


 Featured Deals

Our featured DealFlow opportunity this Winter is from the Connecticut Green Bank. The Green Bank has put out a Request for Proposals for financing options to monetize residential Renewable Energy Credits generated under the Green Bank's Solar Home Renewable Energy Credit program. The Green Bank aggregates RECs and sells them to the state's two investor-owned utilities, Eversource and United Illuminating.

Under Section V of the RFP, the Green Bank is requesting financing options that include production insurance covering 95% of the P50 production level. kWh Analytics, through our wholly owned insurance broker, can place this insurance with investment-grade insurers, and has found that lenders will generally offer debt service coverage ratios of 1.10x of P50 when the policy is in place. For lenders interested in learning more about the opportunity, please contact us at dealflow@kwhanalytics.com or find the full RFP at the Connecticut Green Bank [website](#).

The entire portfolio may generate up to \$360mm in revenue over the next 15 years, although the initial tranches are smaller. Responses to the RFP are due by February 2, 2018.

 Loan Terms

Loan terms are continuing to get more aggressive as lenders are facing steeper competition in the market, particularly in the utility-scale segment. For term loan facilities, term debt for solar facilities is being offered in the range of LIBOR + 137.5 to LIBOR + 162.5. These lower rates are offered for 'clean' deals with an established sponsor, straight forward PPA provisions, and a larger system size. Specialty financing can still command a higher cost of capital, with some banks at LIBOR + 350 for deals that have longer tenors or other complexity.

Additionally, when term debt facilities are coupled with our Revenue Put, sponsors have seen an uplift in debt sizing due to reduced coverage ratios. Term sheets issued with the Revenue Put have lowered coverage ratios to 1.10x or 1.15x DSCR, a reduction from the average of 1.3x to 1.4x DSCR without. This greatly improves the economics for the transaction.

For construction loan facilities, which are used as a bridge to tax equity take-out and a term loan facility, facilities are coming in the range of LIBOR + 100 to LIBOR + 125. Shorter tenor loans are able to command lower interest rates.

In our ongoing survey of the market for solar debt, kWh Analytics collected key deal terms for U.S. solar transactions. These are largely loan facilities provided for projects and/or portfolios. These statistics are derived from a survey of a broad swath of the financing market, as well as public statements made by leading lenders.

About: kWh Analytics is the market leader in solar risk management. Founded in 2012, kWh Analytics has built the industry's largest repository of solar asset performance data, with over 130,000 operating systems, representing between 10-20% of the U.S. market. Customers such as Google (the world's largest corporate investor in renewable energy) and PNC Bank (America's 5th largest bank) rely on software and insurance solutions from kWh Analytics to enhance their investment returns.

