UBS

US Solar Flash

Spring Cleaning: The Policy Push

Equities

Americas

Electric Utilities

Jerimiah Booream
Associate Analyst
jerimiah.booream@ubs.com
+1-212-713 4105

Julien Dumoulin-Smith
Analyst
julien.dumoulin-smith@ubs.com
+1-212-713 9848

Michael Weinstein
Associate Analyst
michael.weinstein@ubs.com
+1-212-713 3182

Paul Zimbardo
Associate Analyst
paul.zimbardo@ubs.com
+1-212-713 1033

New York Collaboration Could Be a Sign of NEM 3.0

Significant SCTY outperformance of late appears to be primarily driven by collaboration with utilities in New York and implications for future net metering policy. While the relationship between the solar industry and local utilities was contentious in states like Arizona and Utah, the compromise in New York suggests a path forward in other states with more friendly solar policy makers. The current proposed plan in NY includes guaranteed retail and commercial net metering in the state with 4 year runway and minimum 15 year grandfathering (potential to be expanded to 20-25 years, to be determined by the PSC). The main caveat in the plan appears to be open door to lower compensation rates for community solar and payments from large developers to offset access to net metering. We expect modest reductions in NEM to continue to occur nationally, albeit leaving the economics largely intact.

What Else Matters for SCTY? Arizona, Financing, and Senate Deal

While we view the New York deal as the largest positive, other tailwinds include the Arizona solar ballot initiative, positive financing progress, and Senate energy. Arizona remains a wildcard in the solar debate and recent movement by solar advocates (including SCTY) to include protections for retail NEM solar customers in the state could set the stage for significant shifts in state policy if included on the November election ballot. Further, SCTY appears laser focused on financing and continues to prove many bears wrong, although volume of installations could be at risk if the company is focused on cash flow metrics rather than volume targets. Lastly, the Senate Energy Bill (which has not been reconciled with House Bill) contains language around distributed solar cost-benefit studies for DOE initiatives, which we view in the context of precedents for cost-of-solar debates occurring across the country.

Energy Policy Modernization Act passed in senate and house…

The Energy Policy Modernization Act was passed in the Senate on 4/20, after a version of the bill was previously passed in the House. However, both bills need to be reconciled before final legislation can be sent to the President, and the House bill appears less favorable for solar. While the extensive bill touched broadly on many energy topics, we are focused on the potential read-throughs for Net Energy Metering (NEM) reform. Specifically the bill notes that before November, criteria regarding the evaluation of NEM by the DOE must be created, following a formal study of the compensation structure. While the bill references some positives for the solar industry, such as assessing both the costs and benefits of NEM rather than just the costs, we note that this relates to the standardization for evaluation at the Federal level, rather than the state—which holds the power in this policy structure. It remains to be seen if the creation of such criteria will impact state-level reform, and if so, by what magnitude. Aside sentiment, the law appears to us a minor positive to solar. More broadly, we see a wide array of relatively smaller updates. Reconciliation will be key now between the two versions, with the president indicating an openness to sign.

What's the latest on the solar trade case? Resolution opportunity

In speaking with industry policy experts, it sounds like a resolution could be reached by the summer in the ~$700Mn Hemlock lawsuit against SolarWorld. Industry participants have noted that a Hemlock-SolarWorld decision could result in a SolarWorld-trade case resolution. As SolarWorld recently attempted to include Silevo in the trade case, dropping the tariff would be a positive for SCTY's push into the manufacturing space, while negatively impacting FSLR and SPWR's advantage in the US. Resolution of the trade case would reduce costs by ~8c/W on average; pls see our transcript 'Solar Wars' for more background on this topic.

TERP liabilities

With the SUNE bankruptcy filed on 4/21, investors are mainly concerned with what the liabilities will be to TERP. In relation, TERP disclosed that it paid $10Mn to settle its liability in the cancelled Latin America Power (LAP) transaction. TERP was included in the lawsuit against SUNE, and the $10Mn payment terminates the arbitration against the YieldCo. We highlight that the payment by TERP does not clear SUNE from potential future damages resulting from the cancellation.

