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Regulation of Third-Party Aggregation in the MISO and SPP Footprints

Sydney P. Forrester, Cole Triedman, Sam Kozel, Cameron Brooks, and Peter Cappers

September 2023



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Third-Party Aggregation Rulemaking in MISO and SPP Footprints

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Executive Summary

The purpose of this document is to highlight key considerations for retail regulators to introduce aggregators of retail customers (ARCs) in states, especially those in the footprints of the Southwest Power Pool (SPP) or Midcontinent Independent System Operator (MISO) that previously opted out under FERC Order 719. This document provides a high-level policy overview of the retail regulator’s role in a selection of processes, rules, and regulations related to FERC Order 2222 implementation and related experience from states that currently allow aggregators. This paper is not a legal analysis nor is it meant to prescribe recommendations for states. Instead, this report summarizes a document review and a series of interviews conducted by the authors to better understand how states have treated and/or integrated aggregators into wholesale markets in response to FERC Orders 719 and 2222, as well as how states have addressed a set of policy issues relevant to that integration process. This paper focuses specifically on the perspective of state regulators as retail regulators and their Commission-jurisdictional retail electric utilities and the distributed energy resources (DERs) interconnected within their territories, however, the findings may apply to a broader audience.

The authors conducted a document review and interviews with 27 individuals across the spectrum of regulators, aggregators, and other industry professionals provide the background for this document. These interviewees represented 12 states and provided insight on seven topic areas spanning general experience with aggregators, jurisdiction, dispute resolution, registration and licensing, double counting, role of and limitations on aggregators, data protection, and implementation challenges. From this review came five general findings and several more specific policy findings from states.

1. The vast majority of MISO and SPP states opted out of third-party ARCs after FERC Order 719

Of the 20 states in MISO and SPP, 17 opted out of allowing aggregators to directly bid demand response (DR) into RTO/ISO wholesale markets. Of those that did not opt out, Illinois is an outlier due to being the only state of the 20 with full retail choice. Kansas and Oklahoma did not have active wholesale aggregator participation until recent years. Of the states that did opt out, Michigan and Arkansas facilitated years-long stakeholder

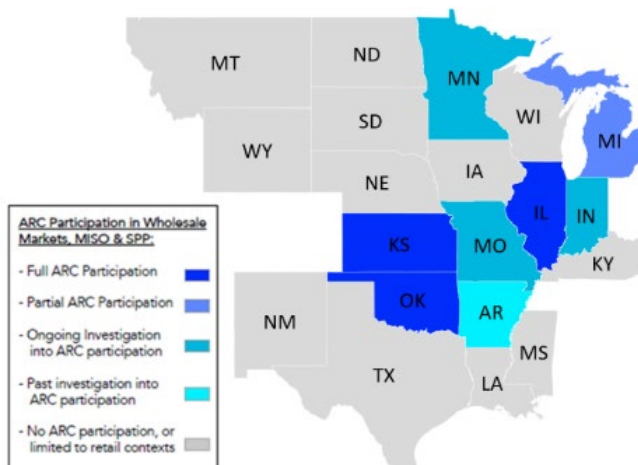


Figure ES - 1. Status of organized wholesale market participation rules for aggregators of retail customers in MISO and SPP states

processes. Michigan did loosen the restrictions in 2019 first to allow aggregators of retail choice customer resources, and then again in 2022 to allow aggregators of larger commercial and industrial customer resources in Commission-jurisdictional territories. Arkansas chose not to reverse the opt out. Besides those two states, there have been others that have initiated investigations into possible pathways to address aggregation issues such as Missouri, Indiana, and Minnesota in late 2022 (Figure ES - 1).

2. Third-party ARCs in MISO and SPP states exist without state-administered rules

Past policy activity among topics of interest have taken place in various, often *ad hoc* rulemakings, frequently building off existing processes, but providing few uniform “best practices.” Two conclusions stem from this finding. First, aggregators may be able to participate in markets without comprehensive rulemaking, as demonstrated in Kansas and Oklahoma.¹ Second, some states are using early experiences in this more *ad hoc* environment as first steps in a more incremental approach to develop a targeted plan for rulemaking in the future, as in Michigan.

3. Restructured states outside of MISO and SPP exhibit heterogeneity in how they approach aggregations, but may still offer helpful considerations

This study considered policies in states outside of MISO and SPP that are restructured and have aggregators that are active in organized wholesale markets. Despite having market structures and footprints that sometimes varied significantly from those of vertically integrated MISO and SPP states, these states provide insight into jurisdiction, oversight, and rulemaking between retail regulators, wholesale market operators, and retail utilities. States with more developed landscapes have also begun to address issues of dual participation and aggregators within the context of Order 2222.

