



CALIFORNIA ISO

MRTU Comprehensive Market Redesign Issues

**Market Surveillance Committee Meeting
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Topics

1. Context for today's discussion

- Objectives of MRTU market redesign
- Update on recent activities
- Upcoming near-term milestones

2. Overview of April FERC filing

- Elements to be submitted for conceptual approval

3. Discussion of selected issues

- Day-ahead "full scheduling" constraint
- Managing use-limited resources
- Granularity of load scheduling and settlement



Context for Today's Discussion

- Flaws in original ISO “zonal” design known since 1999
 - Inconsistency between day-ahead scheduling and real-time operation => “infeasible” day-ahead schedules => real-time operating challenges and excessive costs to consumers
 - Early reform effort was derailed by power crisis 2000-1
- MRTU effort initiated 1/02 “Market Design 2002” (MD02)
- Central element of MRTU/MD02 is “Locational Marginal Pricing” (LMP) => consistency between day-ahead scheduling and real-time operation
- ISO market design not a root cause of 2000-1 crisis
 - ISO market redesign not sufficient to prevent another crisis
 - Effective cure requires Resource Adequacy rules (CPUC)
 - RA and ISO Market Design must function in integrated fashion



Context (cont.)

- ISO fully focused on achieving 2/07 implementation
- MRTU design now frozen for "Release 1" (2/07)
 - Change orders allowable now only if critical for grid reliability, stable market functioning, acceptance by Board and regulators
 - Other desirable changes or enhancements must be postponed until after 2/07 start-up ("Release 2")
- Open MRTU policy issues & design details (that don't affect software development) will be resolved in 2005, in stakeholder process & coordinated with RA proceeding
 - Will culminate in MRTU Tariff Filing 11/05
- Near term ISO will seek FERC conceptual approval for some elements in 4/05 Filing



Context (cont.)

- 2/23/05 ISO released White Papers
 - Comprehensive Market Redesign Update
 - Market Power Mitigation
- ISO also released in-depth review of MRTU design by independent experts on LMP markets (LECG)
 - LECG generally endorsed MRTU design and its components
 - Identified several “must-fix” issues and offered solutions
- 3/1-2 ISO held stakeholder meetings to discuss ISO White Papers and LECG Report
- Stakeholder written comments received 3/11
- ISO will bring final proposals for 4/05 FERC filing to Board at 3/31 meeting



Intended for April FERC Filing

- Clearing of LAP-level demand bids in IFM based on LAP prices, rather than clearing nodally
 - LECG Issue #1 (highest priority)
- Hour Ahead Scheduling Process (HASP)
 - ISO proposal approved by Board 11/04
 - Addresses LECG Issue #3 by settling HASP intertie schedules at HA prices rather than RT prices
- Market Power Mitigation Provisions
 - Covered in separate presentation
- Day-ahead "Full Scheduling" Constraint
 - Fall-back mechanism to require full scheduling day-ahead if load under-scheduling is problematic; more details later in this presentation.



DA Scheduling Constraint

- Final DA schedule will accurately reflect expected *distribution* of RT load ... but ...
 - There may be a large *volume* shortfall between RT load forecast and final DA load schedule
 - Large shortfall means large volumes of RUC procurement and RT Imbalance Energy
- If large volumes cause problems, ISO proposes to apply a mechanism to bring final DA load schedules closer to RT load forecast
- Trigger criterion - "conduct" element
 - ISO will track under-scheduling behavior
 - By UDC or MSS per RT telemetry data
 - By SC per Settlement Quality Meter Data (SQMD)



DA Scheduling Constraint (cont.)

- Trigger criterion - "impact" element
 - ISO will track market anomalies and operational problems to identify causal linkages to under-scheduling
- Mechanism invoked when trigger criteria are met
 - ISO will substitute load forecast in place of submitted bids and self-schedules for under-scheduling entities
 - Load forecast will be discounted to a fixed base value (e.g., 95%) plus a variable factor based on weather uncertainty
 - Mechanism will apply 24X7 and will remain in effect for a fixed period (e.g., 2-4 weeks)
 - May need to be applied on a UDC or MSS basis until SC-specific load forecasting is available.



Use-Limited Resources

- 7/03 Filing proposed provisions for use-limited resources (e.g., hydro, emissions limited fossil)
- Two principal objectives
 - Verify compliance of use-limited RA resources with RA-based Must Offer Obligation
 - Utilize resources when most needed and valuable while respecting use limitations
- Main provisions
 1. Based on valid use-limitation, the LSE or SC develops annual or seasonal usage plan in coordination with ISO
 - Includes energy production, run hours and A/S capacity
 2. SC submits daily availability to ISO DA market
 - Maximum MWh or run hours; A/S capacity; submitted as bids or self-schedules



Use-Limited Resources (cont.)

- Basic provisions (continued)
 3. On some days maximum MWh or run hours may be zero
 - Resource may offer A/S capacity only
 4. IFM allocates maximum availability over 24 hours to maximize value to the system
 5. Monthly ex post comparison of actual availability/output versus usage plan to verify compliance with MOO
 - Differences between planned and actual may lead to adjustments to subsequent months' usage plans
 6. Contingency-only flag for A/S limits RT dispatch.
- Further stakeholder discussions required
 - Ensure consistency between MRTU and Resource Adequacy proceeding



Granularity of Load Settlement

- LECG Issue #2 identifies potential problems created by use of only 3 highly aggregated LAPs
- Some potential problems are addressed by fixing LECG Issue #1 (Clearing demand bids in IFM, noted above)
 - Impact on virtual bidding effectiveness
 - Incentives to withhold from DA market - or tendency of DA IFM to under-schedule - generation in constrained areas
- Potential impact on CRR release, however, is not diminished by fixing LECG Issue #1
 - Constraints internal to LAP will reduce volume of feasible CRRs - and value of CRR hedge - when CRR sink is specified at highly aggregated LAP
 - CRR Study 2 will assess this effect
- ISO may consider greater granularity for Release 2 - possibly earlier if CRR Study 2 indicates significant concern.