



Voltus Presentation for Order 2222

Framework for DERs in wholesale markets –
Indiana Utility Regulatory Commission (IURC)

March 2023



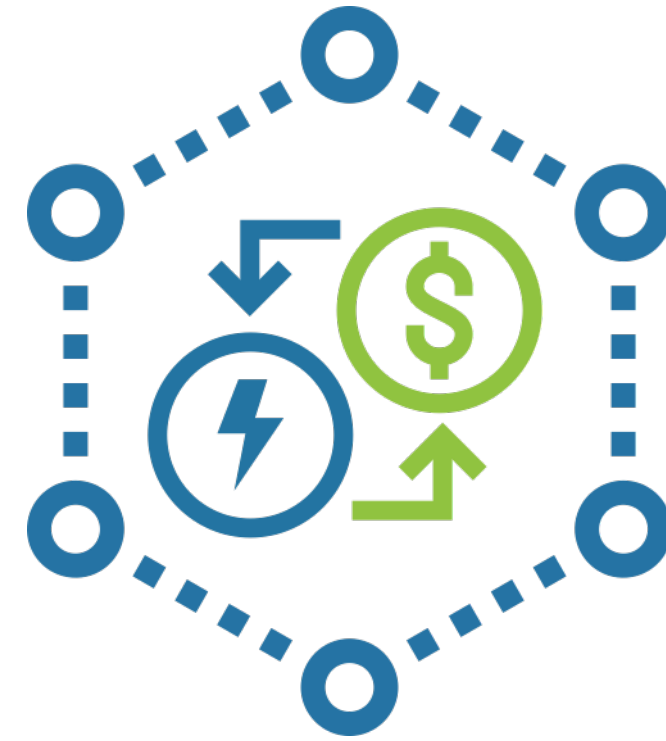
Agenda

- Introduction to Votus
- Order 2222 – MISO and PJM Compliance Proposal Highlights
- IURC Initial Set of Topics
- Summary

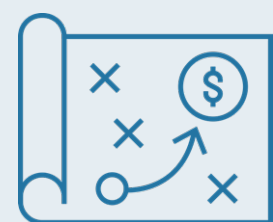
The Role of Aggregators



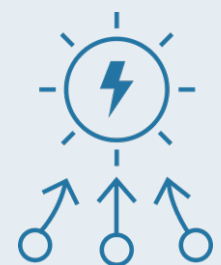
Aggregators **manage the complexity of aggregated assets** including customer relationships, dispatching of individual DERs, scheduling, and settlement. **ISOs and distribution utilities see output that resembles traditional assets** : utility-scale load curtailment or net injection.



IDENTIFY & FORECAST DER VALUE



Identify & Evaluate



Aggregation Strategy



Value Forecasting

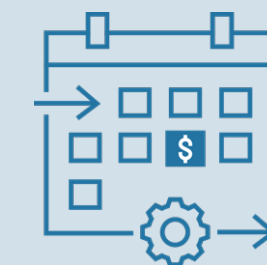
ORCHESTRATE & PERFORM DER OBLIGATION



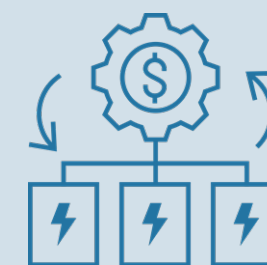
Energy Pricing



Auction Bidding



Schedule Coordination



Automated Dispatch

SETTLE & REPORT DER PERFORMANCE



Measurement & Verification



Settle & Disburse



Reporting & Insights

More markets, more megawatts

VoltApp™ is the only distributed energy resource (DER) platform that connects any DER type to any wholesale energy market in North America.

More markets means more cash earning opportunities for local businesses.



