

# US Solar Flash

## Solar Wars: The Commission Awakens [Erratum]

### NV Energy's decision on rolling back jars industry to action

In the latest focal point in the debate over solar compensation between residential solar developers and utilities, Nevada issued a new Net Metering rule to take effect on Jan 1. The policy would implement a litany of changes in rates, reducing substantially the attractiveness of resi solar in the state. We see the policy shadow of this decision as having a deeper impact than the tangible impacts on customers. Although a final decision adopts the proposed order, a final written order has not yet been posted ([link to proposed order](#)).

### Grandfathering risk on existing systems is the biggest precedent risk

Among the biggest issues raised in the state is whether the NEM and rate design changes will apply to all solar customers (including those under the existing 25MW rate cap). While we have largely seen every jurisdiction preserve net metering (and it appears NV Energy had asked to maintain it for its existing customers), the commission optimized to apply the rate structure to all customers. While we believe NEM reform will remain the norm, we believe every PSC will attempt to match grandfathering terms with the existing ~20-year term of leased or loaned PPAs to minimize regulatory risk and maintain economics of resi solar to a sufficient extent to allow for at least some growth. While final tariffs are not available in NV (and will clearly be litigated), the state could prove a test case for how customers react to contracts where savings are 'eroded'. We continue to expect customers will largely continue to pay contracts even if modestly out of the money given rate stability and credit impacts.

### Did Utility-scale solar win in growing battle with resi for market share in NV?

While many continue to put the NEM battle as squarely between resi solar and incumbent utilities, but rather we increasingly view the battle as implicitly between the utility-scale developers and manufacturers and developers (like FSLR). We emphasize both FSLR and SPWR were awarded utility-scale projects in NV in recent months, and see a battle for solar market share as gradually emerging. We flag a similar flare up in AZ last year as the two interests lobbied effectively to meet the states' RPS needs.

### How much does it matter to SCTY? Probably not that much

NV remains a relatively small market for both SCTY and seemingly RUN too. We emphasize SCTY's exposure is just mid-single digits of contemplated 2015 installs, with just a few percentage of cumulative installations. With the state having among the slimmest margins for residential solar developers already, the reduced prospects represent only a limited blow to prospective volume targets. RUN notes its does not have a fixed investment team on the ground, having solely relied upon partner channels to subscribe customers given the risks of reform. In contrast, SCTY's decision to exit the state, assuming it follows through on its threat to leave, this would involve some costs to reduce warehouse and workforce reallocation (notably, SEIA has claimed the state has more solar jobs per capita than California). Of the 339 MW developed in 2014 (789MW cumulative), the bulk would appear residential in nature with 52k homes installed (at least ~250 or upwards of all or more assuming 5-7kW avg systems).

### TERP: IDR Reform potential at SUNE's January Board meeting

Among the latest twists in the SUNE story includes a brief disclosure suggesting potential adjustments to SUNE's claim of IDRs from TERP. While an increase in the trigger points (such that IDRs would be more difficult to trigger) does not appear likely, we see a forbearance period (much as has already existed for both LP and GP distributions) could yet be extended to maximize cash at TERP and improve the perception of governance at the entity. In related news, we think recent efforts headlined to raise new debt at SUNE could drive shares, with equity reacting to terms and tenor of any debt designed to likely address liquidity needs. Questions on employing 'best efforts' to remarketing VSLR assets remain a further focus into January.