4. States view some policy topics as higher priority than others

Resolving jurisdictional questions, defining the characteristics and eligibility requirements of aggregators, designing a registration process, and ensuring customer data protection tend to be of immediate concern to states and state regulators interested in allowing third-party aggregators. Addressing issues related to double counting and dispute resolution are typically considered next, usually in the context of Order 2222 implementation and within active markets.

5. Many retail regulators have similar questions, regardless of market footprint and structure

Among the various retail regulatory staff that were interviewed, regardless of market footprint, structure, or whether aggregators were actively participating within their states, there was widespread enthusiasm to better understand the issues surrounding aggregators and the role of retail regulators.

¹ Oklahoma’s largest utility, PSO, has adjusted its tariffs to address issues related to customer participation in third-party aggregations; Evergy Kansas petitioned for tariff changes in January 2023 (Evergy Kansas, 2023) (see Appendix C).

The remainder of the results are grouped under “Policy Findings,” where we dive deeper into examples from states on how they addressed issues surrounding regulator jurisdiction, aggregator participation requirements, and the enforcement of these rules. Text boxes accompany the main body to offer context and dive deeper into some states’ regulatory processes while tables outline tiered actions that states have taken. Tiers I, II, and III roughly correspond to the possible level of involvement or possible change necessary by state regulators and/or legislators to implement these actions. The tier level does not indicate any value judgement, as each state has respective regulatory limitations and each decision comes with various tradeoffs. One main tradeoff is between simplicity and quick implementation versus comprehensive and prolonged implementation. In many cases, actions in Tier I could be implemented without significant changes by relying on the use of existing processes for an aggregator context. On the other hand, many actions in Tier III are more narrowly designed to address aggregators specifically, but often require more significant changes including the involvement of additional parties through stakeholder engagement or legislative action. In some cases, these tiers are discrete. However, state regulators may also choose to progress through these various tiers sequentially as they phase in aggregators while learning from their experience. In the section “Policy Findings,” tables include specific examples. Here, Table ES – 1 condenses the multiple tables, topics, and respective tiers into one.

Table ES - 1. Policy findings and examples from states on possible approaches to various aggregator issues:

	Tier	Description
Jurisdiction	I	State regulator defaults to RTO authority over ARCs and completely delegates relevant processes.
	II	State regulator uses existing jurisdiction to regulate certain issues related to interactions between ARCs and regulated retail electric utilities. Such interactions may be associated with jurisdiction over regulated retail electric utilities and their customers at the distribution level.
	III	State regulator coordinates with state legislature to pass legislation explicitly defining the state regulator’s jurisdiction over ARCs or initiating a process to address jurisdictional questions as part of Order 2222 implementation.
Registration and licensing	I	State regulators rely on the RTO’s existing ARC and proposed Order 2222 DER amendments for registration. If required, State regulator directs utilities and/or requests RTOs to provide the state regulator with DER and/or ARC registration data at some specified frequency (e.g. one-time, quarterly, yearly) to ensure compliance with existing and/or amended state regulation.
	II	Initiate a process or issue an order clarifying the separate roles of the state regulator, regulated retail utility, and recognizing the role of the RTO in adapting and facilitating registration processes to accommodate new ARC market access.
	III	Initiate a process or issue an order specifically designed to clarify the retail regulator’s role in developing eligibility requirements for ARCs such as for registration and licensing process. Additionally if required, this process could consider changes to individual DER and/or ARC processes consistent with Order 2222 implementation.
Data governance	I	Leverage existing utility or state customer consent processes, cybersecurity, and/or data protection standards used for DERs, ARCs, and/or retail choice providers.
	II	Establish a proceeding to develop customer data protection standards. ARCs would be required to implement these standards into customer contracts or sales agreements.
	III	Together with relevant stakeholders, regulators can address customer and operational data governance with respect to FERC Order 2222 implementation. This could monitor issues, develop standards, and facilitate the adoption of tools to enable coordination and data sharing processes between all relevant entities.
Double counting	I	Coordinate with retail utilities, RTOs, multi-state groups, and industry working groups to gather and provide feedback on this topic. As FERC rules on RTOs’ Order 2222 compliance filings and finalizes these, utilize RTOs’ proposed double counting guidance.
	II	Work with retail utilities and RTOs stakeholder processes to co-develop the definition of double counting and determine information necessary to identify cases. Direct retail utilities to submit updated tariff proposals addressing dual participation and prohibiting double counting.
	III	Address double counting as part of a comprehensive Order 2222 implementation process, considering additional development of statewide rules if required.
Dispute resolution	I	Utilize existing dispute resolution processes to the extent possible for issues involving DERs within retail markets or in wholesale aggregation scenarios.
	II	Adapt processes, frameworks or general principles from existing dispute resolution procedures to specifically address ARCs.
	III	Coordinate with state regulator staff responsible for managing dispute resolution to develop a new process specific to ARC disputes, possibly in the context of Order 2222 implementation.