Leading Insights on Solar Assets

Winter 2018

Asset Transactions

Date	Seller	Buyer	Size	Notes
8/31/17	Greenskies Renewable Energy LLC	Clean Focus Yield Ltd.	225MW	The assets were purchased by Clean Focus Yield and the development pipeline by another sub
9/12/17	Solar Frontier Americas Development	Capital Dynamics	28MW	The sale of two projects by a subsidiary of Solar Frontier at NTP
9/13/17	Mosaic	Goldman Sachs	\$300mm	Goldman has committed to purchasing \$300mm in solar loans over time
9/14/17	Sun Financial (Kenyon Energy affiliate)	Tortoise Energy Infrastructure Fund	33MW	A C&I portfolio based in New York was bought by Tortoise (NYSE: TYG), an owner of principally MLPs in the energy sector
9/25/17	Canadian Solar	Falck Renewables	97MW	Italian buyer valued the project at \$43mm. The North Carolina project has a PPA with Duke Energy and is being financed by US Bancorp and Prudential Capital Group. Project operational Sept 2017.
9/27/17	MAP Energy Solutions	True Green Capital Fund III, L.P.	37MW	Portfolio of ground-mount and carport across commuter rail parking lots. Systems leased to Mass. Bay Transit Authority and electricity sold to towns/univs under Net Metering Agreements.
9/28/17	Solar Liberty Energy Systems Inc.	PSEG Solar Source	10.6MW	20 year PPA with Long Island Power Authority, the 10.6MW-DC PSEG West Babylon Solar Center was purchased for \$20-25mm. Operational in Oct 2017.
10/3/17	groSolar	CMS Energy	24MW	CMS Energy is purchasing Delta Solar from groSolar, a subsidiary of EDF. The Michigan project is selling power to Lansing Board of Water & Light and is expected to come online in 2018.
10/6/17	Cypress Creek Renewables	New Energy Solar	130MW	Australian firm agrees to invest \$108mm into portfolio of 14 utility-scale plants in N. Carolina and Oregon, developed and built by Cypress. Expected online 2018.
10/10/17	Hamilton Energy Resource Opportunities LLC	RAI Energy International, Inc.	70MW	RAI acquired an ownership interest in the solar farm, which is based in Florida and expected online in 2019.
10/12/17	Torch Clean Energy	D.E. Shaw Renewable Investments	46MW	Gray Hawk solar project in Arizona expected to go online 2Q18. Santander and Siemens Financial Services provided construction financing and Citi provided a commitment for tax-equity financing.
10/16/17	TerraForm Power	Brookfield Renewable Partners L.P.	\$656mm	Brookfield and its institutional partners closed on 51% of TERP. Brookfield owns 16% and will manage the company, which will remain traded on NASDAQ. TERP contains 2,600 of wind and solar assets.
10/24/17	Recurrent Energy	Shenzhen Energy	\$232mm	First acquisition in the US market, The projects are located in the California areas of Rosamond, Tranquility, and Lemoore, and have all signed long-term contracts to supply power to local buyers.
10/26/17	Clean Energy Collective	Nautilus Solar Energy, LLC	5.4MW	A MA portfolio of community solar projects. It will be owned by an affiliate of the Virgo Investment Group, which is also a minority shareholder of Nautilus.
10/26/17	NextEra Energy Resources, LLC	NextEra Energy Partners	550MW	NEP acquired a 25.9% interest in Desert Sunlight 250 and Desert Sunlight 300, which are solar energy generating facilities in Riverside County, California, with generating capacities of approximately 250 MW and 300 MW, respectively.
10/31/17	LDK Solar USA, Inc.	Greenbacker Renewable Energy Company LLC	\$7.7mm	The Golden Horizons Portfolio consists of two projects totaling 7.7MW selling power to SCE. The projects were placed in service in 2011.
11/3/17	NRG Energy	NRG Yield	\$71mm	The portfolio was comprised mostly of assets from NRG's Solar Power Partners fund.
11/7/17	DE Shaw	Goldman Sachs Group, Inc.	40MW	Sale of Cuyama Valley project (under construction)
11/15/17	sPower	JPM Capital Corp	20MW	Sold passive equity interest in Bayshore Solar Project B in Los Angeles County

Leading Insights on Solar Assets

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Asset Transactions (Continued)

