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Power Finance & Risk

Exclusive Insight on Power M&A and Project Financing

By the publisher of GlobalCapital

● STRATEGIES

EDPR Hunts Mexico Wind

EDPR Renewables North America is looking for offtake agreements in Mexico as it aims to expand its wind business in the country. Page 7

● MERGERS & ACQUISITIONS

Fortistar Scoops Primary Energy

Fortistar his buying recycled energy IPP Primary Energy and also scores a financing backing the purchase. Page 8

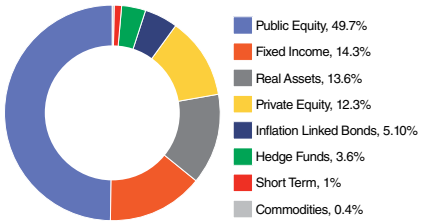
Texas Teachers Pension Fund Scouts Power, Energy Investments

Holly Fletcher

The **Teacher Retirement System of Texas** is looking to make direct investments in energy assets, including power and midstream facilities.

The Austin-based fund has allocated $150 million for principal investments in energy and power, according to board meeting minutes. TRS is the largest public retirement system in the state by both membership and assets. It has more than 1.3 million participants and managed $124 billion at the end of last year.

Texas Teachers' Asset Allocation



Source: Texas Teachers Retirement System

TRS' energy and natural resources team is working with **Tudor Pickering & Holt** to find opportunities. Potential investments must be approved by **Bobby Tudor**, ceo PAGE 12 »

Capital Costs Stoke Next Yieldco Pack

Holly Fletcher

Several shops are mulling whether to form a yield company largely to compete with existing yieldcos on cost of capital—signaling the asset class's evolution from a nascent to established market, said panelists at **American Wind Energy Association**'s Wind Energy Finance & Investment seminar in New York.

"[The companies are saying] 'I need to form one right now to raise capital' because folks can't compete with existing yieldcos on the cost of capital," said **Ed Zaelke**, partner at **Akin**, **Gump**, **Strauss**, **Hauer & Feld**. The shift in prerogative is being dubbed a "defensive yieldco," because shops think they need to list in order to remain competitive rather than just looking for a new source of capital.

There are six listed yieldcos and four more are targeting a listing in the next two quarters, causing prospective companies to think about the tipping PAGE 6 »

Dynegy Shops Calif. Portfolio

Holly Fletcher

Dynegy has launched a sale of its 2.7 GW of gas- and oil-fired assets in California.

The shop is looking to sell three plants in California that are non-core to its generation portfolio, deal watchers say. Teasers from **Bank of America Merrill Lynch** and **Barclays** hit the market last week, say observers.

The portfolio is comprised of the 2,529 MW Moss Landing gas-fired facility in Monterey County and the 165 MW Oakland oil-fired peaker in Oakland. Moss Landing consists of a 1,020 MW combined cycle facility, called Units 1 and 2, and a 1,509 MW peaker called Units 6 and 7.

Dynegy also owns the 650 MW Morro Bay gas-fired plant in Morro Bay, Calif., that was retired in February. A spokeswoman referenced a recent filing with the U.S. **Securities and Exchange Commission** that said Morro Bay would be included in a strategic evaluation.

Dynegy is in the process of buying two large portfolios totaling 12.5 GW from **Duke Energy** and **Energy Capital Partners** that are concentrated on PJM and the East Coast (PFR, 10/14).

A deadline for first round bids has not been set.

Spokespeople for the advisors and Dynegy either declined to comment or did not immediately respond to an inquiry.

● **POWER UP:** CHECK OUT A SELECTION OF THE WEEK'S POWER AND UTILITY NEWS ON TWITTER PAGE 12

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IN THIS ISSUE

PROJECT FINANCE

5 | NextEra Lassoes BTMU Tax Equity

5 | Alterra Inks Hydro Funds

STRATEGIES

5 | Hydro-Quebec Pushes Back Bid Deadline

PEOPLE & FIRMS

5 | CreditAg Banker Departs

CONFERENCE COVERAGE

6 | Weather Shifts Texas Gen Outlook

6 | PJM, NE-Iso Grid Changes

7 | Low Tax Equity Supply Dogs Wind Shops

7 | Deepwater Stalks Offshore Wind Funds

7 | EDPR Scopes Mexico Wind Contracts

MERGERS & ACQUISITION

8 | Fortistar Nets Recycled Energy Co.

8 | First Bids Come In For Riverstone's Sapphire

8 | JPMCC Offloads Tax Equity Stakes

9 | Macquarie-Led Consortium Nabs Cleco

9 | Solar Shop Scores Equity From Canadian Infra

INDUSTY CURRENT

10 | Tidal Range Power

DEPARTMENTS

3 | General Auction & Sale Calendar

4 | Project Finance Deal Book

12 | Power Tweets

12 | Alternating Current

THE BUZZ

Credit: iStock/ThinkStock

The Wind Tax Equity Saga Continues

The eternal hunt for tax equity remains the cornerstone of conversation for the U.S. wind industry, according to panelists and attendees at the **American Wind Energy Association**'s annual Wind Energy Finance & Investment Seminar in New York this week. Wind developers are once again rushing to meet deadlines for the production tax credit before it expires. However, many tax equity investors have already put their entire budgets to work and many of the 13.6 GW of wind projects under construction are unlikely to make it through the window to qualify for the PTC anyway (see story, page 7).

JPMorgan, the undisputed wind industry leader of tax equity investment, offloaded tax equity stakes in a portfolio of wind farms to **Hannon Armstrong Sustainable Capital** (see story, page 9). Subsidiaries of JPM and Hannon will co-own a holding company for the 10 wind farms that have a combined capacity of roughly 1.2 GW.

