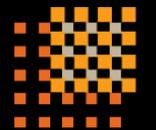


2019  
STATE OF  
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IN NORTH AMERICA  
**Webinar Series**



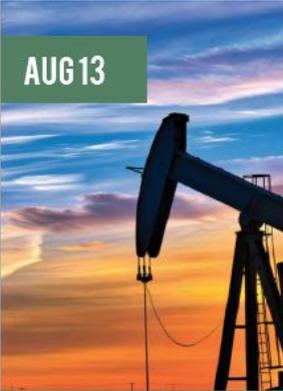
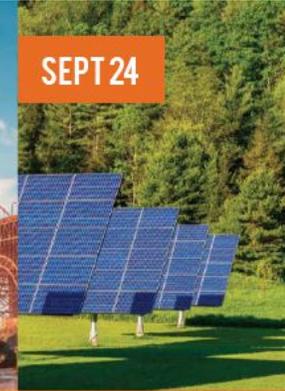
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**2019**

# **STATE OF THE CALIFORNIA ENERGY MARKET**

Utility Troubles, The Duck Curve, and DERs  
collide in the Golden State



 <p><b>AUG 13</b></p>	 <p><b>AUG 20</b></p>	 <p><b>AUG 27</b></p>	 <p><b>SEPT 5</b></p>	 <p><b>SEPT 10</b></p>	 <p><b>SEPT 24</b></p>
Texas	Ontario	New York	PJM	California	New England

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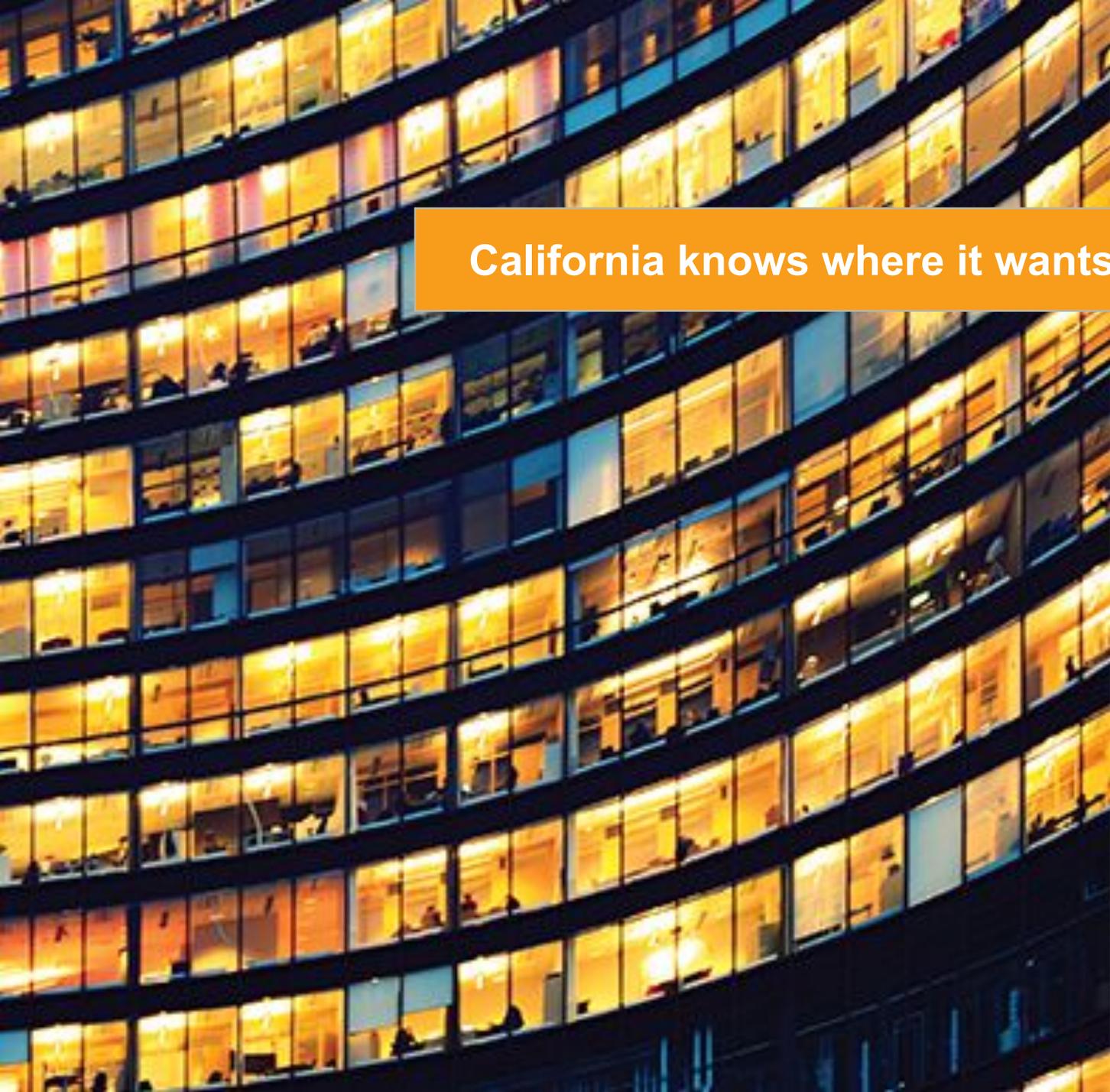
# Presenters



**Jennifer Chamberlin**  
Executive Director, Market Development  
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## California knows where it wants to go, but how will the state get there?

