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Revisions To MISO Capacity Market Rules Could Lower Illinois Electricity Prices

Revised Market Power Mitigation Parameters Would Increase Ability To Import Capacity

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Policy Brief

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Key Takeaways:

- The Midcontinent Independent System Operator (MISO) will no longer calculate the reference level for its annual capacity auctions based on opportunity costs of selling capacity into the PJM Interconnection region
- The Federal Energy Regulatory Commission (FERC) has directed revisions to MISO rules to reflect the counter-flows created by capacity exports to neighboring regions, allowing more generators to compete (Docket No. EL15-70-000, et al)
- FERC deemed the 2015/2016 rate increase of $131 per average Ameren Illinois customer not "just and reasonable" and has received demands for millions in refunds for consumers

Entities Mentioned:

- Ameren Companies
- Dynegy
- Federal Energy Regulatory Commission
- Midcontinent Independent System Operator
- PJM Interconnection

Related Research

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Insight for Industry – MISO to Revise Capacity Market Mitigation Measures, Investigation into Market Manipulation Underway

On December 31, 2015, the Federal Energy Regulatory Commission (FERC) issued an order directing the Midcontinent Independent System Operator (MISO) to make changes to the capacity auction rules, including requirements to stop relying on PJM Interconnection prices to set maximum bids and increase the amount of electricity available in the Illinois market area. FERC found that the $155.79/MW-day maximum bid for MISO's 2015/16 capacity auction was too high and that MISO did not accurately calculate electricity exports. The FERC Order requires MISO to set a $0/MW-day reference level to replace MISO's current practice of allowing offers based on the estimated opportunity cost of exporting capacity. It also requires MISO to implement revisions to consider counter-flows created by capacity exports to neighboring regions.

MISO's 2015/16 planning resource auction created unreasonable prices for Zone 4, covering Central and Southern Illinois, where the price per megawatt-day for capacity increased from $16.75 to $150.00, a nine-fold increase from the 2014/15 auction result and up to 40 times greater than clearing prices in other MISO zones

The Order responds to multiple complaints that the results of MISO's 2015/16 capacity auction held in April 2015 were the product of market manipulation and were unjust and unreasonable for Zone 4, which covers Central and Southern Illinois. The price per megawatt-day for capacity in this region increased from $16.75 to $150.00 per megawatt-day – a nine-fold increase from the 2014/15 auction result and up to 40 times greater than clearing prices in other MISO zones, which averaged only $3.75. On May 28, 2015, consumer advocacy group Public Citizen filed a complaint alleging that Houston-based Dynegy manipulated the April 2015 capacity auction by withholding capacity. The Illinois Attorney General Lisa Madigan also filed a complaint on May 28, 2015. Southwestern Electric Cooperative, and Illinois Industrial Energy Consumers filed complaints on May 29, 2015 and June 30, 2015, respectively. MISO operates the electricity grid in portions of 15 states in the Midwest and South.

The Citizens Utility Board (CUB), a nonprofit representing the interests of utility customers in Illinois, has also urged for reforms in the Illinois power market. In an October 2015 release, CUB stated that power generators would profit from the higher power prices in the 2015/16 auction. For example, Exelon's nuclear power plants and Dynegy are reportedly set to receive $13 and $29 million in additional revenue, respectively. The increase would require an extra $131 per year from the average residential customer in some areas.

The FERC Office of Enforcement is conducting a formal, non-public investigation into whether market manipulation occurred before or during the 2015/16 auction. FERC stated that it will determine the appropriate action in a subsequent order. Consumer advocates, including Madigan, have stated that utility customers should receive millions in refunds if the FERC investigation reveals violations in MISO's 2015/16 capacity auction.

FERC Order Directs Revisions to Mitigation Measures in MISO Capacity Auction Rules

The FERC's December 31 Order (Dockets EL15-70-000, EL15-71-000, EL15-72-000, and EL15-82-000) determined that MISO's tariff provisions governing market mitigation measures are no longer just and reasonable. The Order requires two major changes to the grid operator's tariff formulas:

- First, MISO must set the Initial Reference Level to $0/MW-day and no longer calculate that level on the basis of the opportunity costs of selling capacity into the PJM Interconnection market. This means that a bid exceeds the Conduct Threshold, which is 10 percent of Cost of New Entry (CONE), will be mitigated to the applicable reference level unless a unit demonstrates facility-specific reference levels supported by documentation of its going forward costs. To mitigate the effects of conduct that would substantially distort competitive outcomes, market power mitigation provisions authorize mitigation of any conduct that exceeds well- defined conduct thresholds. Anticipating an increase in the number of requests for facility-specific cost-based offers, the FERC Order requires MISO to propose revisions to develop default technology-specific avoidable costs.

