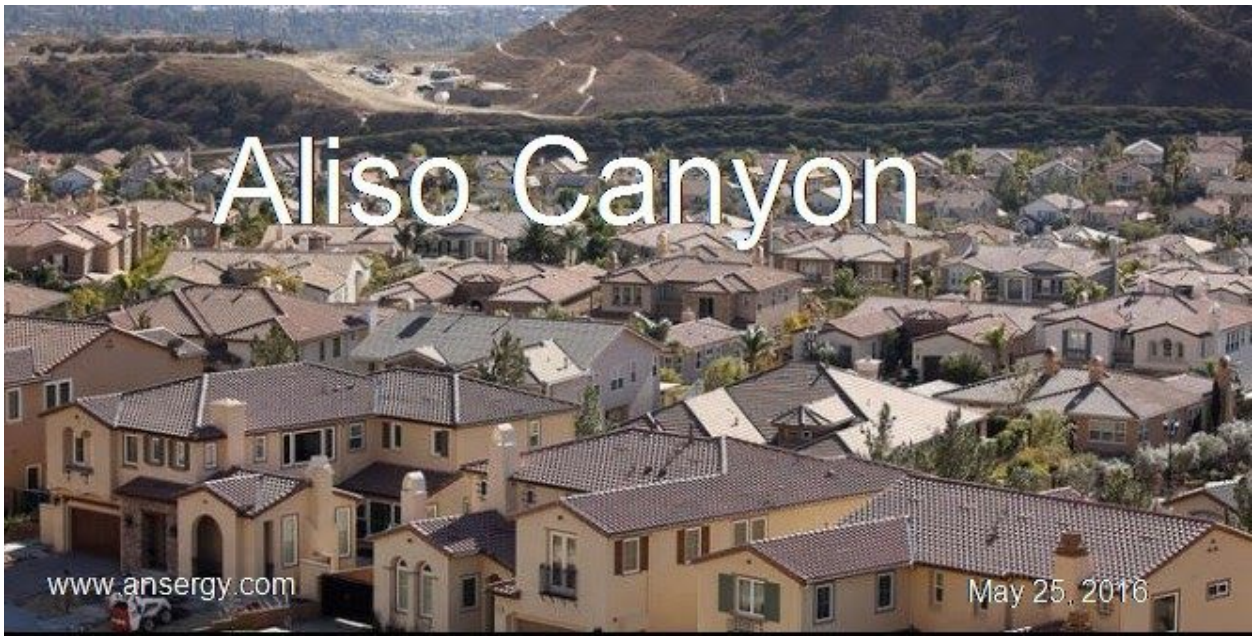
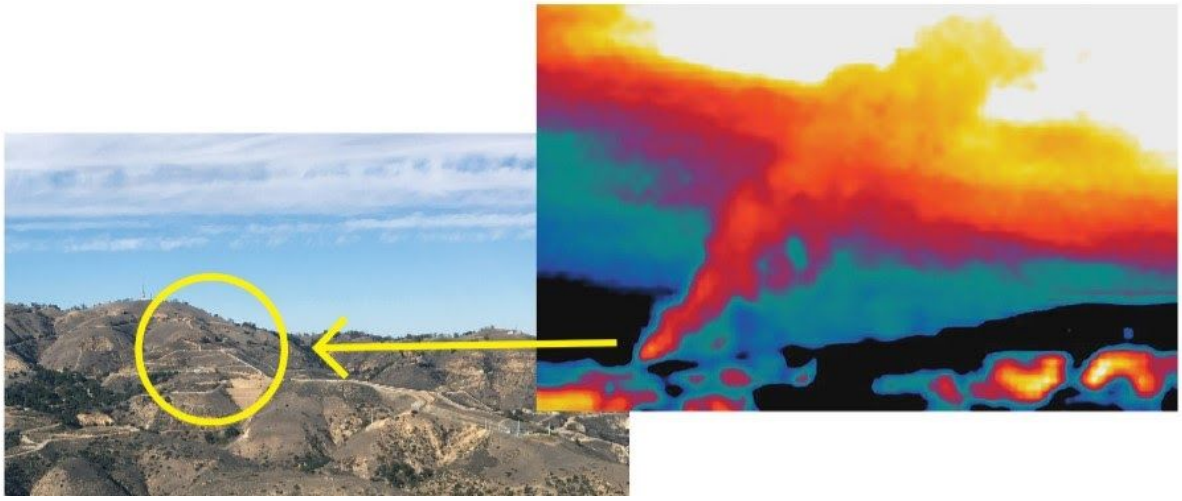



## Executive Summary

SP15 runs a higher risk of not having the electric supply to meet demand without Aliso Canyon but only on very hot days. On all other days the storage facility provides a very limited role in the SP15 power markets. If weather is identical to last year, 2015, the maximum on peak price impact from removal of Aliso Canyon storage is about $3.00/mwh over the June to October period. However, if Aliso is allowed to withdraw gas this summer, the price impact is much lower and may actually be negative due to the bearish impact on natural gas prices arising from the loss of the Aliso injection load.

## Background

On a sweltering hot October day last year several residents of Porter Ranch, CA called Socal Gas to report a strange odor, a smell reminiscent of natural gas. A few days later, on October 23, the gas company announced that its largest gas storage facility, Aliso Canyon, was leaking. As it turned out it was more than just leaking, it was erupting invisible methane to the tune of 2.2 million pounds a day, or about half as much in weight as the BP gulf oil spill. Call it an erupting volcano of poison if you like and when viewed from an infrared lens that is exactly what it looked like.



A frantic effort to cap the leak, led by the famous oil well fixer Boots and Coots, a Haliburton subsidiary, ensued and on February 18, three months later, California officials finally announced the leak was “permanently” plugged. By then Aliso Canyon had become the single largest release of methane ever recorded. Meanwhile Socal Gas’s storage levels have been drawn down, the utility has been ordered to not inject any additional gas and the LA Times is warning its readers to brace for rolling blackouts this summer.


# Southern California braces for summer blackouts due to Porter Ranch gas leak

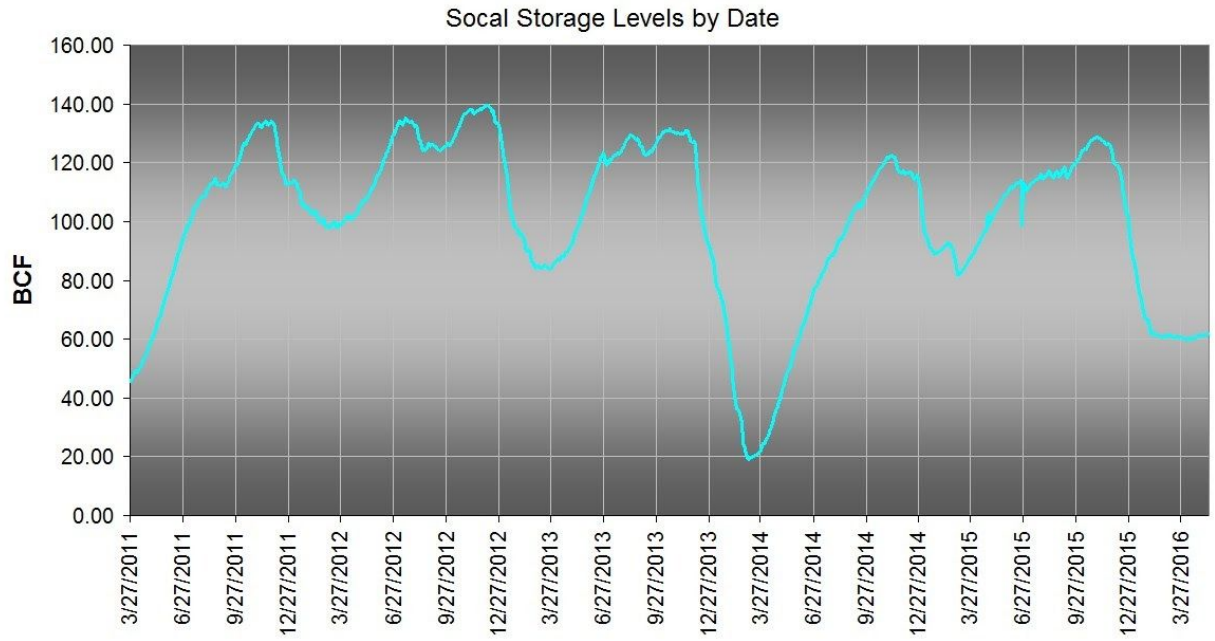
While Porter Ranch remains a ghost town and the Sierra Club ponders how this eco-disaster could happen in their backyard, the nation’s power traders were left wondering how they might profit from this disaster.  Enter Ansergy which a few months later followed in the heels of  Boots and Coots to answer that very question, or to phrase it in a more politically correct fashion “What impact will Aliso Canyon have on WECC power markets?”

