Convergence Bidding Design Framework

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Summary of Work to Date

- **Work-in-progress draft white paper posted**
  - Reviewed at July 18-19 Market Initiative
  - Reviewed at August 8 MSC Meeting

- **Updated draft posted August 14**
  - includes stakeholder comments received since July 18-19 stakeholder meeting
  - Outlines initial options for design elements
Convergence Bidding: General Stakeholder Input

- **EPIC Merchant Energy**
  - CAISO should design and implement virtual market with Release 1.
  - Virtual bidding increases competitiveness of DA market

- **Pacific Gas & Electric**
  - Generally supportive, but with appropriate monitoring and cautious rollout

- **Southern California Edison**
  - Don’t implement until MRTU has demonstrated proper functioning for a period.
  - Appropriate oversight must be in place
  - Potential asymmetry with CPUC rules for IOUs
Convergence Bidding: General Stakeholder Input

- **Williams Power Company**
  - CAISO should be expected to implement virtual bidding as soon as practicable
  - VB reduces risk and enhances market liquidity

- **WPTF**
  - VB should remain a high-priority item for release immediately following Release 1.
Proposed Approach for Continuing Design

- Identify major design elements, each with one or more possible options

- Focus on top two or three major design elements, with the expectation that resolution on other elements will more easily follow

- Establish criteria for selection of recommended option for each design element, with a view to their internal compatibility

- The collection of the recommended options for different design elements defines the overall CB design
Design Elements and Relevant Options

- **Measures to deter implicit virtual bidding (IVB)**
  - Option 1: None. Count on Explicit Virtual Bidding
  - Option 2: MMIP Protocols
  - Option 3: High penalties for real-time schedule changes with no CB tag
  - Other options?
Design Elements and Relevant Options (Cont’d)

- **Spatial granularity of virtual bids**
  - Option 1: Zonal (EZ Gen hubs and/or LAPs)
    - Sub-option 1a: LAPs for both virtual supply and virtual demand
    - Sub-option 1b: EZ Gen hubs for both virtual supply and virtual demand
    - Sub-option 1c: EZ Gen Hubs for virtual supply and LAPs for virtual demand
  - Option 2: Nodal
  - Option 3 (New based on MSC input): Same spatial granularity for virtual and actual (physical) bids [LAP for virtual demand and nodal for virtual supply]
  - Option 4: Other (e.g., sub-LAPs commensurate with tiered CRR nominations or step 3 of the LAP clearing problem mitigation?)
Design Elements and Relevant Options (Cont’d)

- **Choice of zonal virtual bid distribution factors**
  - Option 1: Same distribution factors for virtual and actual (physical) schedules in the relevant market (likely different distribution factors in DA and RT)
  - Option 2: Fixed distribution factors for both DA and RT (from distribution factors library)
  - Option 3: Use DA physical distribution factors for both DA and RT virtual bids
  - Other options?
Design Elements and Relevant Options (Cont’d)

- **Market Power Mitigation Measures**
  - Option 1: No mitigation for virtual bids
  - Option 2: Limit number of virtual bids per SC and number of bid segments per virtual bid
  - Other Issues:
    - Any changes needed in pre-IFM (MPM RRD)?
    - How to treat virtual bids if pre-IFM is based on bid-in demand?
Design Elements and Relevant Options (Cont’d)

- **Pricing and Unit Commitment**
  - Option 1: Maintain current restriction on the pool of units for IFM as determined in pre-IFM
  - Option 2: Lift restriction on the pool of resources for IFM

- **Bid price-quantity provisions**
  - Option 1: Allow only priced virtual bids (no price taker VB)
  - Option 2: Allow both price taker and priced virtual bids
  - Option 3: (If both zonal and nodal VB allowed) allow only priced virtual bids for zonal VB, but only price taker virtual bids for nodal VB.
  - Other options?
Design Elements and Relevant Options (Cont’d)

- Credit and Collateral
  - Collateral requirements
    - Option 1: Constrain VB participation based on credit posting (VB quantity times proxy clearing price)
    - Option 2: Revise SC credit requirements based on the introduction of CB in CAISO markets
    - Option 3: Constrain VB participation initially; then move to a more conventional credit policy
  - Proxy clearing price for collateral computations
    - Option 1: Reference clearing price based on some percentile (97%?; 50%; other) of the highest actual price during the previous 90 days (or a different period?).
    - Option 2: Other?
Cost Allocation

- IFM and RUC Unit Commitment cost allocation
  - Option 1: Exempt virtual bids from unit commitment cost allocations
  - Option 2:
    - Include DA virtual demand bids (along with actual demand) as billing determinants for DA Unit Commitment uplift cost allocation
    - Include DA virtual supply bids (along with under scheduled demand) as billing determinant for RUC cost allocation

- Ancillary Service cost allocation
  - Option 1: Exempt VB from A/S cost allocation
  - Option 2: Exempt VB from Tier 1 A/S cost allocation (based on User Rate), but not from A/S neutrality cost allocation (including both virtual supply and virtual demand)
Evaluation Criteria for Design Options

- Consistency with previously approved policies and design elements
- Level of functionality (responsiveness to market needs)
- Simplicity and ease of implementation
  - CAISO
  - Market Participants
- Market efficiency impact
- Market power mitigation and gaming concerns
- Other?
Proposed Next Steps

- Concentrate primarily on the following design elements to start with:
  - Spatial granularity of virtual bids
  - Choice of distribution factors for DA and RT virtual bids
  - Market power mitigation measures
  - Target date: Work out recommended option for each by mid-September for inclusion in Board memo for October

- Follow up with other design elements
  - Target date: Work out recommended option for all by mid-November for inclusion in Board memo for December