Demand Resources Participation in 30 Minute Reserves
What is changing from today?

• 10 minute Synch Reserves adder will change from $7.50 to the expected value of the penalty
  – Estimated to be $0.02 for 2018
• DASR offer price will no longer be submitted
• DASR assignment is balanced out with Real Time Secondary Reserve assignment in Settlements
• In order to provide Secondary Reserves, a valid Real Time energy offer must be submitted for the same MW amount
• Secondary Reserves for Demand Resources are the amount of MW that can be reduced within 30 minutes minus the amount of MW that can be reduced in 10 minutes

• Must have an approved economic DR registration

• Need to have one minute meter data available for measurement & verification

• Must be available for Real Time energy in order to be eligible for Secondary Reserves in Real Time
  – Cannot clear total reduction capability in DA energy market

• Must have a lead time less than or equal to 30 minutes
<table>
<thead>
<tr>
<th>Availability</th>
<th>Offer MW</th>
<th>Offer Price</th>
</tr>
</thead>
</table>
| • Must be available for energy in order to be eligible to clear for Secondary Reserves  
• Reflect availability for Secondary Reserves in Secondary Reserve Offer MW value | • Consistent with treatment for Synchronized Reserves, Demand Resources will have the ability to specify an offer MW  
• Secondary reserves offer MW must be equal to the energy offer MW  
• Cannot be greater than the total load reduction capability  
• Offer MW = 0 indicates that resource is unavailable for Secondary Reserves  
• No must offer requirement | • Secondary Reserve is a cost-based market  
• No offer margin allowed  
• Each resource’s cost to provide Secondary Reserves is based solely on lost opportunity cost, which for Demand Resources is zero |
Max of 33% of total 30 Min Reserves can be met with Demand Resources
   - Today, DR cap is 33% for SR and 25% for DASR
Secondary Reserves Market Clearing:
   - Inflexible DR will be cleared in ASO
     - But may be dispatched for energy by ITSCED
   - Flexible DR will be cleared in RTSCED
Energy dispatch:
   - Will be evaluated in ITSCED (same as today)
Any Inflexible Synch Reserve MW cleared in ASO will be honored in any downstream clearing engines
Ground Rules for Offers:

- MWs offered for 10 min Synchronized Reserves cannot overlap MWs offered for Energy or Secondary Reserves
- Secondary Reserves Offer MW = Energy Offer MW
  - Secondary Reserves Offer is voluntary
  - Same MW are considered between Secondary Reserves and Energy
- Notification time for energy offer must be <= 30 minutes
- Energy offer schedule must have Market Type = “Both” or “Balancing”
  - Cannot be set to “DayAhead”
  - Indicates that the energy schedule is available for Real Time dispatch
• Cleared Secondary Reserve MW will be paid at the Secondary Reserve MCP
• Any MW dispatched for energy will be paid at the LMP
• Balancing reserve settlements will apply as described at 1/11/2019 meeting
  – Resources can be made whole for net negative buy back that results from PJM’s dispatch directions
Changes to DASR Rules

- Change name to Day-Ahead Secondary Reserves
- No DASR price offer submitted
- Increase cap to 33% from 25%
- Balancing settlements for changes to Secondary Reserve assignment between Day-Ahead and Real Time
Proposed Change to Emergency DR Offer Price

• From M-11, Section 2.3.3:
  • Emergency and Pre-Emergency Demand Resource emergency or pre-emergency offer price may not exceed the following:
    o 30 minute lead time: $1,000/MWh, plus the applicable Primary Reserve Penalty Factor from the first step of the demand curve, minus $1.00
    o approved 60 minute lead time: $1,000/MWh, plus [the applicable Primary Reserve Penalty Factor from the first step of the demand curve divided by 2]; and
    o approved 120 minute lead time: $1,100/MWh.

• PJM proposal:
  – Change to a static number that is not dependent on the penalty factor value
  – Emergency and Pre-Emergency max offer price set to:
    • $1,849/MWh for 30 minute lead time resources
    • $1,425/MWh for 60 minute lead time resources
    • $1,100/MWh for 120 minute lead time resources