

# US Solar & Alternative Energy

## Solar Valuations: Yield Rules

### Equities

Americas  
Electric Utilities

#### Yield provides improved valuation framework over development paradigm

We see an ongoing transformation in the solar industry towards ongoing ownership of assets – and away from monetizing developed projects outright- converting into a sector of renewable infrastructure companies in their own rights. Many solar companies offering lease products or developing and retaining projects are having the projects financed upfront, leasing the equipment to the host, and owning the projects and future cash flows yielded as a by-product of the energy produced. Valuing these companies has become increasingly difficult using 'retained value' and other conventional project development sales margins. Rather, we see the success of the YieldCo model as illustrative of a wider trend towards FCF of project development, emphasizing our expectation for all solar developers to leverage new metrics like Cash Available for Distribution (CAFD) and IRR return profiles to cater to a new investor class. Beyond simply providing a premium valuation, we see a focus on more conventional cash metrics as broadening out the appeal of the sector beyond dedicated investors willing to decipher the NPV lingo of retained value employed today.

#### Adoption of YieldCo model = greater cash transparency for investors

So far Sunedison (NYSE: SUNE) has launched its first YieldCo, Terraform Power (NASDAQ: TERP), and plans to bring an Emerging Markets (EM) YieldCo public in 2015. First Solar (NASDAQ: FSLR) and Sunpower (NASDAQ: SPWR), announced a YieldCo partnership (8point3 Energy), with a projected initial portfolio of 432 MW and an anticipated launch of mid-2015. Canadian Solar (NASDAQ: CSIQ) recently announced that their YieldCo could IPO as early as 4Q15. Further afield, mgmt at fast-growing SolarCity (NASDAQ: SCTY) has also been weighing the merits of developing their own YieldCo; at a min, they appear poised to adopt the new CAFD lingo.

#### Will valuations rise irrespective of YieldCo decisions? We think so.

While the trend towards YieldCo's appears comparable to the rush to push down all eligible midstream assets into MLP vehicles, we think the focus on FCF over NPV metrics creates a rising tide, lifting all solar companies clearly delineating these metrics irrespective of their decisions to pursue standalone YieldCo structures. Despite the parent sponsor advantages of disproportionate General Partner (GP) cash flows via IDRs from YieldCos, we see the fast growing sector and small size of many of the companies involved as an argument *against* their formation in the near-term. We stress the underlying re-rating in valuation appears inevitable across the sector—enabling a wider comparison across the wider energy infrastructure space, attracting a broader investor base. The underlying question is whether those that opt *not* to pursue YieldCo's or retain GPs will ultimately adopt at least nominal dividend policies to satisfy income requirements for a new investor focus. Once more, we see SUNE's statement that it intends to pursue a policy in the next 24-months as being at the forefront of the sector.

#### Return profiles remain quite attractive vs. peer sectors

We flag the shift in the solar sector towards C&I and residential opportunities as indicative of the trends towards higher margin opportunities in the space. With ~11-14% unlevered returns for the most efficient developers like SCTY, and with corresponding 11-17% CAFD yields we suspect shifting the dialogue towards these metrics could yet 'turn heads' in the income sector. That said, the more competitive utility-scale solar sector remains more in-line (or in fact a tad lower) than other comparable energy sectors, with ~7% unlevered returns the wider targeted threshold by many.

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[Links to our relevant research are below:](#)

[The Next YieldCo: Charting New Waters](#)

[Flexing YieldCo Muscles: Interactive TERP Model](#)

[The State of the Jersey Solar Market](#)

[The Golden State Solar Net Metering Debate](#)

[US Solar Flash: Pushing the Limits of Solar](#)

## Historic Approaches: Where Have we Come From?

### Retained value hasn't told the whole story

The main metric used by most analysts when valuing solar companies SCTY, SUNE, SPWR, FSLR, VSLR et al. has been retained value, where a projection of the future income that a company will receive from its customers over the ~30 year life-span of a lease/ solar system (including post-PPA life) is net of costs and discounted back. This has been used as a result of the solar lease process, with companies keeping solar projects on their books rather than selling them. Lease contracts currently make up the majority of many developers' sales, and require most companies to finance the bulk of the installation costs. Developers pay back financiers in the short-term, and normally break even around the ~6-10 yr mark. Essentially, retained earnings allow solar companies to have the revenues from their 20-30 year contracts reflected in their valuations.