In a normal year the storage facility would pull gas to supplement high power demand days; days when all of the gas-fired power plants in Los Angeles were running.  Without Aliso some of those power plants will not have fuel to run, rolling blackouts would be required to balance

supply and demand, and wholesale power prices will soar in response. The objective of this study is to determine the power price effect arising from the loss of Aliso Canyon. In other words, where is the silver lining in that dark methane cloud hanging over LA?

## Historical Socal Storage Levels

Socal gas has been ordered to not inject additional gas into Aliso Canyon though they may withdraw gas at any time. The following plots the last four years of total Socal Gas storage:

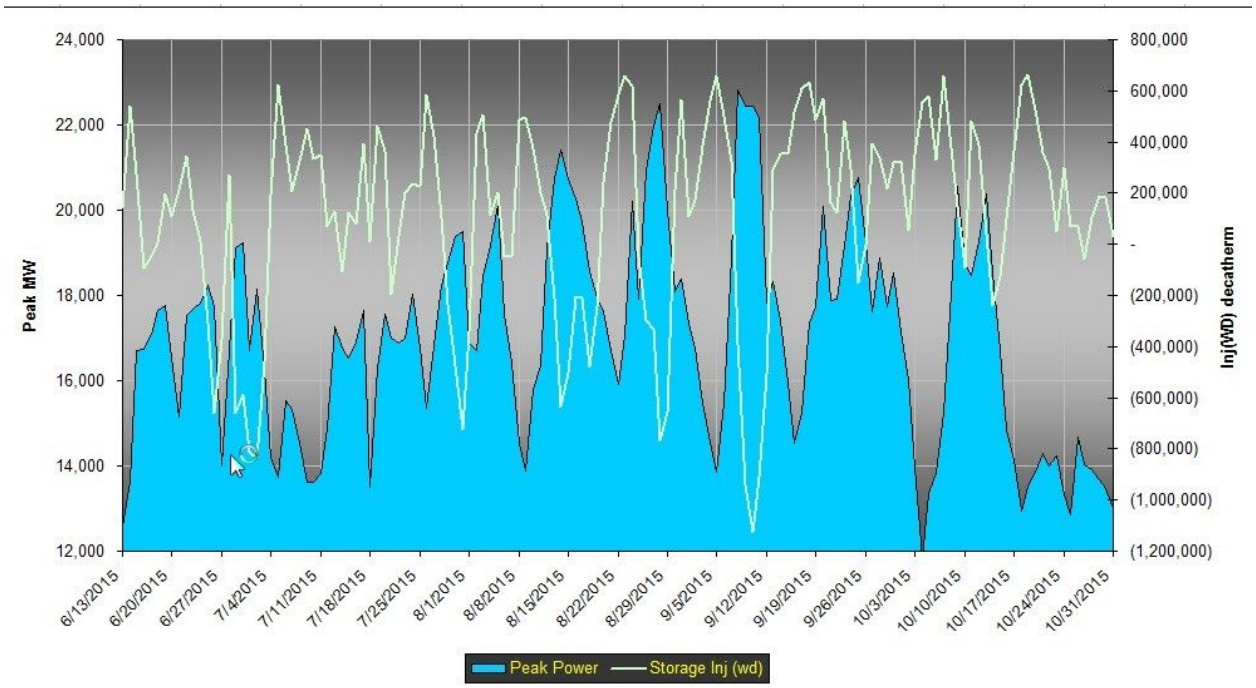



There remains 60 bcf of gas available for further withdrawals (15 bcf within Aliso) but Socal has not yet tipped its hand on what their summer plan shall be. The utility's fear is there won't be enough gas to serve next winter's demand if they take more out this summer. Are those news articles suggesting Los Angelenos should brace themselves for rolling blackouts just media hype or will the loss of Aliso be a critical factor in how summer 2016 plays out?

To answer that question we need to first determine how frequently gas is withdrawn from Aliso during the summer and at what temperature do those withdrawals occur. Typically a natural gas storage facility injects gas in the spring and summer and withdraws an equivalent amount of gas in the fall and winter. The LA Basin, however, is unique and lacks the pipeline capacity to serve all of the power plant gas demand on very hot summer days forcing Socal Gas to pull gas from storage to balance supply and demand or maintain adequate pressure. The objective of this study is to estimate how many days the LA basin will require supplemental gas from storage and what happens to power prices if that gas is not available.

# Power Demand versus Socal Storage

The following plot compares 2015 daily peak power demand within SP15 (blue area) with net injections or withdrawals from Socal Gas's four storage facilities.




On days of high power demand, August 28, 2015 for example, Socal pulled 1.2 million decatherms from storage while on a cooler day around 600,000 decatherms is injected for a swing of 1.8 million. Socal does not break out its individual storage sites but of the four facilities Aliso accounts for 45% of Socal's injection capacity. On low load days there are always injections and on high load days always a withdrawal. The point is underscored by the following recap of the ten highest and lowest power demand days in summer 2015:

| | Injection (Withdrawal) |
|---|---|
| Ten highest load days | -576,600 |
| Ten Lowest load days | 315,500 |

Clearly Socal Gas's storage facilities are needed to meet peak power demand and that without gas withdrawals from its largest facility, Aliso Canyon, the ability of southern California to balance electric demand with electric supply will be impaired. That said, how Aliso Canyon will affect SP15 may not be as straightforward as it seems given that Socal is still allowed to withdraw gas from Aliso and has 15 bcf still in storage; that is enough Aliso gas to supplement an entire summer of hot days.

# Impact on Power Markets

Ultimately the power world wants to know what the loss of Aliso means to summer prices - is SP15 a buy, is it fairly priced, or has the hype over-valued the hub? To answer that question we need to predict this summer's loads and whether or not Aliso will be called upon to pull gas from storage when needed. Neither question can be definitively answered so Ansergy's approach is to test six different weather scenarios around three different capacity cases (18 total cases). The weather scenarios are the actual hourly temperatures and wind speeds for the years 2010 through 2015. Each test year incorporates a unique power demand and wind forecast for the period from June 1 to October 31.

