing will be priced north of LIBOR plus 250 basis points. **Union Bank** and **WestLB** are helping to finance the project. Financial close is targeted for the end of the quarter.

The developer, a member of Chinese polysilicon producer **GCL-Poly Energy Holdings Limited**, may seek to expand the financing before closing, explains a deal watcher. GCL is developing at least 77 MW of PV in Puerto Rico. The **Puerto Rico Electric Power Authority** has an offtake agreement for 46 MW of GCL projects (PI, 12/13).

The trigger for a larger deal and whether it would necessitate more lenders couldn't be learned. The tenor of the financing and how many megawatts it will support also couldn't be immediately

ascertained. **Jimmy Chuang**, GCL head of structured finance in San Francisco, didn't return a call seeking comment. Bank officials declined to comment or didn't return calls.

### Live Solar PF Deals 2012

Sponsor	Project	Location	Deal Amount
AES Solar	Imperial Valley (709 MW PV)	Plaster City, Calif.	\$1.3B
LS Power	Arlington Valley (127 MW PV)	Maricopa County, Ariz.	\$400M
Recurrent Energy	Various (PV)	Northern California	\$100M+
Tenaska Solar Ventures	Imperial South (130 MW PV)	Imperial Valley, Calif.	\$600M

Source: Project Finance Deal Book-<http://powerintelligence.com/projectfinancedeal.html>

## MERGERS &amp; ACQUISITIONS

## Starwood Takes Biomass Stake From Tyr

**Starwood Energy Group** has bought a stake in a \$500 million, 100 MW biomass project in Gainesville, Fla., from **Tyr Energy**. Starwood closed the acquisition of the 40% stake in the Gainesville

### FAST FACT

New York-based advisory shop **Saltbox Partners** assisted Starwood with the due diligence.

Renewable Energy Center on Dec. 30, marking the second biomass transaction for the Greenwich, Conn.-based shop since the summer. "We are seeing more biomass developments with attractive power

purchase agreements," says **Himanshu Saxena**, senior v.p. at Starwood, noting the shop likes to support developers.

Developer **American Renewables** holds the remaining stake in the plant. Tyr, an affiliate of **ITOCHU**, invested in the project this summer, according to its website. **Fieldstone Private Capital**

**Group** advised on the sale. New York-based advisory shop **Saltbox Partners** assisted Starwood with the due diligence. Why Tyr decided to sell its stake could not be learned.

Starwood invested alongside developer **Cate Street Capital** in a 75 MW biomass project in Berlin, N.H., that has a 20-year PPA with **Public Service Co. of New Hampshire**.

The project in Gainesville has a 30-year power purchase agreement with Gainesville Regional Utilities and is expected to be online next year. **Bank of Tokyo-Mitsubishi UFJ** led a group of seven European and U.S. banks in a roughly \$500 million financing that closed over the summer (PI, 7/26).

Saxena and an official at Saltbox declined to comment on the purchase price. Executives at Tyr in Stamford, Conn., were not available for comment.



## PSEG Snags Ariz. Solar Project

**PSEG Solar Source**, a unit of **Public Service Enterprise Group**, has bought a 25 MW solar photovoltaic project from the **juwi solar**. PSEG Solar paid \$75 million for the Queen Creek project near Phoenix.

PSEG Solar expects to use existing corporate funds to finance construction, says a PSEG spokesman in Newark. Construction will begin this month and be completed in the third quarter. The project has a 20-year power purchase agreement with **Salt River Project Agricultural Improvement and Power District**.

PSEG Solar Source also owns the 12 MW Wyandot PV facility

in Wyandot, Ohio; the 15 MW PV Jacksonville in Jacksonville, Fla.; and the 2.2 MW PV Mars Solar Garden that is adjacent to **Mars Snackfood's** U.S. headquarters in New Jersey.

PSEG did not use an advisor on the acquisition and a juwi spokeswoman in Boulder, Colo., declined to comment on whether the company used an advisor.

### FAST FACT

➤ **PSEG Solar Source** also owns the 12 MW Wyandot PV facility in Wyandot, Ohio; the 15 MW PV Jacksonville in Jacksonville, Fla.; and the 2.2 MW PV Mars Solar Garden

## Calpine Buys CIT, Investor Out of Calif. Stakes

Calpine is increasing its stakes in 495 MW of gas-fired facilities in California by buying out stakes from **CIT Group** and an affiliate of Dallas-based asset management shop **Carlson Capital**.