The yield company has headlined almost every industry event this year and the AWEA confab was no exception. The structure continues to draw attention, but prospective companies now are scoping it out to stay competitive instead of just tapping new capital sources (see story, page 1). The structure has given investors a taste for renewables exposure, industry officials say, adding that this penchant will eventually lead to more innovative listings for contracted renewables assets. ■

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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 **Holly Fletcher**, managing editor, at (212) 224-3293 or holly.fletcher@powerfinancerisk.com

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GENERATION AUCTION & 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

Generation Sale DATABASE

Seller	Assets	Location	Advisor	Status/Comment
ArcLight Capital Partners	Juniper Generation (Cogen portfolio)	Various, California	McManus & Miles	Sale relaunched after several PPAs were extended (PFR, 3/17).
ArcLight Capital Partners, Government of Singapore Investment Corp.	Stake (Southeast PowerGen)	Various, Georgia	Citi	Carlyle is buying out the stakes (PFR, 10/6).
ArcLight Capital Partners	Victoria (330 MW CCGT)	Victoria, Texas	UBS	Sale is near launch (PFR, 4/7).
ArcLight Capital Partners	Hamakua (60 MW CCGT)	Hawaii	Energy Advisory Partners	Teasers out (PFR, 7/28).
ArcLight Capital Partners	Bayonne (512 MW CCGT)	Bayonne, N.J.	Morgan Stanley	Teasers recently out (PFR, 9/22).
Atlantic Power Corp.	Fleet (2.1 GW)	Various	Goldman Sachs, Greenhill	First round bids are in (PFR, 6/30).
Burrows Paper Corp.	Lyonsdale Associates (19 MW Hydro)	New York		Burrows in final stages of selling (PFR, 8/25)
Calpine	Osprey (550MW CCGT)	Florida	TBA	Comes after Duke recently said it wanted to build not buy plants (PFR, 9/1)
Centaurus Capital	Avalon (29 MW Solar)	California		Coronal Group is buying it (PFR, 10/6).
Coronado Power Ventures	La Paloma (690 MW CCGT)	Harlingen, Texas	Blackstone	Looking for equity and debt (PFR, 8/11).
Duke Energy	Portfolio (6.6 GW Coal, Gas, Oil)	Various	Citi, Morgan Stanley	Dynegy is buying it (PFR, 9/1).
Dynegy	Portfolio (2.7 GW Gas, Oil-Fired)	Various, California	Bank of America Merrill Lynch, Barclays	Teasers recently released (see story, page 1).
E.ON Climate & Renewables North America	Stake (Wind Portfolio)	Various	Bank of America Merrill Lynch	Looking to sell 80% of several projects (PFR, 9/15).
Enel Green Power North America	Stake (Wind Portfolio)	Various	Bank of America Merrill Lynch	Sale process recently started (PFR, 9/15).
Entegra Power Group	Portfolio	Arizona, Arkansas	Houlihan Lokey	Will scope tolling agreements, sales post-bankruptcy (PFR, 10/13).
Exelon Corp.	Quail Run (550 MW Gas-Fired)	Odessa, Texas	Citi	Starwood has agreed to buy it (PFR, 10/6).
Exelon Corp.	West Valley (189 MW Gas-Fired)	West Valley, Utah		Wayzata is buying it (PFR, 10/13).
FGE Power	Portfolio (1.5 GW CCGT)	Texas	Fieldstone	Starwood has taken equity in two projects (PFR, 7/28).
First Wind	Stakes(255 MW Wind)	Texas, Washington		Individuals affiliated with Southwest Generation are taking stakes in the project (PFR, 10/20).
Geronimo Energy	Various (Wind)	Various	Barclays	Algonquin has bought one project (PFR, 9/15).
LS Power	Portfolio (544 MW Hydro)	Various, PJM		Sale is reportedly between the first and second round (PFR, 10/20).
NRG Energy	Sabine (106.5 MW Cogen)	Orange, Texas		Rockland Power Partners agrees to buy NRG's stake (PFR, 10/20).
NTR	Portfolio (Wind)	Various	TBA	Will take pitches to sell Wind Capital Group (PFR, 9/8).
NaturEner USA	Portfolio (399 MW Wind)	Montana		Morgan Stanley fund is taking over the assets (PFR, 8/25)
Olympus Power	Grant County Wind Farm (20 MW Wind)	Minnesota	Ewing Bemiss	The deal power price is set at $69.10 per MWh for first ten years (PFR, 9/1) .
Pioneer Green Energy	Green Pastures (300 MW Wind)	Texas	None	Capital Dynamics, Pru are buying it (PFR, 10/13).
Riverstone Holdings	Sapphire Power (807 MW Gas)	Various	Barclays	First round bids submitted mid-October (see story, page 8).
Stonepeak Infrastructure	Stone Mills (11 MW Solar)	Napanee, Ontario		DIF Infrastructure is buying it (PFR, 9/18).
SunShare	Portfolio (9.6 MW Solar)	Colorado	Infrastructure Finance Advisors	High interest; moved to second round (PFR, 8/18).
Tenaska	Westmoreland (950 MW Gas)	Pittsburgh, Pa.	Whitehall	Looking for development capital (PFR, 8/18).
Upstate New York Power Producers	Cayuga (306 MW Coal)	Lansing, N.Y.	Blackstone	Teasers recently went out (PFR, 6/23).

New or updated listing

The accuracy of the information, which is derived from many sources, is deemed reliable but cannot be guaranteed.
To report updates or provide additional information on the status of financings, please call Managing Editor Holly Fletcher at (212) 224-3293 or e-mail holly.fletcher@powerfinancerisk.com

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PROJECT FINANCE

Deal Book is a matrix of energy project finance deals that Power Intelligence is tracking in the energy sector.
A full listing of deals for the last several years is available at http://www.powerintelligence.com/projectfinancedeal.html