TERP: What's Next?

Although shares are reacting positively following SunEdison's press release stating that TERP and GLBL are not included in the initial chapter 11 filing, voluntary inclusion was always unlikely and we remain cautious of future TERP obligations as SUNE creditors look to maximize their recovery. Investors should look for further clarity around how exactly SUNE plans to monetize TERP and GLBL ownership stake in particular. Further, a worst case scenario for TERP shareholders remains in play if bankruptcy court decides TERP assets should be consolidated. The focus remains in the near-term on how event of default will be treated in both project financings as well as with counterparty contracts. While we note many of the debt offerings are subject to potential refi, we expect the debt to largely take a payment to remain intact. Further, while TERP has consistently clarified its PPAs are not at risk of termination despite the SUNE filing, the wider question remains risk of renegotiation. With shares trading up yesterday, we reiterate our Sell rating, seeing a clearly negative skew with $12/sh no-risk DCF upside, down to nearly zero in a true downside case involving substantial exposure to SUNE liabilities being passed onwards.

What is on Clients' Minds

In an effort to keep all 'in the loop', we highlight our recent Alternative Energy reports below:

What This All Means' For TERP?

Rising Again [VSLR-readthroughs]

The Solar Parity Question [Utility-scale read-throughs from FSLR update]

Finding New Opportunities

The Battle Over The South [SOLAR vs. GAS]

CAFD: 'Switching' up the Drop Downs

FSLR: Limited Guidance Leaves Investors Digging

Comparing the PJM Solar Markets

Video: Lay of the Utility, Power and Renewable landscape

Tallying the 2016 Capital Requirements

Solar Panel Oversupply Comes Early

Understanding the CPP Stay [Call Transcript]

FSLR: What to Expect at the Analyst Day?

Comparing the Core Resi Portfolio Value

TERP: More Audit Work To Go

SCTY: Getting Another Vivid View of a Difficult Datapoint

Have the Returns Really Improved?

SCTY: Going for a RUN to Think Through the SCTY Story

CAFD: Paying for More than the Core Portfolio

Diving Deeper into Resi Financing Updates

SUNE: A More Vivid Future Without The Vivint Deal

Mass Making a Mess of Renewable Market

[In Search of Tax Equity (Call Transcript)]
[FSLR: Consistency is Key]
[SCTY: Providing a New Framework for Value]
[Connecting the Solar Dots]
[Doing the Math on Grid Parity with GTM]
[A (Less) Clean Power Plan Outlook]
[SCTY: Another Miss? Back to the Basics]
[Rethinking the DevCo Model]
[SCTY: What's the Story? Financing Over Execution]
[Removing the 'Merchant Nose' from Solar Deals]

NY NEM Proposal Offers a Bipartisan Solution

Six utilities (CenHud, Coned, NYSEG, NGRID, ORU, RGE) and three solar companies (SCTY, SUNE, SPWR) filed a joint response (the group is called the Solar Progress Partnership-SPP) to the New York State Public Service Commission's *Notice Soliciting Comments and Proposals on and Interim Successor to Net Energy Metering and of a Preliminary Conference.* The proposal offers a phasing out of the net energy metering (NEM) policy. We highlight the key takeaways below:

- The proposal **includes grandfathering** language that protects customers who install systems prior to the acceptance of new legislation.

- Broadly speaking, the partnership calls for on-site NEM legislation to remain unchanged until the commission initiates a transition, consistent with the REV reform.

- **Community solar** NEM subscribers: receive full retail rate initially (transitioning downward), but the developers are responsible for a payment that goes to the utilities and guarantees that the project gets interconnected. The payments and rates will be based on **'tranches':**

    - Tranches will be based on the asset's value to the distribution grid, and the higher the NEM compensation the higher the developer payment.