## Weather Scenarios

| City | Year | Min | Max | Avg | 80s | 90s | 100s |
|---|---|---|---|---|---|---|---|
| Burbank | 2010 | 62.10 | 109.00 | 81.67 | 89 | 34 | 5 |
| Burbank | 2011 | 62.10 | 107.35 | 82.72 | 97 | 34 | 6 |
| Burbank | 2012 | 66.90 | 105.10 | 85.57 | 108 | 56 | 12 |
| Burbank | 2013 | 63.00 | 102.90 | 85.63 | 118 | 57 | 8 |
| Burbank | 2014 | 73.00 | 102.90 | 85.37 | 120 | 47 | 3 |
| Burbank | 2015 | 69.10 | 104.00 | 86.97 | 127 | 62 | 11 |

All years had a few days where Burbank temperatures were above 100 degrees and nearly every year has been progressively warmer than the previous; 2015 jumped over a degree from the previous three years, each of which was three degrees warmer than both 2010 and 2011. More telling are the number of days which were 80 degrees or warmer: 127 in 2015 versus just 89 in 2010, but it is the 100+ days that will be of the most interest in this study as those are the ones that run the greatest risk of triggering rolling blackouts and 2015 had 11 while 2010 had but 5. Call that year, 2015, the worst case for SP15.

# Generating Capacity Scenarios

Not all the generating units in southern California rely upon Socal storage but the state has identified 17 facilities (9900 MW of capacity) which do. The following table summarizes the capacity cases used in the study.

- Base Case: this case assumes that on the few hottest days of summer Aliso injects the same amount of gas into the system as it has in the past.
- Worst Case: this scenario assumes all 17 affected power plants (the Aliso units) are offline every day of the study.
- Probable Case: About half of the plants were removed from the study (those with online dates greater than 1979). For the remaining generating units it is assumed gas will be

acquired through either supplemental withdrawals from Aliso or normal draws upon the pipelines and the other storage facilities.

### Affected “Aliso” Power Plants

| Plant_Name | Units | MWs | HeatRate |
|---|---|---|---|
| AES Alamitos LLC | 6 | 1,922 | 13,235 |
| AES Huntington Beach LLC | 2 | 436 | 14,500 |
| AES Redondo Beach LLC | 4 | 1,316 | 13,308 |
| Canyon Power Plant | 4 | 200 | 11,100 |
| El Segundo Cogen | 6 | 180 | 11,833 |
| El Segundo Energy Center LLC | 4 | 537 | 8,224 |
| Glenarm | 4 | 179 | 11,234 |
| Harbor | 8 | 548 | 11,138 |
| Harbor Cogen | 3 | 107 | 10,235 |
| Haynes | 9 | 1,279 | 7,739 |
| Long Beach Generation LLC | 4 | 252 | 10,750 |
| Magnolia Power Project | 2 | 388 | 7,451 |
| Malburg | 3 | 159 | 11,100 |
| Scattergood | 3 | 823 | 12,991 |
| Valley (CA) | 4 | 691 | 7,617 |
| Walnut Creek Energy Park | 5 | 500 | 8,500 |
| Watson Cogeneration | 6 | 405 | 9,754 |
| Low Heatrate Units | 28 | 3,774 | 8,282 |
| New Units | 55 | 5,040 | 9,543 |
| All Units | 77 | 9,922 | 10,630 |

In the base case all units are available; in the worst case all units are off line for the duration of the forecast (9900 MW); and in the probable case only the units with online dates earlier than January 1, 1980 are unavailable (4900 MW taken offline). The probable case assumes that either Socal will release some gas on hot days or that the lower heat rate units will be able to cover their gas demand from pipeline nominations.

## Forecast Methodology

Each weather case (loads and wind energy) were run separately against the three capacity cases while all other variables were held constant. The study did not incorporate a change in gas prices though we believe that summer basis could be quite volatile due to the loss of the summer injection load. The forecast horizon was set from June 1 to October 31 and all other variables are based upon Ansergy’s most recent standard forecast. No other changes were made to hubs outside of SP15 though the loading on the transmission lines interconnecting the hubs are dynamically affected by changing SP prices.

# Forecast Results

Since we don't know what temperatures will be this summer we must assign an equal probability to each of the demand cases, though an argument could be made to assign a greater probability to the more recent years giving the six year warming trend. The warmest year, 2015, will act as our proxy for the maximum impact of the loss of Aliso. The following table summarizes the results of the study and was compiled for all hours for SP15:

## On Peak Price Forecast Summary

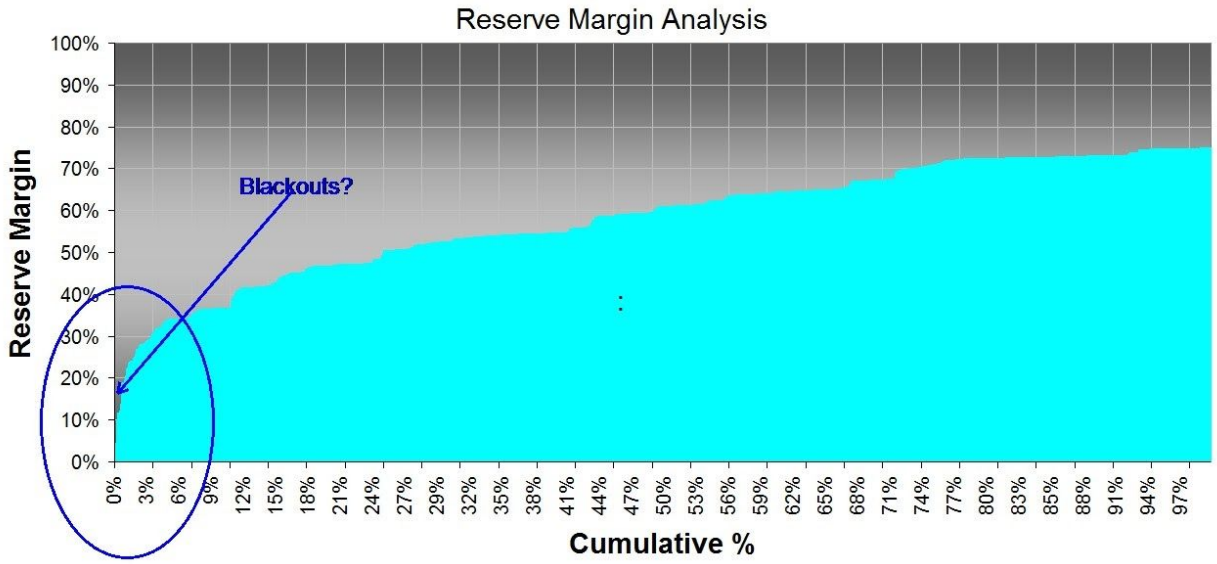
| Capacity Case | DemYear | Net Demand | Net Imports | Served by Stacl | Power Price | Rserve Margin | 30s | 20s | 10s |
|---|---|---|---|---|---|---|---|---|---|
| Base Case | 2010 | 12,894 | -5,363 | 7,531 | 30.23 | 0.67 | 9 | 5 | 0 |
| Base Case | 2011 | 12,926 | -5,376 | 7,550 | 30.23 | 0.67 | 7 | 1 | 0 |
| Base Case | 2012 | 13,955 | -5,693 | 8,263 | 31.22 | 0.64 | 5 | 1 | 0 |
| Base Case | 2013 | 13,224 | -5,506 | 7,718 | 30.10 | 0.65 | 3 | 0 | 0 |
| Base Case | 2014 | 13,757 | -5,695 | 8,061 | 30.91 | 0.64 | 4 | 0 | 0 |
| Base Case | 2015 | 14,454 | -5,792 | 8,662 | 31.70 | 0.62 | 15 | 4 | 0 |
| Partial Offline | 2010 | 12,885 | -5,448 | 7,438 | 30.52 | 0.62 | 28 | 8 | 5 |
| Partial Offline | 2011 | 12,922 | -5,460 | 7,462 | 30.52 | 0.62 | 22 | 5 | 0 |
| Partial Offline | 2012 | 13,955 | -5,777 | 8,179 | 31.52 | 0.58 | 38 | 4 | 1 |
| Partial Offline | 2013 | 13,224 | -5,586 | 7,638 | 30.40 | 0.60 | 17 | 2 | 0 |
| Partial Offline | 2014 | 13,757 | -5,779 | 7,977 | 31.19 | 0.59 | 36 | 2 | 0 |
| Partial Offline | 2015 | 14,454 | -5,877 | 8,576 | 32.01 | 0.56 | 88 | 11 | 3 |
| All Offline | 2010 | 12,885 | -5,863 | 7,022 | 32.11 | 0.58 | 73 | 26 | 8 |
| All Offline | 2011 | 12,922 | -5,871 | 7,052 | 32.09 | 0.58 | 77 | 21 | 6 |
| All Offline | 2012 | 13,955 | -6,227 | 7,729 | 33.77 | 0.53 | 138 | 35 | 6 |
| All Offline | 2013 | 13,224 | -6,010 | 7,214 | 32.04 | 0.56 | 84 | 14 | 2 |
| All Offline | 2014 | 13,757 | -6,217 | 7,540 | 32.91 | 0.55 | 96 | 31 | 6 |
| All Offline | 2015 | 14,454 | -6,351 | 8,103 | 34.65 | 0.51 | 186 | 88 | 21 |