Demand response



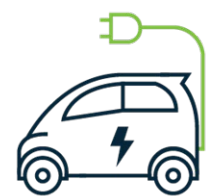
Energy efficiency



Distributed generation



Energy storage systems



EVs & EV infrastructure

Order 2222 PJM and MISO Compliance Proposal Highlights



FERC Requirement	PJM	MISO
Participation Model: provide all services technically capable of providing	DERA model allows DER to participate in all market and provide all services in concept, but limitations outlined below act to bar full access	New Distributed Energy Aggregated Resource (DEAR) model that allows technically all services capable of providing but EDCs responsible for deliverability studies to participate in capacity market.
Heterogenous applications: allow curtailment & injection and all technologies/Use Cases to participate	Injection only compensated if it exceeds Max Load, negating contribution of distinct resources	Accommodates heterogeneous aggregations. DERA to submit individual DER and DER Group meter data & MISO will perform aggregation to evaluate performance.
Double counting: develop narrowly tailored restrictions, including NEM	NEM assets barred from providing energy as well as capacity	EDC and RERRA checks before enrollment for double counting. NEM not allowed to participate in energy markets.
Size: Aggregation (>100 kW), DER (ISO to define)	5 MW size limit on individual DER	No size limit for individual DER
Locational: Allow aggregation as broad as possible (multi-nodal)	Capacity = yes, zonal A/S = yes, EDC territory Energy = no, single PNode	Does not allow - Single EP Node for DER aggregation participation
Metering & telemetry: don't impose barriers	Metering: Revenue data @ 5 min or hourly. Telemetry: frequency req consistent with service. Calculation allowed for mass market.	Telemetry data submitted every 2 sec for all dispatchable DEAR, regardless of size or product.
Registration of aggregations: < 60 days & transparent	Created an unbounded "preregistration/data verification" process that precedes the 60-day FERC-specified timeline	90 days total – 10 days preregistration for MISO and 10 each for LSE & RERRA, 60-day registration review. Modification will not require re registering
Interconnection (I/C): Exempt from SGIP; no "first use" trigger	Assuming each DERA is load reduction at substation & not going through transmission interconnection queue	Collecting \$60K deposit for all applications in case Tx-study is required. Details left to BPM after 04/22.
Implementation Dates	1sr qtr 2026 (energy+A/S) 2 nd Q 2023 (cap mkt)	2030

Implementing Order 2222



An informal process works best

- Indiana has a process where Aggregators can register through the utility.
- If IURC cannot apply the current structure to other DERs (i.e., DERs other than demand response) IURC should explore allowing third-party aggregators for demand response as well.
- An “informal” process, like used in Michigan, allows parties to have conversations since ex parte rules don’t apply.
- FERC Commissioners have regretfully noted that the contested case nature of the 2222 compliance plans has unfortunately shut down conversation.

Interconnection of component DERs to the distribution system



Review Aggregation not component DERs

- Voltus position is, component DERs are already studied when initially interconnected to the distribution system.
- IURC should not re-review component DERs when reviewing the aggregation—it is the Aggregator's job to manage component DERs.

Adjudication of Disputes



Leverage existing MISO procedures.

- IURC should leverage existing MISO Dispute Resolution procedures.
Source: MISO April 4/14/2022 Compliance Proposal - “MISO has revised Section 12 of its Tariff to clarify that any dispute regarding the coordination or application of the EDC review process relating to DERA registration and enrollment shall be resolved in accordance with MISO’s existing dispute resolution procedures set forth in Attachment HH to the Tariff.”
- Aggregators are subject to a state’s consumer protection laws.
- Any additional dispute resolution processes should be necessary and additive to what is already in place.



Operational oversight and control of DERs

Per FERC Order 2222, MISO should be concerned about the Aggregation

- Aggregators must have the operational oversight and control of component DERs.
- Per FERC 2222, MISO should be concerned about Aggregation, not component DERs.
- Aggregators can provide DU with dispatch and performance data
- DUs already have information about component DERs from interconnection procedures.

Distribution utility overrides of DERs to maintain reliability, and disputes



IURC should determine the criteria for DU overrides

- The State in conjunction with stakeholders must determine the clear criteria that justify distribution system overrides.
- IURC should be aware that DU Real Time overrides of Day Ahead dispatch results in MISO assessing non-performance penalties on Aggregators.
- IURC should develop procedures to make sure that the aggregators has advance notice where possible.
- Aggregators should have an opportunity for after -the-fact review of the grounds for the DU override, to ensure it was justified.



Technical review costs/upgrades/needed technology/subsidizations

Technical review should be limited to incremental review of net injection from aggregation.

- MISO's current proposal to collect \$60,000 per study for new DER interconnections is a barrier. The net injection from an Aggregation of component DERs should be considered in evaluating any distribution or transmission upgrade costs.
- Technical review of costs must be consistent with the administrative burden.
- System upgrade costs should be allocated based on preexisting procedures for component DER.

