

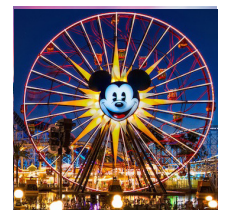
# Energy Risk Report

Procurement recommendations for commercial, industrial and institutional electricity users

SEPTEMBER 2019



# CAISO



**EBWAnalyticsGroup**

Andrew D. Weissman, Editor in Chief

[EBWAnalytics.com](http://EBWAnalytics.com)

## OUR PROJECTIONS AND RECOMMENDATIONS

Time Period	EBW* Recommendation	Price (\$/MWh)				
		09/23/2019	Trend Past Month	Trend Since January	12-Month Range	Year-Ago Actual Price
Bal. Cal 2019	Portfolio	\$38.75	\$1.72	-\$7.72	\$37.29-\$51.73	\$53.90
Cal 2020	Portfolio	\$38.18	\$1.26	-\$3.72	\$37.15-\$45.24	—
Cal 2021	Portfolio	\$39.32	\$1.39	-\$3.79	\$39.41-\$46.01	—

## Postponing Gas Retirements May Ease Tight Conditions in CAISO

**CAISO electricity futures soared since mid-August on a sharp increase in natural gas prices, elevated loads, and declining low marginal cost hydro output.** Balance of Cal 2019 surged \$3.00/MWh (8.3%), Cal 2020 gained \$1.83/MWh (4.6%), and Cal 2021 added \$2.07/MWh (5.1%). Rising natural gas prices—lifting the marginal cost of generation and market-setting price of electricity—were the primary contributor to gains, but strong seasonal heat, fading hydro output, and concerns about peak demand pricing amid a series of real-time price spikes all contributed to price gains.

**Natural gas prices at PG&E Citygates increased sharply, while a new round of maintenance boosted local gas prices in Southern California.** PG&E Citygates futures through Cal 2021 gained an average of 11¢/MMBtu (4.2%) since mid-August along booming national prices, propelling electricity prices higher. While the national increase was led by a short-covering rally and financial repositioning rather than a major shift in fundamentals, we do not expect prices will return to recent lows in the immediate future. Nonetheless, a period of consolidation—and lower prices on a very warm US weather forecast for October and November—appears the most likely scenario.

In Southern California, continued pipeline maintenance led to soaring gas prices as capacity has been cut through mid-November. In addition to sharply increased risks in the immediate term as heat and high demand linger, low local storage supplies may continue to support natural gas—and electricity—prices throughout the winter.

**The real-time market hints at problems facing the CAISO grid, with the Department of Market Monitoring noting both increasing negative real-time prices and real-time price spikes that are masking underlying problems.** **1** Growing incidence of negative pricing—reaching 13% of five-minute market intervals in April and May—continues to send the message that overgeneration of solar in particular is essentially going to waste, requiring either reduced dispatch or outright curtailment of excess supplies to balance the grid.

Despite generally low pricing, however, one warning sign is real-time prices briefly spiking to \$1,000/MWh during evenings—when solar output declines sharply. Although partially due to forecast

## Key Takeaways

### 1 Real-time spikes reveal underlying flexible capacity shortage.

Department of Market Monitoring 2Q2019 report notes emerging evening reliability issues as solar declines.

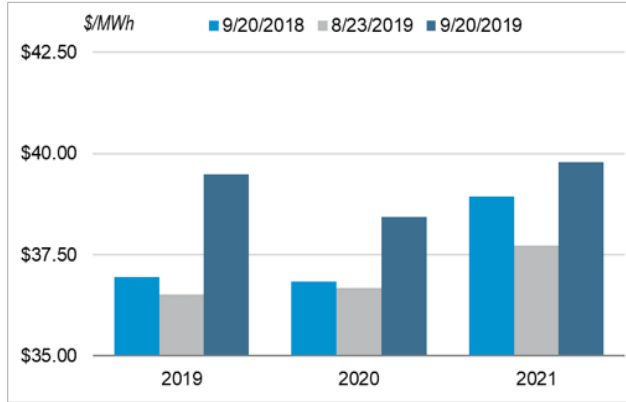
### 2 Capacity shortfall projections as high as 5.5 GW by Cal 2021.

Potential postponement of once-through cooling requirements may allow up to 3.7 GW of needed capacity to remain online beyond 2020.

### 3 Solar prices continue to fall, imperiling traditional rate structures.

Although LADWP signed a solar + storage project under \$20/MWh, solar proliferation is pushing SDG&E to sharply increase minimum bills.

CAISO NP-15 Day-Ahead Peak Futures (\$/MWh),  
Balance of 2019, 2020, and 2021



Source: EBW AnalyticsGroup, Bloomberg

errors, the spikes are a sign that increasingly flexible capacity is needed to manage generation intermittency in CAISO, likely raising total energy costs.

