US Solar Flash
The YieldCo Rush

Equities

Americas
Electric Utilities

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The list of candidates continues to expand amidst growing intrigue
We count up to 13 potential YieldCos that could enter the market between 2015 and 2017, significantly expanding the pie of industry participants. These possible entrants hold assets of all generation types, not just renewables, although solar and wind make up a majority. We perceive a wider reduction in the contract quality and tenor of proposed YieldCos as subsequent entities evaluate their own YieldCo structures. We suspect many of those evaluating making such a move may well eventually sell to an existing entity rather than pursue their own listing.

US YieldCo market landscape expanding: how many more will succeed?
With the number of new entrants looking to develop and acquire solar assets in the US accelerating before the ITC steps down in 2017, we see 2016 as peak of the YieldCo market. Sunpower (SPWR) & First Solar's (FSLR) 50-50 JV, 8point3 Energy, and Canadian Solar's expected YieldCo are signals that the big players do not want to be left out of the US solar YieldCo game before '17. Canadian Solar's acquisition of Recurrent was a particularly significant indication that market dynamics are shifting, and the module manufacturers are looking to move downstream and compete with the incumbent developers, who also happen to be their main module customers. With the high number of potential new entrants in the US market, it is interesting to note the variance in business models among the candidates. Lightbeam and Enel Green Power SpA have particularly unique structures, with Lightbeam going 'sponsor-less' and taking its Devco public as a YieldCo, and Enel not planning to publicly list its YieldCo, similar to Greenbacker Renewable Energy—a NYC based non-public YieldCo. We see the non-public route as a clear indication Enel is not looking to be a growth YieldCo, and thus isn't looking to expose itself to a market that seeks significant development.

YieldCo's: Getting on the Emerging Markets train too…
Groups like Canadian Solar (CSIQ), SunEdison (SUNE), Acciona (ANA-MCE), and Gestamp will all be making strong pushes into the emerging markets following on the heels of Abengoa Yield's (ABY), and thus be subject to risk surrounding the growth of solar in India, Central America, Brazil, China, and South Africa. We see China continuing to grow at a rapid pace, with South Africa, Central America taking off as well. We suspect Indian and Brazilian EM markets will be among the most challenging to tackle, given historic development hurdles; that said, we see high demand among many of these emerging markets given traditionally expensive oil-based energy and large potential if initial roadblocks can be surpassed. As discussed in our recent re-launch on SUNE, we see value here too, but model a meaningful Yield differentiation vs. domestic entities (hence the need to pursue a separate entity).

Co's that opt out of YieldCo race could make for prime take-out targets
While 13 have publicly stated interest in launching YieldCos, we don't necessarily see all of them panning out. Along with a credible sponsor, the backlog (visibility) and portfolio in operation are key when contemplating an IPO. Even the recognizable names in the solar field, i.e. CSIQ & JSO, are waiting to build-out their respective pipelines and existing project bases before taking the vehicles public to maximize their valuations. Additionally, we predict that some small players will opt to not go forward with their YieldCos as they recognize the difficulty in competing for projects. We see the groups that are dissuaded from creating YieldCos as prime acquisition targets for larger players looking to add to their portfolios. Lastly, amidst the latest expansion, we suspect there could yet even be listed-on-list M&A in the YieldCo space as those unable to meet key credibility thresholds to warrant premium valuations could yet be acquired – and added to the backlog of more credible portfolios eventually.

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What is on Clients' Minds

Note titles below are all hyperlinks to our full notes.

In an effort to keep all 'in the loop', we highlight recent most-read notes below.

Sector: Moving Downstream to Catch Bigger Fish

SUNE: SUNE Side-Up

TERP: Sun Not Ready to Set

Sector: The State of the Jersey Solar Market

Sector: The Outlook for China's Solar PV Market

Sector: What to Watch on the Solar Landscape

Sector: Solar Wars: The Impact of Panel Import Duties

Sector: ERCOT: A Solar Eclipse?

Sector: Distilling The Web's Wisdom on Solar

Sector: Merchant Meets YieldCo: The SREC Debate

Potential YieldCo Entrants

We Highlight 13 Potential Additions to the YieldCo Marketplace

1) 8point3 Energy Partners
2) LightBeam
3) Canadian Solar (OECD)
4) Canadian Solar (China)
5) Jinko
6) SUNE EM YieldCo
7) Sempra
8) Acciona
9) Gestamp
10) RET
11) Enel / GE
12) UIL-Iberdrola
13) S-Power