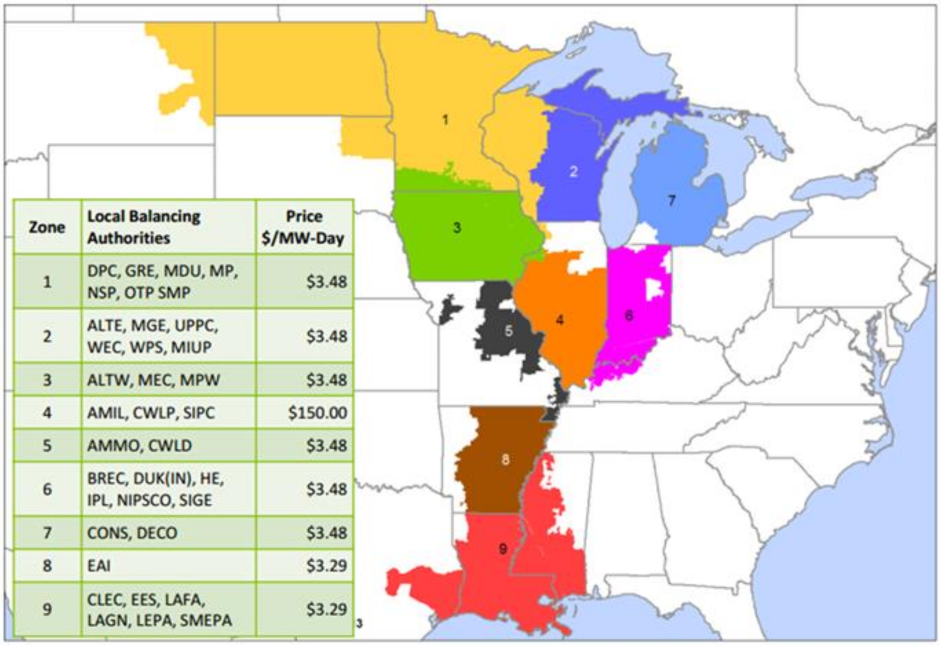
- Second, MISO's calculation of Capacity Import Limits (CIL) must reflect the counter-flows created by capacity exports to neighboring regions. MISO must add back capacity exports included in Base Power Transfer when calculating CIL to allow the impact of counter flows to remain in the CIL calculation, thereby removing the negative impacts of capacity exports. Base Power Transfer is equal to the net amount of firm long-term transmission service imports and exports for the MISO region. The new approach is based on the Market Monitor's recommendation which resolves the deficiency in current approach without affecting any of MISO's modeling.

MISO has 30 days to revise the initial reference level for capacity at $0/MW-day and file revised CIL. Recognizing the difficulty in developing default technology-specific avoidable costs in time for the next auction, the FERC Order provides 90 days for MISO to file such tariff revisions to be implemented prior to the 2017/18 auction.

The FERC agreed that the price separation between Zone 4 and the other zones was substantial in the 2015/16 auction when compared to previous auctions

The FERC agreed that the price separation between Zone 4 and the other zones was substantial in the 2015/16 auction when compared to previous auctions. In the 2015/16 auction Zone 4 cleared at $150.00/MW-day, whereas Zones 1 through 3 and 5 through 7 cleared at $3.48/MW-day and Zones 8 and 9 cleared at $3.29/MW-day. This is in contrast to the 2013/14 Auction, which cleared at $1.05/MW-day for each Zone; and the 2014/15 Auction, which cleared at $3.29/MW-day for Zone 1, $16.75/MW-day for Zones 2 through 7, and $16.44/MW-day for Zones 8 and 9 (Figure 1).

