Resource pricing and fuel constraint management in EIM

Energy Imbalance Market Regional Issues Forum

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Background

- Bidding limits needed to protect market:
  - Local market power in energy market.
  - Excessive bid cost recovery payments from gaming or software issues.
- Bidding limits can also limit ability to manage resources with fuel or energy limits through bid prices.
- Special EIM issues
  - Special energy bidding limits temporarily imposed by FERC.
  - No resource adequacy/must offer, but must meet flexible ramping sufficiency test.
  - Limited experience managing resources/gas procurement in context of market.
  - Different state regulatory issues.

Natural gas issues in EIM

- Natural gas markets thinner in many EIM areas than in CAISO.

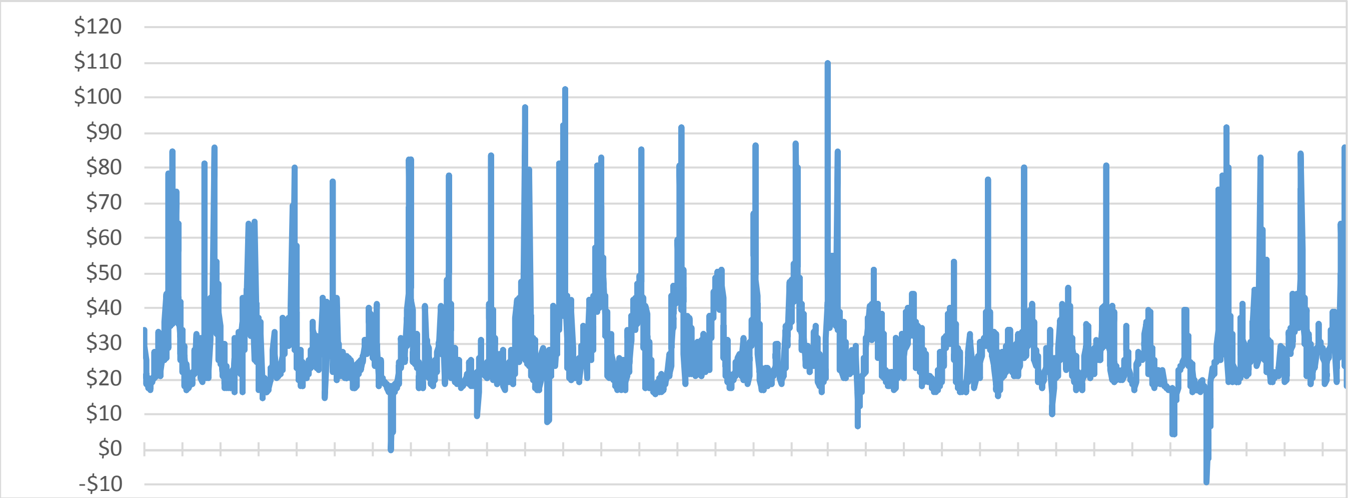
- EIM entities not used to managing same day gas procurement (and price risk) in context of a market.
  - Have cited concerns about state regulatory issues.

- Physical natural gas issues:
  - Real-time gas disruptions
  - Pipeline/storage limits

