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2015/2016 Planning Resource Auction Results

April 14, 2015

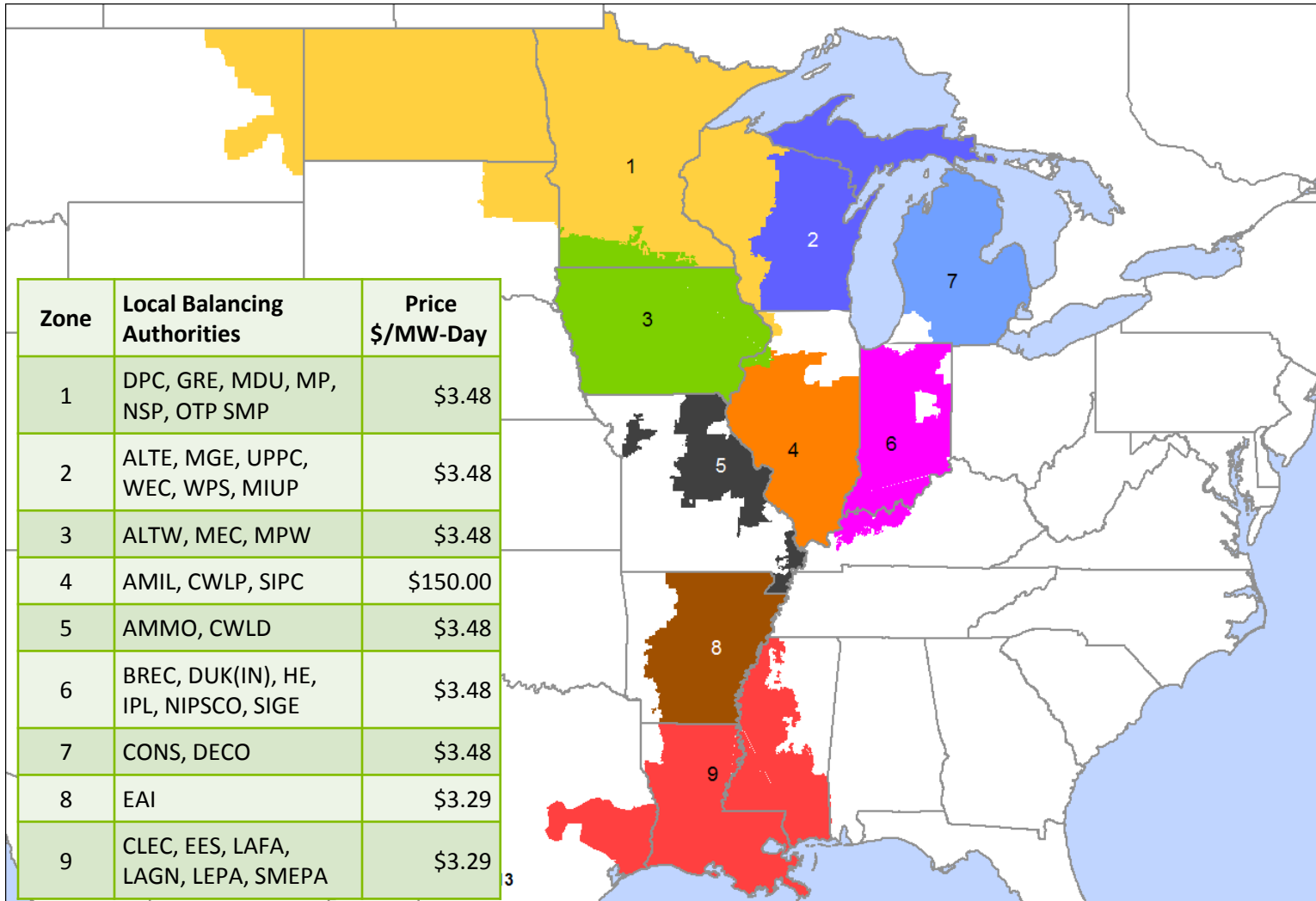
Executive Summary

- **MISO successfully completed its third annual Planning Resource Auction**
- **The MISO region has adequate resources to meet its Planning Reserve Margin Requirements for the 2015/2016 planning year.**
 - Zones 1-3 and 5-7 cleared at \$3.48/MW-day
 - Zone 4 (much of Illinois), cleared at \$150.00/MW-day
 - Zones 8-9 (MISO South), cleared at \$3.29/MW-day

Auction Inputs and Considerations

- MISO's Resource Adequacy construct combines regional and local criteria to achieve a least-cost solution for the region as a whole subject to the following:
 - MISO-wide reserve margin requirements
 - Zonal capacity requirements (Local Clearing Requirement)
 - Zonal transmission limitations (Capacity Import/Export Limits)
 - If applicable, Sub-Regional contractual limitations such as between MISO's South and Central/North Regions
- The zonal capacity requirement must be met with Resources located within the zone
- The MISO-wide reserve margin requirement is shared among the zones, and zones may import capacity to meet this requirement
- The Independent Market Monitor reviews the auction results for physical and economic withholding