## Equities

Americas

Electric Utilities

**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

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**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

*Erratum: This note replaces a prior version to reflect several clarifications and corrections of Hanwha's business. Importantly, we change the operating margin number to gross margin and changes in pricing and capacity are refined to more specifically address PERC and overall blended costs and revenues.*

# What is on Clients' Minds

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

[NYLD: What Will NRG Do With Its YieldCo?](#)

[TERP: A Step in the Right Direction But More Needed](#)

[US Solar & Alt Energy: Poised to Grow Meaningfully](#)

[SCTY: Getting a Big Policy Boost](#)

[COP 21 - Mind the Gap](#)

[The Northeast Solar Outlook: NYPA Trustee Meeting](#)

[Can Solar Scale Securitization?](#)

[TERP: Governance Challenges Remain](#)

[The Solar Shuffle](#)

[TERP: Yielding to a New Reality](#)

[SUNE: Sun Baked](#)

[A Vivid View of the Resi Growth Struggles](#)

[TERP: Solar Eclipse](#)

[Following the Leader in Resi Solar](#)

[Contrasting the Utility View on Renewables](#)

[CAFD: P-ivoting the Strategy](#)

## Terraform Power: Where are the IDRs?

We believe SUNE may include an agenda on reviewing the MQD tiering on IDR rights with TERP in its upcoming BOD meeting scheduled for January 2016 (as indicated in its SEC filings on Dec. 9, 2015).

- While current IDR levels for TERP are at \$0.2257/\$0.3386/\$0.3950/\$0.4514 for MQD/1<sup>st</sup>/2<sup>nd</sup>/3<sup>rd</sup>/thereafter, respectively, if reset occurs the IDR levels will likely go up to \$0.50/\$0.575/\$0.625/\$0.75 starting from the following quarter (the levels are subject to distribution forbearance provision).
- The latest declared distribution of \$0.35 or \$1.40 on annualized basis from TERP is already at 2<sup>nd</sup> tier IDR level.
- We highlight in June 2015, SUNE received its first dividend from TERP on its class B unitholders that included a reduction in amount for distribution forbearance.

# Rolling Back Net Metering

## Nevada Commission Ruled Out Rooftop Solar

### Overview

The Nevada Public Utility Commission in its ruling on NV Energy's proposed new net metering rules filed in June, 2015, decided to apply wholesale power market rate for energy credit instead of prevailing retail market rate towards rooftop solar customers. The new rule will include the existing distributed solar customers. Additionally, the Commission approved the proposal to increase fixed charges for solar customers, however, corresponding decrease in volumetric commodity charge and optional time-of-use pricing option for peak and off-peak demand periods reduced some of the incremental costs.

The Commission asked the company to come up with a revised tariff sheet in seven days' time, which will then be reviewed by the Regulatory Staff before it's become effective.

Additionally, the Commission asked the company to produce further study and account for the costs and benefits of higher penetration of net energy metering systems during its future general rate cases to determine any further modification needed for the NEM ratepayers. Also, asked to provide additional support to determine what portion of T&D costs to be shifted between the basic service charge and volumetric commodity rate, along with recommendation on whether time-of-use rates for NEM ratepayers should continue to be opt-in, opt-out , or mandatory in the future.

### Grandfathering is the big shift

The Legislature directed the Commission to formulate a plan for reasonable rates for the customers and simultaneously reduce, avoid and eliminate any shifting of costs from NEM rate payers to non-NEM ratepayers. The Commission believed that making an exception for existing customers would be impractical and confusing and approved the same rates and tariffs to all the NEM ratepayers, thus removing the "grandfathering" of existing customers, applying same rates regardless whether the NEM applications were submitted prior to the 235MW cap or not.

### Demand Charge

The Nevada Public Utility Commission approved a two-part tariff structure consisting of basic service charge and volumetric commodity charge.

### Basic Service Charge

While the basic service charge should be calculated to recover the full amount for the facilities and high voltage distribution costs, it can't be changed once the NEM system is installed.

The Commission disapproved any separate demand charges associated with variable commodity rate at this time rather preferred to include primary and high voltage distribution costs under basic service charge to reduce the volatility in ratepayers' bill amount.

Additionally, the Commission did not approve NV Energy's proposal to 100% transmission and 62% distribution costs in the basic service charge. The volumetric

commodity rate would continue to be used to recover 100% T&D costs until the Commission makes necessary adjustments in the next GRC.