Energy bid mitigation

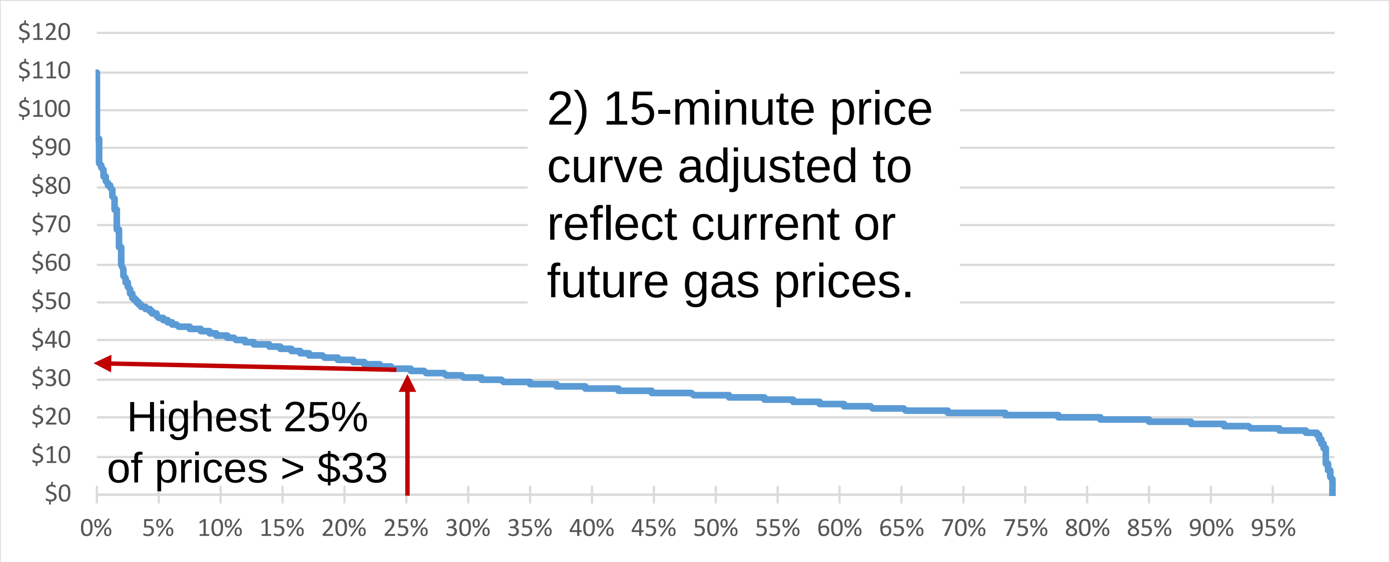
- Energy bid mitigation quite rare:
  – Market bids only subject to $1,000/MWh cap.
  – Market bids mitigated (lowered) only when congestion on non-competitive constraints occurs.
- Default Energy Bids (DEBs) used in energy mitigation:
  – Include 10% adder that meets/exceeds marginal costs for most units under most conditions
  – Can be based on *opportunity costs* for resources with *energy limits over future time period*
    - Daily (hydro with daily storage/dispatch cycle)
    - Monthly (monthly resource plan of expected energy hydro)
    - Seasonal (expected energy over multi-month period)

Price duration curves used to project opportunity costs of energy limits over future timeframe.



1) Historical 15-minute EIM prices used to determine shape of price curve.

3) Opportunity cost estimated based on optimal “strike price” given total hours of available energy.



Bidding limits for commitment costs

- Include costs for (1) startup, (2) operating at minimum load, and (3) transitioning to new configuration.
- Currently capped at 125% of estimated costs (based on next day gas price).
- Cap at 150% for qualified use-limited gas resources.
  - ISO developing capability to have bid adder to account "opportunity cost" associated with any verified start-up or run hour limitations of use-limited resources.
- Any costs not recovered through energy market and BCR can be recovered by filing at FERC.

ISO in process of considering enhancements

- DMM recommending use of more timely gas market information:
  - Continue current process of using same day gas price from 8:30 each morning instead of lagged price from prior day
  - Add ability to update gas prices used in EIM/real-time each morning based on observed same-day gas conditions.
- More flexible bidding limits envisioned by ISO
  - Changes should allow customized calculations and adjustments for each generating unit -- subject to review/verification.
  - Emphasis on *ex ante* vs *ex post* review.
- ISO proposal for dynamic mitigation of market bids for commitment costs:
  - Bids up to 200-300%, and capped at 110% of cost only if mitigated.
  - DMM supports concept, but ISO proposal for determining mitigation flawed and incomplete.
- Timeline
  - ISO not planning on implementing until at least fall 2018.