Assuming all Aliso units are unavailable for all hours this summer, and temperatures are identical to last year (2015), results in an average June to October on peak power price of $34.65. Contrast that value with the base case for 2015 and you get a delta of $2.95/mwh. Note Net Demand is identical, the only difference between the two cases is the status of the Aliso units. Also note the effect on Net Imports, up 600 MW from the Base Case, which suggests the rest of the WECC will be affected, albeit modestly, by the loss of Aliso.

The last three columns return the number of instances where the reserve margin was less than 30%, 20%, and 10% (30s, 20s, 10s, respectively). With all units offline, using 2015 temperatures and wind speed , there were 186 instances (hours) when the reserve margin was less than 30%, 88 instances where it was less than 20%, and 21 instances less than 10%. Now compare that to the base case of 15, 4, and 0. Typically when a reserve margin is less than 10% power prices will clear at a regulatory cap as the system is effectively out of power.

## Reserve Margin Duration Curve

The following plot measures the % of time that the reserve margin is at or below various levels. This chart plots all onpeak hours for all 18 cases.




Whenever the reserve margin drops below 20% the market gets tight and prices become volatile; below 10% is when the rolling blackouts have the highest probability of occurring. Our forecast suggests about 3% of the onpeak hours will experience price spikes and possible lack the supply to serve demand (aka blackouts).

# Potential Price Impact of Aliso Canyon

The following table compares the Worst Case to the Base Case by year for both on and off peak. The price range is the difference between the forecast for the worst case and base case; in other words this is the price impact of Aliso.

## Base Case versus Worst Case: SP15 Prices by Hour Type

| Year | Hour Type | Price Range |
|---|---|---|
| 2010 | On Peak | 1.89 |
| 2011 | On Peak | 1.85 |
| 2012 | On Peak | 2.55 |
| 2013 | On Peak | 1.94 |
| 2014 | On Peak | 2.00 |
| 2015 | On Peak | 2.95 |

We can confidently conclude that the impact of removing the Aliso units is bullish on summer prices but just how bullish depends on temperatures and, more importantly, on how Aliso is

operated this summer.  Bear in mind these results are averages from June to October, no one trades/hedges that strip so it is necessary to break out the results by month.

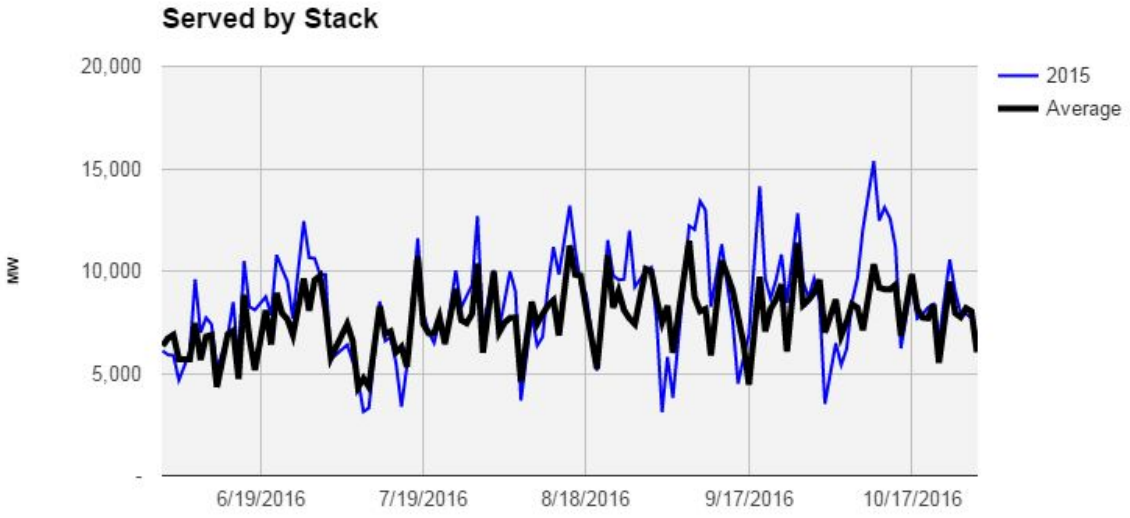
## SP15 Power Prices by Month and Hour Type

| Hour Type | Period | Net Demand | Net Imports | Served by Stack | Power Price | Reserve Margin | 30s | 20s | 10s |
|---|---|---|---|---|---|---|---|---|---|
| On Peak | 6/1/2016 | 12,401 | (5,298) | 7,103 | 26.89 | 0.67 | 0.94 | 0.11 | - |
| On Peak | 7/1/2016 | 12,556 | (5,521) | 7,035 | 30.71 | 0.62 | 2.83 | 0.39 | - |
| On Peak | 8/1/2016 | 16,189 | (6,888) | 9,302 | 35.47 | 0.50 | 10.19 | 1.62 | 0.14 |
| On Peak | 9/1/2016 | 18,021 | (7,435) | 10,585 | 42.06 | 0.42 | 16.60 | 5.16 | 0.28 |
| On Peak | 10/1/2016 | 16,089 | (5,493) | 10,596 | 51.25 | 0.34 | 9.54 | 3.58 | 0.25 |

The above is an average of all temperature years by month for the worst capacity case.  Note the change in Net Demand as it rallies from 12.5k MW (June and July) to 18k MW in September and is driven by falling hydro, wind, and solar energy and partially offset by increases in imports. October is exceptionally sensitive as the DC line is out of service the entire month, effectively removing up to 3000 MW of energy.  On an aside, we think the ISO and BPA may reconsider that transmission work on that DC line given the status of Aliso.  The following plot shows the average amount of energy served by the stack by day as compared to 2015:

## SP 15 Net Demand

Net demand is defined as Demand minus hydro, wind, solar, pumped storage, and nuclear energy.  Served by stack is defined as Net demand minus net imports.