    - The developer payment will be the delta between the full retail rate (that community solar customers will remain to be compensated on) and the LMP+D+E methodology, which is outlined below. The developer payment will step-up over time as the non-developer portion of the compensation gradually steps down.

- The proposal notes that the NEM compensation will transition to a **'LMP+D+E'** rate formula, more in line with wholesale, where there is a:

    - "structured transition to a level of compensation that more closely aligns with the values the resources bring to the power system, including the wholesale power system (“LMP”), the electric distribution system (“D”), and to society-at-large (“E”), which is generally the environmental benefit." The calculation of the compensation would be based on the following variables

- LMP: wholesale price of energy.
- D: avoided cost of transmission: calculating this value would be based on the utility's Benefit Cost Analysis Handbook as approved by the Commission.
- E: environmental benefit would be calculated based on the market price of SRECs.

- **Our View:** We see the Solar Progress Partnership and subsequent proposal as a positive for SCTY given the company's ability to influence NY NEM reform via a negotiated process with the utilities, among the first nationally and believe this will set the precedent for reform in other 'progressive' states. We note the recent hire of Jon Wellinghof indicates a new more pragmatic approach in our view, and see the latest NY deal as more of an indication this indeed the case. More specifically on the proposed compensation methodology, we view this as a favourable given that SRECs and the distribution costs will be added to the wholesale rate, reflecting a value that better represents the true cost of the electricity produced. Having said this. we highlight that the proposal only offers a theoretical methodology, with no specific data included yet, limiting the full read-throughs.

EOS: Breaking the mold in battery storage?

We met with grid-scale flow battery player, Eos Energy Storage, to learn more about the company's growth prospects, grid-scale storage, and flow battery technologies more generally.

- Eos sells a utility-scale zinc halide flow battery system, and currently offers a 1MW product but expect to sell smaller solutions in the future.
    - The resi/commercial product is expected to be offered in 2017, with a 3 kW/ 12kWh system going for $200-300/kWh.
- Given the low cost of the product, mgmt. does not view any other flow battery players as competitors currently, rather directly competing against the lithium ion players.
    - Total installed system cost is $300/kWh, comprised of $160/kWh for the system pre-installation and not including the inverter.
    - They estimate the cost will reach $150-200/kWh by 2020, and mgmt. believes the total US peak shaving market will be ~85GW (which is where they project the market will be for the foreseeable future)
- Mgmt. highlighted a discrepancy in the way that competitors and many industry participants view battery LCOE, with many incorrectly value cycles in the LCOE valuation, while Eos takes into account the capital cost, cycle life, and round trip efficiency: to reach an LCOE of 3.5c/kWh currently. They are striving to reach 3c/kWh in the near term.
- Mmgt notes that they expect their batteries to last 30 years, with the product under warranty for 10.
- Eos's list of counterparties indicates that the company is a serious competitor to the Li-ion status quo, having done business with Coned, GDF Suez, and with 2016 contracts with OCI, NYSERDA, PG&E, and the California Energy Commission.
- While Eos does not manufacture the batteries, mgmt. notes that capex for their product is $20Mn a GW, vs $400-800Mn per GW for Li-ion. As a result, mgmt. stated that the company could pursue local manufacturing, placing them at an advantage in the US market to overseas competitors.

The State of Arizona: UNS Electric Case and the Ballot Effort

We see Arizona as setup to be the most important regulatory jurisdiction for NEM this year with three key efforts underway. First, the election and primary cycle will be important with three open ACC roles. Second we see a pending ballot initiative if successful as largely addressing concerns over rate evolution, despite the steep rate of signatures needed to get the initiative off the ground. Lastly, we see the Tucson rate case decision in late July as the crux of the focus, setting a potentially next step in the state for future solar policy.