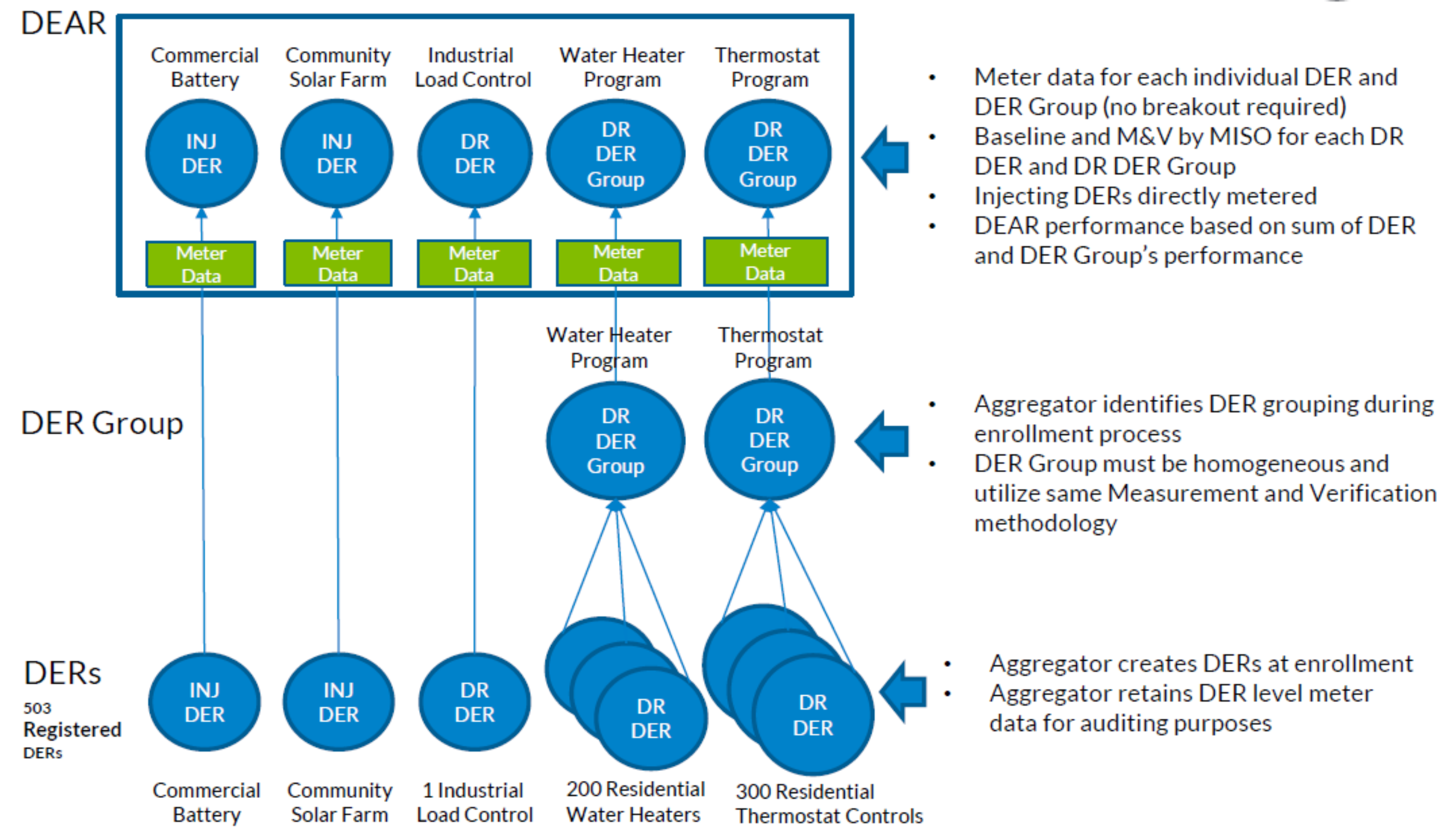
Dual participation and double -counting



Dual registration is NOT necessarily double counting or double compensation

	Energy	Capacity	Regulating Reserve	Spinning Reserve	Supplemental Reserve	Ramp Product
			Operating Reserves			
				Contingency Reserves		
Generator	Y	Y	Y	Y	Y	Y
DRR - I	Y	Y	N	Y	Y	N
DRR - II	Y	Y	Y	Y	Y	Y
ESR	Y	Y	Y	Y	Y	Y
EAR	Y	Y	Y	Y	Y	Y
DIR	Y	Y	N	N	N	Y
DEAR	Y	Y	Y	Y	Y	Y

Example Aggregation with DER Grouping



(See Appendix for MISO section)

Dual participation and double -counting challenges



- Order 2222, Para 160 allows that resources can (1) participate “in one or more retail programs” and wholesale markets; and (2) “provide multiple wholesale services.”
- The RTO/ISO can only adopt “appropriate restrictions” on resources’ participation in RTO/ISO that are “**narrowly designed** to avoid counting more than once the services provided by distributed energy resources in RTO/ISO markets.” *Id.*

State vs. Federal jurisdictional issues



ISO is responsible for market registration

Issue	State	Federal
Pre-Registration of component DERs	Yes	N/A
Market Registration of Aggregation	N/A	Yes
Interconnection	Distribution	Transmission
Technical Review Costs	Yes, for distribution	Yes, for transmission
Operational oversight and control of DERs	Yes	N/A
Distribution utility overrides of DERs to maintain reliability, and disputes arising therefrom	Yes, for component DERs	Yes, for Aggregation
Dual participation (retail and wholesale participation)	Yes, for retail	Yes, for wholesale



DER aggregators as “public utilities”?