Potential YieldCo's

We include a more detailed overview of known or potential YieldCo candidates

8point3 Energy Partners

Timing of IPO:	~2015, pending S1
S1 Filed?	Filed public **S1** on 3/10/2015, up to $50Mn
Sponsor Entity:	First Solar (FSLR) & SunPower (SPWR) 50-50 JV
Sponsor Market Cap:	FSLR: $6,361 Mn SPWR: $4,592 Mn
IDRs Expected?	Yes
Potential Portfolio Size:	Initial portfolio of 432 MW, 87% of the projects are utility-scale (4 operational projects and 2 in late-stage construction) and 13% residential (5,900 resi rooftop installations) ROFO for interests in 1.3 GW of capacity
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	US (mostly CA) for initial portfolio US, Chile, Japan for ROFO capacity

Sources: Company Filings, and UBS

Lightbeam Electric Company

Timing of IPO:	~2015, pending S1
S1 Filed?	Filed public **S1** on 4/14/2015, up to $100Mn. Confidential S1 filed 1/14/2015
Sponsor Entity:	n/a
Sponsor Market Cap:	n/a
IDRs Expected?	No
Potential Portfolio Size:	Initial portfolio will be ~239 MW at IPO consisting of projects that are operational, under construction or in advanced development. Purchase options for 104 additional MW
Potential Portfolio Asset Type:	Solar, wind, hydro, natural gas, biomass
Potential Portfolio Geography:	US & UK

Sources: Company Filings, and UBS

Canadian Solar YieldCo (OECD)

Timing of IPO:	Mgmt. expects to file S1 by the end of 2015, or early 2016
S1 Filed?	No
Sponsor Entity:	Canadian Solar
Sponsor Market Cap:	$1,968 Mn
IDRs Expected?	Yes
Potential Portfolio Size:	US: 1 GW in late-stage projects, option for 3 GW in early-stage— from Recurrent acq. Japan: 606 MW various-stage pipeline Canada: 275 MW late-stage pipeline
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	OECD Countries: majority of projects expected to be in Europe, North America, & Japan

Sources: Company Filings, and UBS

Canadian Solar YieldCo (China)

Timing of IPO:	Not expected to be filed as soon as the OECD co., no timeline currently.
S1 Filed?	No , likely a Hong Kong or A-Share Listing
Sponsor Entity:	Canadian Solar
Sponsor Market Cap:	$1,968 Mn
IDRs Expected?	Yes
Potential Portfolio Size:	340 MW in late-stage pipeline in China
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	China, potentially some emerging markets (India, Brazil)

Sources: Company Filings, and UBS

JinkoSolar Power

Timing of IPO:	We expect S1 to be filed in 2015. Closed $255Mn in funding from China Development Bank International (CBDI), New Horizon Capital, and the Macquarie Greater China Infrastructure Fund (MGCIF) in July 2014. The 3 investors will hold a 45% stake in the YieldCo. JinkoSolar Power signed a strategic agreement with China Development Bank Leasing Limited (CDBL) in March 2015 for financing support for no less than 200 MW projects/year up to an aggregate amount of no less than 1000 MW of projects over the next 5 yrs.
S1 Filed?	No
Sponsor Entity:	JinkoSolar
Sponsor Market Cap:	$882Mn
IDRs Expected?	Yes
Potential Portfolio Size:	1 GW over next 5 years based on CDBL partnership Additional ~600 MW in projects based on $255Mn funding w/ 3 partners
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	China

Sources: Company Filings, and UBS

SUNE Emerging Markets YieldCo

Timing of IPO:	Expected IPO 2Q15-3Q15
S1 Filed?	Confidential S1 filed 9/29/2014 – Expect Public S1 in May with IPO in June-July
Sponsor Entity:	SunEdison (SUNE)
Sponsor Market Cap:	$7,317Mn
IDRs Expected?	Yes
Potential Portfolio Size:	365-435 MW under development with $46 Mn in existing CAFD China: 1GW JV with JIC, a subsidiary of GIC Brazil: 1GW JV with Renova Philippines: 300MW JV with Aboitiz India: 250MW Omnigrid Micropower Co, 5GW in Karnataka, 5GW in Rajasthan
Potential Portfolio Asset Type:	Solar, wind
Potential Portfolio Geography:	China, India, Brazil, South Africa, Central America, other LatAm outside of Chile

Sources: Company Filings, and UBS

Sempra U.S. Gas & Power

Timing of IPO:	Expected to announce decision to create a MLP or YieldCo in 2015
S1 Filed?	No
Sponsor Entity:	Sempra
Sponsor Market Cap:	$26,563Mn
IDRs Expected?	Yes
Potential Portfolio Size:	Cameron LNG project- in construction—to be completed by 2019, will export 12Mn tons of LNG/yr Port Arthur LNG project- in development, will be capable of producing 10Mn tons of LNG/yr. If built, could be included in the YieldCo Could drop down other LNG, power, & renewable assets but nothing has been announced
Potential Portfolio Asset Type:	Natural Gas, power, renewables
Potential Portfolio Geography:	US