The 188 MW Gilroy Energy center, 47 MW Creed and 47 MW Goose Haven are included in the 495 MW portfolio along with six other peakers. They all have long-term tolling agreements with **Pacific Gas & Electric**. After the transaction Calpine will own about 66% of the peakers with **HSH Nordbank** as the remaining investor. The identity of the

### FAST FACT

➤ After the transaction Calpine will own about 66% of the peakers with **HSH Nordbank** as the remaining investor.

other facilities could not be learned.

CIT is selling its stakes in the facilities as a stipulation in an agreement with the **Board of Governors of the Federal Reserve System** from December 2008. The agreement is a result of CIT's application to be a bank holding company that year, according to a filing last week with the U.S. **Federal Energy Regulatory Commission**. The deadline for exiting investments had been the end of last year but was extended to March 31.

The size of the stakes that are owned by **Double Black Diamond**, the Carlson affiliate, and CIT could not be learned. A spokesman for CIT and a spokeswoman for Calpine did not respond to inquiries while an HSH official declined to comment. Carlson officials did not respond to inquiries.

## Brookfield Snags Addt'l Tehachapi Wind

**Brookfield Renewable Energy Partners** has agreed to buy out development partner **Coram Energy** stake in a 102 MW wind project in Tehachapi, Calif., and two of Coram's wind projects totaling 22 MW.

The acquisition is expected to close later this quarter, says a deal watcher. Coram, a Vancouver-based development shop had put its three California projects on the market this summer via **Marathon Capital**. The 102 MW Brodie project, which will use **Vestas** V90 3 MW turbines, is expected to be online this year and has a power purchase agreement with **Pacific Gas & Electric**. It was financed by a \$209 million deal arranged by **Bank of Tokyo-Mitsubishi UFJ**, **Sumitomo Mitsui Banking Corp.** and **Mizuho Corporate Bank** (PI, 6/16). The two operating farms, also in Tehachapi region, have PPAs with **Southern California Edison**.

**Brian O'Sullivan** heads up Coram and is also involved with the **Mexico Power Group**, a wind developer that spun off of **Cannon Power Group** (PI, 8/2). O'Sullivan declined to comment.

An affiliate of Brookfield Renewable Energy, **Brookfield Americas Infrastructure Fund**, is buying the 150 MW eighth



Vestas V90 Turbine

phase of **Terra-Gen Power's** 3 GW Alta wind project in Kern County, Calif. (PI, 12/19). A Brookfield spokesman declined to comment on the purchase price.

## INDUSTRY CURRENT

## Why Solar Thermal Energy With Storage Should Receive Payments Competitive With Non-Renewable Resources – Part III

THIS WEEK'S INDUSTRY CURRENT is written by **Benjamin L. Israel**, principal at **Benjamin L. Israel, Esq.** in Washington, D.C., and **Felicia L. Bellows**, senior v.p. of development at **Torresol Energy** in San Francisco. Last week, the authors discussed the typical compensation system for renewable projects and how new technology makes solar thermal projects with energy storage similar to baseload, or dispatchable generation. In the final installment this week, the authors will propose ways to value dispatchable, renewable resources in a way that encourages development.



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### Solar With Storage Should Be Valued on a Market Basis

The current legal, regulatory and contractual framework within which renewable energy projects sell their output is illustrated by the request for proposals issued by each of the three California investor-owned utilities during the spring of 2011. These RFPs illustrate the sometimes artificial parameters for valuing renewable facilities even if they are dispatchable and can provide ancillary services.

The **Pacific Gas & Electric** model power purchase agreement requires a renewable project claiming baseload operations to deliver energy at uniform levels 24 hours per day, seven days per week, and dispatchable operations to have a minimum down time of eight hours or less (i.e. minimum daily operations have to be at least 16 hours per day). The SoCalEd RFP did not even solicit dispatchable product, asking only for bids from intermittent (i.e. as-available) projects, and from projects with storage capabilities bidding as baseload units provided that: (a) the storage technology results 100% in the delivery of renewable energy (a requirement of California law); and (b) the proposal contains both a contract price including the energy storage component and a contract price without the storage component (a requirement approved by the **California Public Utilities Commission**). **San Diego Gas and Electric's** RFP contained the same requirement of 24 hours per day, seven days per week for baseload operations, and day-ahead scheduling for dispatchable operations.

