



# Low Reserves in the Lone Star State

How demand response will reduce risk and create revenue in 2019



# What we will cover today...

## The Texas Energy Market:

How is it structured?

How is it evolving to meet future needs?

## Demand-Side Energy Management in ERCOT

What opportunities exist?

How is ERCOT changing?

How can your organization position itself for success?

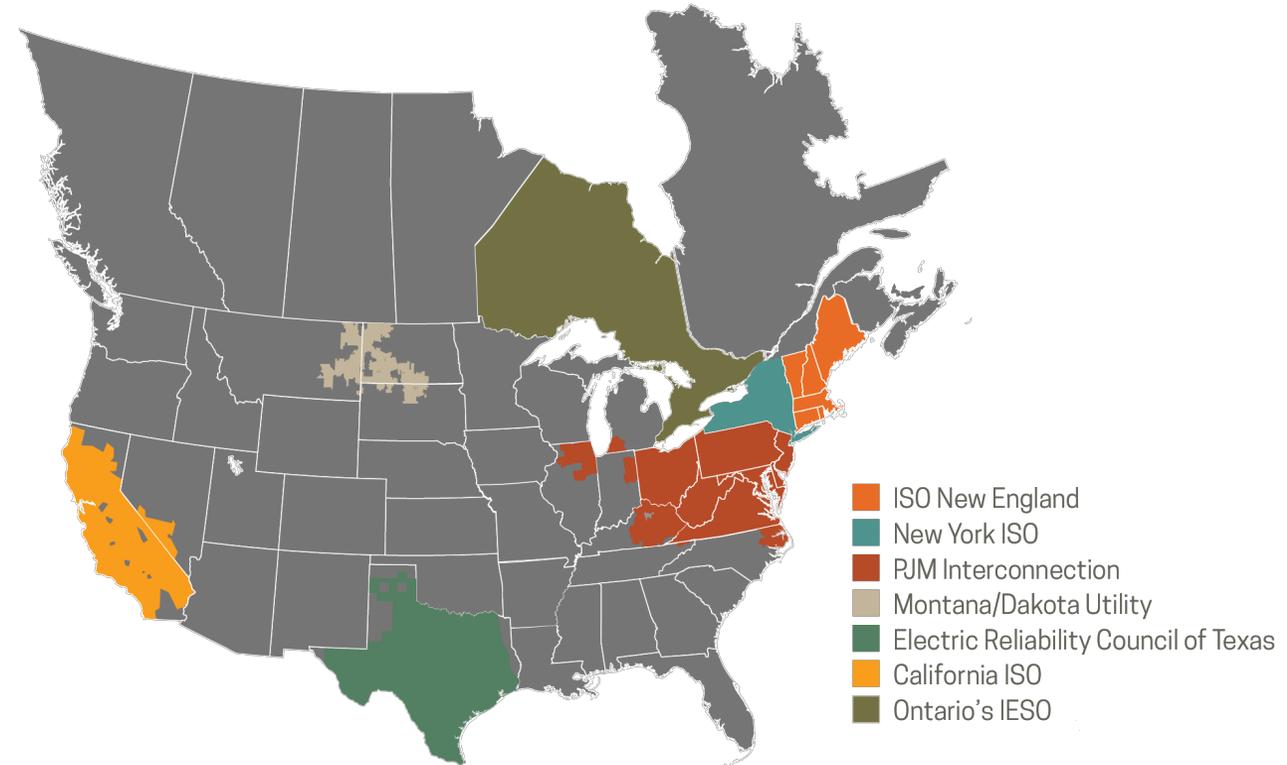
# CPower is a demand-side energy management company.

We help organizations like yours **SAVE** on energy costs, **EARN** revenue through energy curtailment, increase grid reliability, and achieve your sustainability goals.



# CPower is a demand-side energy management company.

- CPower is one of the largest curtailment service providers in North America.
- We serve each of the six open energy markets in the US and the Ontario Market
- We help more than 1,400 customers at nearly 9,000 of sites in the US and Ontario.



# CPower is a Big in Texas.



- CPower has served ERCOT since 2007.
- We currently have over 340 MWs under management and 86 commercial and industrial customers in the ERCOT market.

