



**SMD2**

# **Market Participant Test Requests**

**Market Structures Working Group**

**October 29, 2004**

# SMD2 Testing

## Background

- **Market Participants wanted assurance that certain SMD2 functionality was tested.**
- **Representatives from each sector were selected to collect and submit test requests.**
- **Test requests fell into 7 categories.**
- **Requested tests were integrated into multiple SMD2 testing tracks.**
  - *Factory Acceptance Testing*
  - *QA (Functional) Testing*
  - *Integration Testing*
  - *Business Owner / User Acceptance Testing*
  - *Market Exercises*

# SMD2 Testing

## Test Definitions

- **Factory Acceptance Testing**
  - *Validate compliance of vendor deliverables to spec*
- **Quality Assurance Functional Testing**
  - *Confirm software functionality meets requirements*
- **Integration Testing**
  - *Demonstrate systems work together*
- **Business Owner / User Acceptance Testing**
  - *Business acceptance of software*
- **Market Trials**
  - *Public demonstration of functionality*

# SMD2 Testing

## Test Request Classifications

- **AMP Testing**
- **Reserve Demand Curve Performance**
- **SCR / EDRP Pricing**
- **RTD-CAM Performance**
- **Hourly Start-Up Bids**
- **Impact of Bad Load Forecast**
- **Persistent Dragging**

# SMD2 Testing

## Testing Summary

- ✦ **In-City AMP**
  - **FAT - Complete**
  - **QA Testing – Complete**
  - **Market Exercise – Complete**
  - *Integration Testing – In-progress*
  - *Business Owner Testing - In-progress*
  - *Market Advisor - In-Progress*
- ✦ **Statewide AMP**
  - **FAT - Complete**
  - **QA Testing - Complete**
  - **Market Exercise – Complete**
  - *Integration Testing – In-progress*
  - *Business Owner Testing - In-progress*
  - *Market Advisor - In-progress*
- ✦ **Reserve Demand Curve Performance**
  - **FAT - Complete**
  - **QA Testing - Complete**
  - **Market Exercise - Complete**
  - **Business Owner Testing – Complete**
  - **Integration Testing – Complete**
  - *Market Advisor - In-progress*
- ✦ **Hourly Start-Up Bids**
  - **FAT - Complete**
  - **QA Testing - Complete**
  - **Market Exercise – Complete**
  - **Integration Testing – Complete**
    - ♦ AMP functionality still in test
  - *Business Owner Testing – In-progress*
- ✦ **SCR / EDRP Pricing**
  - **FAT - Complete**
  - **QA Testing – Complete**
  - *Integration Testing – In-progress*
  - *Business Owner Testing - In-progress*
- ✦ **RTD-CAM Performance**
  - **FAT - Complete**
  - **QA Testing - Complete**
  - **Market Exercise – Complete**
  - **Integration Testing – Complete**
  - *Business Owner Testing - In-progress*
- ✦ **Impact of Bad Load Forecast**
  - **Market Exercise/LECG - Complete**
- ✦ **Persistent Dragging**
  - **NA**

# SMD2 Testing

## AMP Testing

- **Multiple scenarios were tested for Statewide and Constrained Areas**
- **Tests performed by MMP in all SMD2 test tracks**
- **Constrained Area DAM AMP deployed to legacy on May 1**
- **The NYISO MMP and Market Advisor are reviewing all AMP test scenarios.**

# SMD2 Testing

## AMP Testing

### ↘ Test Method

- ***Vary parameters***
  - ♦ Reference Prices
  - ♦ Bids
  - ♦ Thresholds
- ***Tests for DAM and RT***
- ***Tests for Statewide and Constrained Areas***
- ***Tests using multiple combinations***

# SMD2 Testing

## AMP Testing

### ➤ In-City AMP

- *Day-Ahead and Real-Time energy mitigation occurred during market exercises.*
- *Start-up and Min-Gen mitigation tested during market exercises.*
- *Multiple tests conducted in NYISO test environments.*
  - ♦ *Additional testing still underway*
- *AMP results discussed during Exercise 7 review*
- *Results evaluated by MMP staff.*

# SMD2 Testing

## AMP Testing

### ↘ Statewide AMP

- *Day-Ahead Energy, Start-up and Min-Gen mitigation occurred during several market exercises.*
- ***Day-Ahead and Real-Time testing still underway***
- *Multiple tests conducted within NYISO test environments.*
- *Start-up and Min-Gen specifically tested.*
  - ♦ Start-up testing still underway
- *50MW exclusion specifically tested.*

# SMD2 Testing

## Demand Curve Activation

- **All Demand Curves (Reserve and Regulation) were activated in Exercise 4.**
- **Reserve Demand Curves for Long Island Spinning Reserve and 10-Minute Total Reserve were activated in Exercise 5.**
- **Regulation Demand Curve was activated in Exercise 5.**
- **LECG reported on Demand Curve performance in the Exercise Review Sessions for Exercises 4 & 5.**
  - *LECG reports posted on NYISO website*
- **The NYISO Market Advisor is specifically reviewing Demand Curve performance as part of the Market Advisor's assessment.**

# SMD2 Testing

## Hourly Start-up Bids

- **Hourly Start-up bidding functionality was tested within the FAT, QA, and Business Owner Test tracks.**
  - *Testing still underway*
- **Hourly Start-up bidding was available for the Market Exercises.**
- **Testing with respect to AMP currently in progress**

# SMD2 Testing

## SCR / EDRP Pricing

- **Ability to enter and process SCR/EDRP data tested within QA and Business Owner Testing.**
- **Business Owner validation testing still underway.**

# SMD2 Testing

## RTD-CAM Performance

### ➤ Several RT events were included in Market Exercises 4 & 5.

- *RTD-CAM responded to a large event in Exercise 4.*
- *RTD-CAM responded to a large and a small event in Exercise 5.*
- *All RTD-CAM modes were tested within the FAT, QA and Business Owner test phases.*
- *RTD-CAM testing is still underway*

# SMD2 Testing

## Bad Load Forecast

- **Market Exercise 4 simulated the effects of a bad load forecast.**
  - *~ 18,000 MW bid load*
  - *~ 23,000 MW RT actual load*
- **Exercise 4 results were reviewed at MSWG on 8/11.**

# SMD2 Testing

## Persistent Dragging

### ➤ **Simulate persistent dragging by 300-400 MWs.**

- *Performance tested and validated on an individual unit basis*
- *Unable to simulate cumulative condition over time*

# SMD2 Testing

## Specific Questions (included within test requests)

**Q. How does the system dispatch at various NYISO imposed regulation quantities?**

**A. The Market Exercises were conducted with varying regulation requirements as posted on the SMD2 OASIS.**

**Q. How does the system anticipate a 500, 700, or 900 MW change on the hour?**

**A. The Exercises were conducted with a 700 MW DNI ramp limit.**

# SMD2 Testing

## Next Steps

- **Complete testing**
- **Complete evaluation of results**
- **Review applicable test results with David Patton.**
- **Complete review of results with Market Participants.**