Figure 1 - 2015/2016 Auction Clearing Price Overview



Zone	Local Balancing Authorities	Price $/MW-Day
1	DPC, GRE, MDU, MP, NSP, OTP SMP	$3.48
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	$3.48
3	ALTW, MEC, MPW	$3.48
4	AMIL, CWLP, SIPC	$150.00
5	AMMO, CWLD	$3.48
6	BREC, DUK(IN), HE, IPL, NIPSCO, SIGE	$3.48
7	CONS, DECO	$3.48
8	EAI	$3.29
9	CLEC, EES, LAFA, LAGN, LEPA, SMEPA	$3.29

Source: MISO

New Rules Will Increase Number Of Capacity Sellers Seeking to Provide Facility-Specific Reference Levels

The MISO's Initial Reference Level is the default reference level that is applicable to all capacity supply offers in the auction for capacity, and FERC has recognized that the $0/MW day level could result in an increased number of capacity sellers that seek to demonstrate facility-specific reference levels. The FERC Order set this level at $0/MW-day based on findings that the current practice of deriving the reference level from prices in the neighboring PJM region do not represent an appropriate default opportunity cost for all MISO capacity resources. Instead, capacity sellers may also elect to use a facility-specific reference level by providing documentation of going-forward costs – annual costs to comply with federal or state environmental, safety, or reliability requirements; or net opportunity costs of forgone sales outside of MISO. With the revised reference level, resources seeking to submit bids that exceed the Conduct Threshold of 10 percent of CONE will be required to request facility-specific reference levels with evidence of going-forward costs. MISO is required to file revisions within 30 days of the date of this order.

The FERC Order sets the Initial Reference Level at $0/MW-day, based on findings that the current practice of deriving the reference level from prices in the neighboring PJM region do not represent an appropriate default opportunity cost for all MISO capacity resources

The $0/MW-day Initial Reference Level will likely result in an increase in the number of capacity sellers that seek to demonstrate facility-specific reference levels. To reduce the burden of unit-by-unit verification, FERC directed MISO to propose tariff revisions allowing facility-specific reference levels to include default technology-specific avoidable costs, which would be an estimate of the non-fuel costs of operating a generation resource for each type of generating resource technology. MISO is required to propose these revisions within 90 days of the date of this order to be implemented prior to the 2017/18 Auction.

Currently, the MISO Market Monitor calculates the Initial Reference Level by subtracting transmission costs from the PJM Daily Capacity Deficiency Rate, which resulted in relatively higher Initial Reference Levels in the 2015/2016 auction. MISO calculates the weighted average clearing price in PJM's unconstrained locational delivery area across all the Reliability Pricing Model auctions for the relevant Planning Year. It then adds the either 20 percent of that weighted average clearing price or $20/MW-day (whichever is higher), before subtracting applicable transmission costs. In the 2015/16 Planning Year, the PJM weighted average clearing price was $136.18/MW-day and the PJM Daily Capacity Deficiency Rate was $163.41/MW-day. After subtracting $7.92/MW-day for transmission costs, the Initial Reference Level was $155.79/MW-day.

The unduly high prices in Zone 4 can be attributed to higher opportunity-cost based bids due to an erroneous assumption that Southern Illinois suppliers can sell capacity to PJM, where, in fact, stringent market rules limit such sales

The unduly high prices in Zone 4 can be attributed to higher opportunity-cost based bids due to an erroneous assumption that Southern Illinois suppliers can sell capacity to PJM, where, in fact, stringent market rules limit such sales. In addition, MISO failed to account for power exported from Southern Illinois, which allows counter flows facilitating replacement of this generation. These factors significantly reduced the amount of electricity that MISO could reliably import, thereby increasing its dependence on Dynegy-dominated generation in Zone 4. The associated Conduct Test for capacity resources in Zone 4 was the sum of the Initial Reference Level and the Conduct Threshold of 10 percent of the Zone 4 CONE, which totaled to $180.53/MW-day (Figure 2).

Figure 2 - Auction Clearing Prices ($/MW-Day) 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

Source: MISO

MISO Resources Have Limited Opportunities to Sell into PJM Given New Changes to PJM Capacity Markets

FERC noted that using a PJM-based opportunity cost for MISO resources is less indicative of a legitimate opportunity, particularly given the changes in the PJM capacity market, which imposes stringent operational requirements with larger capacity payments for over-performing resources and higher penalties for non-performers. Basing MISO's Initial Reference Level on the opportunity cost of selling capacity to PJM would be increasingly problematic moving forward, as MISO capacity resources must satisfy additional requirements to sell capacity into PJM.