# Today's Presenters

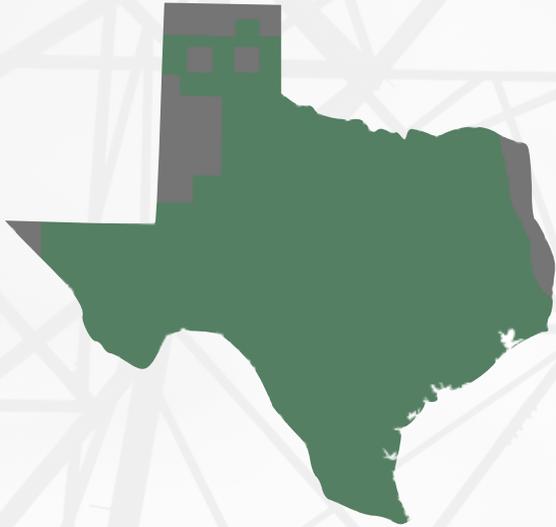


**Joe Hayden**  
VP & General Sales  
Manager

**Michael Hourihan**  
Market Development  
Manager

# ERCOT

## Electric Reliability Council of Texas



- Nation's first independent system operator (ISO) established in 1999
- Manages the flow of electricity to 24 million Texas customers (95-90% of the state's electric load)
- 46,500 miles of transmission lines
- 570+ generation units

# How is the ERCOT market structured?

ERCOT is an energy-only market.

It does NOT have a capacity market.

What's the difference?  
(how curious of you to ask!)

# Capacity Market vs. Energy Market

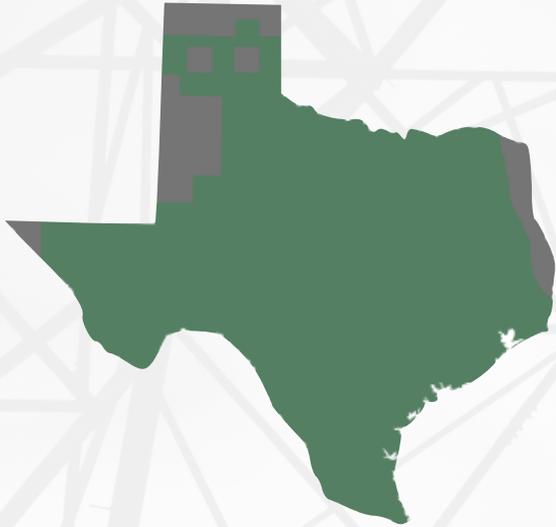
## Capacity market:

- ISO procures capacity in advance of its delivery date (forward capacity market)
- Generators and demand response participants are paid to be on stand-by at all times.

## Energy market:

- ISO does NOT procure capacity in advance of its delivery.
- Generators are NOT paid to be on stand-by.
- Generators are paid only when they produce energy.

# ERCOT



## Why is the ERCOT market structured the way it is?

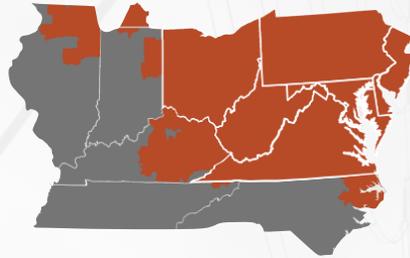
ERCOT's mission is to maintain grid reliability while providing better options for keeping prices low for Texas ratepayers.

# ERCOT

**Most things are bigger in Texas,  
but not our operating reserves or our electricity prices.**

## PJM

- Forward Capacity Market
- Higher Reserve Margins
- Higher Capacity Charges



VS



## ERCOT

- Energy Only Market
- Lower Reserve Margins
- Lower Capacity Charges

# Summer of 2018: ERCOT's Proving Ground

Heading into Summer 2018,  
ERCOT was facing a perfect storm:

- Low reserve margin
- Record peak demand
- Near-record heat wave

The ERCOT grid held, prompting naysayers and the  
industry to take notice.

# ERCOT's Reserve Margins



## ERCOT's Capacity Reserve Margin

The projected amount of available generation when the ERCOT grid is predicted to be at its most stressful point.

Calculated by subtracting demand from supply.

ERCOT targets 13.75% of peak electricity demand for its capacity reserve margin target.

# ERCOT's Reserve Margins

**Heading into Summer 2019,  
ERCOT's reserve margin is predicted to  
drop to 7.4%.**

This would be a record low.