Focusing first on the rate case process in Tucson:

Three part rate design with mandatory peak use demand charge is now on the table in Unisource's service area (~93K customers), given ACC's staff decision to recommend significant changes to UNS Electric's rate case (the first of several likely to be decided this year). If passed in the current form, rates would be composed of fixed charge, energy charge and demand charge (likely based on summer on-peak afternoon and evening hours). A demand charge is supposed to give consumers a concrete price signal for grid stress, but UNS's service territory may not have the level of grid technology that PNW has deployed for customers, which would make actionable price signals difficult. Nevertheless, in a scenario where $5.50/kw demand charges are implemented, this could significantly alter bills particularly in solar customer territory. PNW is taking an active role in the UNS rate case in large part due to the precedent-setting aspect of the case although we are unsure of UNS's willingness to take the full three tiered rate design plus proposed increase in solar customer fixed charges, given political push back from solar advocates. We think optional demand charge or separate solar-customer rate design is a more likely compromise, although Staff's recommendations in the case suggest notable willingness within the commission to pursue a full shift to three-tiered design across entire customer base. (Docket No. E-04204A-15-0142)

- The UNS case is ~6 months ahead of APS's:
  - Hearings commenced March 1, 2016 and are now complete
  - Closing briefs April 25th
  - Open Meeting May/June 2016.
  - July 11 ALJ
  - July 21st ACC open meeting

Value of Solar Case Could Set the Tone

The Arizona Value of solar (docket E-00000J-14-0023) general docket has started and could be decided on an accelerated timeline (mid-year) given important read-throughs for PNW's rate case. Hearings are set for April 18-May 6th. The outcome of the case will likely set tone for solar-customer compensation: low value would support reducing net metering rate or increasing fixed charges to levels closer to what PNW has previously asked for, but initial evidence is thin and a contrary decision (high value finding) would likely further inflame the solar debate in Arizona. Given recent Staff opinions in other dockets, we see a constructive outcome for PNW as the more likely scenario, although we note the outcome of elections could shift opinions and outcomes materially.

- **History:** Last year, regulators voted 4-1 (Chairman Bitter-Smith dissenting) to move forward with a combined generic docket to consider both cost of service and the value of solar ahead of the next ratecase filing, expected on June 1, 2016. The docket considers topics including methodologies for determining the cost to serve customers with solar and the value of solar. This follows APS' withdrawal of a request to increase the interim $20/mo fixed charge for solar customers (up from $4.90/mo currently) and the company's recommendation to discuss the issues generically in the near-term in order to speed up the ratecase proceeding next year. APS is focused on attempting to generate a Commission decision on these issues by before the June 1st APS filing so that they can use the results in the ratecase.
  - **How high will the demand charge be raised?** Under the current solar tariff, customers pay roughly $5/mo for an average system (assuming 7kW * $0.70/kW). With the previous proposal in the state having been closer to $21/mo, we suspect a compromise is likely to be struck closer to the higher figure (albeit still below). Following the latest federal ITC extension, we perceive less concern over the impact of higher fixed tariffs. The thought process in the initial $5/mo rate appears to have been tied to an 'incremental' approach, effectively reducing subsidies to the industry gradually.
  - **Workshop on solar should yield 'methodology':** Ultimately, we continue to expect relatively little out of the solar workshop, expecting simply a 'methodology' on how to calculate the cost shift to be determined. This in our mind would establish rough frameworks on the 'value of solar' to the distribution network. We increasingly perceive this to be a complicated question as small penetrations appear to defer the need for grid upgrades, while greater penetrations would appear to drive higher estimates. We look for California to perform its own calculation on the value of solar, seemingly through the latest Distribution Resource Plan (DRPs) filed by utilities to illustrate both the merits and necessary investments to accommodate growing distributed solar penetration. Only with this clarity does the commission appear to feel comfortable in having adequate clarity to meaningfully move from the current compensation scheme.
  - **Where do the commissioners stack up on solar issues?** If there were to be a spectrum, voting records would appear to suggest that Commissioner Bob Burns is likely the least pro-utility, particularly following his petition to push APS for public disclosure of campaign donations to Political Action Committees (PACs). In contrast, we perceive Doug Little as being towards the middle of remaining of commissioners. Chairman Tobin has a limited track record of views on energy off which to judge his position. It's notable that the former Chairwoman, Susan Bittersmith, was targeted by a solar industry group '*Checks and Balances*' despite her modestly more pro-solar attitudes. She ultimately had to resign after the efforts started by the group clouded out her ability to act effectively in her multiple roles.