MISO capacity resources made limited sales into the PJM replacement capacity market after PJM's third Incremental Auction held approximately one month before to the MISO Auction for the same Planning Year. While PJM's replacement capacity transactions averaged 5,821 MW per day for the 2014/15 Planning Year and 3,867 MW per day for the 2015/16 Planning Year, MISO's share was not substantial, with average size of replacement capacity sales per day from MISO resources amounting to only 64.3 MW and 12.3 MW in the 2014/15 and 2015/16 Planning Years, respectively. After PJM's third Incremental Auction for the 2015/16 Planning Year, only 38.5 MW of PJM replacement capacity has been procured from MISO in three sales (with one sale lasting the whole year). The limited opportunity is due primarily to limited demand for replacement capacity in PJM and the limited ability to attain transmission service from MISO to PJM.

With respect to the actual opportunity for MISO capacity to sell into PJM, FERC drew on an analysis of the monthly firm point-to-point transmission service requests from Zone 4 to PJM, which show that only 200 MW of the 3,650 MW transmission requests were granted in the 2014/15 Planning Year.

FERC found that only 200 MW of the 3,650 MW of MISO transmission requests were granted by PJM in the 2014/15 Planning Year

Moving forward, PJM capacity market changes will further limit the opportunity for capacity sales into PJM, as the two grid operators will have different capacity products. Ultimately, capacity prices between PJM and MISO will be non-comparable. After PJM's full transition to the Capacity Performance construct for the 2020/21 Planning Year, PJM and MISO will have different capacity products, with PJM revenues reflecting both a capacity payment and an expectation of penalties and performance payments depending on the resource. The transition will require all external capacity resources selling into the PJM capacity market to be pseudo-tied into PJM from the 2020/21 Planning Year, implying that PJM sales will not be a valid opportunity cost for resources that are not pseudo-tied into PJM. Therefore, using prices from PJM's Reliability Pricing Model auctions, adjusted for transmission costs, with no adjustment for an individual MISO resource's expected performance payments and penalties will inaccurately estimate the opportunity cost of selling capacity into PJM in future planning years. MISO is a one-year, voluntary capacity market while PJM is a three-year, mandatory market for capacity and energy transactions.

MISO's Current Parameters do not Reflect Counter-Flows Created by Capacity Exports to Neighboring Regions

The FERC Order requires MISO to account for the impact that capacity exports have on counter-flows -- the ability to import additional capacity resulting from exports. The Order requires MISO to use the Market Monitor's recommendation to add back capacity exports included in Base Power Transfer, thus eliminating the negative impact of those exports on the CIL calculation. FERC requires MISO to determine revised CIL within 30 days prior to the 2016/17 Auction.

FERC found that the MISO tariff provisions used for CIL determination understate the impact that counter-flows from capacity exports have on a zone's CIL. The Citizens Utility Board and Illinois Commerce Commission noted that, while the CIL for Zone 4 was 3,130 MW, the actual amount of imports into Zone 4 during the 2015/16 auction was limited to 1,568 MW, implying that nearly 50 percent of the CIL was not utilized to allow lower-cost capacity to meet the zone's Local Reliability Requirement. The complainants argued that allowing higher-priced local capacity to clear the auction ahead of lower-priced imported capacity could have led to the high clearing price in Zone 4. Specifically, Industrial Energy Consumers noted that if the 1,200 MW of capacity resources physically located in Zone 4 – but having sold their capacity into PJM for the 2015/16 Planning Year – were counted toward the Zone 4 Local Clearing Requirement, the zone would have had a clearing price of $8/MW-day in the 2015/16 auction.

Allowing higher-priced local capacity to clear the auction ahead of lower-priced imported capacity could have led to the high clearing price in Zone 4

In proposing the recommendation to treat capacity exports as if they would facilitate the ability to import additional capacity, MISO Market Monitor agreed that the current methodology to calculate CIL does not reflect the counter-flows created when resources located in the zone are exported to a neighboring region. Under the current methodology, even if the First Contingency Incremental Transfer Capability for a Zone increases due to capacity exports, the increase is offset in the CIL calculation when Base Power Transfer is added to First Contingency Incremental Transfer Capability.