Sources: Company Filings, and UBS

Acciona Energía Internacional (AEI)

Timing of IPO:	S1 expected to be submitted in 2015
S1 Filed?	No
Sponsor Entity:	**Acciona Energía** (parent of AEI). KKR acquired 1/3 share in YieldCo for $558.1Mn
Sponsor Market Cap:	$4,088Mn
IDRs Expected?	Yes
Potential Portfolio Size:	Currently 2.3 GW in operation
Potential Portfolio Asset Type:	Wind, solar thermal, solar PV
Potential Portfolio Geography:	Spain, US, Mexico, Australia, Italy, Portugal, South Africa

Sources: Company Filings, and UBS

Gestamp Renewables

Timing of IPO:	Gestamp is considering a YieldCo, no timeline for launch currently
S1 Filed?	No
Sponsor Entity:	Gestamp
Sponsor Market Cap:	Private, (Backed by ArcelorMittal SA: Market Cap $14,714Mn)
IDRs Expected?	Yes
Potential Portfolio Size:	Currently have operating capacity of: 400 MW solar, 500 MW wind, and 115 MW of biomass
Potential Portfolio Asset Type:	Wind, solar, biomass
Potential Portfolio Geography:	US, Europe, LatAm, South Africa, India

Sources: Company Filings, and UBS

Renewable Energy Trust (RET)

Timing of IPO:	No timeline, still evaluating
S1 Filed?	No; expect structure to take form of REIT, given request for a PLR (Private Letter Ruling) from IRS.
Sponsor Entity:	Renewable Energy Trust (RET)
Sponsor Market Cap:	Private
IDRs Expected?	Yes
Potential Portfolio Size:	Have ~100 MW in operation currently, anticipating to have ~400 MW by IPO. Mostly financial acquisition vehicle.
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	US

Sources: Company Filings, and UBS

Enel Green Power SpA

Timing of IPO:	~2Q15
S1 Filed?	Not publicly listed, YieldCo will not be publicly listed as well
Sponsor Entity:	Enel, GE (Enel sold 49% stake in YieldCo to GE)
Sponsor Market Cap:	Enel Green Power SpA: $8,920Mn GE: $267,997Mn
IDRs Expected?	Yes
Potential Portfolio Size:	760 MW in operation, 200 MW in construction
Potential Portfolio Asset Type:	Solar, wind, hydro, geothermal
Potential Portfolio Geography:	US, Canada

Sources: Company Filings, and UBS Estimates

Iberdrola USA (UIL-Iberdrola)

Timing of IPO:	No timing in sight, UIL management is debating the formation of a YieldCo, and said it "could be a good strategy" as part of latest merger of two companies
S1 Filed?	No
Sponsor Entity:	Iberdrola SA (IBE.MCE) UIL (UIL.N)
Sponsor Market Cap:	Iberdrola SA (IBE.MCE): $38,382Mn UIL (UIL): 2,867Mn
IDRs Expected?	Yes
Potential Portfolio Size:	6.5 GW portfolio, ~6 GW pipeline
Potential Portfolio Asset Type:	Wind (5.8 GW in portfolio), solar, hydro
Potential Portfolio Geography:	US

Sources: Company Filings, and UBS

S-Power

Timing of IPO:	Management is currently considering the formation of a YieldCo
S1 Filed?	No
Sponsor Entity:	Fir Tree Partners
Sponsor Market Cap:	Private
IDRs Expected?	Yes
Potential Portfolio Size:	~1GW between construction and pipeline
Potential Portfolio Asset Type:	Solar
Potential Portfolio Geography:	US

Sources: Company Filings, and UBS

The Week in Renewables

Our latest thoughts on various issues in the sector.

YieldCo: US vs. Canadian Valuation Arbitrage?

We continue to see a strong and under-stated readthrough to the US YieldCo sector from the extensive Canadian experience with YieldCos. We continue to use low or relatively limited growth seen in the Canadian sector as a baseline for valuation of the higher growth US peers.

The wider question for Canadian Yield vehicles remains whether their growth will be further impeded by meaningfully more aggressive and cost of capital advantaged US peers seeking voracious growth.

We emphasize many of these vehicles (not including Boralex) could yet be acquisition targets for US YieldCos. We suspect much of the listed market cap could eventually find itself in the US. We look towards the like of both TransAlta and even Capital Power as potential interested parties, with large-cap IPPs in the US willing to breakup the Yield and merchant power exposures – akin to the Edision Mission acquisition by NYLD.