2015/2016 Auction Clearing Price Overview AA-D-13



Next Steps: Auction Output and Settlements

- **Key outputs from the auction are:**
 - A commitment of capacity to the MISO region, including performance obligations and
 - The capacity price (Auction Clearing Price) for each zone
- **This price drives the settlements process**
 - Load pays the auction clearing price for the zone in which it is physically located
 - Cleared capacity is paid the auction clearing price for the zone where it is physically located
 - External resources are paid the price of the zone where their firm transmission service crosses into MISO
- **When price separation between zones occurs, a zone's use of resources located outside of its boundaries will result in MISO over collecting auction revenues**
 - This over-collection is allocated, per the MISO tariff, to the Load within the zone(s)

2015/2016 Planning Resource Auction Detailed Results

Ex. AA-D-13

Local Resource Zone	Z1 (MN, ND, Western WI)	Z2 (Eastern WI, Upper MI)	Z3 (IA)	Z4 (IL)	Z5 (MO)	Z6 (IN, KY)	Z7 (MI)	Z8 (AR)	Z9 (LA, MS, TX)	SYSTEM
CPDF (Coincident Peak Demand Forecast)	16,525	12,429	8,876	9,518	8,176	17,592	20,522	7,424	23,035	124,097
PRMR (Planning Reserve Margin Requirement)	18,321	13,566	9,768	10,420	8,910	19,409	22,678	8,118	25,170	136,359
LCR (Local Clearing Requirement)	15,982	12,332	8,695	8,852	6,527	14,677	21,442	7,850	23,609	N/A
Total Offer Submitted	4,867	3,071	5,922	11,156	7,926	14,832	14,103	9,562	26,193	97,632
Total FRAP (Fixed Resource Adequacy Plan)	14,494	11,817	4,113	838	0	4,853	9,456	397	2,261	48,229
Offer Cleared + FRAP	18,495	14,497	9,813	8,852	7,885	19,015	23,515	8,526	25,762	136,359
Import / (Export)	(175)	(931)	(45)	1,568	1,026	394	(837)	(408)	(592)	2,988
CIL (Capacity Import Limit)	3,735	2,903	1,972	3,130	3,899	5,649	3,813	2,074	3,320	N/A
CEL (Capacity Export Limit)	604	1,516	1,477	4,125	0	2,930	4,804	3,022	3,239	N/A
ACP (Auction Clearing Price) \$/MW-Day	\$3.48	\$3.48	\$3.48	\$150.00	\$3.48	\$3.48	\$3.48	\$3.29	\$3.29	N/A

Key Auction Takeaways: Auction Clearing ^{Ex. AA-D-13} Prices relative to key thresholds

	Zone 1 (MN, ND, Western WI)	Zone 2 (Eastern WI, Upper MI)	Zone 3 (IA)	Zone 4 (IL)	Zone 5 (MO)	Zone 6 (IN, KY)	Zone 7 (MI)	Zone 8 (AR)	Zone 9 (LA, MS, TX)
2014-2015 Auction Clearing Price (ACP)	\$3.29	\$16.75	\$16.75	\$16.75	\$16.75	\$16.75	\$16.75	\$16.44	\$16.44
2015-2016 Auction Clearing Price (ACP)	\$3.48	\$3.48	\$3.48	\$150.00	\$3.48	\$3.48	\$3.48	\$3.29	\$3.29
2015-2016 Reference Level	\$155.79	\$155.79	\$155.79	\$155.79	\$155.79	\$155.79	\$155.79	\$155.79	\$155.79
2015-2016 Conduct Threshold	\$180.43	\$180.65	\$180.14	\$180.53	\$181.00	\$180.45	\$180.59	\$179.45	\$179.61
2015-2016 Cost of New Entry (CONE)	\$246.41	\$248.63	\$243.48	\$247.40	\$252.05	\$246.60	\$248.03	\$236.55	\$238.22

*All values in \$/MW-day

Key Auction Takeaways

- Price differentials between 2014-15 and 2015-16 results were mainly driven by changes in market participant offers.
- The 2015 price in Zone 4 was also impacted due to the binding of the zonal capacity requirement to procure a certain amount of capacity with the zone (LCR)
 - This requirement for Zone 4 was substantially the same as in the 2014/2015 Auction.
- Zones 8 and 9 cleared at a lower price than the other zones due to the south to north sub-regional power balance constraint binding at 1,000 MW.

Conclusions

- **MISO successfully completed its third annual Planning Resource Auction, demonstrating that the MISO region has adequate resources to meet capacity requirements for the 2015/2016 planning year.**
 - Zones 1-3 and 5-7 cleared at \$3.48/MW-day
 - Zone 4 (much of Illinois), cleared at \$150.00/MW-day
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Acronyms

Ex. AA-D-13

- ACP - Auction Clearing Price (\$/MW-Day)
- BTMG – Behind The Meter Generator
- DR – Demand Resource
- CEL - Capacity Export Limit (MW)
- CIL - Capacity Import Limit (MW)
- CPDF – Coincident Peak Demand Forecast (MW)
- FRAP - Fixed Resource Adequacy Plan (MW)
- LCR - Local Clearing Requirement (MW)
- LOLE – Loss Of Load Expectation
- LRZ - Local Resource Zone
- PRA - Planning Resource Auction
- PRM - Planning Reserve Margin (%)
- PRMR - Planning Reserve Margin Requirement (MW)
- SFT – Simultaneous Feasibility Test
- SREC – Sub-Regional Export Constraint
- SRIC – Sub-Regional Import Constraint
- UCAP - Unforced Capacity (MW)
- ZDB – Zonal Deliverability Benefits
- ZRC - Zonal Resource Credit (MW)