Investors are willing to pay a premium for investments that generate consistent cash flow, today – rather than a metric that focuses on long-term NPV

### Are the assumptions baked into retained value calcs misleading?

SCTY, one of the original coiners of the retained value term, defines retained value as *"the forecasted net present value of Nominal Contracted Payments Remaining and estimated performance-based incentive allocated to us, net of amounts we are obligated to distribute to our fund investors, upfront rebates, depreciation, renewable energy certificates, solar renewable energy certificates and estimated operations and maintenance, insurance, administrative and inverter replacement costs."* Energy systems in their backlog are included in their retained value. SCTY's retained value includes both contracted and forecasted renewal contracts. SCTY assumes that 90% of customers will renew for 10 more years, lengthening the total contract to 30-years (automatic extenders are reflected in contracts at a -10% discount to utility rates). Several outstanding factors are implied in this assumption, and we question the validity of the renewal rate as a result of the factors.

SCTY assumes a 90% renewal rate...is this possible?

The overarching question surrounds the fact that solar only truly began to take off in the US around 2005, leaving even the earliest systems only 10 years old. How can SCTY assume 90% of customers renew when they haven't had a single customer reach the end of a 20 year contract? If most homeowners only stay in their home for 7-12 years, how is the 90% renewal rate factored into that? There are too many unknowns in the span of 20-30 year contracts to put much trust in the retained earnings value. SCTY gets around this in part by having the renewal portion built into the original contract, and require the host to decline a renewal prior to it taking effect. In a sense, the 90% renewal rate is better defined as a 10% renewal cancellation, but we still believe this 90% is a bit high.

Despite our wider concern around residual value uncertainty, we emphasize the return profile and 'retained' value metrics remain appealing even on the initial PPA life of the asset.

## What multiple to use? Multiple of Retained Value or Yield.

SCTY's retained value is presented as both total retained value and retained value/Watt. Its market cap/retained value multiple has fluctuated greatly between **3.7x-7.0x** over the past 24 months. We appreciate retained value provides a measure of the total potential value created in signing a contract, but see merit to focusing on the cash flow generated throughout the life of the deal. In the case of residential solar, we find the cash flow profile as quite attractive too, lending itself to a premium value if based off yield.

## If valuation is predicated on yield, then expect shift in tax equity practices

Given the desire to provide upfront yield in residential contracts as the new CAFD metric is introduced we see a clear bias to re-evaluate the upfront structure of tax equity deals today. We suspect companies like SCTY contemplating such an evolution could yet see the tenure of these deals extend to the longer end of it's 5-8 year life today – or longer. That said we see a clear preference for tax equity sponsors to exit after the 5-year tax credit recapture period is over – with extensions potentially quite costly.

## What drives risk in the residential space? More than a plain vanilla PPA

Several risky fundamental solar-market and company-specific assumptions are baked into growth projections for SCTY and other developers/installers.

On the market side these assumptions include: regulatory risk for the next ~30 years (NEM, SRECs, community solar, RPS etc.), utility backlash, competition, installation labor costs, soft costs, equipment costs, interest rates, O&M costs, and electricity prices. From the company-specific perspective: product offerings, margins, system output, customer renewals, BoS partnerships, vertical integration (discussed below), new market entry, financial partners and several other factors must be taken into account.