LA hit 100 degrees in mid October of last year which begs the question “how much of that extra heat was caused by the millions of pounds of methane injected into the atmosphere?” We’ll leave that question for the eco-phreaks to answer, our focus is on power markets. The latter months, August through October, have more volatility and higher prices, some of which was driven by the very warm temperatures realized in 2015, though the loss of the DC line may be the most relevant October fundamental. This observation is further underscored by looking at prices by hour by month:

## SP15 Prices by Hour by Month

Average power price by hour by month assuming the Aliso units are unavailable to serve load.

| Hour | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|
| 1 | 24.39 | 24.40 | 27.07 | 27.23 | 28.51 |
| 2 | 25.35 | 27.52 | 30.41 | 30.31 | 29.71 |
| 3 | 25.50 | 27.77 | 30.38 | 29.98 | 30.35 |
| 4 | 25.67 | 27.98 | 30.13 | 29.92 | 30.21 |
| 5 | 25.65 | 28.47 | 30.63 | 30.17 | 30.15 |
| 6 | 25.30 | 27.84 | 30.38 | 29.05 | 27.87 |
| 7 | 28.00 | 31.97 | 33.20 | 33.22 | 32.93 |
| 8 | 27.23 | 30.01 | 31.05 | 32.19 | 32.02 |
| 9 | 26.72 | 28.56 | 29.87 | 30.31 | 31.25 |
| 10 | 26.33 | 27.40 | 30.22 | 30.41 | 30.60 |
| 11 | 25.30 | 27.60 | 30.21 | 30.50 | 30.33 |
| 12 | 24.65 | 28.13 | 30.47 | 31.36 | 31.07 |
| 13 | 24.99 | 27.14 | 30.68 | 32.10 | 31.67 |
| 14 | 25.16 | 27.42 | 30.06 | 31.74 | 31.54 |
| 15 | 24.66 | 27.30 | 30.51 | 31.69 | 33.08 |
| 16 | 25.39 | 28.19 | 30.75 | 31.97 | 32.32 |
| 17 | 25.47 | 28.88 | 31.72 | 32.17 | 33.97 |
| 18 | 25.18 | 29.05 | 31.73 | 33.42 | 34.23 |
| 19 | 26.40 | 29.20 | 33.37 | 35.00 | 34.20 |
| 20 | 27.68 | 30.74 | 34.64 | 35.89 | 34.10 |
| 21 | 27.89 | 31.38 | 33.23 | 35.00 | 33.60 |
| 22 | 27.09 | 30.75 | 32.51 | 35.04 | 34.37 |
| 23 | 24.38 | 26.47 | 29.02 | 28.96 | 30.30 |
| 24 | 23.95 | 25.74 | 28.53 | 27.66 | 29.15 |

The on/off in June-July is fairly tight and increases in the August-October time frame. October is also impacted by the loss of solar in hours 18-19 which contributes to the month’s overall bullishness but, as has been said before, it is the DC line which drives most of the October premium.

# Impact on WECC Prices

What happens in SP15 stays in SP15, at least as far as the Aliso Canyon effect is concerned; the other hubs are relatively unaffected by the loss of the Aliso units. When comparing the base to the extreme cases the lines are fully loaded on the hot days in both cases thereby isolating the Alsio effect to just SP. In other words, on the days LA most needs additional energy its transmission lines are already full. It is like the wealthy man who is inundated with offers to borrow money he doesn't need while the starving pauper can't beg a dime for a meal.

## Aliso Impact on other WECC Hubs

This table compares the price forecasts for all WECC hubs for the base and extreme capacity case for the 2015 temperature year. In other words it is the most extreme case and demonstrates the maximum price effect on power hubs outside of SP15.

| HTreport | Period | SP15 | NP15 | Palo Verde | Great Basin | Mid-C | Rockies |
|---|---|---|---|---|---|---|---|
| On Peak | 6/1/2016 | 1.54 | 0.15 | 0.22 | 0.20 | 0.18 | 0.04 |
| On Peak | 7/1/2016 | 1.80 | 0.20 | 0.67 | 0.40 | 0.23 | 0.18 |
| On Peak | 8/1/2016 | 3.13 | 0.40 | 0.66 | 0.61 | 0.37 | 0.15 |
| On Peak | 9/1/2016 | 3.41 | 0.30 | 0.06 | 0.46 | 0.06 | 0.16 |
| On Peak | 10/1/2016 | 2.73 | 0.28 | 0.04 | 0.43 | 0.09 | 0.21 |
| Off Peak | 6/1/2016 | 1.99 | 0.24 | 0.14 | 0.10 | 0.11 | 0.03 |
| Off Peak | 7/1/2016 | 2.66 | 0.32 | 0.26 | 0.19 | 0.08 | 0.02 |
| Off Peak | 8/1/2016 | 2.51 | 0.17 | 0.08 | 0.15 | 0.09 | 0.02 |
| Off Peak | 9/1/2016 | 3.36 | 0.53 | 0.21 | 0.17 | 0.14 | 0.03 |
| Off Peak | 10/1/2016 | 2.79 | 0.49 | 0.09 | 0.09 | 0.08 | 0.05 |

Surprisingly both Palo and the Great Basin (Mead) realize a greater impact from Aliso than NP15 or Mid-C, but none of the price changes at the outside hubs are material. Palo is more impacted in June and July while the impact at NP is spread equally across all the months. This suggests buying summer SP spreads may be the best way to play the Aliso factor given that the Aliso effect is isolated within SP15.

# Other Considerations

There remain many uncertainties with respect to Aliso Canyon as to what will happen this summer rendering it difficult to draw definitive conclusions. Some of those uncertainties are detailed below:

- The biggest challenge for the study is the uncertainty of what Socal Gas will do with the existing gas in storage (40 bcf). They have the option of withdrawing at any time, they just cannot inject, but that can change with the swipe of the Governor's pen. If Socal perceives a fast track approval to bring Aliso back by fall, or they feel the political

pressure of alleviating rolling blackouts this summer, it may operate the facility as it would in any other summer rendering no Aliso impact.

- Weather will determine how much of an impact the loss of Aliso Canyon will have on summer power prices and no one can predict with any degree of confidence what this summer's weather will deliver. The trend over the last six years has been ever hotter temperatures but that trend can be easily broken with a cool summer. No doubt there will be some 100 degree days in LA, but there is much doubt as to how many of those days will occur; without high 90s there will be no Aliso premium this summer.
- There is a significant bearish gas factor associated with the loss of Aliso - the loss of the summer injection load. On mild days Socal injects up to 650,000 dt with up to 45% going into Aliso. The loss of that load on those mild days, those very same days when there is reduced gas demand from electric generators, is about 10% of import capacity and renders the pipe with idle capacity which puts downward pressure on Socal basis resulting in lower power prices. Expect some wild swings in Socal Citygate this summer.
- Winter may be more volatile than summer if Aliso cannot be refilled, especially if Socal further draws down the facility this summer. In that scenario most of the LA basin's gas load will be served from the pipeline, we say most because there will be some gas load not served without storage withdrawals. This will cause Socal Citygate basis to rally hard which will be translated into higher winter power prices.
- Resolution E-4791 authorizes Southern California Edison to engage in "expedited procurement of storage resources"; we know not what those alternative storage resources might be but the market can be very efficient at finding solutions, much more so than the government, and we applaud the CPUC for authorizing this approach. Whether this tactic will bear summer fruit remains to be seen but the mere fact that the resolution was passed speaks to the seriousness of the issue.
- 8 of the 17 Aliso plants have the ability to fuel switch to oil (2000 MW) which, if utilized, further mitigates the Aliso affect. This option may require a waiver of the carbon caps, or at least some relaxation, in order for these plants to burn oil for much of the summer.
- SCE and LDWP may elect to bid their very high heat rate power plants into the ISO each day to safeguard against reliability issues. Power plants that normally would only be called upon on the very hottest of days would run all summer as reliability units (price takers). Under this scenario the price impact of Aliso is negative.

