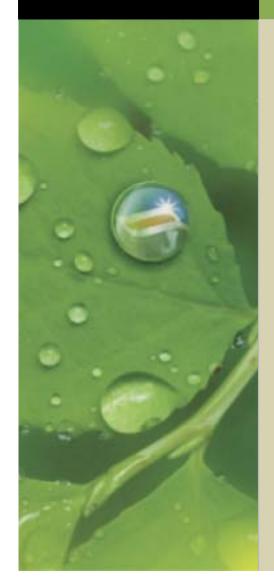


Responses to Market Performance



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Areas and Strategies for Improvement

- Improvements currently in progress:
 - Volatility of 5-minute real-time dispatch prices
 - Multiple approaches in progress details below
 - Price convergence (DA, HASP, RTD)
 - Continue improvement to short-term load forecast
 - Exceptional Dispatch
 - Reduce HASP disruptions
 - Review opportunities to incorporate drivers of ED into model
 - CRR Revenue Adequacy
 - Improve modeling and accounting of transmission outages
 - Use distributed load reference in all markets
 - Price Transparency Price Blocking
 - Improve price blocking criteria to provide more information to participants



Real-Time Market Performance Improvement Plan Near Term

- 1. Transmission Limit Management
 - Reduce sources of actual and model flow differences.
 - Refine operational margins
 - Smooth changes to transmission limits
- 2. Inaccurate load forecasts
 - Improve convergence of forecast between RTPD and RTD
 - Improve load distribution
- 3. Insufficient unit commitment of fast start resources
 - Ensure all resources capable of starting are being considered
 - Ensure RTPD sees anticipated constraint conditions
- 4. Low generation availability
 - Align 5-minute ramp capability with constraint relief timing
 - Access to reserve capacity to relieve constraints



Real-Time Market Performance Improvement Plan Longer Term

- Pursue further refinements to the real time market optimization that would reduce extremely inefficient (but mathematically correct) dispatch
 - Parameter Tuning
 - Shift Factors
 - Effectiveness Threshold