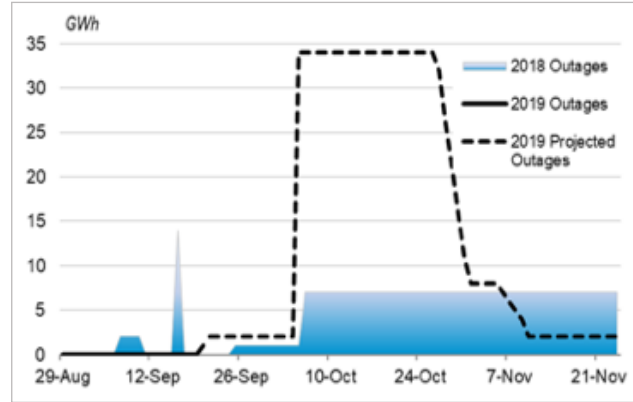
**CAISO reiterates a flexible generation shortfall—leading to a potential delay of once-through cooling 2 restrictions that may postpone 3,700 MW of coastal gas-fired generation.** Although CAISO has highlighted a potential shortfall of 2,300 MW in 2020, 4,400 MW in 2021, and 4,700 MW by 2022, analysis from Southern California Edison suggests risks of the capacity shortfall may reach 5,500 MW by 2021.

One partial solution is to postpone once-through cooling requirements that are leading to the premature retirement of 3.7 GW of gas-fired generation. The majority of at-risk capacity has operated at very low capacity factors with meager energy output, minimizing environmental damage, yet provides critical capacity to the grid. Southern California Edison service territory, the locus of pending gas-fired plant retirements, may see 1.7 GW of near-term procurement to maintain reliability.

Although actual grid reliability issues remain unlikely, shortages may be built into forwards either directly via risk premiums or more indirectly contribute to rising costs by requiring additional contracted generating resources to provide capacity and boost non-energy costs.

**The continued advancement of solar and storage has led to historically low pricing—and to significant changes in**

Lost Daily Generation (GWh) from Nuclear Outages in CAISO,  
2019 vs 2018



Source: EBW AnalyticsGroup, Bloomberg

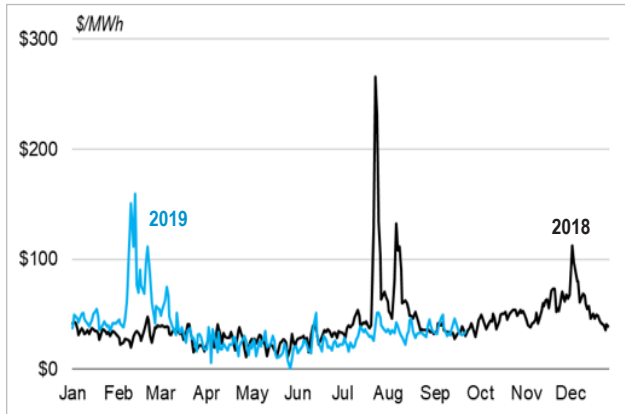
**rate structures.** 3 Los Angeles Department of Water and Power (LADWP) recently inked a 300 MW/1,200 MWh solar + storage project for under \$20/MWh—the latest sign of continued pricing declines.

Nonetheless, SDG&E has proposed increasing minimum bills four-fold to account for rising fixed system costs as solar generation proliferates—a \$420 million cost shift from solar customers to non-solar customers. Although a rising minimum residential bill likely benefits commercial and industrial end users in isolation, the proposal hints at a potential wholesale transformation of traditional rate structures in CAISO.

**We recommend maintaining a portfolio approach to limit outstanding risk while potentially benefiting from falling actual prices despite futures.** Cal 2020 and Cal 2021 full-year futures pricing is now higher than actual costs in four of the past five years. The current outlook remains mixed and dependent on regulatory action to address the outstanding capacity deficit. If no action is taken, futures may continue to push significantly higher; alternatively, sufficient action to address threats may refocus market attention on low realized pricing despite elevated fixed costs.

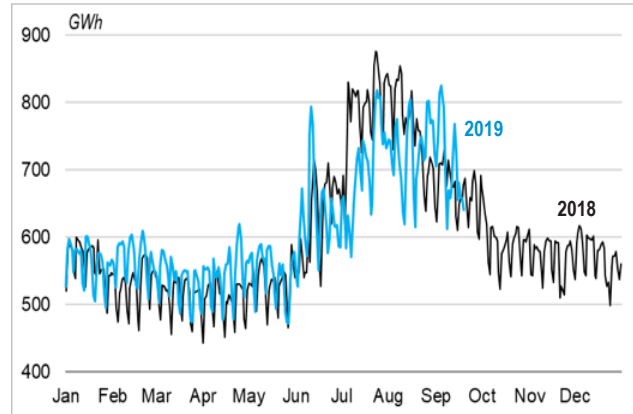
Still, in the face of emerging real-time price spikes and apparent shortage of current system capacity for Cal 2020 and beyond, end users would remain well-served to steadily reduce outstanding risk exposure should market relief fail to come to fruition. ■

CAISO NP-15 Day-Ahead Peak Electricity Prices, 2019 vs 2018 (\$/MWh)