Lastly, as a final 'read-through', entities like Algonquin, are contemplating dual-listings in the US in an effort to improve their domestic ownership amidst a rapid expansion in the US for both utility and contracted power assets.

Northeast Renewable Development: More Exciting?

We flag the Northeast markets for renewables remain exceptionally interesting, as this is by our calculation the market with the greatest incremental delta to achieve their respective state RPS targets. We flag two developments of late worth watching:

- **New York offers long-term RECs:** We flag NYSERDA, the principal contracting entity in the state for renewables has begun offering 20-year offtakes for Renewable Energy Credits (RECs). This is important for the financial viability of these projects. That said, this still does *not* address the underlying energy market volatility – and the lack of sufficiently deeper forward energy markets to hedge. Altogether, we see some opening up of modest opportunities for incremental utility-scale wind.

- **New England: off to the races on the latest 800 MW RFP.** We flag a multi-state group is out with a wide-ranging RFP for incremental renewables. We understand this will result in a further offtake arrangement for the controversial Northern Pass Transmission (NPT) project from ES. We suspect much of this will ultimately be addressed with wind in the Northeast.

Boralex: The Canadian YieldCo Read

Boralex (Not Rated) is a Canadian based renewable project developer/holdco that trades on the Toronto Stock Exchange (BLX-TSE).

Have a portfolio of close to 1 GW in operation currently of mainly wind projects

Portfolio & Geographic Footprint

- Have a portfolio of close to 1 GW in operation currently.
- Current portfolio breakdown by location:
  - 51% in France
  - 41% in Canada
  - 8% in US
- Current portfolio breakdown by asset type:
  - 78% wind
  - 16% hydro
  - 6% solar
- Projects are largely located in Canada and France, with smaller projects in Denmark and the US.
- Recently acquired 200 MW from NL Green in France, have rights to a 300 MW pipeline with projects 3-5 yrs away from construction.
- Boarlex, combined with its subsidiaries is the 3rd largest holder of generation assets in France.

They are not looking to sell in the short-term, more focused on expansion and creating partnerships of their own

Expansion Targets

- Primary focus is France, followed by Canada (Quebec). Management is not particularly confident on substantial incremental demand in Canada.
- Most expansion will happen in France.
- Expect to develop 144 MW by 2017
- There is a 25% RPS in France for renewable generation, to be met by 2030.
- Want to stay small…they see value for small development teams to work with Boralex, either through partnerships or Boralex acquiring.
- They are not looking to sell in the short-term, more focused on expansion and creating partnerships of their own.
- We sense some frustration in competing against the likes of Pattern Energy (PEGI) among other larger YieldCos in markets like Ontario.
  - This has driven them to France, where there is less competition and smaller scale projects (30 MW average for utility-scale vs hundreds of MW projects in the US)—say they cannot compete with the large players/YieldCos in the US & Canada.

- We think they could be a potential acquisition candidate for a YieldCo or HoldCo a few years down the road, as they build up their pipeline but are constrained from growing further without a capital injection.

Canadian Solar Mgmt. Meeting

YieldCo Update

Mgmt. expects the S1 for the OECD YieldCo will be filed at the end of this year or early next year at the latest

- Mgmt. expects the S1 for the OECD YieldCo will be filed at the end of this year or early next year at the latest.
- Mgmt. notes that they will create 2 YieldCos, 1 for OECD countries and 1 for China and other emerging markets.
- Recurrent acquisition was a big push for the YieldCo—acquired 1 GW in late-stage pipeline and an option to acquire 3 GW in early-stage pipeline. (In the US)
- Pipeline in Japan of 600 MW, see Japan making up for slow year in the US in 2017.
- Some of the 606 MW in Japan could be challenged.

Target markets for development (OECD)

The Recurrent acquisition gives them enough projects in the pipeline to be able to launch the OECD YieldCo by the end of the year

- OECD Co. will focus on the US, Japan, UK, Chile, Canada. Down the line they expect the major European markets will come back as well.
- The Recurrent acquisition gives them enough projects in the pipeline to be able to launch the OECD YieldCo by the end of the year.

Target markets for development (China/ EM)

- Focus market will be China, with potential to develop projects in emerging markets. See Central America, the Middle East, and India as target EM markets.
- Mgmt. notes that the market in India is difficult to navigate, as land ownership is a maze and it's difficult to prove ownership. Additionally, the cost to finance in India is a major bottleneck.
    - They do note, however, that Modi's 100 GW target is doable given the economics surrounding solar in the country and the fact that they import all conventional generation resources currently.
- For the China YieldCo—mgmt. claims that returns on China-based projects are very similar to US returns, but US investors undervalue Chinese projects.
- "China is a 300 GW solar market in next 30 years".