## Asset development sales also had limited ongoing value

Solar project development initially began with build and sell business models, which failed to give long-term value to development efforts, amidst uncertainty over achievable margins on future sales. We see a discounted 4-6x multiple on development businesses historically given the limited visibility associated with the business model. The transition towards YieldCo model, with its emphasis on backlog, is ultimately a substantially greater value proposition as evidenced by the quick shift towards this structure for developers SUNE, SPWR, and FSLR. We acknowledge the similar risk profiles – seeing that successful execution on development prospects and the ability to drop-down assets into the YieldCo are circular in nature. Rather, the arbitrage in the equity markets appears to offer a premium to companies that not just grow, but can grow with a firm dividend growth commitment behind it.

Furthermore, for the purposes of valuation, there is also merit to arguing for separate and distinct value between the *existing and future asset base*, as well as the *development margin* garnered by a parent company by selling assets into a YieldCo structure; said differently, solar developers still realize the 20% margin step-up in selling their assets to the yieldco, and separately realize benefits at the yieldco relating to an attractive cost of capital for future growth prospects.

Factoring in too many assumptions creates issues with retained earnings valuations

Moving away from low-multiple development business model is key

Admittedly—the same risks remain on development viability

## Where does the YieldCo model start to break? Drop down visibility.

DG and resi strategies are challenging to execute through a YieldCo given the natural desire for future visibility on drop-down assets. Given the short maturation cycle from start to finish of development projects (1-year or less typically unless it's multi-site), we see wider pressure on maintaining the 3-5 year backlog typically sought by YieldCo investors. As such, a YieldCo for the Residential installer (SCTY, VSLR) is particularly challenging given its exceptionally short turnaround and the requirement for substantial organic cash to sustain the resulting accelerated development pace. We suspect shifting towards simply disclosing cash flow metrics (in lieu of retained value per watt) will be the extent of the SCTY and VSLR transition for now.

DG strategies are challenging to execute through a YieldCo given the natural desire for future visibility on drop-down assets

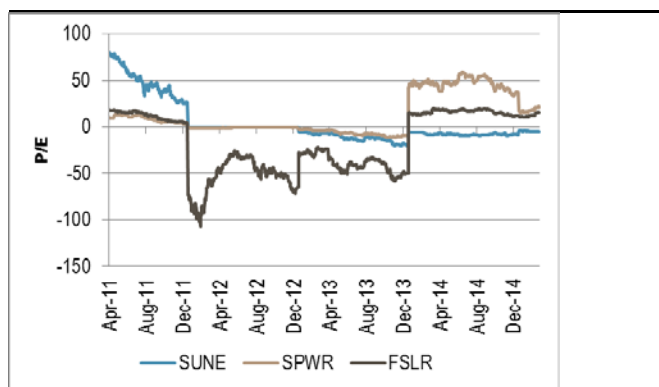
## 'Diversified Renewable Developers': That's the goal.

Given the need to tackle renewables from a variety of fronts, many of the largest developers will necessarily expand into *all* aspects of the development business within the renewables paradigm. In particular, all critical mass solar companies will likely expand into wind following the SUNE acquisition of FirstWind. Namely, we wouldn't doubt if SPWR-FSLR followed their lead with a wind acquisition platform of their own (albeit this could be 'down the line' still seeing execution of a YieldCo strategy as first on the menu).

## P/E makes more sense for the equipment manufacturers

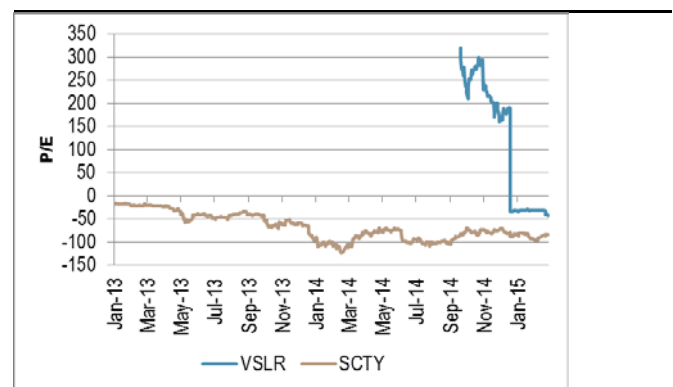
As shown in the figures below, P/E doesn't provide a proper comparison between solar companies with differing business models. P/E offers some color for the companies heavily focused on manufacturing, but can be completely thrown out for SCTY and VSLR, who are holding onto projects and receiving contract payments over the span of ~20 year contracts. Even for SUNE, SPWR and FSLR P/E only provides an accurate assessment of performance for the manufacturing segment of the business, but doesn't translate to cover the development portion as well.