# ERCOT's Reserve Margins

## Low Reserve Margins

### Bad News

- Scarcity pricing can trigger
- Electricity prices can spike

### Good News

- High prices translate into ERCOT's day-ahead ancillary services capacity procurements
- Financial opportunity for Load Resource Participants

# Demand Response in ERCOT

## Demand response programs

pay organizations like yours for using less energy when the grid is stressed and/or when electricity prices are high.



[Learn the basics at CPower's Demand-Side Energy Management 101.](#)

# Demand Response in ERCOT

## Emergency Response Service (ERS)

- ERCOT's entry-level DR programs
  - Two types of ERS:
    - ERS 10 (10 minute dispatch window)
    - ERS 30 (30 minute window)

## Load Resource (LR)

- More lucrative program
  - 2-3 times more rewarding
  - May be called more often
  - Total MW are capped by ERCOT

# Load Resource and Proration

ERCOT procures between 2,300-2808MW of Responsive Reserve Service (RRS) each hour.

By rule, only 60% of that procurement can be served by Load Resources (LR).

If more LRs bid in the RRS market, below the RRS clearing price, than the 60% cap allows, all LRs are “prorated” down to arrive at the 60% capped MW amount

# Why Prorate?

The reason ERCOT prorates lies in its market design.

Unlike other markets which maintain higher capacity reserve margins at the expense of rate payers, ERCOT is very careful to NOT over procure resources.

# An example of LR proration

Suppose ERCOT procures 2,800 MW of RRS in an hour.

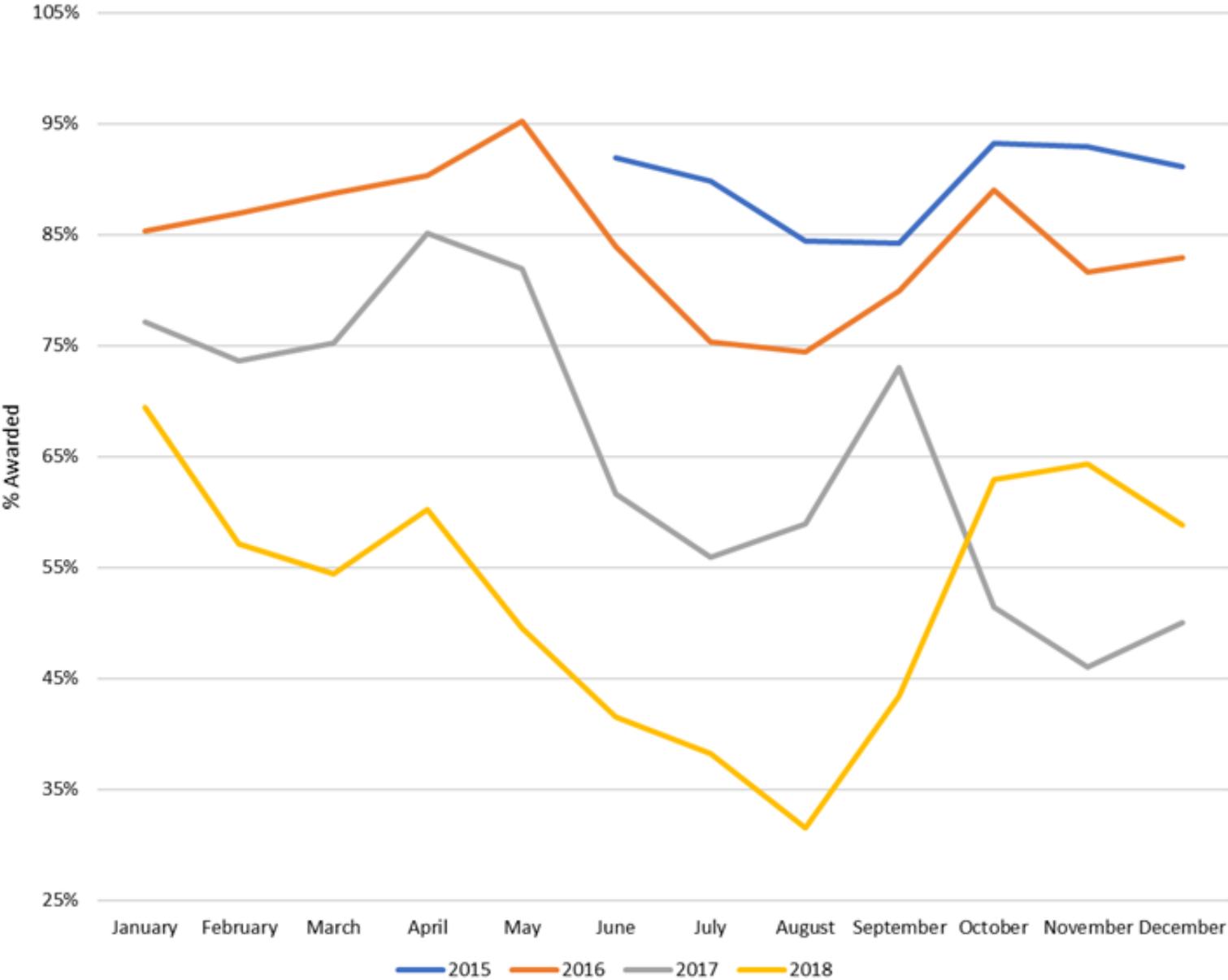
Since only 60% of that procurement can be LR, LR is capped at 1,680 MW.