California continues to be at the forefront of energy's evolution in the U.S.

While the destination of a clean, reliable energy future is largely agreed on by California's major energy players, the road may be a bit bumpy depending on whether those players can get along.

# Who are the major energy players in California?

**California  
Independent  
System Operator  
(CAISO)**

**California Public  
Utilities Commission  
(CPUC)**

**California Energy  
Commission (CEC)**

**Electric Utilities**

**Electric Service  
Providers (ESP)**

**Community Choice  
Aggregators (CCA's)**



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# The California Energy Market:

California's wholesale energy market is comprised of

1) a day-ahead process 2) a real-time process, and 3) ancillary services.

The products and services traded within the California market help CAISO serve load and meet the state's reliability needs.

## What's driving low energy prices and high rates in California?

California is currently an over-resourced state.

Inexpensive natural gas and renewable surpluses have distorted energy market prices, depressing them overall.

There are currently 17 constrained areas where reliability is a concern for CAISO.



# Who's got the power in California?



## **Community Choice Aggregators (CCAs)**

Within five years, 40 or more CCAs are predicted to be in operation, providing power services to an estimated 80% of customers in the state.

## **Electric Utilities**

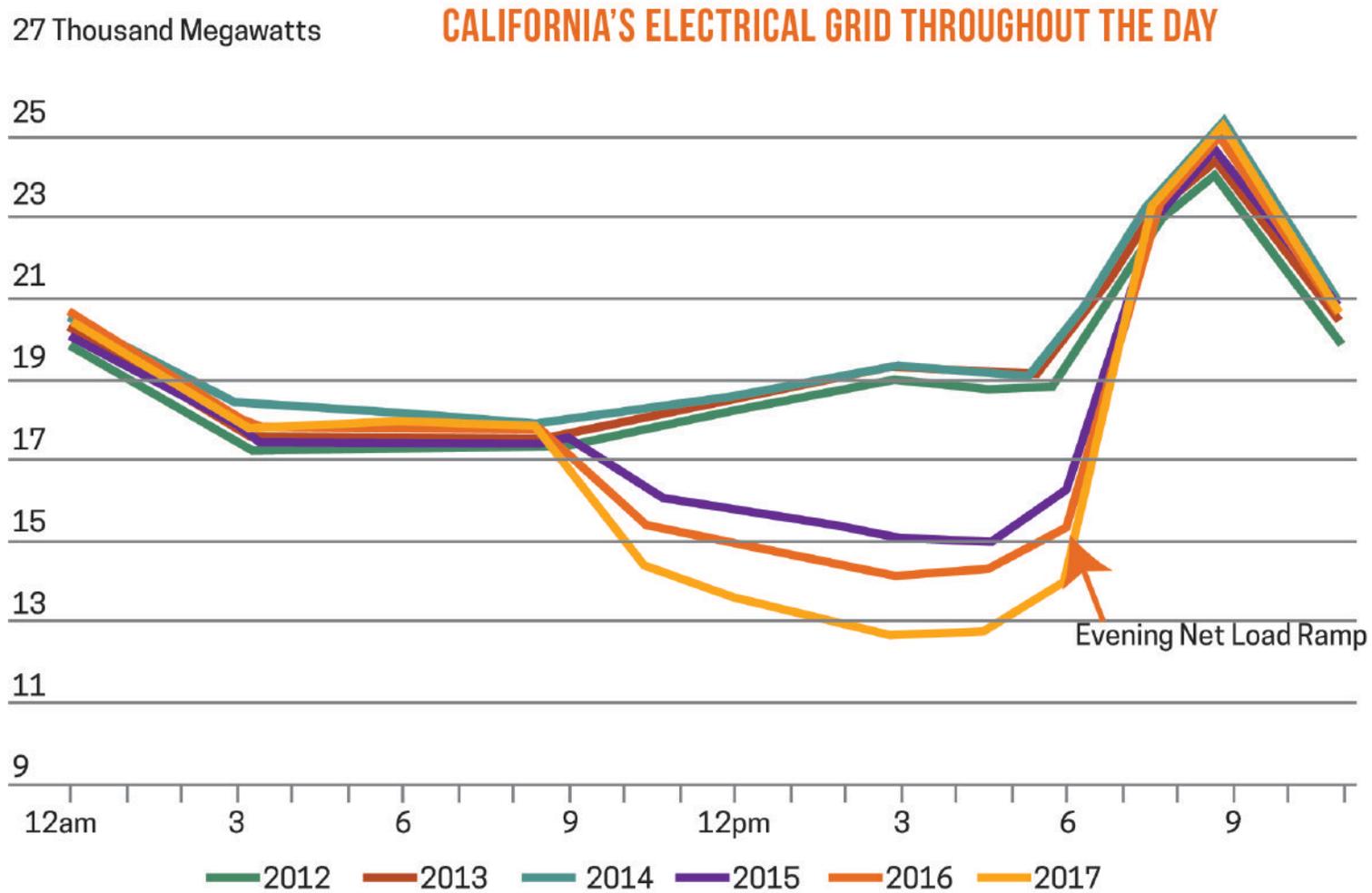
Public trust in utilities has waned in recent years due to incidents related to gas leaks, wildfires, and more.

