Item 5.3: 2018 Summer Markets – Factors that Drive Pricing Outcomes

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Price Adders Overview

Two types of price adder:

Reserves Price Adder (ORDC)
- Reflect value of reserves
- Increase as reserves decrease

Deployment Price Adder (RTORDPA)
- Align pricing with system conditions
- Triggered by reliability deployments like RUC
- Two SCED runs

Local Marginal Price (LMP) determined by SCED

ORDC and deployment price adders

Real-Time Settlement Point Price (SPP)
Operating Reserve Demand Curve (ORDC)

Real-Time reserves lower the probability of ERCOT load curtailment.

Avoiding ERCOT load curtailment has value (VOLL).

Value of reserves is the value of avoiding load curtailment.

ORDC Price Adders are the product of the probability of reserves falling below the minimum level and the difference between the Value of Lost Load and System Lambda.

Value of Lost Load = 9000 $/MWh

Value of reserves increases with the risk of curtailing load.

ORDC Curve
Summer 2018, Hours Ending 15-18
## Determining the ORDC Curve

The probability that reserves fall below the minimum level is determined by historical values with different probabilities reflected by 6 ORDC curves for each season.

<table>
<thead>
<tr>
<th>Online Reserves Price Adder</th>
<th>Offline Reserves Price Adder</th>
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</thead>
<tbody>
<tr>
<td>Value of capacity able to respond immediately</td>
<td>Value of capacity that would be able to respond in 30 minutes</td>
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<tr>
<td>Contributes to preventing load curtailment in both halves of the hour</td>
<td>Contributes to preventing load curtailment in the second half of the hour</td>
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<tr>
<td>Probability of reserves falling below a minimum level over 30 minutes</td>
<td>Probability of reserves falling below minimum level over second half of the hour</td>
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Reliability Deployment Price Adder

Deployments triggering RTORDPA:
- Reliability Unit Commitment (RUC)
- Reliability Must-Run Commitment (RMR)
- Load Resources other than Controllable
- Load Resources
- Emergency Response Service (ERS)

Purpose
When operators take actions for reliability purposes prices may not reflect system conditions. Reliability Deployment Price Adder counteracts the pricing effect of deployments.

Calculation
SCED is run a second time, removing the reliability deployment MWs.

The Price Adder is the difference between observed prices and prices without the reliability deployment.