Figure 1: P/E Comparison, SUNE, SPWR, FSLR



Source: Factset

Figure 2: P/E Comparison, VSLR, SCTY

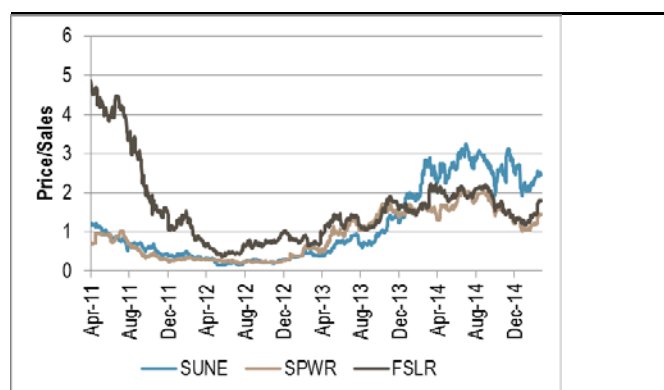


Source: Factset

## Price/Sales following much of the same trend as P/E

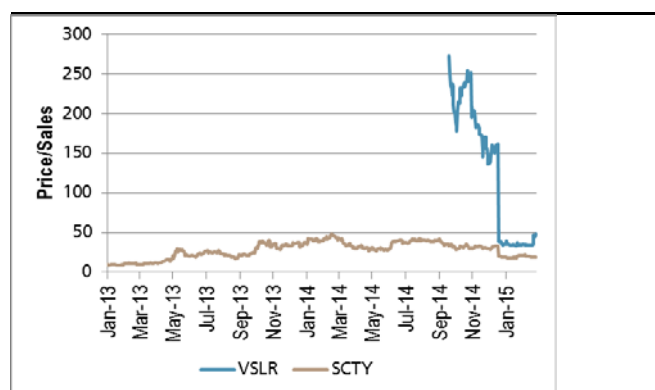
Price/sales comps have been equally misleading for residential project holders SCTY and VSLR—as shown below. Price/sales multiples have been less divergent for the equipment manufacturers, but as development takes a larger share of their respective pies, price/sales will gradually lose credibility.

Figure 3: Price/Sales Comparison, SUNE, SPWR, FSLR



Source: Factset

Figure 4: Price/Sales Comparison, VSLR, SCTY



Source: Factset

### Comps table highlights the difficulty in using P/E to compare solar co's with different business models

As shown in the comps table below, and discussed above, the traditional comps metrics don't provide any valuable indication of the performance of solar companies with differing business models. While most vivid in the difference between FSLR, SPWR, and SUNE's 2017 P/E's in comparison with SCTY's, the discrepancy is so large that it adds little real insight into the performance of the companies relative to SCTY.