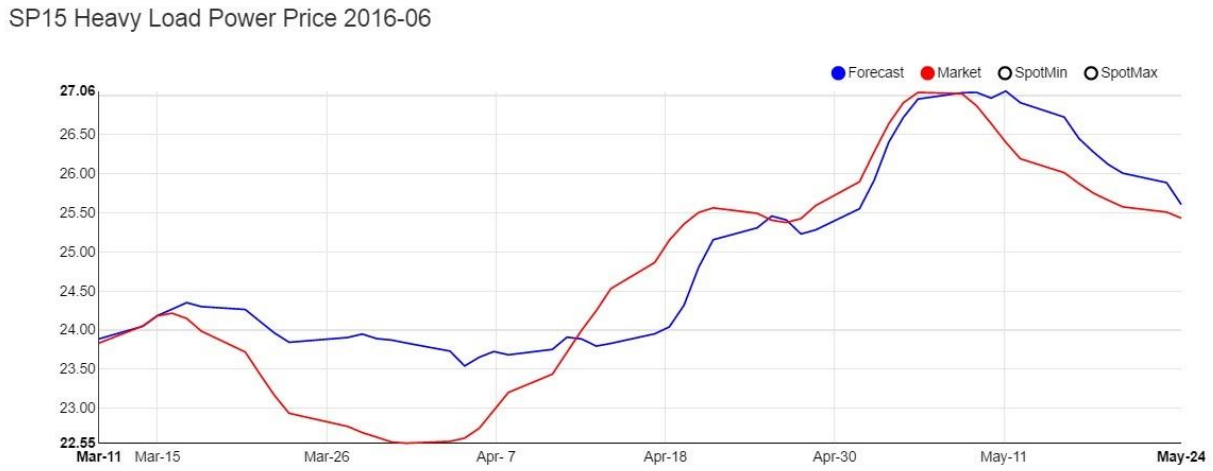
## Hedging/Trading Implications

Most traders, unless they own a home in LA, ultimately just want to know how Aliso will affect their pnl, a crass and insensitive sentiment which is the reality of commodity trading. Before we delve into the markets let's summarize what we learned:

- There is little effect on the outside hubs
- There is no effect on mild days
- Daily Citygate basis will be more volatile than in the past
- There is no certainty that Aliso will not withdraw gas this summer

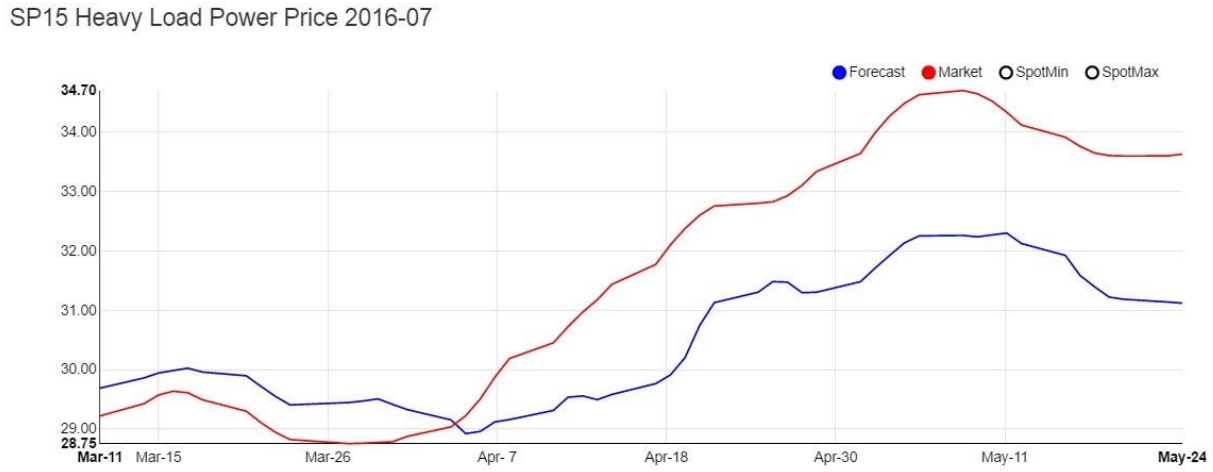
## Outrights

### June On Peak




The Aliso premium is the smallest in June but the fear premium may be the greatest as there is less chance that an official resolution of how to operate the storage facility will be reached by then. With the forecast slightly above the market, and the forecast lacks any Aliso premium, we would be biased towards owning June.

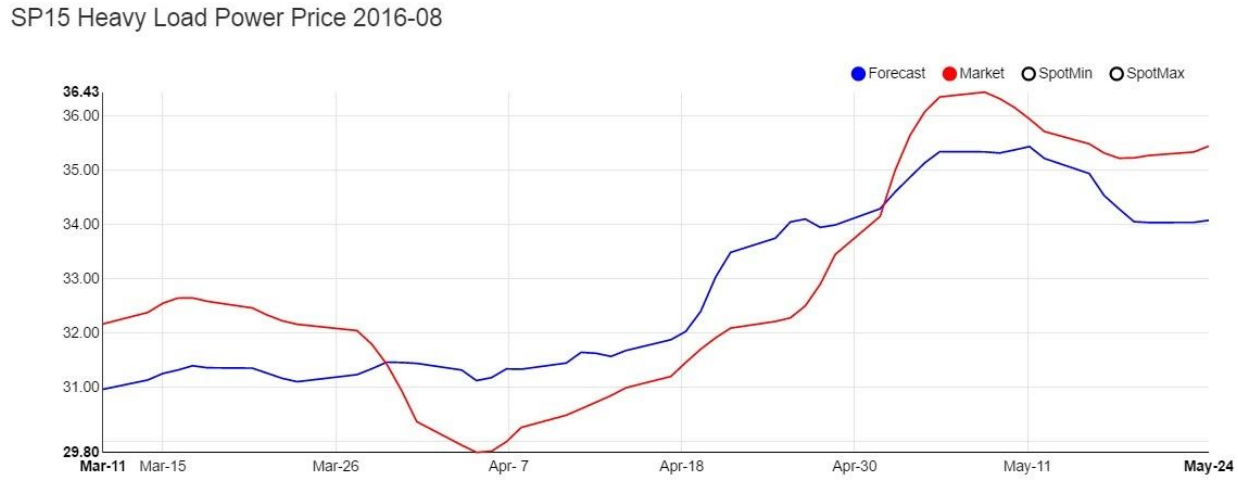
### July On Peak




The market has soared of late while the forecast has pulled back. July, bear in mind, had one of the lowest Aliso premiums of the five tested months. Given the market's over enthusiasm of late

