



## Organization of MISO States

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TO: Paul Gribik  
FROM: Organization of MISO States (OMS)  
SUBJECT: High Level Design Decisions on Extended Locational Marginal Pricing (ELMP)  
DATE: May 12, 2011

The OMS understands that MISO is at a decision point regarding the high level ELMP design proposal for which you plan to seek stakeholder and MISO Board of Directors support for Federal Energy Regulatory Commission (FERC) consideration. We further understand that MISO's major objective of moving from LMP to ELMP is to enable block-loaded combustion turbines (CTs) and emergency demand response resources (EDRs) to set prices in MISO's energy and operating reserves markets, and to reduce the amount of uplift charges that occur when these resources are prevented from setting prices.

The OMS understands MISO's recommendations and its primary reasons for these decisions to be as follows:

- **Use an approximation ELMP method**  
The full ELMP method is not now commercially available, so there would be significant development cost and risks associated with that method. The risks include the possibility that full ELMP may not be able to produce prices on a timely basis for the real-time markets. Using an approximation ELMP method minimizes these development risks.
- **Use a look-ahead (multi-period) feature in determining ELMPs for Day-Ahead and Real-Time Markets, but in a staged approach (single period for now, multi-period later).**  
This is consistent with day-ahead dispatch (24 hour period) and will be consistent with real-time dispatch with the planned use of "look-ahead dispatch" (LAD), but does not delay implementation until LAD is in place.
- **Include unit commitment (no-load and start-up) costs for only fast-start units**  
Including both start-up and no-load cost for fast-start units in ELMP will help to reduce uplifts associated with these units that are experienced with LMP. Slow-start units are committed either for the day-ahead market or for reliability, and units subsequently committed in real-time are almost always fast-start. No-load costs incurred throughout the day for slow-start units are "typically" covered by

market prices resulting in “minimal” levels of uplift attributable to those slow-start units.

- **Allow fast-start units that are not committed to be included in calculating ELMPs**  
This will eliminate transient (short-lived) price spikes that occur when forecast errors dictate operator decisions that result in aberrant shortages in ancillary service requirements that could have been eliminated by committing and dispatching a non-committed (but available) fast-start unit.
- **Allow start-up costs for fast-start units incurred in a previous time period to affect prices in the current and/or future time period.**  
This will allow start-up costs to be allocated to time periods which caused a fast-start unit to be committed. The exact allocation of these start-up costs will be determined in future proposals. The allocation would be applied in both Day-Ahead and Real-Time markets even though the proposal did not specifically include the Day Ahead market.

The OMS also understands that including more of the offer (commitment) costs in ELMP should result in lower uplifts and more representative prices than the pricing methods that PJM, New England ISO and New York ISO have implemented for allowing block-loaded resources to participate in setting prices. As such, this more accurate and inclusive pricing method should provide more appropriate price signals to consumers.

While the OMS does not take a position at this time on the merits of ELMP itself, the OMS generally supports the high level design decisions recommended by MISO as it continues to explore a more accurate pricing construct to better enhance the transparency and competitiveness of energy and operating reserve markets for the purpose of delivering reliable energy to consumers at just and reasonable rates.

The OMS also notes a concern for clarification. For a phased approach using approximate ELMP, the DA market look ahead period should be 24 hours. While using a single period approach in the Real-Time market matches the dispatch currently used, OMS supports going forward with the 24 hour look-ahead feature for ELMP in the Day-Ahead market to match the look-ahead features currently used in the dispatch for that market.

The OMS notes two ELMP design concerns regarding the exclusion of no-load costs incurred in a previous time period to affect prices in the current and/or future time periods and complete exclusion of no-load costs associated with slow-start units.

- Slow-start units that are operating at minimum output levels during low-load hours may not be decommitted because they are needed to meet load in upcoming periods. Growing amounts of wind power in off-peak hours will likely increase the levels of uplift required to recover these no-load costs. The MISO proposal excludes these costs from being considered in the determination of price in future time periods with higher expected loads that prevented these units from being decommitted.

- Slow-start units may be ramped up in a current period to have sufficient capacity to meet loads in a future periods. However, the MISO proposal excludes these ramp up costs from being considered in pricing for the future periods whose loads caused these units to be ramped up in the current period.

If ELMP goes forward as MISO has proposed, the OMS would request that MISO address these concerns by investigating the design of ELMP to include these excluded costs in the pricing of future load periods and report back to stakeholders regarding the impact on prices and uplifts resulting from including these costs in price.