Figure 5: Historic Comps Table, FSLR, SPWR, SUNE, SCTY, VSLR

		Rating	Market Cap. (\$ in millions)	Price 4/8/2015	P/E multiple						Earnings Per Share					
					2013E	2014E	2015E	2016E	2017E	2018E	2013E	2014E	2015E	2016E	2017E	2018E
SOLARCOs																
First Solar Inc	FSLR	Neutral	6,144	60.65	14.0	23.5	12.2	13.3	14.9	16.3	4.36	2.60	5.00	4.60	4.10	3.76
SunPower Corp	SPWR	Neutral	4,177	31.89	19.1	24.7	24.5	17.3	13.9	14.6	1.67	1.29	1.30	1.84	2.28	2.18
SunEdison Inc.	SUNE	Buy	6,877	25.71	nm	nm	nm	nm	27.8	16.5	-0.87	-1.06	-0.92	-0.17	0.91	1.53
SolarCityCorp	SCTY	Not Rated	5,020	54.33	nm	nm	nm	nm	165.0	na	-3.88	-3.77	-5.88	-6.67	0.32	na
Vivint Solar Inc.	VSLR	Not Rated	1,292	12.31	nm	nm	nm	nm	nm	na	-1.99	-0.81	-1.88	-3.05	-2.68	na
Average					16.6	24.1	18.4	15.3	55.4	15.8	-35.0%	-47.8%	-69.0%	98.5%	249.1%	

Source: Factset, Corporate Earnings Presentations

### Most Solar Companies are Starting to Report CAFD

We illustrate below the trend towards CAFD for a variety of the solar companies in the space.

#### Will holdCo's follow SCTY's lead and present CAFD-like metrics?

SCTY presented a form of CAFD (Net Unlevered Project-level Cash Flow- **\$0.11-\$0.17 return per \$0.99 invested**) for the first time in recent months. The associated disclosure is reproduced below. As this is the first presentation of CAFD, it is a useful benchmark and we expect it to be expanded on over the next few quarters by not just SCTY but other developers. Several assumptions must be considered when dissecting this new disclosure:

- This is for residential systems only & more specifically standard residential systems without prepay.
- SCTY has back-loaded cash flows vs YieldCo's front-loaded cash flows.

- The SREC revenue reflects a blended average for all standard residential systems installed in Q4—this includes installations in states without SRECs (CA in particular), which is displayed in the low SREC revenue.
- Upfront state rebate follows the same pattern as SRECs: blended average across all states, even ones without/ with-saturated rebates.

### Does disclosure of CAFD metrics imply that SCTY will pursue a YieldCo?

We don't necessarily mean to imply that disclosure of CAFD (or equivalent levered FCF metrics) necessarily means the company will pursue a YieldCo, but rather provides a comparable avenue with which to compare returns and investment opportunities across the energy infrastructure universe. Given the robust unlevered IRRs (11-14%) and implied FCF Yield on unlevered CAFD (11-17%), we believe this will benchmark quite well regardless of whether any of the associated developers ultimately pursues a YieldCo outright.

**Figure 6: SCTY CAFD Table – Moving to Cash Flow Metrics for Valuation**

\$/Watt	Q4 2014 Installations	Investment/ Financing	Annual Cash Flow	
Unlevered Residential Project Economics:		Year 1	Year 1 of Pre-Flip/Least Term Period (Years 1 to 5-8)	First Year of Post-Flip/Lease Term Period (After Years 5-8)
Customer/PBI Revenue	1,400 kWh/kW x \$0.13/kWh (+ 2.2% escalator)		\$ 0.18	\$ 0.20
SREC Revenue	Blended Average across Portfolio		\$ 0.02	\$ -
Upfront Investment Cost		\$ (2.86)	\$ -	\$ -
Upfront State Rebate	Blended Average across Portfolio	\$ 0.12		
Operations & Maintenance Costs	\$0.02/W (+ 2.5% inflation)		\$ (0.02)	\$ (0.02)
Gross Project-Level Cash Flow		\$ (2.74)	\$ 0.18	\$ 0.18
Project Financing:				
Tax Equity Partner Investment	30-40% Pre-Flip, 5% Post-Flip	\$ 1.75	(\$0.05) - (\$0.07)	\$ (0.01)
<b>Net Unlevered Project-Level Cash Flow</b>		<b>\$ (0.99)</b>	<b>\$0.11 - \$0.12</b>	<b>\$ 0.17</b>