Live Deals: Americas

Sponsor	Project	Location	Lead(s)	Loan	Loan Amount	Tenor	Notes
AES Gener	Angamos (544 MW Coal)	Chile	TBA	TBA	$700M-$1B	TBA	Banks bid to lead a refi (PFR, 10/6).
Alterra, Fierra Axium	Jimmie Creek (62 MW Hydro)	British Columbia	ManuLife	Construction, Term	C167.5	C+40-yr	Five lenders participated (see story, page 5).
Apex Wind	Balko Wind (300 MW Wind)	Oklahoma	TBA	TBA	TBA	TBA	Sponsor takes pitches from prospective MLAs (PFR, 9/8).
Cape Wind Associates	Cape Wind (468 MW Wind)	Cape Cod, Mass.	MUFJ	TBA	$1.95B	TBA	Contention over pricing and lengthy due diligence slowing down prospective lenders (PFR, 10/20).
Cheniere Energy	Corpus Christi (LNG Export Facility)	Corpus Christi, Texas	SocGen	TBA	$11.5B	7-yr	SocGen is talking to prospective JLAs (see story, 10/13).
Cobra Energia	Peru Portfolio (122 MW Wind)	Peru	U.S Ex-Im	TBA	$65M	17-yr	The Cobra projects have 20-year offtaker contracts with Peruvian government (PFR, 8/27).
Coronado Power Ventures	La Paloma (690 MW CCGT)	Cameron County, Texas	Blackstone	TBA	TBA	TBA	Debt and capital raise has had several setbacks (PFR, 8/11).
Deepwater Wind	Block Island (30 MW Wind)	Rhode Island	TBA	TBA	TBA	TBA	Aiming to close finance in the coming months (see story, page 7)
Energy Investors Funds	Oregon (800 MW Gas)	Oregon, Ohio	BNP, Credit Ag	TBA	TBA	TBA	Deal is about to launch at L+325 (PFR, 8/18).
Exmar NV	Floating Liquefaction Project	Colombia	TBA	B Loan	$170M	TBA	Sponsor looking to land a B loan for the debt on the project (PFR, 5/5).
FGE Power	FGE Texas (726 MW Gas)	Westbrook, Texas	TBA	TBA	$1B	TBA	Has opted for project finance loan over B loan (PFR, 7/28).
GDF Suez, Pemex	Los Ramones II Sur (178-mile Pipeline)	Mexico	Santander	TBA	TBA	TBA	BNP Paribas is also advising on the $1B project (PFR, 8/11).
Greenwood Energy, ILIOSS	Portfolio (250 MW Solar)	Mexico	TBA	TBA	TBA	TBA	The sponsors are speaking to lenders and potential mid-size commercial and industrial offtakers (PFR, 10/6).
Invenergy	Le Plateau 2 (21.5 MW Wind)	Quebec	BayernLB	TBA	TBA	TBA	Deal wraps (PFR, 9/8).
Invenergy	Spring Canyon (60 MW Wind)	Spring Canyon, Colo.	Rabobank	TBA	TBA	TBA	Deal wraps (PFR, 9/8).
Korea Southern Power Corp., Samsung C&T	Kelar (517 MW Gas)	Chile	Natixis, BTMU, SMBC, Mizuho, Santander KEXIM	Gaurantee, VAT, LC, Working Capital	$310M	TBA	Deal is set to wrap in the next month (PFR, 10/6).
NextEra Energy Resources	Bluewater (60 MW Wind)	Lake Huron, Ontario	TBA	TBA	TBA	TBA	Sponsor is talking to lenders in the U.S. to finance the project (PFR, 5/19).
NTE Energy	Multiple (Gas)	Various, U.S.	Whitehall	TBA	TBA	TBA	Looking to arrange PPAs for a portion of gas-fired trio (PFR, 8/4).
Panda Power Funds	Stonewall (750 MW Gas)	Leesburg, Virgina	TBA	TBA	TBA	TBA	Received pitches and mulling options (PFR, 10/20).
Pattern Energy	Armow (180 MW Wind)	Kincardine, Ontario	TBA	TBA	TBA	TBA	Sponsor is looking for tighter pricing than its K2 financing (PFR, 5/26).
Samsung Renewable Energy	Kingston (100 MW Solar)	Ontario	RBC, Connor Clark & Lunn	TBA	$500M	TBA	Lenders are beginning to circle up (PFR, 7/21).
D.E. Shaw	Red Horse 2 (51MW Wind)	Arizona	Santander, Sabadell	TBA	$170M	20-yr	Near financial close (PFR, 8/25).
Starwood Energy Global Group	Stephens Ranch II (165 MW Wind)	Texas	Citi, Morgan, MUFJ	Construction	$207M	TBA	Firms will also make tax equity investments in the project (PFR, 8/25).
Summit Power	Texas Clean Energy Project (400 MW Gas)	Odessa, Texas	TBA	TBA	TBA	TBA	Delays due to high labor costs and constuction reevaluation (PFR, 10/20)
Tenaska	Brownsville (800 MW CCGT)	Brownsville, Texas	TBA	TBA	TBA	TBA	Tenaska is in early stages of talks, plans to wrap by year-end (PFR, 6/30).
Tenaska	Westmoreland (950 MW CCGT)	Pittsburgh, Pa.	Whitehall	TBA	TBA	TBA	Looking for development capital (PFR, 8/18).
Transmission Developers	Champlain Hunson (Transmission)	New York	RBC	TBA	~$1.6B	TBA	Sponsor is aiming to line up the debt by year-end (PFR, 3/3).

New or updated listing

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PROJECT FINANCE

NextEra Ropes BTMU For Colo. Tax Equity

Bank of Tokyo Mitsubishi-UFJ has agreed to make a tax equity investment in **NextEra Energy Resources**' wind farm in Colorado.

BTMU Capital Leasing & Finance, a subsidiary of BTMU, will take the full tax capacity of the 200.6 MW Limon III wind farm in Lincoln County, Colo., according to a filing with the U.S. **Federal Energy Regulatory Commission**.

FAST FACT

Merged

BTMU Capital Leasing & Finance is an affiliate of Bankers Commercial Corp., which was historically the tax equity investment arm of Union Bank. BTMU and Union Bank have recently finalized the merger of their power project finance lending teams.

Limon III has a power purchase agreement with **Public Service Co. of Colorado** and is operational. The tax equity deal could close in November, according to the filing.

BTMU Capital Leasing has one other tax equity investment, according to the FERC filing. It has a sale leaseback agreement with **Iberdrola Renewables** for the 30 MW San Luis solar facility in Alamosa County, Colo. (PFR, 9/25/12). BTMU Capital Leasing is an affiliate of **Bankers Commercial Corp.**, which was historically the tax equity investment arm of **Union Bank**. BTMU and Union Bank have recently finalized the merger of their power project finance lending teams.

Spokespeople for NextEra and BTMU did not immediately respond to inquiries. ■

Alterra, Fiera Axium Bag Hydro Financing

Alterra Power and **Fiera Axium** have wrapped a C$176.5 million ($157.2 million) loan for the 62 MW Jimmie Creek hydro project in the Toba Valley, British Columbia.

The construction plus 40-year loan carries pricing at an all-in rate of 5.26%. Proceeds will pay for the remaining construction costs of the $227.4 million project, which has been under construction since March 2014.

FAST FACT

2016

The loan will convert to a 40-year term loan in 2016 to align with the offtake agreement with BC Hydro.

The Manufacturers Life Insurance Company was lead arranger. The lender group consisted of **Sun Life Assurance Co. of Canada**, **The Canada Life Assurance Co.**, **Industrial Alliance Insurance** and **Financial Services** and **The Great-West Life Assurance Co.**

Alterra and Fiera Axium own 51% and 49% of the project, respectively, and have been scouting for financing since the spring (PFR, 4/29). Alterra recently inked a C$110 million ($100 million) loan to from **AMP Capital** for a wind project in Texas and Jimmie Creek (PFR, 8/09).