The current utility procurement structure provides no flexibility to value projects with storage capabilities that can run like baseload projects for 18-20 hours per day--but not necessarily 24 hours per day. In addition, there appears to be no flexibility to value projects with dispatchable characteristics that can comply with real-time market requirements, but might not be able to adhere to day-ahead

forecasting requirements. And all of these RFPs, by law, allow the purchasing utility to claim all of the "capacity attributes" associated with the seller's project--including ancillary services--despite the lack of any payment for such services which can actually be provided by these non-baseload units.

There are several other actions that can be taken to encourage the development of dispatchable renewable facilities that can also provide ancillary services and help stabilize the power grid and its other intermittent generating resources. One flexible, market-based approach would take into account that the projects with storage are most vulnerable during non-peak demand periods. Using time-of-day multipliers (commonly used for energy pricing) to determine compliance with negotiated availability factors would address the current inability of some projects with storage capabilities to operate 24 hours per day. Another approach might be to measure availability during peak and "shoulder" demand hours, but not during non-peak demand hours when the availability of these resources is much less critical to grid stability. Either of these, or even a combination of these, could produce a *pro rata* capacity payment relative to a contracted-for availability period that would place a true and fair market value on the incremental benefits offered by renewable projects with reliable storage capabilities.

Another approach would loosen the day-ahead forecasting requirements for solar thermal projects with storage. This would provide the necessary flexibility for such projects to participate in real-time markets without being bound to estimates provided often days in advance (for instance, Friday estimates are required for Monday deliveries). Allowing an IPP to take advantage of economic dispatch-down orders would provide further flexibility and additional market-based incentives if those incentives were passed through to the generator under its PPA. In fact, the **California**

**Independent System Operator** is currently working on a market design to allow renewable projects with dispatchable properties and/or storage capabilities to participate in a more sophisticated and responsive bidding system. New software is being tested by the California ISO to allow for participation in the hour-ahead and real-time 15-minute procurement processes to meet system ramping shortages, as well as the development of a new five-minute product to provide market participants with the capability to offer bid-in prices like they now can for energy and other ancillary services. In addition, the California ISO plans to add the capability to allow energy storage devices to bid in for regulation services in 2012. Again, while these market changes would move toward valuing solar thermal projects with storage capabilities, these projects need to be allowed to capture those benefits, directly or indirectly, in their PPAs.

There should also be a more flexible approach to valuing bids from solar thermal projects with storage capabilities in RFP processes. The RFPs, often by requirements of law or regulation, impose rigid standards for what resources qualify for baseload or dispatchable product, and there is no middle ground for assessing the incremental benefits associated with these projects. Simply stated, one would think that a solar thermal project with the ability to generate power for many hours even when the sun is unavailable would be recognized within a bid valuation scheme as providing more value than a bid from a renewable resource without similar benefits. Unfortunately, there does not appear to be any transparent means for assessing whether such projects are, in fact, objectively recognized in the bid process for providing such benefits.

Finally, there could be provisions allowing some limited, supplemental use of natural gas in renewable facilities to allow even greater dispatchability. Spain and other European countries

allow renewable projects to balance their renewable resource with up to 15% supplemental firing using natural gas. Any natural gas allowances in the U.S. are much more restrictive.

Of course, there are any number of combinations of these types of proposals which would allow these commercially-proven projects to provide real benefits to the purchasing utility and its customers, provide enhanced stability to the grid, and help achieve the policy benefits embedded in the state and federal laws that have attempted to further the development of generation from renewables. At a time when others call for a more level playing field by penalizing intermittent renewable projects and when many state public utility commissions already have a double standard requiring new renewable projects to adhere to standards not imposed on utility-owned projects (e.g. bonds for future decommissioning), a more enlightened, flexible approach is required to value the dispatchable renewable power and associated ancillary benefits from new technologies such as solar thermal resources enhanced with storage technology.

## Conclusion

It is time that our existing regulatory structure be changed to fully value and compensate dispatchable renewable generation resources such as solar thermal generation projects with storage capabilities and to ensure a bidding and compensation scheme for all generation technologies that is both fair and market-driven. By ensuring that our current legal and regulatory framework catches up with the evolution of energy storage technology, we will fully benefit from this technology and encourage further innovation and cost competitiveness. We will also be able to increase our reliance in renewable technologies where the lack of greenhouse gas emissions is an *ancillary* benefit—not a rationalization for higher rates for power.