Date	Seller	Buyer	Size	Notes
	sPower	Arranged by Citi	\$420m	Not public, but here's what we hear: Private placement of \$420m senior secured bond. 19.1yr final maturity and 10.6 year average life. Secured by 39 solar + 2 wind assets. Citi acted as placement agent. The deal was rated NAIC 2, akin to BBB.
11/21/17	Solar Frontier Americas Development	X-ELIO Energy	66MW	Solar Frontier sold 100% membership interest in the 66MW-dc Midway Solar Farm I to a division of KKR Global Infrastructure. The project was financed by U.S. Bank, Santander, and Prudential.
11/21/17	NextEra Energy Resources, LLC	NextEra Energy Partners	691MW	Completed the sale of ownership interests in a 691MW portfolio of four wind and solar facilities for \$812mm
12/4/17	Recurrent Energy LLC	Falck Renewables S.p.A	\$43mm	Falck purchased the 99% interest in the 92MWp/71MWac IS-42 solar project, located in North Carolina. The purchase price was \$43mm. Earlier this year, debt and tax equity were raised for the project from Prudential Capital Group and U.S. Bancorp Community Development Corporation, respectively.
12/20/17	TransCanada Corp.	Axiom Infrastructure Canada II L.P.	\$540mm	The company sold eight facilities totaling 105MW located in Ontario. All electricity will be bought by the Office of Ontario Electricity Supply. O&M will be provided by Canadian Solar, the original developer.
12/27/17	Solar Frontier Americas Holdings LLC	Greenbacker Renewable Energy Company LLC	Undisclosed	Sold Midway III, a "to be constructed" 26 megawatt solar project located in Imperial County, California. The project has a construction and module supply agreement with Solar Frontier.
12/28/17	Terraform Global, Inc.	Brookfield Asset Management Inc.	\$1.24bn	Brookfield closed on its acquisition of Terraform Global for ~\$787 million in cash and will assume ~\$455 million in net debt, representing an enterprise value of ~\$1.24 billion.
1/15/18	Silicon Ranch Corporation	Shell	\$217mm	Shell bought a 43.83% in developer Silicon Ranch from Partners Group in a deal valued at up to \$217mm. Partners Group issues a new junior debt financing simultaneous to the transaction.

Asset Financings

Date	Developer	Financier	Size	Notes
9/6/17	Tenaska	Various	\$400mm	Refi of 150MW Tenaska Imperial Solar Energy Center West project via senior secured notes rated BBB by Kroll. Morgan Stanley, MUFJ Securities America and BNP Paribas Securities acted as co-placement agents. Bank of Tokyo-Mitsubishi UFJ and BNP Paribas are providing LCs and working capital facilities.
9/7/17	38 Degrees North	John Hancock Life Insurance Company and Tax	\$100mm	20 community solar projects in MA. Hancock invested debt and equity, while TEA placed tax equity on behalf of a Fortune 500 company
9/11/17	Boviet Solar	Key Equipment Finance	\$2.4mm	Sale leaseback for 1.75MW single-axis tracker project in Georgia built by Joule Energy
9/11/17	8minutenergy Renewables, LLC	Zions Bancorporation and U.S. Bancorp	26MW	Zions provided term debt and bridge loan, while U.S. Bank is providing tax equity, for the Redwood 4 Solar Farm in Kern County, CA.
9/25/17	Greenworks Lending	TIAA Investments	\$75mm	The first securitization of commercial PACE (C-PACE) loans. The privately placed deal was arranged by Guggenheim Securities and rated AA by Morningstar.
10/4/17	SunPower Corporation	True Green Capital Management LLC	\$140mm	3-yr arrangement to finance C&I projects with RECs or energy storage, totalling 50MW in total. Initial 5MW in MA under construction.
10/4/17	New Energy Solar	Undisclosed	\$62.5mm	Australian investment fund raised \$62.5mm from undisclosed US investors through a private placement.
10/10/17	Dividend Finance	Securitization	\$128.9mm	Credit Suisse acted as sole placement agent for Dividend Solar Loan Backed Notes, Series 2017-1. The securitization included \$115mm 4.05% Class A Notes, \$6.8mm 5.25% Class B and \$6.8mm 7% Class C Notes, rated A, BBB and BB+, respectively, by KBRA.

Asset Financings (Continued)