Module cost drop

In their most recent report, CSIQ noted that their costs have declined to $0.45/W for modules as a result of the drop in poly pricing

- In their most recent report, CSIQ noted that their costs have declined to $0.45/W for modules as a result of the drop in poly pricing.
- If they expand capacity, they will look in Indonesia, Malaysia, and potentially India for manufacturing sites.

Residual value

- CSIQ claims that plants can last much longer than 25-30 years if they are properly maintained and refurbished.
- They project that by the time modules need to be replaced, in 25 years, modules will cost $0.45/W, meaning that the project owner will be able to retain much more value in the out years.
- For further discussion on retained value please reference: **Moving Downstream to Catch Bigger Fish**

Trina Mgmt. Meeting

#1 Module Supplier by Volume in 2014, is that a curse?

Trina states that they have one of the lowest production costs, currently $0.46/W, allowing them to keep margins in the mid-teens

- While the bias in the sector is that the top module supplier undercuts competitors and has the slimmest margins, Trina states that they never pursued being #1, and claim that they sell at a higher price than their competitors.
- Trina states that they have one of the lowest production costs, currently **$0.46/W**, allowing them to keep margins in the mid-teens.
- Mgmt. sees their module cost dropping **to $0.42/W by the end of the year**, and their goal is 5-6% cost reduction/year.
- Increased efficiency plays a big role in cost reduction, and will become increasingly important as the DG market continues to grow.
- Investment in R&D is crucial for Trina, they believe their R&D facility in China sets them apart and allows them to make significant strides in the efficiency race.
- Trina believes that the solar industry doesn't want to be reliant on government incentives, and further price reductions will allow the industry to not be hamstrung by legislation.

Manufacturing capacity

Trina has outlined plans to expand module capacity from 4 to 5 GW

- Trina is running at full capacity (4 GW), and have been since 2013.
- They have plans to expand capacity to 5 GW, and state that this will further drive costs down as a result of increased scale.

Mgmt's views on upstream integration into poly manufacturing

- Trina's independent board vetoed the move to scale upstream into poly and wafer manufacturing, in a DECISION that mgmt. believes saved the fate of the company, and opened up significant cash that they are now investing into R&D & project development.
- Mgmt. states that Suntech and Yingli (YGE) have been hamstrung by debt since they scaled into poly and wafer production.
  - This results from the drop in poly's spot price from ~$200/sh in 2008 to low $20's/sh today.

Moving downstream to project development

Mgmt. claims they are looking to become a premier developer and operator, but still want midstream business to be main component

- Mgmt. claims they are looking to become a premier developer and operator, but still want midstream business to be main component.
- They raised $400Mn to start developing downstream pipeline, have connected 340 MW to date, and expect to develop 725 MW in 2015.
  - 80% of the projects will be in China—will hold these.
  - Remaining projects will be in the UK and Japan—will sell these.

- They claim their debt/assets ratio of 69% is low in the sector and allows them to easily acquire financing which will be key to the scaling of the development business.
- We see the development market in China offering solid opportunity, and believe there will be several YieldCos based in China entering in the next few years.

NEE's NM Project Benefits from NM PTC

We wrote last week about NextEra's potentially new record low for utility-scale solar solar PPA contracts in New Mexico. We caution that recent low PPA prices overlook the meaningful state PTC benefits afforded in New Mexico. This beats the previous low price seen last year at ~$45/MWh last year by Recurrent Energy in Texas.

The PTC is available to renewable generators that first produced electricity on or before January 1, 2018; the PTC for a solar project (limited to the first 200,000 MWh produced) is as in the table below. We emphasize that investors (including ourselves) frequently under-estimate the important of state specific credits.

Figure 1: New Mexico PTC for solar projects ($ per kWh)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
$0.015	$0.02	$0.03	$0.03	$0.04	$0.04	$0.04	$0.03	$0.03	$0.02

Source: www.nmonesource.com

Our calculations show that everything else held constant, the additional cash flow coming from the PTC can cause project levered IRRs to increase from ~11% to 17% with PTC. We show the summary of our calculations in the table below:

Figure 2: Project cash flows and return profile including NM PTC – Quite attractive still at $42/MWh!