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## CONFERENCE COVERAGE

### Infocast's Projects & Money 2012

HUNDREDS OF DEVELOPERS, investors and bankers converged at Harrah's in New Orleans for **Infocast's Projects & Money 2012** conference on Jan. 18-20. The changing project finance landscape, gas-fired generation and upcoming request for proposals created most of the buzz. Senior Reporter **Brian Eckhouse** filed the following stories.

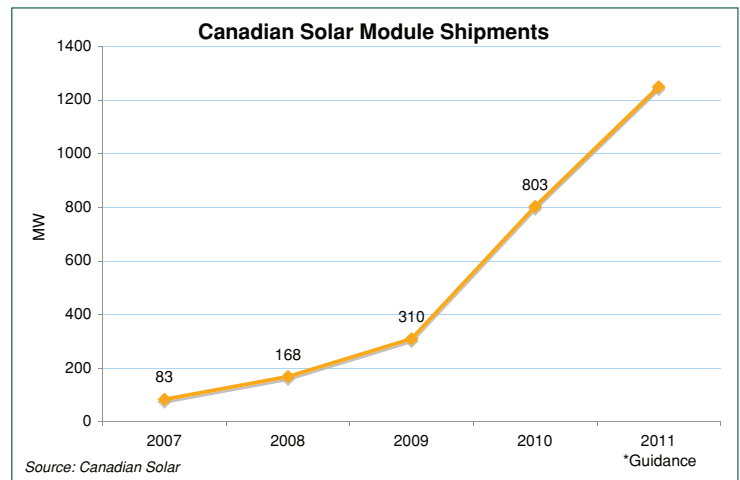
### Canadian Solar Prepares U.S. Foray

Canadian Solar expects to develop 50-100 MW of commercial and small utility-scale solar projects in the U.S. in 2012—its first foray in the country.

The photovoltaic manufacturing and development company, which is based in Kitchener, Ontario, but produces most of its equipment in China, will partner with other developers or engineering, procurement and construction firms to build the projects. It will then look to offload the projects upon operation individually or in bundles, said **Noah Eckert**, Canadian Solar director of commercial and utility-scale markets, and **Steve Pickens**, director of project financing. Canadian Solar doesn't plan to be an independent power producer in the U.S.

Potential 2012 projects will ultimately generate 2-10 MW apiece. California and Arizona are the most likely states to host these projects and New Jersey is also a possibility. Eckert and Pickens are part of a small, five-person U.S. team based in San Ramon, Calif. They joined Canadian Solar last fall.

The developer's Canadian team sold an 86 MW portfolio of solar



photovoltaic projects to **TransCanada** last month for C\$470 million (\$462.8 million). The projects are in the **Ontario Power Authority's** feed-in tariff program. The identity of potential development partners, buyers and projects couldn't be learned.

### PPA Pricing Challenges Forecast

Developers and utilities are questioning the viability of offtake agreements as decreasing development costs for some renewables make older contracts seem unduly expensive to regulators.

Public utilities commissions in southwestern U.S. states are increasingly sensitive to the pricing of renewables power purchase agreements, particularly those that support solar photovoltaic projects, noted **Bobby Hollis**, **NV Energy** executive of renewable energy. Commissions are demanding that utilities provide strong justification if they opt against selecting lowest-cost bidders in solicitations for new generation.

Plummeting panel prices prompted the California **Public Utilities Commission** to reject an offtake agreement between **Pacific Gas & Electric** and solar sponsor **North Star Solar** (PI, 8/19). The North Star PPA was inked months before the PUC reviewed it. In that period, California utilities received bids for new projects beneath the terms agreed

to in the contract, though PG&E and North Star ultimately renegotiated the pricing. "You're [likely] going to see stale pricing by the time it gets to the commission," Hollis told *PI* on the conference sidelines.

Another concern is whether the recent success of independent power producers was totally dependent on the 2009 American Recovery and Reinvestment Act, also known as the stimulus bill. That bill introduced the U.S. **Department of Treasury** cash grant that covered 30% of construction costs for qualifying renewables projects. The subsidy potentially propped up sponsors that couldn't complete wind and solar projects without it and also affected bid prices in generation calls. "Were financing risks minimized by stimulus?" Hollis asked.

