ERCOT Market Education

Wholesale Markets 201

Adjustment Period
Upon completion of this module, you will be able to:

- Describe ERCOT activities & processes associated with the Adjustment Period
- Summarize the types of information that can be “adjusted” by QSEs
- Identify potential financial impacts of Adjustment Period activities
Adjustment Period Timeline

Day 1
- DAM
- DRUC
- Day-Ahead Operations

Day 2
- Hour-Ahead
- Operating Hour
- Operating Period

0600 Day-Ahead Begins
1800 Day-Ahead Complete
00:00 Midnight
60 minutes prior to Operating Hour

Adjustment Period
The Adjustment Period Activities

ERGOT may open a Supplemental Ancillary Services Market (SASM)

QSEs may

- Update Offers
- Report Trades
- Revise Resource Commitments
- Shift Ancillary Service Responsibilities
ERCOT Activities during the Adjustment Period

ERCOT may open a Supplemental Ancillary Services Market (SASM)

- Allows ERCOT to procure additional Ancillary Services
- May be for one or more hours
- No co-optimization with energy
Reasons for a Supplemental Ancillary Services Market

1. Individual QSEs fail to provide their Ancillary Service Supply Responsibility

2. Ancillary Service capacity is deemed infeasible due to Transmission Constraints

3. More Ancillary Service capacity is needed beyond what was identified in the Day-Ahead Plan.

4. There were insufficient Ancillary Service Offers in DAM

SASM

Awarded AS Offers
SASM Process Timeline

ERCOT

Notify:
- QSEs of SASM
- QSEs of additional AS Obligation

 Begin

 30 min

Submit:
- Self-Arranged AS
- AS Offers

QSE

Execute SASM
Post on MIS:
- QSE Awards
- Procured QTYs
- MCPCs

 15 min

Validate Updated Current Operating Plans

 15 min

Submit Updated Current Operating Plan

SASM notification must occur at least two hours before the Operating Hour in which the AS capacity is needed
QSE Activities during the Adjustment Period

Update Offers

Report Trades

Revise Resource Commitments

Shift AS Responsibilities

Reg-Up
Reg-Down
Responsive
Non-Spin
During the Adjustment Period:

- May be submitted for the first time
- Energy Offer Curve may be updated
- Startup and Minimum Energy Offers may be updated for hours in which the Resource is not DAM-Committed or RUC-Committed
During the Adjustment Period:

- May be submitted for the first time

- Must be updated for Resources providing On-Line Non-Spin Reserve Service
On-Line Non-Spin Reserve Service:

- Floor price for portion of Energy Offer Curve
- Non-Spin Responsibility priced at or above $75
During the Adjustment Period:

- May be submitted for the first time
- May be resubmitted with new price or quantity
Ancillary Service Offers after DAM

**Why submit Ancillary Service Offers after DAM?**

**Why resubmit un-cleared offers with a new price?**

**What is different about how these offers are used?**
QSE Activities during the Adjustment Period

- Update Offers
- Revise Resource Commitments
- Report Trades
- Shift AS Responsibilities

- Reg-Up
- Reg-Down
- Responsive
- Non-Spin
Reporting Trades

Bilateral Trades

- Financial transactions between QSEs
- Transfer financial responsibility

Types

- Capacity
- Energy
- Ancillary Service
## QSE Activities – Report Trades

### Submittal Criteria by Trade

<table>
<thead>
<tr>
<th>Information Needed</th>
<th>Energy Trade</th>
<th>Capacity Trade</th>
<th>AS Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buying QSE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Selling QSE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Type of AS:</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Settlement Point:</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MW quantity for each Settlement Interval</td>
<td>15 minute</td>
<td>Hourly</td>
<td>Hourly</td>
</tr>
<tr>
<td>Deadline for Submission</td>
<td>1430, Day after Operating Day</td>
<td>End of Adjustment Period</td>
<td>End of Adjustment Period</td>
</tr>
</tbody>
</table>
Buyer and Seller must confirm Trades

Trades do not “exist” until both QSEs agree

• One QSE reports the trade
• The other QSE confirms the trade

Once confirmed, either QSE may reject a Trade if the deadline for doing so has not passed.
Energy and Capacity Trades have only Financial Impacts

Energy Trade

- Energy supply/obligation in Real-Time
- Capacity supply/obligation in subsequent RUC