Now suppose that 2,100 MW offer into the market and are accepted in the day-ahead market.

ERCOT will reduce the 2,100 MW of LR down by the same % to arrive at the 1,680 MW threshold.

In this case, LR proration is 80% ( $1,680/2,100$ ), meaning participants are earning 80% of what they would be earning without proration.

# LR Average Proration



# The Effects of Proration

**The more MWs that enter the LR market,  
the greater proration will be.**

That means once-lucrative earnings are being diluted due to market saturation.

What can your organization do to maintain LR earnings?

# To Fix or Not to Fix?

## Indexed vs Fixed LR Offering

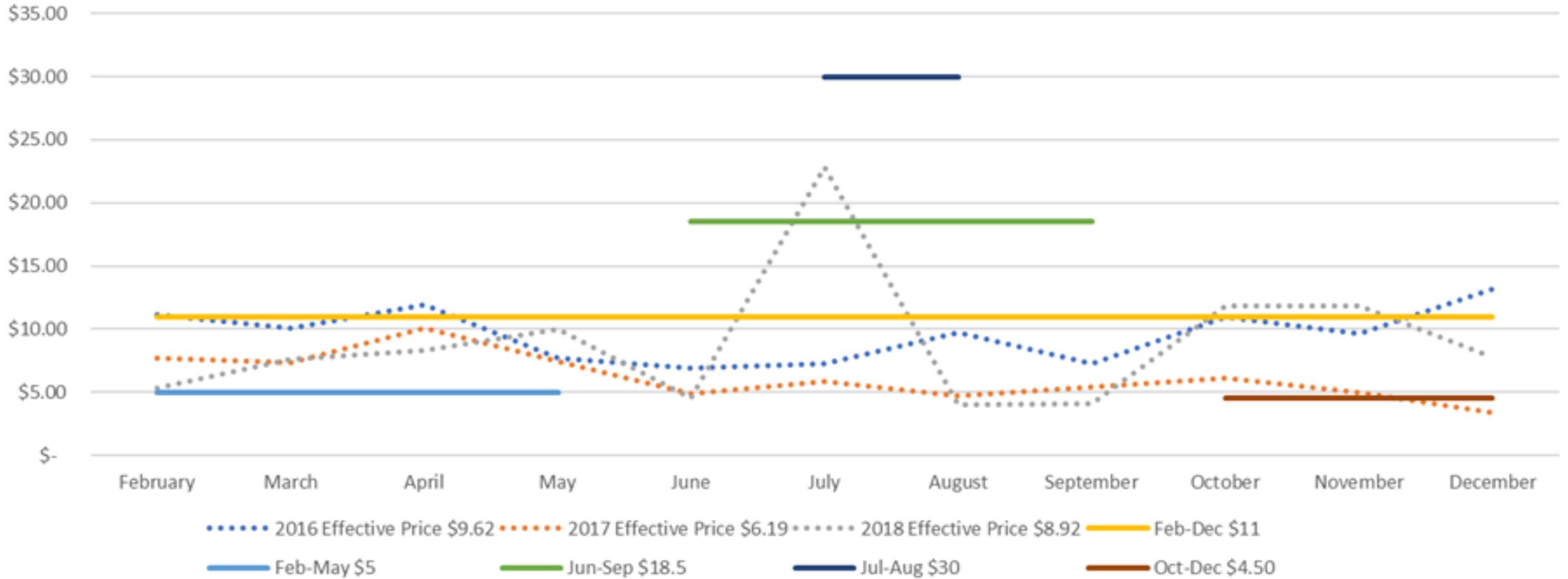
### Indexed

- Standard LR offering
- Based on market dynamics, grid conditions, weather
- Could lead to a home run
- Subject to proration, which could lead to diluted earnings