The grant expired Dec. 31—and few attorneys and developers polled at the New Orleans conference expressed even a trickle of hope that a fractured Congress will reintroduce it before year-end.

## Canadian Provinces To Seek New Gen

Utilities in two Canadian provinces may seek up to 5 GW of new generation via solicitations by 2020, said **Brian Vaasjo, Capital Power** president and ceo, on the conference sidelines.

Ontario will look to add a maximum of 3 GW of renewables generation by 2020, Vaasjo noted. "But I don't know if that necessarily will happen," he added, citing less power demand, political uncertainties and the potential impact of that load on existing transmission networks in the province.

British Columbia is targeting 2 GW of new generation by 2020. That

province may allow gas-fired projects to participate in solicitations, said Vaasjo, adding that the mix of resources has yet to be finalized.

Potential bidders to the Canadian RFPs include domestic giants Capital Power, **TransAlta** and **Northland Power**, as well as large established U.S. and Japanese players. Vaasjo, who is based in Edmonton, doubts the euro-zone crisis will discourage potential bidders to these RFPs from participating. "It makes it tougher for developers to get funds and for financials, it's harder to get more leverage," he said. "But it won't be enough to fundamentally change the competition."

## Sponsors, Banks See Gas Opportunities

Developers and financiers are bullish on the long-term potential of new gas-fired projects in the U.S., despite an expected slow 2012 for project financings and an oversupply of existing capacity across the U.S.

"It's hard to find folks who don't think that gas is the ultimate long-term fuel of choice," said **Alan Levande, Tenaska Capital Management** senior managing director. What remains uncertain, he added, is when the next wave of new projects will come to fruition. Gas-fired projects require roughly six years to develop, given increasing permitting processes.

Between 3 and 10 GW of new gas-fired projects are anticipated in the U.S. between 2016 and 2020, noted **Ross Ain, Caithness Energy** senior v.p., pointing to healthy ISO queues in New York, New Jersey, the Mid-Atlantic and California. Developers are positioning themselves for an eventual recovery in the credit markets.

**Richard Straebel**, executive v.p. at **Marubeni Power International**, noted several trends that favor gas as a dominant long-term resource in the U.S., including low natural gas prices that are expected to remain fairly stable, the lack of alternatives to meet demand for new generation and increased efficiency and reliability in new plants.

An expected retirement of at least 30 GW of coal-fired projects will also buoy new-build. The retirements are being spurred, in part, by U.S. **Environmental Protection Agency** rules, including the



*Goldman Sachs Headquarters*

Cross-State Air Pollution Rule (PI, 11/9). **Goldman Sachs** estimates that 50 GW of the nation's coal-fired fleet will be retired in the next several years, in the form of predominantly smaller facilities, noted **Michael Lapedes**, v.p. of global investment research.

Gas-fired plants can now be built in 24-36 months, Ain added. New facilities, he noted, tend to be highly automated and typically require less maintenance compared to coal-fired projects and renewables. New projects will require long-term power purchase agreements to ensure financing, conference panelists acknowledged.

### Reporter's Notebook

- The lunch spread on Thursday featured a bounty of local dishes including a gumbo with rice, andouille sausage, chicken and white fish.
- The word "uncertainty" was easily the most ubiquitous on Wednesday. **Thomas White**, ceo of **KGen Power Corp.**, joked that he tried to mark each mention of the word by raising his hand but ultimately gave up when his hand tired.
- **Buz Barclay**, the former **Dickstein Shapiro** partner who recently became a managing director at **Marathon Capital**, returned as a conference emcee. He joked that he left the lawyer

ranks to help the 756 other project attorneys who joust for the 30 or so annual project financings in the U.S.

- Talk of coal-fired retirements was omnipresent. Discussing 70-year-old coal-fired plants, **Phillip Grigsby, Duke Energy** senior v.p. of commercial businesses, said, "There's only so much duct tape and bubble gum you could put on it."
- **Infocast** again held a majority of the Projects & Money panels in a theater within the confines of the **Harrah's** New Orleans casino. Harrah's cards anyone who bouncers suspect is under the age of 21. A 30-year-old **PI** reporter, to his chagrin, was a frequent target.