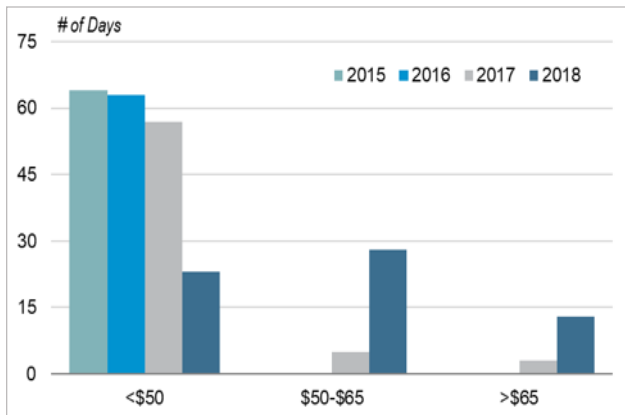
Source: EBW AnalyticsGroup, Bloomberg

CAISO Daily Generation (GWh), 2019 vs 2018



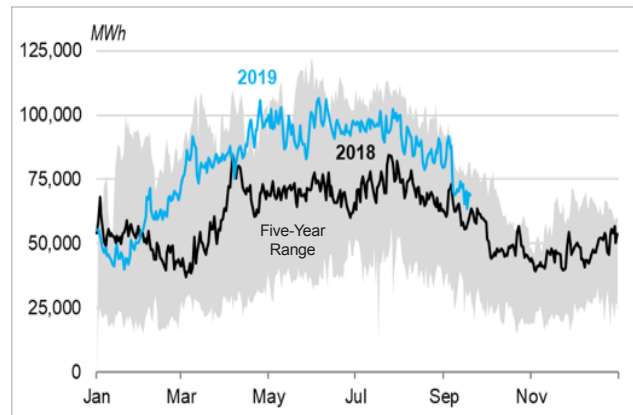
Source: EBW AnalyticsGroup

CAISO NP-15 Daily High and Scarcity Prices (\$/MWh), Number of Days in October–December, 2015–2018



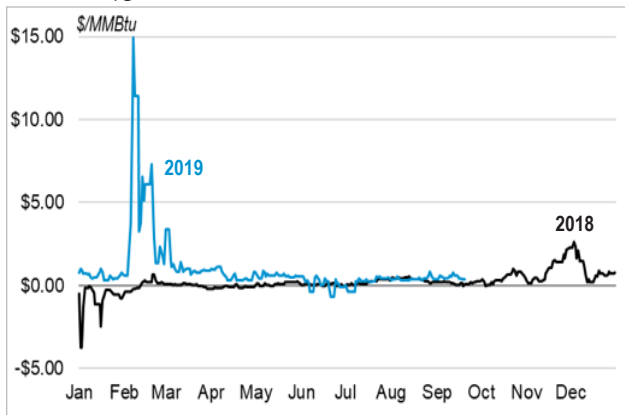
Source: EBW AnalyticsGroup, Bloomberg

CAISO Daily Hydro Generation, 2019 vs 2018 and Five-Year Range (MWh)



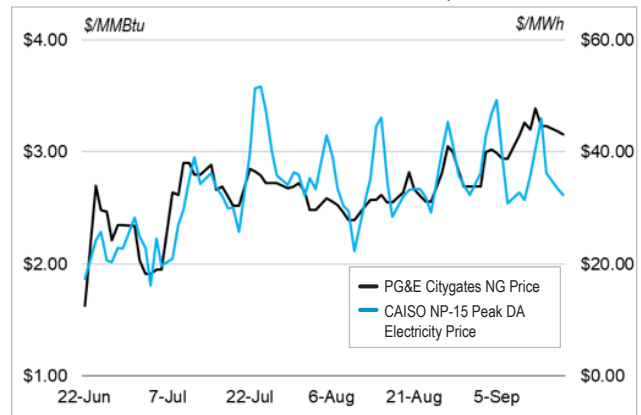
Source: EBW AnalyticsGroup, Ventyx

PG&E Citygates Hub Basis Differential, 2018 vs 2019 (\$/MMBtu)



Source: Bloomberg

CAISO Natural Gas (\$/MMBtu) and Electricity Prices (\$/MWh)



Source: EBW AnalyticsGroup, Bloomberg



# Energy Risk Report

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## EBW Analytics Group

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**Glossary:** Our recommendations are made for a hypothetical commercial or industrial end user that consumes large amounts of electricity. With that in mind, end users must decide the timing to cover their electricity requirements.

"Wait" means that in our view prices are elevated and end users can get a better value by waiting for prices to fall.

"Buy" means that in our view prices are cheap relative to their true value, and end users are better served to buy now before prices rise.

"Portfolio" is more of a middle ground reflecting more balanced upside and downside risks. By taking a portfolio approach to procurement, end users cover a portion of requirements regularly to reduce upside risk exposure, but still retain downside potential should prices fall. In this light, a portfolio approach to procurement could be considered a cousin of dollar-cost averaging.

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