The project will online in July 2016 and has a 40-year power purchase agreement with **BC Hydro** starting in August 2016. ■

STRATEGIES

Hydro Quebec Sets Nov. Wind RFP Deadline

Hydro-Québec Distribution has set a new deadline for its request for proposals for 450 MW of wind farms in Quebec.

The bid deadline has been set for Nov. 5 now that the provincial regulator **Régie de l'énergie** has approved evaluation criteria. The regulator increased the emphasis that will be put on projects that that have manufacturing components from Québec, according to law firm **McCarthy Tétrault**.

Hydro-Québec wants to sign power purchase agreements totaling 300 MW from wind farms in the Bas-Saint-Laurent and Gaspésie–Îles-de-la-Madeleine regions and 150 MW from projects across Québec. The projects in the Bas-Saint-Laurent and Gaspésie–Îles-de-la-Madeleine regions should be online by Dec. 1, 2016, while the province wide portion would need to be operational by Dec. 1, 2017.

A timeline for selecting finalists could not be learned. A Hydro-Québec spokesman could not immediately comment on the timing. ■

Recent Requests For Proposals

Sponsor	Size	Fuel Type
El Paso Electric	25 MW	Solar
South Texas Electric Co-Op	650 MW	Various
Xcel Energy's SPS	200 MW	Solar
CAISO	115-mile	Transmission
Southern California Edison	63 MW	Solar

Source: Power Finance & Risk

PEOPLE & FIRMS

Domkowski Exits CreditAg

Judy Domkowski, a director at **Crédit Agricole** working in project finance and energy loan syndications, has left the bank in New York.

Domkowski underwrote and syndicated over 100 transactions during her 15 years at the bank, according to LinkedIn. She worked closely with **Francois Coussot**, managing director of loan distribution in CreditAg's debt optimization and distribution division.

A spokeswoman for the bank confirmed Domkowski's exit and declined to commet further. Domkowski could not be reached for comment. The banks plans for replacing Domkowski and the exact date of her departure, could not be learned.

Most recently, CreditAg hired **Michael Boarts**, a former associate director at **WestLB**, as v.p. in loan syndications. Boarts will focus on project financings in North and South America (PFR, 10/8). ■

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PLATTS & AWEA

Extreme weather, namely the polar vortex and mild Texas summers, and its impact on investments took center stage at the 16th Annual **Platts** Financing U.S. Power Conference at the Crowne Plaza Times Square in New York on Oct. 16-17. The **American Wind Energy Association** convened its Wind Energy Finance & Investment Seminar on Oct. 20-21 at The Roosevelt Hotel in New York City where speakers tackled tax equity and yield companies. Managing Editor **Holly Fletcher** and Senior Reporter **Olivia Feld** filed the following stories.

Yieldco 2.0: Capital Costs Stoke Next Yieldco Pack

« FROM PAGE 1 point. "When is enough?" said **James Tynion**, partner at **Morgan Lewis & Bockius**, in reference to the number of yieldcos in the market. Zaelke said industry players are concerned about market saturation, adding that there is likely enough investor demand and assets for growth to support a dozen yieldcos, but not enough for two dozen.

First Solar, **SunPower** and the **Acciona-KKR** renewable joint venture are among the next set of companies considering a listing (PFR, 9/19 & 9/29) and others are working informally with advisors, panelists said. "I don't think anyone has given up on yieldcos. The expectation is that there will be more," said **Jeff Chester**, partner at **Morrison & Foerster**.

Beyond The Yieldco Structure

Yieldcos are giving the public market its first opportunity to gain exposure to renewable portfolios. Hedge funds are the largest yieldco shareholders, said Chester, who has analyzed the shareholder make-up for **NRG Yield**, **NextEra Energy Partners** and **Pattern Energy**. Chester said there are legions of investors beyond the largest institutional investors and hedge funds that will want to invest in companies with renewable composition regardless of the structure.

The public market's interest in renewables will likely lead to new structures making successful listings as long as there is an underlying portfolio of contracted assets. As the public market becomes more comfortable with renewables as an asset class there will be more options available to companies, the panelists said. "The name yieldco is just a fad right now. I don't know whether it will be replaced with another name," said Tynion, referring to how **Enel** spun-off its renewable assets into **Enel Green Power**, a separate company, rather than establish a dividend-driven vehicle.

The panelists said to watch for plans from any company with a portfolio of renewable assets--ranging from medium sized shops to companies like **Exelon Corp**. or **Duke Energy**. ■

Mild Weather Dampens Outlook On Texas Gen

Mild weather in Texas over the last two summers has reshaped how developers and lenders are looking at generation projects in ERCOT, panellists said at Platts' 16th Annual Financing U.S. Power conference in New York.

William Nordlund, managing director of Dallas-based **Panda Power Funds**, told the audience that it would be challenging to find a hedge in the current market and that "you would almost have to do [the project] on a pure merchant basis, which makes it very difficult." Panda has financed three gas-fired projects in Texas since 2012—one with a hedge with **3M Employee Retirement Income Plan** (PFR, 2/13/13).

Temperature volatility has been a hallmark of the Texas market over the last several years. Soaring temperatures in the summers of 2011 and 2012 brought in a rush of investors and developer looking to build generation (PFR, 8/3/12). Companies including **Tenaska**, **FGE Energy**, **Exelon Corp.**, **Lincoln Renewable Energy** and **Starwood Energy Global Group** have either bought into or pitched new gas-fired and wind generation.

Now, however, the market is more challenging because of back-to-back mild summers in 2013 and 2014. "ERCOT is less healthy now," said **Steve Ryder**, senior v.p. of Invenergy, told the audience.

"In my view it's going to be harder to do anything until you have another hot summer," Nordlund said. ■

Market Changes To Alter PJM, NE-ISO Landscape

A variety of changes in PJM and NE-ISO are going to re-shape how investors think about power investments in those regions, panelists said at **Platts**' Financing U.S. Power conference in New York.

The system operators in PJM and New England are proposing new regulations and guidelines, particularly around penalties, that could impact generation investors. "We do expect something [in New England] that has real teeth from a performance perspective," said **Bill Mohl**, president of **Entergy Wholesale Commodities**.

The impending changes in both systems, combined with other factors including shutdowns and gas-fired new build, could greatly impact the economics of proposed projects as well as the financial performance of existing facilities. The confluence of factors at work in PJM and NE-ISO makes the markets attractive to investors but raises questions about how to effectively value generation, panelists said. "As soon as one person adds 1,000 MW [of new generation] there are economic changes," said **Daniel Eggers**, managing director at **Credit Suisse Securities**.