MISO Revisions Would Address Capacity Constraints

Under MISO's revised capacity market rules, suppliers have the option to demonstrate facility-specific reference levels using default technology-specific avoidable costs rather than facility-specific avoidable costs, but suppliers will no longer be able to use PJM prices to set their reference level. MISO will have to recalculate the amount of electricity to be sourced from within Southern Illinois, potentially allowing more generators to compete in the market and lowering prices. The new mitigation measures will likely address capacity constraints created by environmental regulations, such as the mercury emission rules and the Clean Power Plan to reduce carbon dioxide emissions.

Consumer groups, such as the Public Citizen, and Illinois Attorney General have both stated that FERC should order refunds to affected customers if the Commission finds MISO's 2015/16 auction to be illegal. The FERC order allows a refund effective date of May 28, 2015, and Public Citizen anticipates that consumers could potentially be in line for tens of millions of dollars in refunds should FERC rule in their favor.

FERC Continues Investigation into Market Manipulation Given Dynegy's Role as Pivotal Supplier for Zone 4

In addition to the Order specifying changes to MISO's tariff calculations, FERC is investigating whether Houston-based Dynegy, which in 2013 purchased Ameren's power plants in Illinois, used its size in the state's power market to manipulate electric prices in the 2015/16 auction. In its May 2015 complaint, Public Citizen alleged that the discriminatory rate increases for Zone 4 may be the result of illegal manipulation of the auction bidding process, specifically capacity withholding. It noted that the lack of action of MISO or the MISO Market Monitor to make adjustments to the Local Clearing Requirement for Zone 4 after Dynegy's acquisition may have facilitated Dynegy's ability to execute a capacity withholding plan to raise prices in Zone 4.

Public Citizen alleged that the discriminatory rate increases for Zone 4 may be the result of illegal manipulation of the auction bidding process, specifically capacity withholding

Complainants also argued that MISO applied the Local Clearing Requirement and CIL parameters in a way that contributed to the high auction clearing price in Zone 4. For example, by not allowing the 1,200 MW of Zone 4 exports to PJM to meet a portion of the Local Clearing Requirement, MISO failed to properly account for counter-flows, thereby failing to reduce Dynegy's ability to use its position as a pivotal supplier.

The Illinois Attorney General noted that Dynegy became a pivotal supplier after acquiring generation capacity from Ameren Companies. Zone 4 has a total unforced capacity of 13,481.8 MW, while Dynegy has a capacity of approximately 6,400 MW. Thus, Dynegy's participation is essential to meet the zone's 8,852 MW requirement, meaning that Dynegy has the ability to set the price for the marginal clearing capacity, irrespective of its internal cost of providing that capacity.

On April 14, 2013, Ameren Companies and Dynegy applied for FERC approval of Dynegy's acquisition of five coal-fired generation resources with a total installed capacity of 4,393 MW from Ameren Companies. One of the five resources – Joppa (1,241 MW) – located outside Zone 4 can count toward satisfying the Zone 4 Local Clearing Requirement if it clears the auction. The companies represented that the transaction would increase Dynegy's capacity ownership in MISO by 3,152 MW (from 2,954 MW to 6,106 MW) and analyzed Dynegy's market share in MISO's capacity market on a system-wide basis as the 2013/14 Auction cleared at a single system-wide clearing price. They concluded that the acquisition would increase Dynegy's approximate one percent share of the MISO capacity market to less than a four percent, while the market concentration in the overall MISO capacity market would decrease.

FERC authorized Dynegy's acquisition on October 11, 2013, concluding that Ameren Companies and Dynegy correctly analyzed the transaction's effect on the overall MISO balancing authority area, instead of analyzing the effect on Zones as deemed necessary by some intervenors.

MISO's Resource Adequacy construct combines regional and local criteria to achieve a least-cost solution for the region subject to:

- MISO-wide reserve margin requirements;
- Zonal capacity requirements (Local Clearing Requirement);
- Zonal transmission limitations (Capacity Import/Export Limits);
- Sub-Regional contractual limitations, such as between MISO's South and Central/North Regions, if applicable.

The zonal capacity requirement must be met with resources located within the zone, while the MISO-wide reserve margin requirement is shared among the zones, which may import capacity to meet the requirement. The Independent Market Monitor reviews auction results to investigate physical and economic withholding.

Disclosures Section

RESEARCH RISKS

Regulatory and Legislative agendas are subject to change.

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