Inputs					
General		Operational		Financing	
Mega Watts (AC)	140	Rev / kWh	$0.042	Debt	68%
Annual GWH Produced	380	OpEx / Year	$ 2 MM	Total $	$ 215 MM
Effective Tax	35%	OpEx / kWh	$0.005	Rate	6%
Investor IRR	17.05%	Cap Factor	31%	Tenor	25
System Price/W	$1.75	Degradation factor	1%	Equity	32%
Cash Grant	$95.55			Total $	$ 103 MM
Total Sale Price	$ 319 MM	Levered IRR with PTC	17.03%	Debt Service Coverage Ratio Target	1.30
		Levered IRR without PTC	*11%*		

Op Model							
MM $ (except where noted otherwise)							
Year	Sum	2015	2016	2017	2018	2019	2020
$ / kWh	0.04	0.00	0.04	0.04	0.04	0.04	0.04
GWH	9,483	0.00	190.09	380.18	378.28	376.39	374.51
Revenue (operational)	398	0.00	7.98	15.97	15.89	15.81	15.73
Operational Expense	50	0.00	0.95	1.90	1.90	1.90	1.90
PTC ($ per kWh)			$0.015	$0.02	$0.03	$0.03	$0.04
PTC			2.851	7.604	9.457	11.292	13.108
EBITDA	448	0.00	9.88	21.67	23.44	25.20	26.94
Depreciation	(271)	0.00	(27.07)	(27.07)	(86.63)	(51.98)	(31.19)
EBIT	177	0.00	(17.19)	(5.40)	(63.19)	(26.78)	(4.25)
Interest	(155)	(12.91)	(11.29)	(10.97)	(10.54)	(10.01)	(9.37)
EBT	10	(12.91)	(28.48)	(16.37)	(73.73)	(36.79)	(13.62)
Taxes Reduction (Expense)	(8)	4.52	9.97	5.73	25.81	12.88	4.77
Cash Grant	96	47.78	47.78	0.00	0.00	0.00	0.00
Debt Service	(354)	39.87	16.67	18.03	19.38	20.72	22.04
Equity Investment	(103)	(103)	0.00	0.00	0.00	0.00	0.00
Pre Tax Cash Flow	46	(95.48)	40.99	3.64	4.06	4.48	4.89
After Tax Cash Flow	38	(90.96)	50.96	9.37	29.87	17.36	9.66
Unlevered Tax Cash Flow		(392.09)	78.92	38.37	59.79	48.09	41.07
Unlevered After-Tax Cash Flow	6%						
Levered IRR after tax	17%						

Source: UBS estimates

The Residential Solar & Retail Energy Nexus

We recently met with a solar developer platform leveraging the network of a premier existing retail energy marketer. We include some highlights from this meeting below. We continue to emphasize the opportunity we perceive in this solar niche.

Expects to install 3X more in 2015 than installed in 2014

- Expect 3X growth in 2015 over the 2014 total, primarily leveraging opportunities to upsell both existing customers as well as new potential customers acquired through conventional retail energy marketing channels.
- Customer acquisition costs are key to competing in residential solar – and ability to offer a competitive product is linked to discovering and closing customers in an efficient manner.
- Believes that solar added stickiness to retail sales and would reduce churn, as able to continue to co-market retail energy sales alongside solar products. Goes from ~30% annualized churn to substantially less (still too early to tell a real metric here).
- Mgmt. engages in digital and direct consumer sales tactics, but doesn't venture into door-to-door strategies 'a la Vivint Solar (VSLR).
    - SolarCity (SCTY) and NRG Home Solar are seen by mgmt. as the main competitors.

Solar market outlook

- Mgmt. sees the residential inverter market becoming more competitive.
- They believe that the cost of capital is coming down and will continue to do so in residential solar.
- Mgmt. believes 2017 will be the shakeout year and there will be a dynamic change in the market: small players leaving the industry, PPAs rising to compensate for the ITC reduction, and soft cost decreases.

Week That Was: Best and Worst Performers

Weekly Solar Company and YieldCo Performance

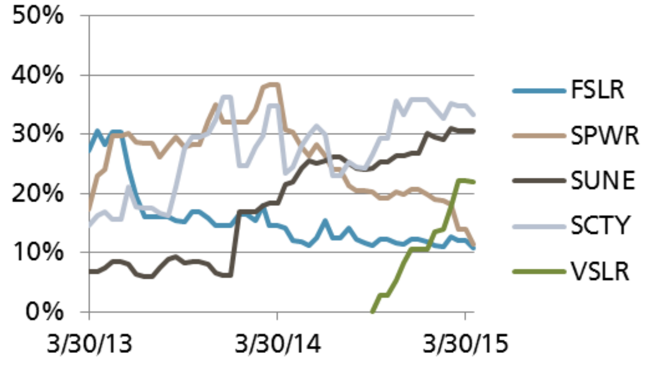
BENCHMARKS	Ticker	5 Day Return	YTD Return	RSI (14Day)	New High/Low?
S&P500	SPY	0.4%	2.7%	67.9	N/A
Guggenheim Solar ETF	TAN	1.5%	46.5%	77.3	N/A