Coal-fired generation is being retired because of environmental and economic conditions and aging facilities. The retirements quickly hit available a capacity, said Eggers, noting that many of the plants slated for short-term retirements are still in use.

"If you're going to invest in these markets all I can say is make sure you know what you're getting into," Mohl said. ■

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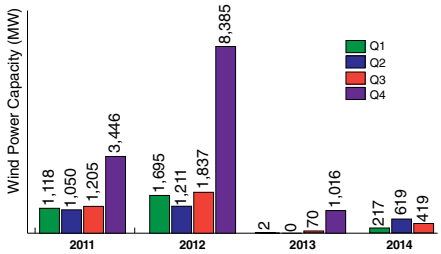
Wind Project Wave Faces Low Tax Equity Supply

There is about 13.6 GW of wind projects under construction in the U.S. but lenders and tax equity investors are uncertain about how many will be online to qualify for the production tax credit, according to speakers at **American Wind Energy Association**'s Wind Energy Finance and Investment Seminar in New York.

There are at least 105 wind projects under construction in the U.S., according to AWEA's third quarter report. "There are a great number of projects that are trying to make this window but probably won't," **Tim Howell**, managing director and commercial leader in power and renewable energy at **GE Energy Financial Services**, told the audience. Financiers and developers are questioning the feasibility of some projects that are scheduled to be online next year. Developers with projects that are just a step or two behind other projects could find it challenging to line up investment.

U.S. Wind Power Capacity Installations, by Quarter



Source: American Wind Energy Association

The tax equity market has been churning with requests for investment from developers, said panelists. **Martin Pasqualini**, managing director at **CCA Group**, said that "most prominent investors" have told him and his clients that they have nearly invested their tax equity capacity for this year. "We don't want to tell people we can't take on additional transactions but it's a problem," Martin said.

A pair of investors said that they are beginning to focus on deals that would have 2015 term sheets because the appetite for 2014 deals largely has been satisfied. "We're pretty full up this year," said **Yale Henderson**, a managing director at **JPMorgan Capital Corp.**, adding that JPMCC is looking ahead to 2015. GE EFS said it too is heavily focused on the next calendar year.

The rush to qualify for the PTC has led to a burst of development compared to last year. Developers have brought 1,254 MW of projects online in 2014 as of the third quarter, according to AWEA, a jump above the 1,088 MW brought online in all of 2013. ■

Deepwater Hunts R.I. Offshore Wind Financing

Deepwater Wind is aiming to finance its first offshore wind project in the coming months, CEO **Jeffrey Grybowski** said at the **American Wind Energy Association**'s Wind Energy Finance and Investment Seminar in New York.

Deepwater is talking with banks about its 30 MW Block Island project that is approximately three miles south of Block Island, R.I. Grybowski told *PFR* on the sidelines that the deal could be closed in the coming months but declined to comment further. The company plans to start laying foundations in the summer of 2015.

Deepwater Wind is the bringing the second offshore wind project to the project finance market. The deal is on the heels of **Cape Wind**'s bid to finance its $2.5 billion wind project off the coast of Cape Cod, Mass. (PFR, 10/15). **Bank of Tokyo-Mitsubishi-UFJ** is leading a $1.95 billion financing package for the 458 MW wind project. Pricing on the deal is in the range of LIBOR plus 237.5-250 basis points.

Deepwater has faced a number of obstacles with the Block Island project, Grybowski said, noting that it's taken six years to obtain the necessary permits. Deepwater has had to line up permits from 11 federal and state agencies. "We had to create permits that just didn't exist. That's obviously a challenge for financing", Grybowski said. The power from the project will be used by the Island's 1,051 inhabitants and exported to the Rhode Island via a new undersea transmission line. The project could be online in 2016.

Deepwater Wind is developing four offshore wind projects all off the Eastern seaboard totaling just north of 3 GW.

Whether the project has a power purchase agreement could not be immediately learned. ■

● REPORTERS' NOTEBOOK

■ **Platts**

"Let It Snow," While the Polar Vortex brought much of the U.S. to a halt with frigid temps and snow, the phenomenon of nature lifted the spirits of **Daniel Foley**, founder of gas-fired developer **GlidePath Power**. "Polar Vortex is the best thing that ever happened to me as a developer," he said, adding that people reversed their opinion about markets having enough capacity and took an interest in his projects.

■ "If you're a developer, **Bill [Mohl]** right now is one of your friends," **Ross Comeaux**, v.p. at **Deutsche Bank**, informed the crowd at Platts regarding the shut-down of Entergy Wholesale Commodity's Vermont Yankee nuclear facility. ■

EDPR Eyes Mexico Wind PPAs

EDP Renewables North America is looking to expand its wind development footprint in Mexico in the coming two years, CEO **Gabriel Alonso** told the audience at the **American Wind Energy Association**'s Wind Energy Finance and Investment Seminar in New York.

EDPR N.A. is keen to expand its presence in Mexico under the energy reform legislation, Alonso told *PFR* on the sidelines, noting the attractiveness of the available long-term power purchase agreements. The company signed its first PPA in Mexico earlier this year with **Industrias Peñoles**, a Mexican mining company, for a 180 MW wind project in the State of Coahuila.

Mexico is implementing a series of reforms that are opening up the country to third party investments (PFR, 7/25). ■

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MERGERS & ACQUISITIONS

Fortistar Lands Primary

Fortistar has agreed to buy **Primary Energy**, an independent power producer that owns recycled energy assets in Indiana, for $241.4 million.

Fortistar is paying $5.40 (C$6.07) per share to take the Oak Brook, Ill.-based Primary Energy private. Primary is traded on the **Toronto Stock Exchange** with 55% of its stock held by five institutional investors (PFR, 6/19).

Fortistar has been working with **Investec** on a $215 million financing package (PFR, 9/11). The package includes a seven-year $200 million term loan and five-year $15 million revolver. The deal brought in nearly a dozen lenders, including **Varagon Partners, Industry Funds Management**, **CIBC** and **Wells Fargo**, says a deal watcher. The identity of other lenders could not be immediately learned.

The package is priced at LIBOR plus 475 basis points with a 1% LIBOR floor and 99 original issue discount. The unrated loan is structured similarly to a B loan as Fortistar originally planned to tap the institutional loan market, says the observer.