Other Solar Efforts

- **Solar Ballot Initiative Shows Solar Industry Clout:** Solar Industry Super PAC "Yes on AZ Solar" filed paperwork Friday, April 15 to include a November ballot initiative to require Utilities and the ACC to keep net metering rules

unchanged, called the "Arizona Solar Energy Freedom Act". The group is led by former ACC Chairwoman Kris Mayes and will require 225,963 signatures in order to get on the November ballot, which implies several thousand signatures per day. Mayes has indicated "significant" resources will be put into the campaign and they are "in it to win it" with various solar-industry backers (including SCTY). In addition to specifically protecting net metering (through 2022, with grandfathering for any successive rate changes), a successful ballot initiative would attempt to protect solar customers from any other fees that might target solar users specifically as well as any delays in gaining utility approval. We view the latest industry move as a direct response to ongoing/upcoming rate cases with potential significant effects on solar within the state, further evidence that Arizona continues to be a key solar battleground. We continue to watch the Arizona elections closely and believe the successful implementation of the ballot initiative could mark a significant escalation of pro-solar resources and may shift potential outcomes during PNW's rate case later this year.

Valuation Method and Risk Statement

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.

Risks to our investment thesis for TERP include but are not limited to: 1) corporate conduct as many board members are also on SunEdison's board; 2) contract risks as contracted assets comprise all of the portfolio; 3) reliance on wind power could create variability in generation output and thus potentially negatively affect earnings and distributions; 4) inability to access the capital markets on attractive terms; 5) declines in commodity prices; 7) adverse political/legal/regulatory changes; 8) negative outcome from the audit over the financial statements and internal controls; 9) liquidity and failure to meet liabilities and other obligations as due, 10) SunEdison's liquidity and failure to meet liabilities and other obligations as due; 11) potential liabilities from Vivint Solar and other contemplated M&A transactions; 12) natural disasters; 13) inability to re- contract assets after contract expiration; 14) acceleration of obligations based upon SEC filings not being made in timely manner; 15) increase in required capital expenditures; 16) change in dividend policy; 17) delisting of common shares; 18) other risks discussed in the note; and 19) and other unforeseen changes.

For SCTY. key risks to the story remain risk of reform of net metering and other state and federal subsidies for rooftop solar. The pace of such reform could substantially impede both future growth but could also imperil existing customers. Risks of failure to renew contracts at termination of 20-year life remain a key risk around terminal value. Lastly, uncertainty over competitive framework and growing array of peers remains a meaningful risk to future margins.

For TERP valuation based on a discounted cash flow model. Our valuation of SCTY is predicated on a Devco/Powerco SOP.

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Sell	FSR is > 6% below the MRA.	14%	19%
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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.	<1%	<1%
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Source: UBS. Rating allocations are as of 31 March 2016.
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Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
SolarCity Corp[13, 16]	SCTY.O	Neutral	N/A	US$33.87	21 Apr 2016
TerraForm Power, Inc.[2, 4, 5, 6, 16]	TERP.O	Sell	N/A	US$10.46	21 Apr 2016