### **Gradualism**

The Commission proposed to move gradually with the new rate structure to prevent ratepayers from any kind of rate shock and allow time to the ratepayers to adjust their current usages. Specifically, the Commission will likely implement the transition from the old to new rate structure from January 1, 2016 through January 1, 2020. The costs of transition will be shared by the ratepayers.

### **Net Excess Energy**

The Commission planned to formulate a methodology to determine both the positive and negative effects of the avoided energy, energy losses/line losses, avoided capacity, ancillary services, T&D capacity, avoided criteria pollutant costs; avoided carbon dioxide costs, administration costs and environmental costs – in each of the future GRC to set a value for net excess energy.

### **Time of Use (TOU)**

While the Commission approved the TOU rates on a modified basis it did not place any restriction on the company to implement TOU rates for ratepayers. NV energy will recommend whether TOU rates for NEM ratepayers should continue to be opt-in, opt-out, or mandatory in the future. TOU rates capture the variation in costs across the year.

### **Other issues include:**

#### **New Build Solar**

Given the insufficient data to justify a separate rate for new build solar, the Commission did not approve NV Energy's proposal for a separate tariff for new-build Solar at this point in time.

#### **Generation Meter**

The Commission disapproved the proposal on allocating cost on installation of generation meters, as installation of generation meters is necessary for all the rate payers.

#### **Interconnection Charges**

The Commission did not approve the proposal for interconnection charges for NEM ratepayers instead of collecting those costs under basic charges.

#### **Regulatory Liability**

The Commission approved setting up of regulatory liability accounts. NV Energy can use the account to collect the difference between the revenue NV Energy will earn under the new and old NEM rates.

#### **Load Data**

The Commission was not particularly concerned about the load data as the current structure did not include demand charge component in the bill of a NEM ratepayers

#### **Stocks Impacted: SCTY /FSLR**

Given the lower credits for the rooftop customers, higher fixed fee and abolishment of "grandfathering" could impact SCTY stocks negatively, as both of these stocks have predominant in resi-solar market. However, we believe FSLR, which has a strong base on utility scale solar power project, could become a beneficiary.

Please see our initial ITC extension reactions in the following link: [US Solar & Alternative Energy - Poised to Grow Meaningfully](#)

## Sungevity raises \$600mn from Apollo

Sungevity raised a \$600mn for project financing from private equity player Apollo Global Management; and another \$50mn equity funding from existing investors (including GE Ventures) and new investors (including Apollo Investment Corp). With this round of funding, Sungevity has raised a war chest more than \$850mn in VC and project financing. Further terms of the deal were not disclosed. As a reminder, Sungevity had previously seen much of its volume channeled through Sunrun. Sunrun did not reflect any incremental partner volumes from Sungevity in its 2016 deployment.

We flag other solar companies appear poised to follow Sungevity's lead, opening the door for a potential return to (at least attempted wider) capital markets activity.

# Hanwha (HQCL)

## Capacity expansion plans, ramping up in Malaysia and Korea

Hanwha is expanding capacity to 5.2GW of cell and modules by mid-2016, from ~3.6GW at 3Q15. Mgmt noted that they expect capacity to reach 4.3GW by FY15. ~60% of the 5.2GW will be in Malaysia and Korea, with the remainder in China. Mgmt noted that the expansion plans are based on their visibility into demand, with no expansion plans currently being evaluated outside of the 5.2GW. The breakdown of the capacity will be 5.2GW of cell, and 4.6GW of modules. The expansions will take place at the Malaysian and Korean plants.