The transaction could close by year-end. **Moelis & Co**. advised Primary with **Torys** as legal counsel. Fortistar worked with **Credit Suisse** and **Shearman & Sterling LLP** and **Stikeman Elliott LLP**.

Primary Energy owns four inside-the-fence facilities mostly on industrial sites around East Chicago, Ind. The sites are owned by multinational steel manufacturer **ArcelorMittal**. The company's assets have an average contract life of 14 years. Recycled energy facilities use waste or escaped heat from industrial processes to power turbines. The portfolio of assets, listed below, also includes a 50% stake in a pulverized coal-fired facility.

- 50 MW Ironside Energy combined heat and power facility in East Chicago, that is fueled recycled waste. The facility has an offtake agreement with Indiana Harbor Works until 2020.
- 90 MW North Lake recycled heat-fired facility in East Chicago, that is contracted until at least 2041.
- 95 MW Cokenergy recycled heat-fired facility in East Chicago, that uses waste heat from an onsite coke-making facility and is contracted to its host site until 2023.
- 63 MW Portside Energy cogeneration facility in Portage, that sells steam and power to United States Steel Corp.'s Midwest plant operations until 2028.

Riverstone Takes Initial Sapphire Bids

First round bids have come in for **Riverstone Holdings' Sapphire Power Holdings** gas-fired portfolio. Barclays is running the sale.

Prospective buyers sent in initial offers for the 807 MW portfolio last week, says an observer. The portfolio is being shopped to a mix of strategics and financial players, say deal watchers.

Riverstone is selling Sapphire to mitigate issues that could arise with its planned generation merger with **PPL Corp**. It is one example of a nascent trend in which corporate mergers lead to follow-on M&A activity around generation. Riverstone and PPL are merging generation assets into a new company called **Talen Energy Corp**.

The portfolio up for sale consists of seven combined-cycle facilities and one simple-cycle facility. The assets include one plant in Pennsylvania, one in Massachusetts and five in New Jersey. Sapphire Power was refinanced in July 2013 with a $250 million term loan B that carries pricing at LIBOR plus 500 basis points (PFR, 7/3/13). Riverstone bought the portfolio from **Morris Energy** (PFR, 7/18/11).

The 132 MW Pedricktown combined cycle facility in Pedricktown, N.J., had a hedge in place until 2016. However, Sapphire opted to remove the hedge at the end of February 2014 after volatility in gas basis differentials resulted in payments to the hedge counterparty, according to a **Moody's Investors Service** report in March. The other facilities also have hedges in place until 2016, according to the report.

Details on the bids, such as identity of prospective buyers and offer amounts, could not be immediately learned. Spokesmen for both Barclays and Riverstone declined to comment. ■

Sapphire Power Holdings' Portfolio

York CCGT	52 MW	York, Pa.
Pedricktown CCGT	132 MW	Pedricktown, N.J.
Camden CCGT	152 MW	Camden, N.J.
Bayonne CCGT	180 MW	Bayonne, N.J.
Elmwood CCGT	80 MW	Elmwood Park, N.J.
Newark Bay CCGT	140 MW	Newark, N.J.
Dartmouth CCGT	70 MW	Dartmouth, Mass.

Source: Power Finance & Risk

Hannon Closes JPMCC Tax Equity Deal

Hannon Armstrong Sustainable Capital is paying $144 million for tax equity stakes in a portfolio of wind farms from **JPMorgan Capital Corp**.

Subsidiaries of both JPMCC and HASI will co-own a holding company that has tax equity stakes in the 10 farms. **HA Wind 1**, a subsidiary of Hannon Armstrong, will be the owner along with JPMCC subsidiary **FC Energy Finance I**. **Reznick Capital Markets Securities advised JPMC**C.

The portfolio includes wind farms totaling more than 1.2 GW co-owned by **EDF Renewable Energy**, **EDP Renewables North America**, **E.ON Climate & Renewables** and **Invenergy** (PFR, 9/18). The portfolio of farms went online between 2004 and 2008 and includes some merchant farms.

Hannon Armstrong has arranged $115 million in non-recourse financing from **Bank of America Merrill Lynch** that is backed by the stakes. The loan is a seven-year facility that carries pricing of LIBOR plus 574 basis points, according to an 8K filed with the U.S. **Securities and Exchange Commission**. Proceeds will go toward the purchase. There is no existing debt on the wind farms.

A BAML spokesman could not immediately comment. ■

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Macquarie-Led Consortium Scores Cleco

An investor group led by **Macquarie Infrastructure and Real Assets** has agreed to take Cleco public in a $4.7 billion deal.

MIRA has teamed with **British Columbia Investment Management Corp.**, **John Hancock Financial** and other investors to pay $55.37 per share for the Pineville, La.-based utility holding company. The investors will assume $1.3 billion in debt.

Cleco has been looking for a suitor after receiving unsolicited offers (PFR, 6/23). **Goldman Sachs** and **Tudor Pickering & Holt** are advising Cleco along with law firm **Locke & Lord**.

The investor group is working with **Macquarie Capital** and **Skadden, Arps, Slate, Meagher & Flom**.

The investors are planning to refinance Cleco's debt when the deal closes. The transaction is targeted to close in the second half of 2015.

Cleco Power is a regulated utility with a footprint entirely in Louisiana. It owns about 3.34 GW of generation, 11,830 miles of distribution lines and 1,300 miles of transmission lines. It serves about 284,000 customers in Louisiana. Cleco Power began serving wholesale power in April to **Dixie Electric Membership Corp**. under a contract that extends for 10 years. DEMCO has about 103,000 customers with a peak load of approximately 600 MW.

Darren Olagues, president of Cleco Power, will succeed Bruce Williamson as the president and ceo of Cleco when the deal closes.

BCIMC is an investment management corporation out of Victoria, B.C., that had C$114.0 billion ($101.5 billion) of gross managed assets at the end of the first quarter. It owns stakes in utility and infrastructure assets in North America, Latin America, Europe and Australia, including **Puget Energy** and **Transelec**. ■

Solar Shop Lands Canada Infra Equity

Silicon Ranch Corp., a Nashville, Tenn.-based solar shop, has raised $140 million in equity from **Greystone Infrastructure Fund**.

Greystone Infrastructure is an affiliate of **Greystone Managed Investments**, an investment management shop out of Regina, Saskatchewan with $33 billion under management.

Silicon Ranch was founded by **Phil Bredesen**, a former Tennessee governor. It owns 52 MW of solar assets in Tennessee and Georgia. The two largest assets are the 38.6 MW Social Circle facility in Social Circle, Ga., that is contracted to **Georgia Power Co.** and the 9.5 MW **Volkswagen** Chattanooga facility at a Volkswagen factory in Chattanooga, Tenn. **Matt Kisber** is president and ceo of Silicon Ranch.