## Wind Deals To Be Front-Loaded In 2012

Project finance deal flow for wind will likely be heavy in the early months of 2012 but ease in the back half of the year as developers race to qualify for the production tax credit, which expires for wind at year-end.

The PTC, which has buoyed a majority of recent wind deals, requires that qualifying projects be operational by Dec. 31. Roughly 65% of 2011 wind financings that raised tax equity tapped the PTC (PI, 12/23). So sponsors are gunning to secure bank financing to fund construction before the deadline. Tax equity deals are typically consummated when projects initiate

operations (PI, 11/16).

The PTC is unlikely to be extended during the year, according to several attorneys, developers and investors.

Wind will go "dark" in the third quarter, said **Martin Pasqualini**, managing director of **CP Energy Group**, as most developers will be unable to meet the PTC deadline if they have not secured financing by then.

### FAST FACT

➤ Roughly 65% of 2011 wind financings that raised tax equity tapped the PTC.

## Demand For Mezz Debt, Equity Mounts



Brian Goldstein

The power sector is shifting to a project finance model increasingly dependent on a larger equity component and mezzanine debt, especially for merchant projects, panelists said.

Sources of non-recourse debt are fewer than in mid-2011, with several European lenders sidelined or departed from the U.S. power sector (PI, 12/23). And the debt available is more expensive and stipulates shorter maturities,

noted **Brian Goldstein**, **BNP Paribas** head of project finance in the Americas. That paucity is generating interest in mezzanine debt and finding a bigger equity injection than the traditional 20-30% seen in most contracted power project finance deals.

**Energy Capital Partners** reached a first close of \$500 million for its maiden mezz debt fund in December, said **Sara Graziano**, v.p. Qualifying projects could include renewables and traditional generators, with or without offtake agreements. The **Carlyle Group** launched a mezz debt fund last summer (PI, 7/22) and recently lent developer **Enova Energy Group** \$125 million for its biomass project in Plainfield, Conn. (PI, 1/9).

ECP sees an opportunity to lend sponsors a tranche of debt for projects: if a sponsor hypothetically can secure 65% from lenders but needs 80% leverage, ECP could close that gap from its fund, Graziano explained on the conferences sidelines. The private equity shop is looking at two potential investments from its mezz fund this quarter. The identity of the potential beneficiaries couldn't be learned.

## NEWS IN BRIEF

News In Brief is a summary of publicly reported power news stories. The information has been obtained from sources believed to be reliable, but *PFR* does not guarantee its completeness or accuracy.



- Three coal-fired assets owned by **Southern Company** are on the list of the 10 biggest emitters of greenhouse gases under a study conducted by the U.S. **Environmental Protection Agency**. The study reported on the emissions of 6,700 factories, power plants and refineries (*Bloomberg*, 1/12).
- **Duke Energy Corp.** has closed a power purchase agreement to buy generation from the Kings Mountain solar facility in Cleveland County, N.C. for 20 years. The solar project is being developed by **Strata Solar** and will be one of the largest solar facilities in the state (*Yahoo! Finance*, 1/16).
- Commercial operation has begun for **Gamesa Energy's** 38 MW Chestnut Flats wind farm. The facility in Altoona, Pa., comprises 18 of the company's G90-2.0 MW turbines and has a 20-year power purchase agreement with **Delmarva Power & Light** (*Energy Business Review*, 1/16).
- Expanding supplies of shale-based natural gas have cut U.S. electricity costs by 50% since 2008. The expansion of natural gas supplies has caused several power companies to abandon plans for development of new renewable or coal-fired assets in the coming year (*Yahoo! Finance*, 1/16).
- The U.S. government arranged the most financing for renewable projects in 2011, beating the development banks of Europe and Brazil. The U.S. **Federal Financing Bank** issued \$10.1 billion for 13 deals as part of a clean energy initiative under President **Barack Obama** (*Bloomberg*, 1/17).
- **Duke Energy** has reached a deal with several environmental groups to shut down 1,667 MW of coal-fired assets in the Carolinas. The **Southern Environmental Law Center** negotiated the settlement that lays out a specific schedule for the facilities to be decommissioned (*Platts*, 1/17).

## Bicent Debt *(Continued from page 1)*

of the restructuring process or what avenues the company pursued could not be learned.