## Perc Cell: Differentiating with high efficiency multi C-Si technology

Key to HQCL's market expansion plans in the US is the company's high-efficiency multi-Si PERC cell expansion, which mgmt states will largely be shipped to the US. PERC cells have an average efficiency of 19.1-19.5% currently, vs the standard multi-Si at 18.3-18.6%. Mgmt expects PERC efficiency has potential to exceed 19.5%. Their Korean and Malaysian plants are PERC ready, which is strategic as they will not be producing PERC at the Chinese plants, in order to avoid any tariffs for product shipped to the US. Currently, roughly 10% of the cells produced are PERC, with plans to transition to 60% PERC. The implied ASP on PERC contract to NEE is over 60c implied with market today being at ~63c/W. (NEE commitment is \$896.9Mn excluding delivery charge, including the upfront payment from 1Q15 to 1Q16 plus the typical delivery charge of ~2c/W from Asia to the US), implying at least ~60c/W, with the ASP on the overall blended ASP for the entire business at ~57c/W. The company is targeting total blended manufacturing cost to be ~40c/W by FY16 consistent with Chinese peers (vs. 42.6c/W for 3Q15, with PERC only +/-1c/W (with greater 'all-in' costs). The PERC cells use Hanwha's proprietary Q.ANTUM cell architecture, which 'supercharges' the c-Si cells and allows them to absorb more light. The cells were tested in the field for 2 years before being made available for mass production.

## Nextera Deal

Mgmt stated that ~40% of PERC shipments currently go to the US, but this will be substantially more concentrated in early 2016 as key partnerships will use up the capacity. This implies over 90% of their PERC capacity will initially be shipped to NextEra, while the rest will go to RUN (135 MW in 2016) and SCTY. NextEra and Hanwha signed a supply agreement for over 1.5GW of modules to be delivered between 4Q15 and 4Q16. The NEE supply agreement is a critical win for the company. NEE seemingly picked them for the price, the quality of the high-efficiency product, and HQCL's backing by the large Korean parent co, Hanwha Group. An interesting aspect of the deal is that it includes a \$488Mn upfront payment to Hanwha, a payment which according to mgmt will be used to continue expansion plans as part of overall cash management. As highlighted by HQCL, we see the backing of the parent co. Hanwha Group as key to this 'trust' by NEE, as they note that they are a more stable company than many of their Chinese competitors. HQCL expects the demand in the US, and now increased demand with the ITC extension, will allow the company to maintain 18-19% gross margins in medium term.



## **Why would NEE sign such a large deal?**

Given the 1.5GW cumulative contracted signed, we see NEE as keen to lock in high efficiency panels into 2016 given the clear risk (prior to the ITC extension) of panel price inflation. Further quality of product and consistency in delivery is key too. Having just one primary manufacturer for its GE wind turbine design, we see NEE has largely adopted the same strategy for its solar procurement strategy. We believe future years in 2017+ will likely involve a substantial degree of similar panels from Hanhwa unless deliverability, cost, and manufacturing issues arise.

## **What are the key markets?**

HQCL expects 30-35% of revenue to be from sales to the US in 2015, with Japan making up ~20%, EU- 15%, China-10%, India- high single digits, with the ROW making up the remainder. For 2016, mgmt expects the share to the US to increase, as this will be the key market. They also expect demand in the EU to increase, depending on the regulatory outcome in France.

## **Downstream focus**

HQCL is focused on the downstream business, albeit as a secondary focus. The US is not a core market for development and EPC work, with Turkey making up ~35% of their downstream initiatives, and the remainder focused on other emerging markets like LatAm, the Middle East, and Eastern Europe. The company noted that they have a 2GW downstream pipeline.

## **Labor in China is more costly than people think...**

Relating to focusing capacity expansion outside of China, mgmt had an interesting datapoint, citing that labor is more costly in China than people expect, with turnover in the labor force at 10% per month, significantly higher than in Malaysia and Korea. That fact, along with the US-China tariff, convinced the company to expand outside of China.

## 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 Integrations. 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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Buy	FSR is > 6% above the MRA.	49%	33%
Neutral	FSR is between -6% and 6% of the MRA.	40%	26%
Sell	FSR is > 6% below the MRA.	12%	18%
Short-Term Rating	Definition	Coverage <sup>3</sup>	IB Services <sup>4</sup>
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 30 September 2015.