### Fixed

- Locks in an average, weighted return for specific period of time.
- Not subject to proration
- Stable and attractive to the risk-averse

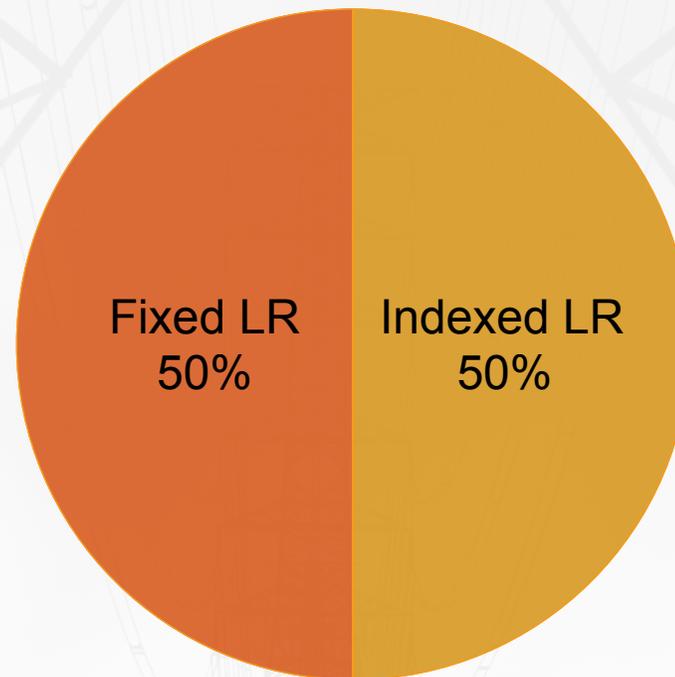
## Hypothetical Fixed Price Offers (2019)



# Balance Your DR Portfolio

**Hedge against uncertainty with a combination of fixed and indexed LR.**

Lock in certain rates above the historical averages with fixed LR.



Position yourself for a nice reward during the few scorching days during the summer and extremely cold days during the winter with indexed LR.

# Increasing Your Site's Resiliency with DG

**Distributed Generation (DG) resources can participate in LR or ERS.**

Emergency generators

Under Frequency Relay (UFR)

Automation

Other Distributed Energy Resources (DERs)

# Market Updates

ERS time periods are changing

Ancillary Services are also changing over the next few years.

There will be a new program in 2022 ECRS

# Stay up-to-date with the latest In ERCOT.

Ask your account executive about CPowered email updates.



March 2019

Greetings,

There is a lot going on in the ERCOT energy market. That's why we are rolling out a series of updates to help keep you apprised of the demand management landscape to help your clients get the most out of their overall energy strategy.

Let us know what you think or how we can make future updates even more useful.

As always, if you have any questions, don't hesitate to ask.

Thanks!

-Adam



March 2019

## Reserve Margins:

- Forecasted to be tighter than the single digit forecast was for 2018 to a record 7.4%

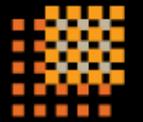
## ERS Update:

- Added two new Time Periods going from 6 to 8 starting in the OCT-JAN Time Period

## LR Update:

- As more loads participate in LR, proration increases.
- Proration causes once-lucrative earnings to become diluted.
- CPower can help your customers avoid proration with fixed-rate LR.
- Sign up for CPower's March 21st webinar to learn how





CPower

# 2019 STATE OF DEMAND-SIDE ENERGY MANAGEMENT IN NORTH AMERICA

CALIFORNIA

NEW YORK

PJM

TEXAS

NEW ENGLAND

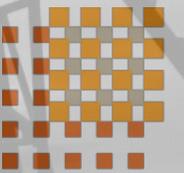
ONTARIO

Learn more about what's affecting  
ERCOT and demand-side energy  
management in North America.

(It drops next week!)



**Questions?**



**CPower**

# Contact CPower's ERCOT team

with any questions

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**THANK YOU for attending!**

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