The company has a 200 MW development pipeline comprised of early to mid-stage developments.

StormHarbour Securities, a boutique advisory shop out of London, advised Silicon Ranch.

Details about how the equity will be used or financing plans for the pipeline could not be immediately learned. Spokespeople for the firms were not immediately available for comment. ■

PFR

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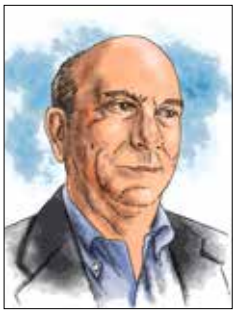
INDUSTRY CURRENT

'A Paradigm Shift in Tidal Range Power'–Part 1



Ted Verrill

This week's Industry Current on tidal range power is written by **Ted Verrill**, president and ceo of **Halcyon Tidal Power** in Southport, Conn. The article appeared In **Chadbourne & Parke**'s Project Finance Newswire as a rebuttal to a June piece that suggested hydrokinetic tidal power was several years from reaching commercial scale. Verrill looks at how advancements in tidal range power offer imminent commercial deployment opportunities.

The "other" tidal power is tidal range power - power created from the head pressure of tidal waters against an enclosure.

Tidal range power is an existing technology to which the addition of key advancements could lead to worldwide deployment of a zero-emission renewable resource capable of satisfying 10% to 20% of global electricity demand, a scale that would have a meaningful impact on climate change in short order.

At scale, tidal range facilities can produce power at market rates for the first 20 to 30 years and below-market rates for the remainder of their 120-year useful lives, without subsidy. Tidal range power can provide all of this while also offering compelling financial returns.

Jigar Shah, founder of **SunEdison**—one of the world's leading solar services companies - succinctly states the case for existing technologies in his new book Creating Climate Wealth: Unlocking the Impact Economy: "We must invest money in deployment of existing technologies that drive economic growth and jobs, demonstrate the scale needed to impact climate change and offer compelling returns."

Why Existing Technologies?

Despite a few naysayers, climate change "waits for no man." Experimental renewable energy development is useful, but is it likely to have a significant impact on climate change in the next 10, 20 or 30 years when, at its current pace, climate change is likely to become irreversible? According to the International Panel on Climate Change, irreversibility will likely occur when the Earth's surface temperature passes the 4° C threshold. In fact, many climatologists suggest that if we do not leave 80% of known fossil fuels in the ground over the next 20 odd years, we will easily pass the point of no return. But this is a bit of a digression.

Even though wind power on terra firma is now technologically well-established - producing reasonable returns and offering market rate power - can we wait another 20 odd years of government subsidized experimentation and development for the next new renewable resource to leave the drawing board? Is it worth the effort when such experimental renewable resources may have other shortcomings - such as the inability to satisfy more than a small fraction of worldwide electrical demand, or have a relatively insignificant impact on climate change, or have an indeterminate intermittency, or have a low capacity factor?

Is it also worth the effort when there are existing technologies that with advancement or refinement can create climate wealth while having a significant impact on climate change now?

"Rather than focus on remedies or advancements in technology to resolve these issues, developers, government agencies and other promoters have shifted their focus to hydrokinetic forms of tidal power, or "underwater windmills," if you will"

Already Deployed

Tidal range power is an existing technology. Successful modern tidal range facilities have been in continuous operation for decades, including a 240 MW tidal range facility in La Rance, France (in operation for about 60 years) and a 20 MW tidal range facility in Annapolis-Royal, Nova Scotia (in operation for more than 20 years). Tidal range facilities have also been seriously considered in the Bay of Fundy, Canada for a century and in Bristol Bay, United Kingdom for at least as long. Indeed, "tide mills" (grain milling facilities using the release of tidal waters captured in a reservoir behind an enclosure to turn a water wheel) have been in operation since the Middle Ages with more than 750 operating in the United States and Europe during the 18th and 19th centuries.

Notwithstanding the successful operation of several modern tidal range facilities, they have not proliferated.

This has been due principally to the environmental harm created by existing facilities, the perceived or anticipated environmental harm expected from some of the newly-conceived facilities, and the high cost of construction. Rather than focus on remedies or advancements in technology to resolve these issues, developers, government agencies and other promoters have shifted their focus to hydrokinetic forms of tidal power, or "underwater windmills," if you will. However, the development of hydrokinetic tidal power is at a pre-commercial stage and, therefore, cannot pro-

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vide any certainty that deployment at scale is possible, and it is unlikely to have any meaningful effect on climate change in the next 20 to 30 years. It would be prudent to consider existing technologies that can be exploited now.

What are the key advancements to tidal range power that could bring the resource to the forefront of clean renewable power?

The key to bringing any technology to market, beyond its efficacy, is the cost to end users. If the cost of electricity generated by a particular technology is far beyond current market rates, then the technology may require years of subsidy until costs are contained or the technology is improved. As mentioned in the June 2014 issue of the *Project Finance Newswire*, the cost of electricity from existing in-stream tidal pilot-scale projects is at least $320 a megawatt hour. Nova Scotia is subsidizing the deployment of developmental and pre-commercial hydrokinetic tidal power devices at between $375 and $575 a megawatt hour. This is essentially the same evolutionary scenario that has played out with land-based wind power, with hydrokinetic sources of power potentially requiring several decades of improvements before commercial-scale deployment and power production at or about market rates.

Possible Cost Reductions

In order to make tidal range power economic currently, something had to be done to reduce the cost of construction.

Historical embankment or barrage construction has consisted of substantial quantities of stone and earth placed at the narrowest part of an estuary. Even then, the cost of construction has proven to be prohibitive with the width of the barrage increasing exponentially with the depth of the surrounding waters. This is essentially the same as levee construction on the US Gulf coast or dike construction in The Netherlands. Not only is this type of construction expensive, it has been shown to be short-lived: witness the effects of Hurricane Katrina in New Orleans.

The construction of the La Rance tidal range project included the cost of two cofferdams and required four years to complete. After 60 years of operation, it now produces power for less than $30 a megawatt hour; however, it took several decades to amortize the construction costs and bring electricity prices in line with or below market prices.

"What does a 50% reduction in cost mean to the price of electricity provided by a Halcyon tidal range facility? In the first instance, it means that special government subsidies are unnecessary to support the development, construction and operation of the facility."