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Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
<b>NRG Energy Inc.</b> <sup>7, 16</sup>	NRG.N	Buy	N/A	US\$11.54	23 Dec 2015
<b>SolarCity Corp</b> <sup>16</sup>	SCTY.O	Neutral	N/A	US\$51.48	23 Dec 2015
<b>SunEdison Inc.</b> <sup>13, 16</sup>	SUNE.N	Sell	N/A	US\$5.39	23 Dec 2015
<b>TerraForm Power, Inc.</b> <sup>2, 4, 5, 6, 16</sup>	TERP.O	Sell	N/A	US\$12.66	23 Dec 2015

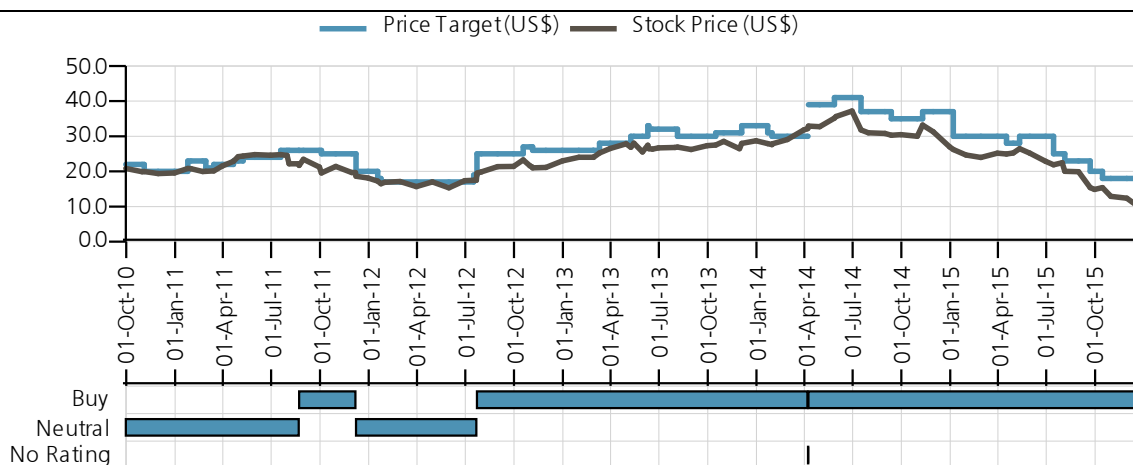
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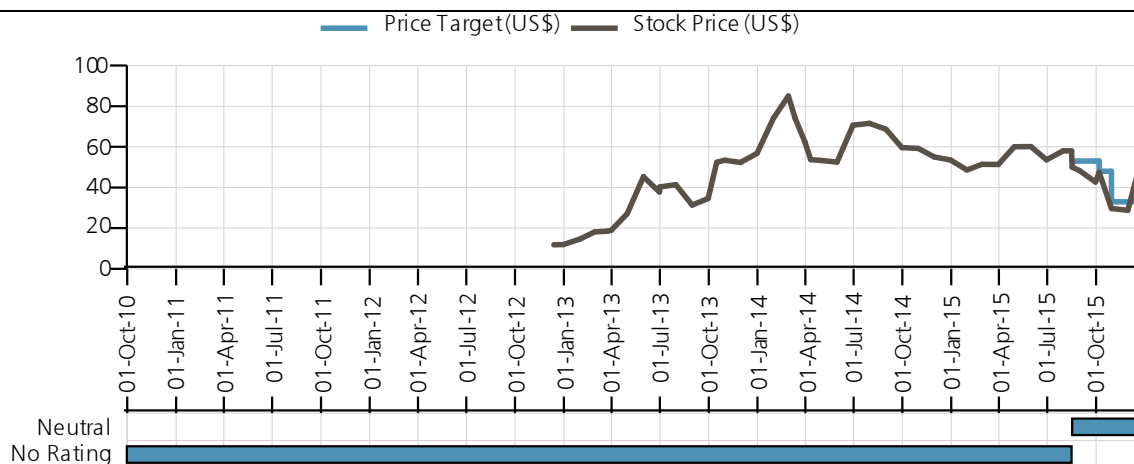
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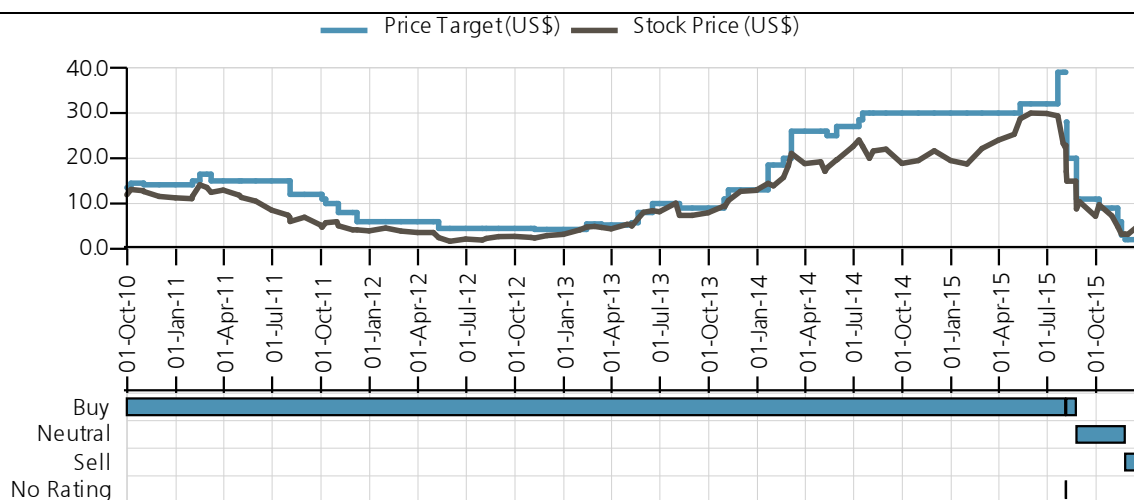
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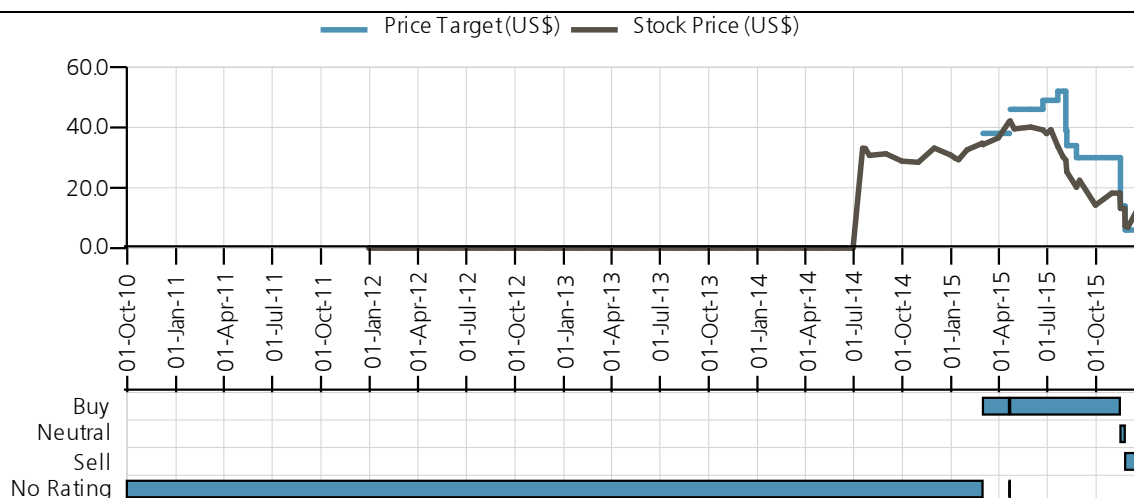
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