Capacity Trade

- **No** Energy supply/obligation in Real-Time
- Capacity supply/obligation in subsequent RUC
Ancillary Service Trades have both Financial and Operational Impacts

Ancillary Service Trades

- Decrease Buyer’s Ancillary Service Supply Responsibility
- Increase Seller’s Ancillary Service Supply Responsibility
QSE Activities during the Adjustment Period

Update Offers

Report Trades

Revise Resource Commitments

Shift AS Responsibilities

Reg-Up
Reg-Down
Responsive
Non-Spin
The COP is the QSE’s tool for indicating Commitments

- COP reflects expected status and capabilities for each Resource for each hour

- Must be updated within 60 minutes of any event that impacts status or capabilities
QSE Resource Commitment Guidelines

• May choose to commit a Resource

• May request de-commitments for QSE-Committed hours

• May not request de-commitments for RUC-Committed hours
Revising Resource Commitments

To Commit Resource:
• QSE updates COP
• Sets status to “ON” for specific hours

To Request Decommitment:
• QSE updates COP
• Sets status to “OFF” for specific hours
Example

QSE Requests Decommitment

- Initially committed for Hours 1 through 18
- QSE updates COP status to “OFF” for Hours 4 through 9 to Request Decommitment

Request is evaluated by next HRUC
Next HRUC Evaluates Decommitment Request

- RUC sees Decommitted Resource as OFF
- RUC optimizes overall commitment costs
Next HRUC Evaluates Decommitment Request

HRUC will not consider Startup Cost

Current Operating Plan

Commitment Costs

RUC

Startup Cost

$/Start

Minimum Energy Cost

$/MWh
If Decommitment Request is Denied

- Resource receives RUC Commitment instruction
- QSE updates its COP to denote RUC-Committed hours

Otherwise, Decommitment Request is approved
QSE Activities during the Adjustment Period

- Update Offers
- Report Trades
- Revise Resource Commitments
- Shift AS Responsibilities

Responsive Non-Spin
Reg-Up
Reg-Down
QSE Activities – Shift Ancillary Service Responsibilities

QSEs may revise how they meet their Ancillary Service Supply Responsibility

During the Adjustment Period, the QSE may

• Move a scheduled AS to another Resource they control
• Buy back from the Market through Reconfiguration SASM
QSEs may revise how they meet their Ancillary Service Supply Responsibility

Why might a QSE want to move an Ancillary Service to another Resource?

Why might a QSE want to buy back any of their Ancillary Service Supply Responsibility from the Market?
Moving a Scheduled Ancillary Service to Another Resource

QSE updates AS Resource Responsibilities in COP

- ERCOT will notify if infeasible
- If infeasible, QSE must update COP within 60 minutes
Buying back Ancillary Services through a Reconfiguration SASM

QSE requests modification

- Reduce their AS Resource Responsibilities
- Provide equal quantity of AS Offers

ERCOT runs Reconfiguration SASM at 0900
Adjustment Period
Financial Impacts
How is a SASM settled?

Each SASM sets its own Market Clearing Price for Capacity (MCPC) for each cleared Ancillary Service.

- QSEs with cleared offers are paid
- QSEs with obligations are charged
## SASM Settlement Circumstances

<table>
<thead>
<tr>
<th>If….</th>
<th>Then…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancillary Service Plan was increased after DAM</td>
<td>QSEs are charged SASM MCPC for any SASM obligations they did not self-arrange.</td>
</tr>
<tr>
<td>Ancillary Service was infeasible due to a Transmission Constraint</td>
<td>QSE is charged the Day-Ahead Market MCPC.</td>
</tr>
<tr>
<td>QSE failed to provide its Ancillary Service Supply Responsibility</td>
<td>QSE is charged the highest MCPC from all the Ancillary Service markets.</td>
</tr>
<tr>
<td>QSE bought back Ancillary Services in a Reconfiguration SASM</td>
<td>QSE is charged the Reconfiguration SASM MCPC.</td>
</tr>
</tbody>
</table>
What is posted on the MIS Public Area?

• SASM MCPCs for each AS type for each hour
• Total AS procured in MW by AS type for each hour
• Aggregated AS Offer Curve for each AS by hour.
You have learned about:

• ERCOT activities & processes associated with the Adjustment Period

• The types of information that can be “adjusted” during the Adjustment Period

• The financial impacts of Supplemental Ancillary Services Markets in the Adjustment Period