Source: SCTY Q4 2014 Investor Presentation

### SCTY's ABS product is currently acting as their 'YieldCo' of sorts

In 2014 SCTY launched the first solar ABS, in a move that created an initial comfort barrier to investors unfamiliar with this type of securitization in the solar sector. Investors have since passed the hurdle and have become acclimated with the product, and SCTY believes the ABS provides them with industry leading low cost capital. Given this low cost of capital from the ABS, we believe SCTY could be dissuaded from creating a YieldCo, which is essentially a means of obtaining low costs of capital via the equity market. Based on this assumption, SCTY's choice to present YieldCo-like metrics makes all the more sense, and could spur others in the industry to follow suit. Additionally, it mirrors SCTY's trend of tapping/preferring debt markets in order to retain cash flow for organic growth, as highlighted in our recent **Solar Flash**.

### SUNE presenting entire business on a CAFD level

SUNE, with TERP on its books currently and EM YieldCo coming on in 2015, reports CAFD in several levels of its business. Ultimately, CAFD looks to be the most important metric that SUNE management has highlighted, as seen in their Capital Markets Day 2015 presentation. SUNE even presents the addressable

market between 2013-2020 in CAFD, representing a large disparity between the way they view the market vs. the traditional metrics. SUNE provides TERP CAFD guidance, development CAFD and CAFD/Watt—focusing on cash as a driver for future growth.

**Figure 7: 2015 SUNE MW & CAFD Forecast**

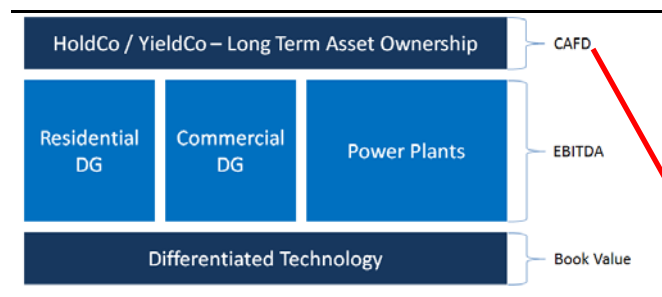
	Forecast	
	Q1 2015	FY 2015
3rd Party Sales MW	75-90	260-300
Retained MW	145-160	1,840-2,000
Total MW	220-250	2,100-2,300
<b>Unlevered Annualized CAFD for Retained MW (\$M)</b>	<b>22-26</b>	<b>275-325</b>

Source: SUNE Capital Markets Day 2015 Presentation

### SPWR acknowledges that CAFD best reflects HoldCo/YieldCo performance

As for SPWR, they present CAFD for their HoldCo and note they will list it for the future YieldCo as well.

**Figure 8: SPWR Vertical Integration Overview**



Source: SPWR Analyst Day 2014 Report

**Figure 9: SPWR CAFD Breakdown**

	Operating	In Construction	Contracted	Total HoldCo
Residential	172	25	5	202
Commercial	72	23	21	116
Power Plants	1	135	186	322
<b>Total MWs</b>	<b>245</b>	<b>183</b>	<b>212</b>	<b>640</b>

Annual Cash	
Unlevered Project Level Cash	\$90mn-\$100mn
Approximate CAFD	\$70mn-\$80mn

Source: SPWR Analyst Day 2014 Report

### FSLR & VSLR—currently not disclosing CAFD, could this hurt valuations?

FSLR offers FCF, but no metric closer to CAFD is presented at this time, while VSLR does not disclose CAFD or any kind of equivalent. Given the current trend of companies revealing CAFD/ equivalents, we believe the companies not disclosing these metrics will be forced to follow the movement from a comps perspective, or risk having these metrics forecasted as analysts gravitate toward CAFD comps.

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Neutral	FSR is between -6% and 6% of the MRA.	43%	33%
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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%
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Source: UBS. Rating allocations are as of 31 March 2015.

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