Date	Developer	Financier	Size	Notes
10/17/17	Undisclosed	National Trust Community Investment Corporation	\$17mm	NTCIC invested tax-equity into a portfolio of 3 community solar projects in MA. They brought in two regional banks as well.
10/18/17	Hannon Armstrong Sustainable Infrastructure Capital Inc.	Undisclosed	\$163.8mm	HASI issued green bonds against a portfolio of land leased to utility-scale solar projects totalling nearly 1,200MW. The bonds mature in 2057.
10/20/17	SunPower Corporation	Investec	\$53mm	Investec arranged the debt facility for residential solar transactions.
10/23/17	Pattern Energy Group	Public shareholders	\$215.3mm	Additional issuance of its Class A common stock, which will be used to fund general corporate purposes.
10/24/17	SunRun	Undisclosed	\$303mm	SunRun raised senior secured debt from a loan syndicate. Includes a) \$234.5 million senior secured term loan facility at L+2.75% until Oct 2021, at which point it increases to L+3%, and b) \$58.5 million subordinated term loan facility priced at 7%
10/24/17	Generate Capital Inc.	Alaska Permanent Fund Corp.	\$200mm	The capital came from the sovereign wealth fund of Alaska in the form of equity.
10/30/17	Solar Mosaic	Undisclosed	\$307.5mm	The securitization of the 2017-2 portfolio were rated 'A' to 'BB+' and backed by a portfolio of residential solar loans. Deutsche Bank, BNP Paribas, Guggenheim Securities, and DZ Financial Markets were involved in the issuance.
11/1/17	Atlantica Yield	Algonquin Power and Utilities Corp.	\$607mm	Abengoa reached an agreement to sell 25% of Atlantica Yield to Algonquin. Algonquin also received an option to acquire the remaining 16.5% stake from Abengoa.
11/3/17	Capital Dynamics	ABP	\$383mm	ABP is the pension fund for employees in the education and government sectors in the Netherlands. ABP invested more than \$380mm into three projects owned by Capital Dynamics: Moapa, Mount Signal 3, and California Flats.
11/8/17	Building Energy	Undisclosed	\$36mm	Arranged financing for 18MW landfill solar farm in Annapolis, MD from undisclosed financial services corporation.
11/8/17	Terraform Power	Royal Bank of Canada, HSBC Bank Canada, Bank of Montreal, Bank of Nova Scotia, Natixis Secu-	\$350mm	The New Term Loan will be used to repay and terminate the non-recourse portfolio term loan entered into by an indirect subsidiary of the Company in December 2015 (Midco Portfolio Term Loan) and for other general corporate purposes and working capital requirements of TERP Operating.
11/8/17	Tesla Energy	Undisclosed	\$340mm	Tesla closed on a securitization against 244MW of leases and PPAs. The A-tranche (\$265mm, 4.33%) was rated by Kroll as A- and the B-tranche (\$75mm, 7.74%) was unrated.
11/15/17	Recurrent Energy, LLC	KeyBanc Capital Markets	28MW	KeyBanc provided non-recourse debt financing, including construction financing and a letter of credit, to support the 28MW-dc / 20MW-ac Gaskell West 1 project in California.
12/4/17	Altus Power America	Undisclosed	\$150mm	Altus raised an additional \$150mm earmarked towards investments in larger commercial, community and small utility scale solar projects.
12/7/17	Connor, Clark & Lunn Infrastructure	Undisclosed	\$359mm	Unrated private placement transactions for the 50MW Windsor Solar Project and 50MW Southgate Solar Project, both in Canada. Used to refinance existing bank debt and swap facilities.
12/7/17	GCL New Energy Holdings Limited	Undisclosed	\$85mm	GCL New Energy issued a second tranche of green bonds worth RMB650mm (~\$85mm USD). The bonds are 7.5%, 3-year bonds placed in the private market.
12/7/17	TerraForm Power Operating, LLC	Undisclosed	\$1.2bn	TerraForm issued \$500mm in 4.25% senior notes due 2023, and \$700mm in 5% senior notes due in 2028. Repayment is guaranteed by TerraForm Power, LLC. The proceeds will pay off \$950mm of 5.875% senior notes due 2023.
12/29/17	EDP Renewables North America LLC	Undisclosed	\$67.6mm	EDPR closed on tax equity financing for three solar projects totalling 60MW and installed in 2017. The projects are in South Carolina.
1/12/18	Coronal Energy	U.S. Bancorp Community Development Corporation (USB CDC) and Sumitomo	\$235mm	Coronal Energy closed tax equity and debt for a 120 MW, three site portfolio in Florida built for Gulf Power. Marathon Capital served as advisor for placing the tax equity.