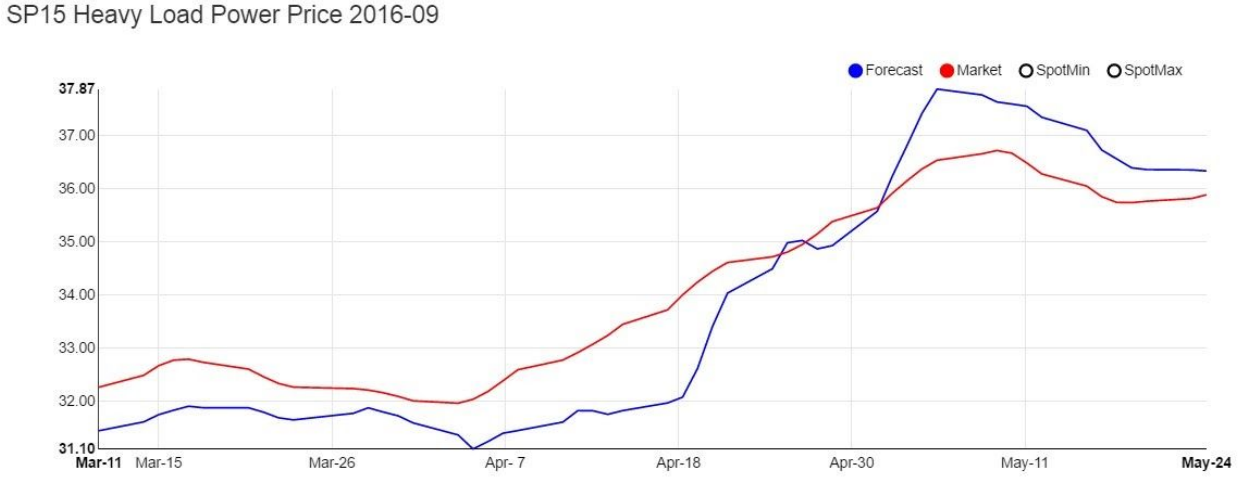
we would be strongly biased towards shorting the July heat rate, especially given our long biases elsewhere.

## August On Peak



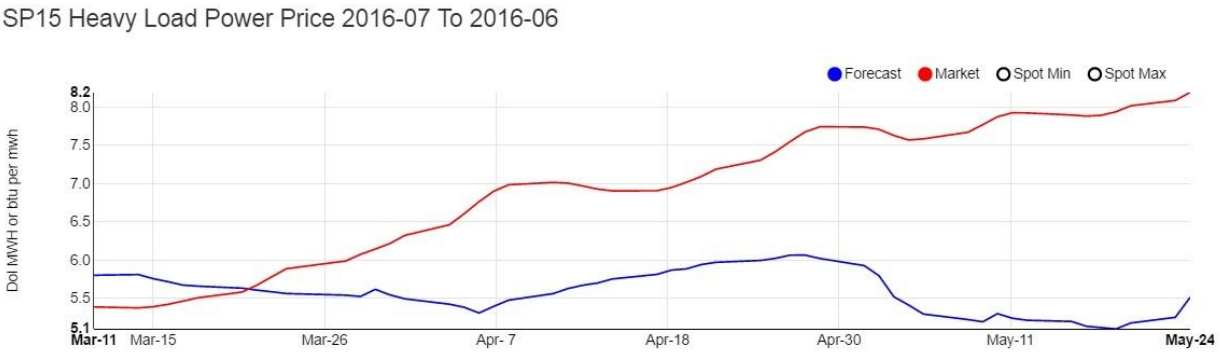

At first glance we'd be inclined to be short but given our stronger bias towards short July, and the fact the forecast does not have an Aliso premium, and the Aliso premium is greater in August than July, we are bullish here and would be long.

## September On Peak



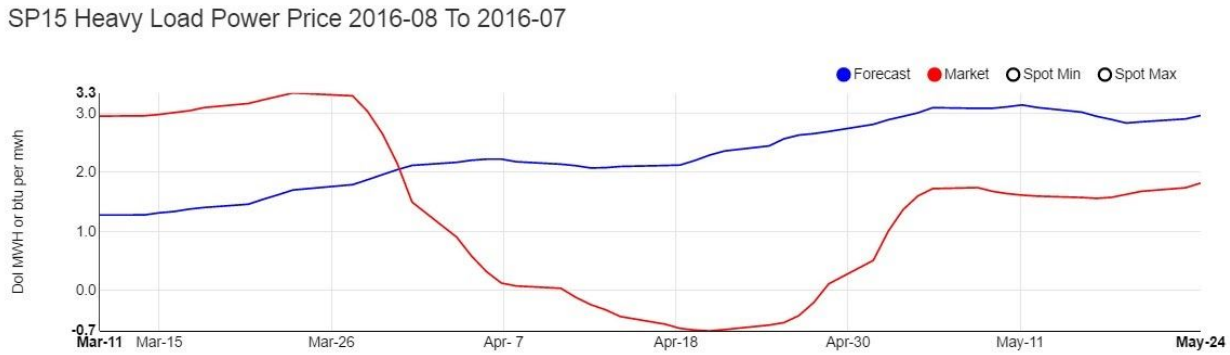

This is the first Q3 month with a forecast over the market and that forecast has no Aliso factor built in rendering our bias towards long.  But, given that September has less liquidity in May than June, July or August our focus would be on playing the June-August positions as spreads and rolls.

[July-June Roll]



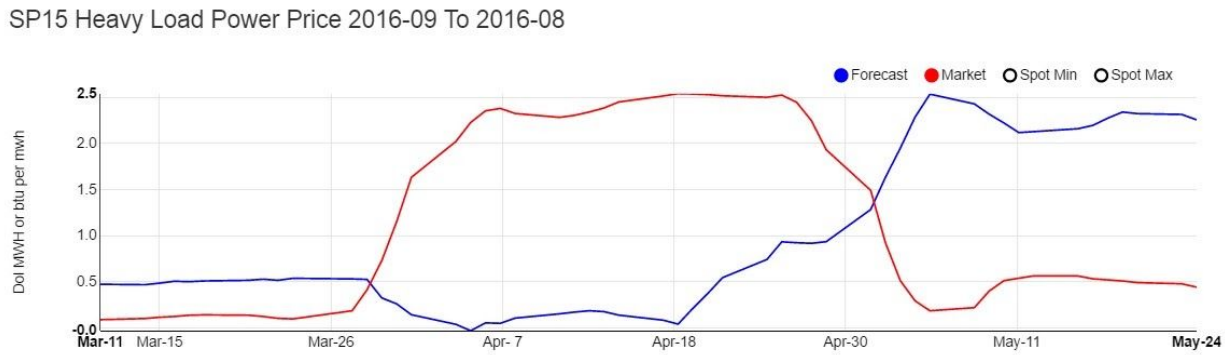

Bias: Strong Sell at these levels.

[August-July Roll]




For reasons stated above we are strongly biased towards owning the August over the July at this time.

[September - August Roll]

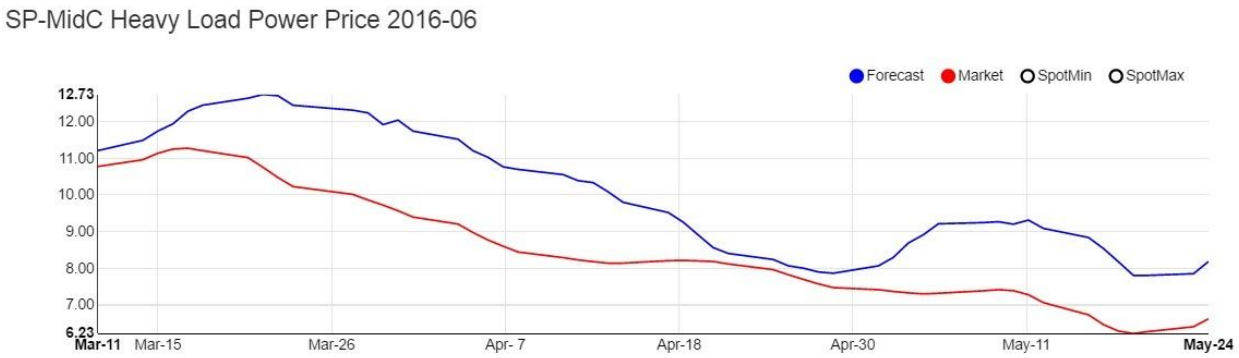



This roll, the Sep-Aug, at the time of writing, has liquidity issues but the recent market movement has rendered it a fairly compelling buy.  However, putting on large positions three

months out is something we genuinely try to avoid and besides, you don't need to do anything in September since you'll get the same price action from August.