The aggregate \$610 million debt backed **Natural Gas Partners** and Prager's acquisition of 416 MW of gas-fired generation and the 116 MW Hardin coal-fired plant in Montana from **MDU Resources** for \$636 million in 2007. Bicent Power is the company that owns and operates those assets. **Barclays Capital** and **Goldman Sachs** arranged the debt, which consists of \$480 million in first lien debt and \$130 million in second lien debt. Two term loans mature in 2014. A first lien revolver and letter of credit mature in July. The amount of outstanding debt could not be learned.

The first lien is expected to go after most or all of the equity, so the question is whether the creditors will be able to reach an agreement with second lien lenders in or out of court, officials say, with one anticipating a court filing in the first half of the year.

The facilities already had revenues undercut by low-power and natural gas prices and a recent ruling in the Supreme Court of New York will put further strain on the company's cash flow, deal watchers say. Bicent is required to pay \$22 million in damages under arbitration including MDU and **Lea Power Partners** although the company doesn't have sufficient liquidity to cover the damages and upcoming debt service, bankers say.

Spokespeople at the investors as well as potential advisors either declined to comment or didn't reply to inquiries. An official at Beowulf and Bicent in New York didn't return a call.

—Holly Fletcher

## Financiers Target *(Continued from page 1)*

pulled out of the market since the third quarter. The remaining European players are focusing on shoring up capital under upcoming Basel III requirements, not putting it to work in deals. Aside from lower lender capacity and less availability of long tenors, most of the deals bigger than \$1 billion that cleared the market last year were backed by federal subsidies and funding that have expired.

Under a structure that combines bank debt and bonds, lenders could provide debt up to 15 years in traditional bank loans, while institutional investors could offer at least 20 years in a bond component, **William Sutherland, Manulife Financial Corp.** senior managing director in Toronto, told *PI* on the sidelines at **Infocast's** Projects & Money 2012 in New Orleans. Banks are experienced with construction risk and providing letters of credit, while institutional investors are comfortable with long maturities, explained **Recep Kendircioglu, John Hancock Financial Services** managing director in Boston.

Among the deals in the pipeline is **AES Solar's** targeted \$1.3 billion in bank debt and bonds for the first phase of its 709 MW Imperial Valley solar photovoltaic project near Plaster City, Calif. (*PI*, 1/13).

Canadian and regional U.S. banks may be partially filling the

## ALTERNATING CURRENT

### *Steamin' Brew:*

### Lab To Gasify Components Behind Cup O' Joe

The **Energy & Environmental Research**

**Center**, an affiliate of the **University of North Dakota**, has gasified turkey manure, railroad tie chips and even waste from outer space at the behest of clients. Now the research center is moving to the residue from a substance that powers boardrooms and trading floors across the country: coffee.

Waterbury, Vt.-based coffee shop **Green Mountain Coffee Roasters** (the roasters that burst onto the national stage with the individual **Keurig** coffee cups) has signed on

with EERC to pilot a system that gasifies manufacturing waste for an internal combustion engine, or fuel cell. The final product could be coffee residues, plastic cups or wrapping, burlap and cloth.

The gasification pilot stems from work that EERC did for **NASA**, the space agency, on converting waste from a space station or hypothetical Martian and lunar bases to

generate heat and power. Test projects could take months, depending on the amount of research, says **Chris Zygarlicke**, deputy associate director for research at EERC. The endpoint is a distributed gasification system that is ringfenced. Ideally, it would generate 150-200 kW and be scaleable to 1 MW. "Right now, we're still perfecting. We're still optimizing."

gap left by big European lenders, observers say. "They have huge deposits and they have nowhere to put them," Kyle said of U.S. regional banks. "They like this business."

With a decent pool of lenders and strong institutional appetite, the fate of large 2012 deals could ultimately rest with the projects themselves, not the lenders or investors, financiers said. "If you have good, clean projects, you'll get good deals," Kendircioglu said. "The difficulty is with projects that have some hair."

—Brian Eckhouse

## QUOTE OF THE WEEK

"It's hard to find folks who don't think that gas is the ultimate long-term fuel of choice."—**Alan Levande**, senior managing director for **Tenaska Capital Management**, on the bullish outlook for developing gas-fired projects in the U.S., at **Infocast's** Projects & Money 2012 conference in New Orleans (see story, page 10).