DER Aggregators are not public utilities.

- Aggregators are not public utilities.
- Utilities are granted **an authorized rate of return** and a **captive customer base** in exchange for **regulatory oversight** and **an obligation to serve all customers**.
- These facts do not hold for aggregators.

IEEE 1547-2018 standardization.



Voltus takes no position on this topic.

- Voltus takes no position on this topic of IEEE 1547 -2018 standardization.



Coordination among RTO/utility/aggregator/IURC

Build something new only if and where there are gaps in existing procedures.

- Voltus has experience coordinating with RTO, utility and RERRA.
- PJM and MISO already have extensive procedures; Indiana is aware of this, given that aggregators operate in the state already, to some extent.
- Indiana should know and leverage existing tools and procedures, and only build something new if/where there are gaps.

Overview



Summary of Voltus's presentation

- An informal process works best for implementing FERC Order 2222 at the state level.
- Review Aggregation not component DERs.
- Leverage existing MISO and PJM procedures on pre-registration/aggregation registration.
- IURC should determine clear criteria for DU overrides.
- Dual registration is NOT double counting or double compensation.
- Order 2222, Para 160 requires MISO to account for the different services that DERs provide.
- DER Aggregators are not public utilities.
- Create new processes if and where there are gaps in existing procedures.

Thank you!



MISO proposed new Section 38.7.a.ii in its Tariff



Eligibility & Process to identify Double Counting

- LBAs will work with the LSE, the EDC, and Transmission Provider to review the composition of an EPNode proposed for the DEAR. The Transmission Provider will provide LBAs and EDCs with access to the physical location and magnitude of each resource registered by an DERA to perform an eligibility review.
 - If the LBA takes no action within ten (10) Business Days, the EPNode will be assigned by the Transmission Provider.
 - If the LBA confirms the DEAR then the LBA shall identify the EPNode assignment.
 - If the LSE takes no action, the Load Zone associated to the DEAR will be assigned by the Transmission Provider.
 - If the LSE confirms the DEAR, then the LSE shall identify or approve the Load Zone associated with the DEAR.
- Within these ten (10) Business Days the LSE or EDC will coordinate with relevant parties to assist in the review of information provided to determine whether any Distributed Energy Resource(s) within the proposed aggregation are currently registered to provide the same service in the Transmission Provider's markets as part of an existing resource, or enrolled to provide the same service at retail, as set forth in the Business Practices Manual.
 - This determination is necessary to avoid the potential of double counting of such Distributed Energy Resource, and to avoid the possibility of paying twice for the same service at wholesale and at retail.
- If a DERA proposes to register multiple DERs owned by the same end use customer(s) in the same or different DEARs, or as another Resource type, the Transmission Provider shall review each registration to avoid the potential for double counting.
 - **Proposed DERs within a DEAR that are already included in a registered resource with the Transmission Provider or providing the same service at retail will be rejected.**

Appendix – MISO Demand Response Business Practices Manual



MISO's asset registration requirements are stringent, proven, and ensure coordination with load serving entities and local distribution companies.

- See page 30 of 98, MISO BPM – 026, Demand Response Business Practices Manual, **“Regarding double-counting, ARC registration requirements include physical addresses and other information which may then be cross-checked by MISO, the LSE, and the LBA with other demand resources registered in MISO Markets. If apparent double counting occurs between MPs during the registration process, MISO will accept end -use customers in a demand resource into a MISO Market on a first -come first-serve basis. LBAs are requested to review and provide important location details (e.g., EPNodes) based on end -use customer addresses and other information and are thus made aware of ARC resources within their service areas. LSEs are requested to review if the end-use customer(s) is already included in an LMR, DRR or EDR for that LSE, if the end-use customer(s) is served by the LSE, account numbers, demand reduction capabilities for assets registering within their service territories and validating and/or providing the CPNode to represent the enrollment.”**

Appendix – MISO Demand Response Business Practices Manual



MISO's process include a role for IURC.

- See page 32 of 98, “MISO will automatically accept a DRR’s registration following the ten -day deadline, unless the RERRA objects and unless the approval is subject to RERRA review with respect to a utility with sales equal to or less than 4 million MWhs/fiscal year, in which case failure of the RERRA to confirm within ten business days will result in auto rejection ”