YIELDCOs and MLPs	Ticker	5 Day Return	YTD Return	RSI (14Day)	New High/Low?
Abengoa Yield PLC	ABY	-1.6%	27.6%	59.2	N/A
Dominion Midstream Partners	DM	1.1%	5.4%	68.7	N/A
Hannon Armstrong Sustainable Infrast.	HASI	0.3%	33.7%	68.6	N/A
Pattern Energy Group A	PEGI	2.3%	24.3%	63.7	N/A
Tranaslta Renewables	RNW-CA	1.8%	10.6%	58.5	N/A
TerraForm Power	TERP	0.0%	36.2%	79.7	N/A
NextEra Energy Partners, LP	NEP	-2.4%	24.4%	32.1	N/A
NRG Yield Inc.	NYLD	-1.9%	8.5%	44.8	N/A
Average		-0.1%	21.3%	59.4	

YIELDCOs and MLPs	Ticker	5 Day Return	YTD Return	RSI (14Day)	New High/Low?
First Solar Inc	FSLR	3.0%	45.2%	68.6	N/A
SunPower Corp	SPWR	1.7%	34.9%	86.0	N/A
SunEdison Inc	SUNE	1.6%	41.0%	78.6	N/A
SolarCity Corp	SCTY	5.3%	12.2%	80.4	N/A
Vivint Solar Inc	VSLR	4.6%	59.4%	78.8	N/A

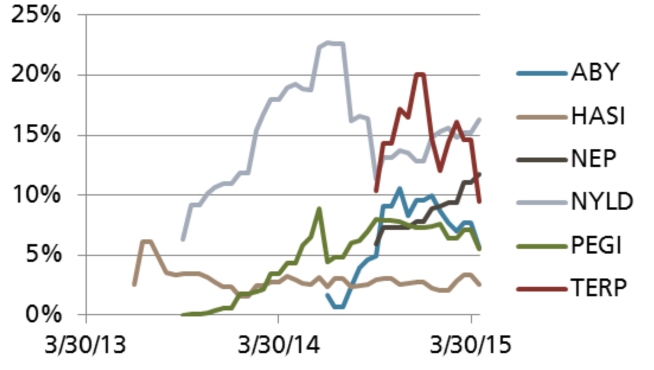
Source: FactSet

Solar Company Short Interest



Source: FactSet

YieldCo Short Interest



Source: FactSet

Solar Company and YieldCo Comps

		Rating	Market Cap. ($ in millions)	Price 4/23/2015	Price Target	P/E multiple 2013E	2014E	2015E	2016E	2017E	2018E	Earnings Per Share 2014E	2015E	2016E	2017E	2018E
SOLARCOs																
First Solar Inc	FSLR	Neutral	6,494	64.75	60.00	14.9	24.9	13.0	14.1	15.8	17.2	2.60	5.00	4.60	4.10	3.76
SunPower Corp	SPWR	Neutral	4,644	34.85	31.00	20.9	27.1	26.8	18.9	15.3	16.0	1.29	1.30	1.84	2.28	2.18
SunEdison Inc.	SUNE	Buy	7,490	27.50	29.66	nm	nm	nm	nm	nm	nm	-0.95	-1.31	-1.13	-0.76	-0.29
SolarCityCorp	SCTY	Not Rated	5,799	60.02	NA	nm	nm	nm	nm	nm	nm	-3.77	-6.05	-6.81	-2.95	-2.20
Vivint Solar Inc.	VSLR	Not Rated	1,548	14.70	NA	nm	nm	nm	nm	nm	nm	-0.81	-1.89	-2.95	-2.62	-3.33
Average						17.9	26.0	19.9	16.5	15.5	16.6	*na*	*-59.1%*	*-88.8%*	*1.0%*	*2.5%*

		Rating	Market Cap. ($ in millions)	Price 4/23/2015	Price Target	Dividend Yield (%) 2013E	2014E	2015E	2016E	2017E	2018E	Dividend Growth Rate 2014E	2015E	2016E	2017E	2018E
'PRIMARY' YIELDCOs																
Abengoa Yield PLC	ABY	Not Rated	2,788	34.85	NA	na	4.77%	6.15%	7.05%	8.64%	na	na	29%	15%	22%	na
Hannon Armstrong Sustainable Inf	HASI	Not Rated	537	19.02	NA	na	5.56%	6.27%	7.36%	na	na	na	13%	17%	na	na
NextEra Energy Partners LP	NEP	Neutral	785	41.99	44.00	na	1.79%	2.67%	3.07%	3.55%	4.07%	na	49%	15%	16%	15%
NRG Yield	NYLD	Neutral	3,955	51.15	54.00	2.35%	2.82%	3.46%	4.09%	4.83%	5.69%	20%	23%	18%	18%	18%
Pattern Energy Group A	PEGI	Not Rated	2,117	30.66	NA	4.73%	4.73%	5.47%	6.03%	6.85%	7.50%	0%	16%	10%	14%	10%
TerraForm Power, Inc.	TERP	Buy	5,240	42.06	46.00	na	3.18%	3.82%	4.60%	5.52%	4.96%	na	20%	20%	20%	-10%
Tranaslta Renewables	RNW-CA	Not Rated	1,457	12.70	NA	6.27%	6.27%	6.45%	6.86%	7.09%	na	0%	3%	6%	3%	na
Average						4.4%	4.2%	4.9%	5.6%	6.1%	5.6%	6.7%	21.8%	14.6%	15.5%	8.0%