Tidal Lagoon (Swansea Bay) plc is currently considering a 320-megawatt tidal range facility using existing technologies in Swansea Bay, on the Welsh side of Bristol Bay. (See tidallagoonswanseabay.com.) As the name of the company suggests, a tidal lagoon structure is being employed. Although similar to traditional embankment construction (a pyramid structure with a large base and narrow top), the project will use geotextile casings, known as "geotubes," that will be filled with dredged sandy material from within the lagoon. Additional sand, small rocks and then larger rocks will protect the outer layer against degradation.

Unfortunately, this construction methodology may retain some of the shortcomings of embankment construction: it is meant for shallow locations as it becomes prohibitively expensive to construct at depth, construction time may be rather lengthy and removal is difficult at best. The low-head bulb bi-directional turbine technology to be used is similar to what Halcyon will deploy, although Swansea Bay will use a Kaplan-style runner blade. While Halcyon believes that its tidal range patented construction and operational methodologies are superior to those of Swansea Bay, the cost, scale and near-term deployment using existing technologies are probably sufficient to move the Swansea Bay tidal lagoon concept forward.

Rather than inventing a completely new technology to replace typical barrage or embankment construction, Halcyon has borrowed two existing technologies—pile-supported technology perfected over several decades in the offshore oil and gas and bridge construction industries, and reinforced concrete resistant to seawater from the bridge and dam construction industries. (An article in *The Washington Post* on July 13, 2014 about the 50th anniversary of the construction of the Chesapeake Bay Bridge and Tunnel illustrated the use of concrete pilings driven in sand—not bedrock—to support the bridge.) By setting pilings in bedrock, prefabricating concrete panels on shore, floating or barging the panels to the facility site and locking them between the pilings, Halcyon has reduced the cost of constructing a tidal range enclosure by 50%, reduced construction time by 50% and permitted construction of a "Halcyon enclosure" at depth and over long distances, creating tidal lagoons that avoid sensitive estuarine environments.

This prefabricated modular construction method permits step-wise construction, carried out almost exclusively from the water side, without the need for a cofferdam or other construction enclosure. It also permits ready decommissioning of the facility at the end of its useful life, an unlikely event for traditional embankment or barrage construction. Illustrations of the Halcyon enclosure can be found on the Halcyon website at halcyontidalpower.com.

What does a 50% reduction in cost mean to the price of electricity provided by a Halcyon tidal range facility? In the first instance, it means that special government subsidies are unnecessary to support the development, construction and operation of the facility. Depending on the jurisdiction, it may also mean that such a tidal range facility will produce power at current market prices out of the gate. In almost all cases, it means that the price of electricity produced will be below market prices after amortizing the cost to construct over 20 years. ■

Check back next week for the second installment of this week's Industry Current,

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Texas Teachers Pension Fund Scouts Power, Energy Investments

« FROM PAGE 1

of Tudor Pickering & Holt, **Dan Pickering**, co-president, and a dedicated managing director. The shop has begun scouting assets, says an observer.

Vaughn Brock is director of energy and natural resources at Texas teachers. He joined TRS in 2012 from **American Ventus Energy**, a wind shop that he founded to develop projects in Texas, Oklahoma and Colorado.

FAST FACT

$150m

Teachers Retirement System of Texas has allocated $150 million to principally invest in energy and power assets.

Pension funds are taking a more active, direct role in making investments. **CalPERS** has made the most direct investments to-date. It's taken stakes in the Neptune transmission line as well as **Northern Star Generation** and Astoria II alongside **Harbert Management Corp**. (PFR, 12/14/11). The **3M Employee Retirement Income Plan** is the counterparty on hedges for **Panda Power Funds**' Sherman and Temple 1 combined cycle projects in Texas (PFR, 2/13/13).

The interest in direct investments is fueled by a growing familiarity with the asset class, as well as the desire to side step some of the management fees that pension funds pay to private equity shops, say bankers. The group of pension funds that make direct investments in power and energy is set to grow—a public pension fund in Ohio is reportedly mulling direct stakes, too.

A spokesperson for Texas Teachers did not immediately respond to an inquiry about the fund's timeline or strategy. A Tudor Pickering & Holt spokeswoman was not immediately available. ■

● ALTERNATING CURRENT

'Hourglass' Power Wins Copenhagen Gen Contest

AC

In the end, the beauty of renewables won out over novelty. Argentinian designer **Santiago Muros Cortés** won **The Land Art Generator Initiative**'s public art installation competition with his 'Solar Hourglass' concept over a proposal to float the equivalent of a giant solar duck in the Copenhagen harbor.

Courtesy/LAGI

Cortes' concept provides a "breathtaking setting for inspiration and relaxation" and generates 7,500 MWh, according to the Pittsburgh-based nonprofit. The installation in Copenhagen suspends two horizontally curved plates—shaped like an hourglass—that people can stand between. Sun-tracking mirrors, or heliostats, on the upper plate reflect a light beam down the center to heat harbor water to fuel a steam-fueled turbine.

The cost of the project hasn't been disclosed but a svelte hourglass could be more attractive than an 'energy duck' (PFR, 8/22). ■

PFR #PowerTweets

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Opinion not likely until 2016...at best | Discovery Order Issued in SCTY 1603 Grant Litigation http://www.akingump.com/en/experience/practices/global-project-finance/tax-equity-telegraph/discovery-order-issued-in-solarcity-cash-grant-litigation.html ...

@InvescoUS
Portfolio Manager Darin Turner: #MLPs are front and center as US undergoes #energy renaissance. http://inves.co/idi1017a

@Clint_Wilder
When you need a trillion $ to solve a global problem, you had better understand the needs of the banking sector -- @JigarShahDC

@standardpoors
Lessons learned from 20 years of rating global project finance debt. Read S&P's report here: http://bit.ly/1wkM4QK #infrafinance

@marc_solomon
@EliasHinckley @hollyfletcher FWIW all the solar tax equity investors I know shifted to 2015 6 to 8 weeks ago.

@IllinoisWind
@GeronimoEnergy inks PPA with federal gov't for 224 MW Walnut Ridge #wind farm in Bureau Co, #Illinois! http://www.nawindpower.com/e107_plugins/content/content.php?content.13554 ...

@oliviafeld
There are only 15 legislative days for the #PTC to be extended - Katie Cullen from SC Partners #awea #windenergy

@ErnestMoniz
I toured the Ormat #geothermal facility near Reno, NV. Learn about this growing industry with an interactive map: http://go.usa.gov/GDme

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