

Summary List Of Data And Indices Used By Market Monitors

1. Market Results and Analysis	
Market-clearing prices and quantities	<ul style="list-style-type: none"> ◆ For each product (energy, ancillary services, congestion, etc.) ◆ At each location ◆ In each time interval ◆ Time series, averages, etc.
Comparisons of market prices	<ul style="list-style-type: none"> ◆ Relationship of market prices to level of load ◆ Comparison of market prices to prices in surrounding and other markets; to bilateral transactions from public sources (trade publications, surveys, etc.); to futures prices. Relationship to fuel prices. ◆ Comparison of market prices to simulated prices (generally assuming cost-based bids for available capacity) ◆ Relationships between prices for various products; comparisons to expected price relationships (those more costly to produce should have higher prices; energy > regulation > spinning reserve, for instance) ◆ Comparison of market prices for the same products across day-ahead, day-of, hour-ahead, real-time markets as applicable
Transmission congestion	<ul style="list-style-type: none"> ◆ Location, frequency, timing, recurrence of congestion ◆ Cost of congestion ◆ Frequency of capped bids or other mitigation of constrained-on or must-run payments ◆ Causes of congestion; main contributors (generator bids, transmission outages) ◆ New or unexpected occurrences of congestion
Market supply curves	<ul style="list-style-type: none"> ◆ Comparisons to historical (pre-market) supply curves (total quantity available at each price) ◆ Correlation of availability or quantity bid to market prices ◆ Supply elasticity: Additional quantity of supply available for a given price increase; slope of supply curve
Analysis of price-setting	<ul style="list-style-type: none"> ◆ Frequency with which a particular participant sets market prices (or submits bids close to market price) ◆ By various time periods (off-peak and on-peak, transmission congestion, high demand periods, transmission or other major facility outages, seasons of low hydro availability, other “vulnerable” times, etc.) ◆ Correlation to unusual inter-market price relationships ◆ Correlation to congestion ◆ For various segments of market price curve (e.g., \$20-\$30/MWh, \$30 and above, etc.)
Analysis of market structure and concentration	<ul style="list-style-type: none"> ◆ Market shares, HHIs, other concentration measures ◆ Residual Supply Index: For a particular supplier, the ratio of the total quantity of competing supply offered by other suppliers to the market demand. ◆ By time period, by transmission-defined market, by price segment, during congestion, during peak periods, etc. ◆ Focus on largest participants

2. Participant Behavior	
Bidding strategies	<ul style="list-style-type: none"> ◆ All bid-based markets: energy, ancillary services, congestion management, supplemental/adjustment bids, transmission rights ◆ All bid components: as applicable, start-up cost, minimum load cost, etc. ◆ Conditions on offers: start time, minimum run times, minimum down time, ramp rates ◆ Percent of total unit capacity that was bid
Unit and company supply curves	<ul style="list-style-type: none"> ◆ Comparisons to historical (pre-market) unit and company supply curves ◆ Comparison of bids to estimated marginal costs (“bid mark-up”, “price-cost margins”) ◆ Cost data: historical data, if available; cost data provided by participants; estimates based on technology, fuel prices, etc. ◆ Correlation of availability or quantity bid to market prices ◆ Percentage of a participant’s bids that are accepted over various periods
Comparisons of participant bidding strategies	<ul style="list-style-type: none"> ◆ Between forward and real-time markets ◆ Across various products (energy, ancillary services) ◆ Between competitive and vulnerable periods; between uncongested and congested or near-congested periods ◆ During times when participant may have exclusive or restricted access to certain key information (such as imminent major transmission or generation outage) ◆ Correlation to forecasted load ◆ Relationship of bidding strategy to participant market position (net buyer or seller) ◆ Comparison of bids to Bid Reference Prices (means or medians of bids over previous period (30 or 90 days), typically for similar time periods or load levels; may be fuel-adjusted, may weight more recent bids more heavily) ◆ Patterns of bidding between various market participants, during the same or different time periods
Bid changes or deviations in actual generation	<ul style="list-style-type: none"> ◆ Modification of earlier bid price, quantity, other components ◆ Unit-specific, and on a company basis ◆ Declarations and redeclarations of unit availability ◆ Correlations to market prices ◆ Deviations between requested/accepted dispatch level and actual generation ◆ Differences between load-serving entities or scheduling coordinators load bid in forward markets and load appearing in real-time
Outages	<ul style="list-style-type: none"> ◆ Frequency, timing of outages (planned; forced) ◆ By time period, various types of vulnerable periods ◆ Correlation to market prices ◆ Comparison to historical outage frequency ◆ Comparison to outage frequency of similar generators