A potential mass exodus of customers from heavily regulated utilities to less-regulated CCAs presents short and long-term reliability concerns as well as resource flexibility anxieties for CAISO.

California, in turn, is looking to task utilities with the responsibility of central planning for local areas.



# The Duck Curve



# A Steady Diet of Storage...



The duck's belly may not get fatter in 2019, but it's still going to be heavy.

To help alleviate grid stress associated with evening load ramp, CAISO is developing a load-shifting program.

This will be the state's first product that will pay a resource to consume energy to soak up excess generation during negative pricing periods.



# Demand Response in California

The CPUC has ordered California utilities to implement new time-of-use electricity rates to incentivize customers to shift their usage away from evening times when net load ramp on the grid is at its highest.

One way an organization can offset those costs is by participating in demand response.

# Demand Response in California

Demand Response programs pay organizations for using less energy when the grid is stressed or energy prices are excessively high.

## **Capacity Bidding Program (CBP)**

The CBP is an aggregator-managed program that operates with Day-Ahead and Day-Of options and runs year-round in the SCE Territory and May 1 thru October 31 elsewhere throughout the state.

## **Demand Response Auction Mechanism (DRAM)**

is a pay-as-bid program developed in 2014 under the guidance of the California Public Utility Commission (CPUC) in an effort to harmonize utility-based reliability demand response with CAISO, the state's grid operator.

## **Base Interruptible Program (BIP)**

is intended to provide emergency load reduction on utility systems on a short-notice basis when the utility issues a dispatch. Customers enrolled in the program will be required to reduce their load down to or below its Firm Service Level (FSL).



# What's new with demand response in California?

CAISO will be changing its availability assessment hours from midday to evening, requiring DR resources to be available instead from 4pm-9pm year-round.

DRAM participants in certain utilities, however, have the option to select and perform during the new hours since the DRAM program was grandfathered into CAISO's resource adequacy availability assessment hours.

## **Distributed Energy Resources and Demand Response Participation**

Non-fossil DERs can participate in all of California's demand response programs. Fossil fuel-fired DERs can not. This is fundamental to demand response in California and likely will not change regardless of how DR evolves in the state in the coming years.

As the Golden State continues to lead the US into a future away from fossil fuels and toward renewable sources, expect DERs to make up an increasingly significant portion of its grid's mix.





# Who wins the future? Flexible resources.

In the near future, organizations with flexible resources at their disposal will have an advantage when it comes to earning money for helping the grid.

California is committed to integrating renewables into its electrical grid.

The load-shift product is set to launch in November 2020.

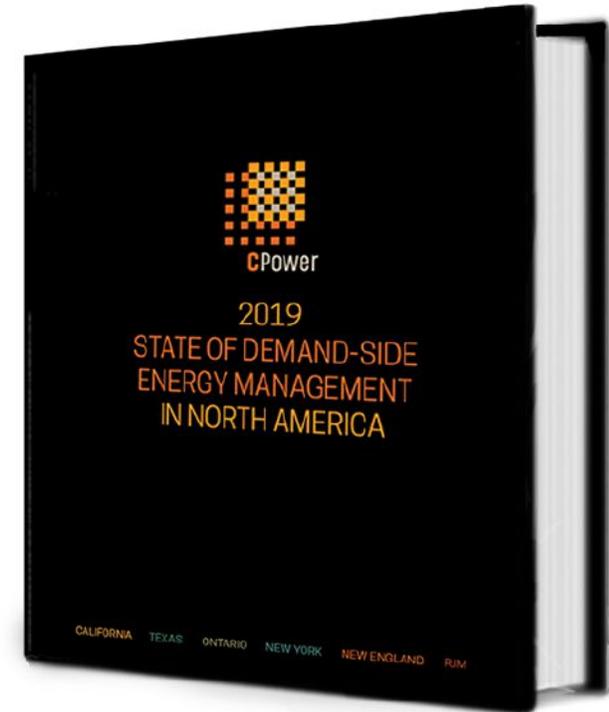
In its wake, expect a series of flexible resource products to be proposed, reviewed, and eventually launched.

In the very near future, there is going to be a potentially significant earning opportunity for organizations that can quickly dispatch flexible resources when the grid is stressed or market prices are exceedingly high.

# The *definitive* guide for organizations that use energy.

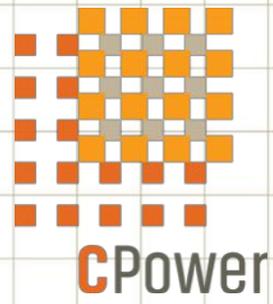


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Questions?



**THANK YOU!**

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