Convergence Bidding Process Walkthrough

December 14, 2010
Agenda

- Overview
- High Level Business Process Walkthrough
- Detailed Scenario Walkthrough
  - Participation
  - Basic Results
  - Additional Settlements
- Q & A
Overview

- **Walkthrough Objective**
  - Demonstrate end to end process coverage
  - Demonstrate detailed process coverage for significant business scenarios
  - Monitoring/suspension details will be addressed in another forum scheduled for 1/13/2011 (1:00 – 3:00 PM)

- **Convergence Bidding Project Overview**
  - Provide ability for Scheduling Coordinators to participate in Day Ahead Market via Virtual Bids at eligible individual and aggregated nodes
  - Resulting awards are settled based on the difference between the day ahead and the real time prices
Discussion will focus on the Convergence Bidding High Level Process Diagram

- Convergence Bidding process flow represented from end to end
- Major stakeholders participating in end to end process flow represented by horizontal swim lanes
- Timeline of different activities represented
Detailed Scenario Walkthrough Format

- Discuss selected detailed scenarios using business use case activity diagrams
  - Objectives of each detailed scenario highlighted
  - Basic, alternative and exception flows of each scenario represented
  - Major stakeholder(s) participating in each scenario represented by horizontal swim lanes
Detailed Scenarios:

- **Participation**
  - (1) Manage Virtual Bids
  - (2) Validate/Process Virtual Bids
  - (3) Apply Credit Check
  - (4) Calculate Award Liability

- **Basic Results**
  - (8a) Apply Convergence Bidding GMC Charges
  - (8b) Apply Convergence Bidding Energy Settlement Payment Charges
Detailed Scenarios (2):

- Additional Settlements
  - (7) Determine CRR Settlement Adjustment
  - (8c) Apply RUC/IFM Tier 1 Settlement Charges
  - (5) Determine HASP Reversal Charges
  - (6) Determine Make Whole Payment
(1) Manage Virtual Bids

Objectives:
- Manage Virtual Bids before DA market close
- Manage Virtual Bids after DA market close

Legend
- Basic flow
- Alternative flow
- Exception flow

T-7 to T-1 (before DAM closes)
- Create bid per node per SC ID per trade date
- Update bid hourly components
- Submit bid

T-1 (After DAM closes)
- Access Previously Created/Submitted bid
- Status = “Created”
- Copy bid bid hourly components to new trade date
- View bid result

Access previously created/Submitted bids
- Bids with status of “Obsolete” or “Canceled” cannot be accessed by an SC

Status = “Created”
- Update bid/ bid hourly components
- Submit bid
- Update bid/ bid hourly components
- Submit bid
- Submit bid
- Submit bid

Status = “Rejected” “invalid”, “valid”, “accepted”, “conditionally valid”
- Cancel bid
- Update bid/ bid hourly components
- Submit bid
- Submit bid
- Submit bid

Status = “Created”
- Update bid/ bid hourly components
- Submit bid
- Submit bid
- Submit bid
- Submit bid

View bid result
- cancel
- resubmit
- cancel
- resubmit
(3) Apply Credit Check

Objectives:
- Calculate Virtual Bid Liability
- Approve/Disapprove Credit Check requests based on Virtual Bid Liability and Available Credit
- Update Available Credit for approved bids
- Release Credit when bids are canceled
(4) Calculate Award Liability and Update Available Credit

Objectives:
- Update Liability associated with Convergence Bidding as more accurate data becomes available

Legend
- Green: Basic flow
- Blue: Alternative flow
- Red: Exception flow

DA Award Liability
T-1 (After DAM Runs)
- Receive DA Awards
- Determine Award type
- Per SC, per node
- Calculate DA Liability
- Per SC, per node, per hour
- Replace Bid Liability with DA Liability
- Per SC, per hour
- Update Available Credit

RT Award Liability
T-1 (After DAM Runs)
- Receive DA LMPs
- T (Hourly – 4, 15 min intervals)
- Receive HASP LMPs
- Calculate Hourly LMP
- Per node
- Calculate RT Liability
- Per SC, per hour
- Replace DA Liability with RT Liability
- Per SC, per hour
- Update Available Credit

Settlement Liability
T+1B
- Receive Credit Statement
- Calculate RT Liability with T+1B Settlement Liability Per SC
- Update Available Credit

T+7B
- Receive Initial Statement
- Calculate RT Liability with T+7B Settlement Liability Per SC
- Update Available Credit

For interties, HASP LMP is used
For individual nodes, RTD LMP is used
RT VS Liability = DA Award * (RT LMP – DA LMP)
RT VO Liability = DA Award * (DA LMP – RT LMP)
(8a) Apply Convergence Bidding GMC Settlement Charges

Objectives:
- Apply transaction fees per bid segment
- Apply virtual award charges for forward scheduling and market usage

Legend
- Basic flow
- Alternative flow
- Exception flow

The transaction fees collected will be factored into the GMC rate for the following year.

ISO

<table>
<thead>
<tr>
<th>T-1</th>
<th>Receive CB clean bids</th>
<th>Apply Transaction fee per bid segment/per bid</th>
<th>Aggregate fees per SC</th>
<th>Apply GMC charge CC 4520</th>
</tr>
</thead>
</table>

| T-1 | Receive Virtual Awards | Aggregate Virtual Awards per SC | Apply GMC charge CC 4533 | Forward Scheduling and Market Usage Charge |
(8b) Apply Convergence Bidding Energy Settlement Charges/Payments

Objectives:
- Apply DA Convergence Bidding energy charge
- Apply RT Convergence Bidding energy charge

Legend:
- Basic flow
- Alternative flow
- Exception flow

Slide 14
California ISO
Your Infinite Power
(7) Determine CRR Settlement Adjustment

Objectives:
- Determine eligibility for CRR payment adjustment and apply charges

Legend:
- Basic flow
- Alternative flow
- Exception flow

Includes:
- Virtual Awards
- Shift Factors
- Constraints
- Shadow prices

Initial threshold for all Constraints is 10%

California ISO
Your Unique Power
(8c) Apply IFM/RUC Tier1 Settlement Charges

Objectives:
- Determine eligibility for and allocate IFM Tier1 uplift charges
- Determine eligibility for and allocate RUC Tier1 uplift charges

Legend:
- Basic flow
- Alternative flow
- Exception flow
(5) Determine HASP Reversal Charges

Objective:
- Determine eligibility for HASP reversal and apply charges

Legend
- Basic flow
- Alternative flow
- Exception flow

Slide 17
(6) Determine Make Whole Payment

Objectives:
- Determine eligibility for make whole payment and apply payment

Legend:
- Basic flow
- Alternative flow
- Exception flow
Q & A