Source: UBS. All prices as of local market close.
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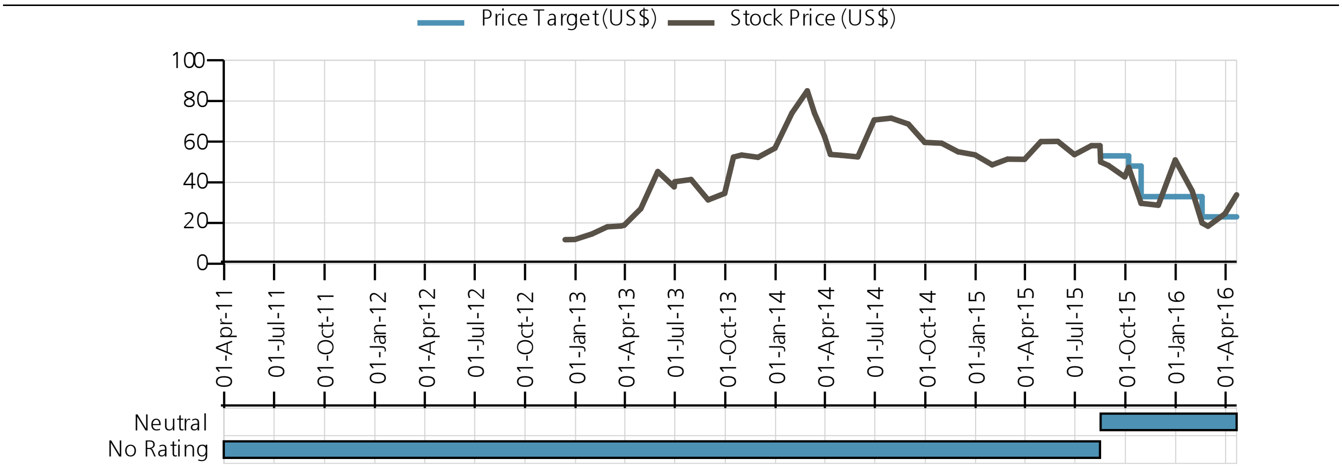
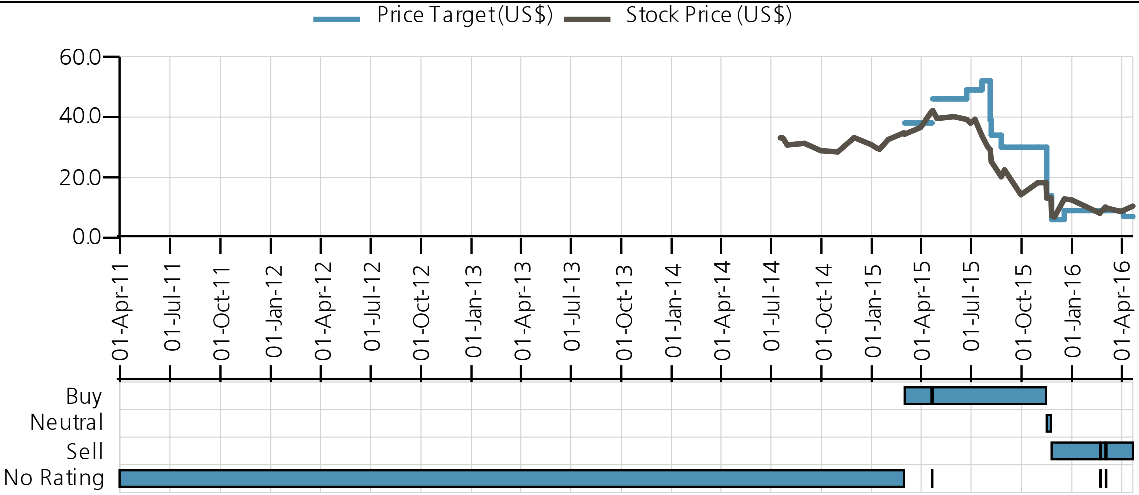
SolarCity Corp (US$)



Source: UBS; as of 21 Apr 2016

TerraForm Power, Inc. (US$)



Source: UBS; as of 21 Apr 2016

Additional Prices: SunEdison Inc., US$0.34 (21 Apr 2016); Source: UBS. All prices as of local market close.

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