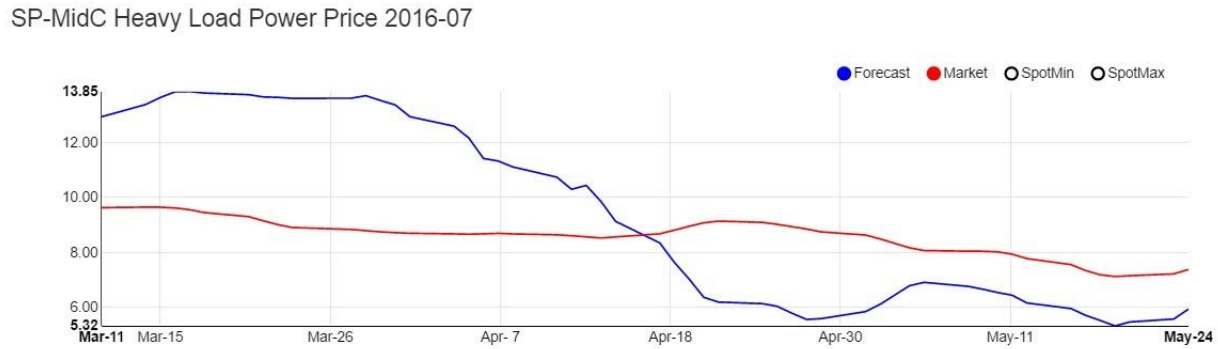
## Locational Spreads

[SP-MidC June]



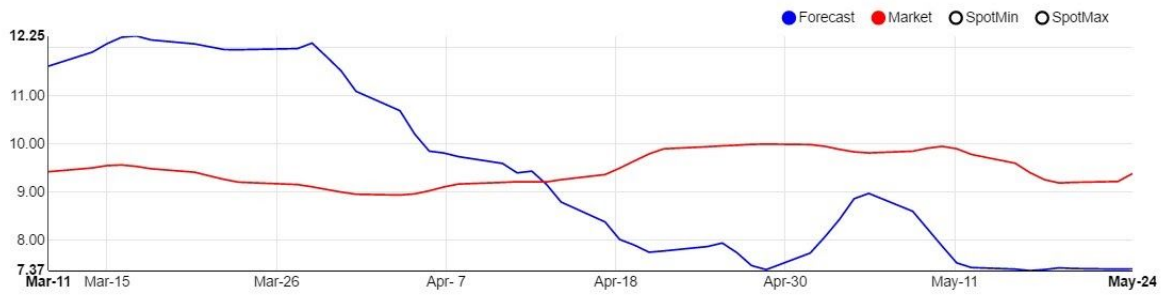

Not surprising, we like buying the June SP-MidC after the market has pummeled this spread to a $6 handle (from $11 in March). Throw in the Aliso lotto ticket and it becomes a compelling buy.

[SP-MidC July]




[SP-MidC Q3]

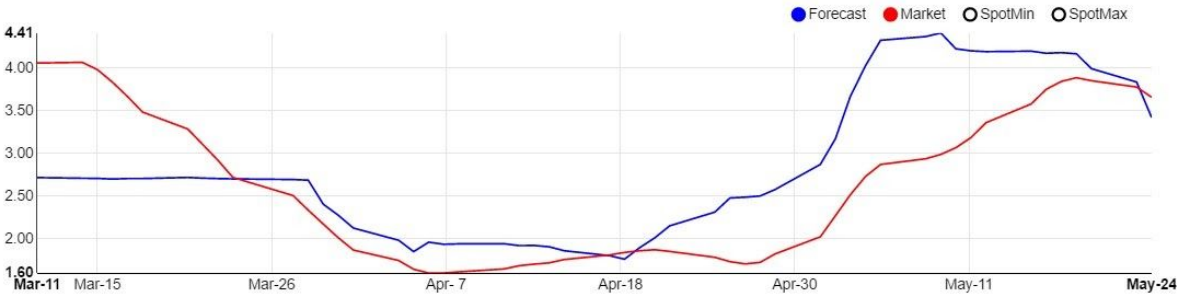
SP-MidC Heavy Load Power Price 2016-Q3




Despite our bias towards August and September SP15 we cannot buy the spread at today's levels as our outlook for Mid-C is just too bullish.  Should the market come in a few more dollars that sentiment will change.

SP-PV June

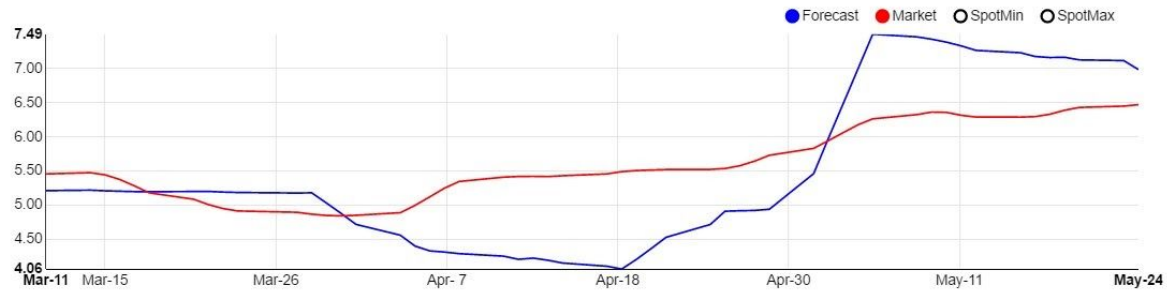
SP-Palo Heavy Load Power Price 2016-06




We have been bullish on this spread for nearly a month and the market has finally caught up to where we see value and therefore we no longer can  put out a buy on this product, at best we'd be hold even with the Aliso factor considered.

SP-PV Q3

SP-Palo Heavy Load Power Price 2016-Q3




Strong buy, even with July SP over-priced.

# Conclusions

Aliso canyon plays an important role in supplying natural gas to seventeen power plants in the LA basin on very hot days. On normal to cool summer days it serves no role, or at best a very small one, in the SP15 power markets. At this time there is no certainty how Socal Gas will operate the storage facility this summer. They may elect to not withdraw any Aliso gas, which increases the likelihood that there will be hours where the SP ratepayers experience power interruptions, or Socal may draw gas on hot days rendering no Aliso effect.

The market has priced July SP as if both the Aliso effect is very bullish and very certain of which we agree with neither assertion. In the very worst case the Aliso premium is worth $3-5, on average, but the probabilities are not high enough to warrant that premium being added to today's prices. We prefer length in August or September over July, and prefer June over July, but both of these trades have more to do with non-Aliso factors, though the Aliso affect would benefit either position.

Perhaps the best way to trade Aliso is from the gas side. The one Aliso certainty is there will be no injections this summer and on a normal day that means the loss of about 10% of Socal's demand. On those days we would expect the basis to collapse but on the very hot days there will not be enough gas to meet demand and basis will soar. And if Socal draws more gas out this summer it only puts more pressure on next winter where demand will exceed supply on any cool day.