Source: FactSet and UBS

Statement of Risk

Risks for Utilities and Independent Power Producers (IPPs) primarily relate to volatile commodity prices for power, natural gas, and coal. Risks to IPPs also stem from load variability, and operational risk in running these facilities. Rising coal and, to a certain extent, uranium prices could pressure margins as the fuel hedges roll off Competitive Integrateds. Further, IPPs face declining revenues as in the money power and gas hedges roll off. Other non-regulated risks include weather and for some, foreign currency risk, which again must be diligently accounted in the company's risk management operations. Major external factors, which affect our valuation, are environmental risks. Environmental capex could escalate if stricter emission standards are implemented. We believe a nuclear accident or a change in the Nuclear Regulatory Commission/Environment Protection Agency regulations could have a negative impact on our estimates. Risks for regulated utilities include the uncertainty around the composition of state regulatory Commissions, adverse regulatory changes, unfavorable weather conditions, variance from normal population growth, and changes in customer mix. Changes in macroeconomic factors will affect customer additions/subtractions and usage patterns.

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12-Month Rating	Definition	Coverage[1]	IB Services[2]
Buy	FSR is > 6% above the MRA.	45%	37%
Neutral	FSR is between -6% and 6% of the MRA.	43%	33%
Sell	FSR is > 6% below the MRA.	12%	20%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	less than 1%	less than 1%

Source: UBS. Rating allocations are as of 31 March 2015.
1:Percentage of companies under coverage globally within the 12-month rating category. 2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
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Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
SunEdison Inc.[13, 16]	SUNE.N	Buy	N/A	US$27.50	23 Apr 2015

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

13. UBS AG, its affiliates or subsidiaries beneficially owned 1% or more of a class of this company`s common equity securities as of last month`s end (or the prior month`s end if this report is dated less than 10 days after the most recent month`s end).
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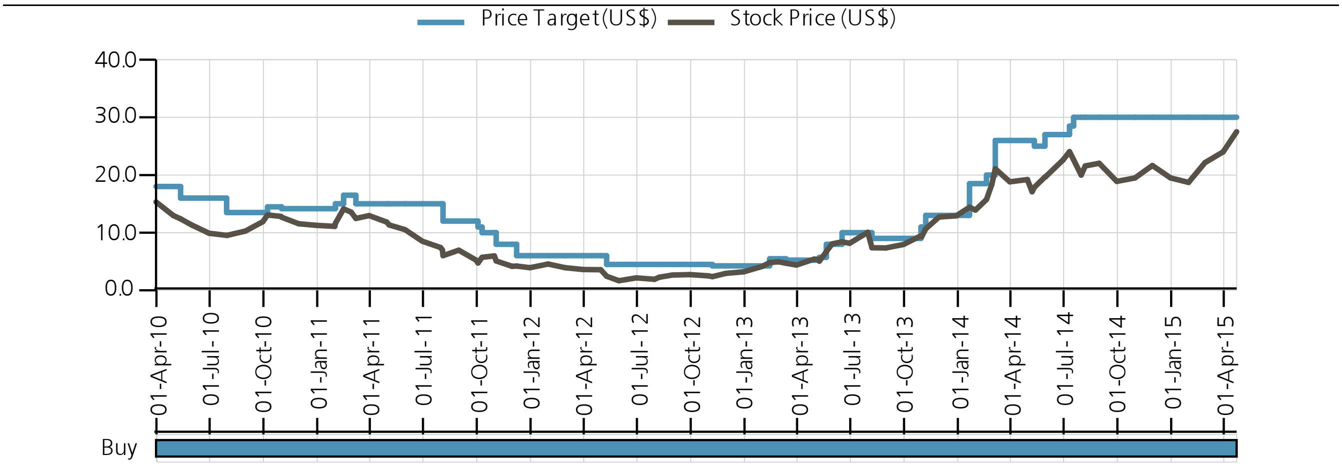
SunEdison Inc. (US$)



Source: UBS; as of 23 Apr 2015

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