PJM Real-Time Energy Market
Objectives

Students will be able to:

• Identify the process and procedures for participating in the Real-Time Energy Market
Real Time (Balancing) Market

• The balancing market is the real-time energy market in which the clearing prices are calculated every five minutes based on the actual system operations security-constrained economic dispatch

• The balancing settlement is calculated based on deviations between day-ahead scheduled quantities and real time operations (two-settlement process)

• Net capability is verified through normal operational data and/or summer or winter net capability testing

• The Real-time Energy Market allows generators and demand resources to alter* their bids for use in the Real-time Energy Market:
  – during the Generation Rebidding Period: Results of the Day-ahead Energy Market until 1415
  – Starting at 1830 (typically after the second resource commitment is completed) and up to 65 minutes prior to the start of the operating hour
Transition from Day-Ahead to Real Time

- Day-Ahead results are posted at 13:30
- Rebid period is 13:30-14:15 & begins Real Time Settlement
- Second commitment to ensure that there is enough generation to meet the real-time load forecast
- Gives units not picked up in day ahead the opportunity to change their offers/parameters
- Reliability Analysis begins at 14:15
- Committed units will be notified by phone
Reliability Analysis (RA)

- Re-bid period closes at 14:15
- For the RA, focus is reliability
- Analysis includes:
  - Updated offers
  - Unit availabilities
  - PJM load forecast
  - DASR Objectives
Balancing Market Timelines – Intraday Offers

• Resources that are opted-in to intraday offers may make changes beginning at 18:30 the previous day up to 65 minutes before the operating hour
  – Changes may be made to MW and Price values on the Schedule Offer Updates page in Markets Gateway
  – Changes may be made to Startup, No-load, Notification Time, and Min Runtime in the Schedule Detail Updates page in Markets Gateway
  – Duel-fuel units may make changes to schedule availability on the Availability Update page in Markets Gateway
  – If a unit must change fuel to remain online, they must choose another available schedule
Balancing Market Timelines – Unit Hourly Updates

• Unit Hourly Updates may be changed during the operating day for the current hour or future hours
  – Any changes that are made during the current hour will be prorated to reflect the change only for the remainder of the hour
  – Any changes that are made for future hours in the current operating day will be fully reflected for that hour
  – Unless directed by PJM, *actual* changes made to a unit’s output must be verbally coordinated or indicated via PJM tools prior to the change
Unit Hourly Updates

• The Unit Hourly Updates page is used to submit real-time changes to unit statuses and MW operating information

• Changes made to the unit data using the Unit Hourly Updates web page supersede all
  – Schedule data (Schedule web pages)
  – Weather curve data (Unit Detail web page)
  – Unit limits (Unit Detail web page)
Unit Hourly Updates – Commit Status

• **Economic:** Unit is available and offered into the market for PJM to schedule

• **Must Run:** Indicates that the generating unit is self-scheduling
  – Unit MUST be committed
  – The unit is committed at economic min and allowed to move up to Economic Max
    • **Note:** To fix output, make economic min and max the same value

• **Emergency:** Entire unit is placed in “Max Emergency” category and will not be scheduled unless PJM calls for max emergency generation

• **Unavailable:** Unit is out of service and will not be scheduled
  • **Note:** Must have a corresponding outage ticket in eDART if a capacity resource
• **Fixed Gen**: This field should be set to yes if a generation resource intends to remain “fixed” or otherwise not follow PJM real-time dispatch
  – The field is not used by the Day-Ahead market
Questions?

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