Several states in MISO and SPP have begun to explore the possibility of allowing direct third-party participation in organized wholesale markets. Despite most states being in early stages, there are examples across states of how retail regulators have weighed different tradeoffs and taken different actions related to legal jurisdiction, participation requirements, and rule enforcement. Most Tier I examples in Table ES – 1 may not require significant changes and seemingly could be implemented more quickly, while Tier III examples do appear to require higher levels of buy-in

and codifying language to create more comprehensive and aggregator-specific rulemaking that may offer more clear guidance or customer protection.

With the ability to stack bulk system level services, distributed energy resource aggregations in MISO and SPP could provide various private benefits (e.g., increased value streams to the owner) as well as societally beneficial grid services (e.g., peaking capacity, ancillary services, and other services that increase the grid's overall operational efficiency). If states begin to loosen restrictions on third-party aggregators and learn from experiences, they should be able to capture these benefits and a resulting series of 'best practices' may emerge with time.

There has been much activity in this topic over recent months, and this report represents the regulatory environment through December 2022.

1. Introduction

Distributed energy resources (DERs), including demand response (DR), solar photovoltaic (PV) generation, energy storage, and other demand-side technologies, are becoming increasingly accessible across the country due to declining costs, federal and state policy, and utility programs (Barbose et al., 2022; FERC, 2021; NCCETC, 2022). Customers often adopt DER to provide value in the form of utility bill reduction. Additionally, these resources have the potential to provide larger societal value to the grid itself in the form of energy arbitrage, peak reduction, and other services (Aghaei and Alizadeh, 2013; Castagneto Gisse et al., 2019; Cook et al., 2018; FERC, 2021; Migden-Ostrander et al., 2018). Even so, there have been various barriers limiting or inhibiting participation for these resources, especially at the wholesale market level (EPRI, 2022; Gundlach and Webb, 2018). Consequently, the Federal Energy Regulatory Commission (FERC) have issued a series of orders, culminating in Order 2222, issued in September 2020, to allow these DERs to compete with incumbent wholesale market participants in order to increase market efficiency and reduce costs while maintaining reliability.

Before Order 2222, FERC issued Order 719 in 2008. The order directed independent system operators (ISOs) and regional transmission organizations (RTOs) to amend their tariffs to improve competition in organized wholesale markets by reducing barriers to participation of DR (FERC, 2008). FERC defined a role for aggregators of retail customers (ARCs) to bid DR services directly into these organized wholesale markets, unless the laws of the relevant electric retail regulatory authority (RERRA) do not allow retail customers to participate. The RERRA may be a state regulator in the case of DERs interconnected within investor-owned utility territories, or could be a Board of Directors or other entity for municipal or rural electric cooperative utilities. In the case of state regulators as RERRAs, regulators across a collection of states decided to “opt out” by prohibiting retail customers of Commission-jurisdictional utilities from bidding DR into organized wholesale markets, either directly or via a third-party ARC. Fifteen of these states² are vertically integrated states within the Mid-Continent Independent System Operator (MISO) or the Southwest Power Pool (SPP) organized wholesale markets (referred to as “RTOs” throughout this paper), making up the vast majority of the total states in those two regions and a large number of opt out states in the country.

When FERC Order 2222 was issued in 2020, it built upon previous orders, including Order 719, to further improve competition of organized wholesale energy markets by reducing barriers to participation for DERs beyond DR (FERC, 2020). Unlike Order 719, Order 2222 does not allow states to opt out of DER aggregation. Consequently, there has been activity among some states that previously opted out to better understand wholesale market participation by ARCs, especially states that participate in either MISO’s or SPP’s organized wholesale markets. Indeed,

² Arkansas, Iowa, Indiana, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Mississippi, Montana, North Dakota, Nebraska, New Mexico, South Dakota, and Wisconsin.

some states have begun this process, citing the potential for aggregated DERs to alleviate capacity constraints.³

RTOs similarly recognize the potential value in addressing capacity concerns. For example, the North American Electric Reliability Corporation (NERC) categorizes MISO as “high risk” and SPP as “elevated risk” with regards to resource adequacy for 2023-2027 (NERC, 2022a). MISO recognizes DR’s ability to improve operational reliability in the short term, offer least-cost resource adequacy in the long term, reduce price volatility and overall costs, and mitigate market power (Potomac Economics, 2022). In one demonstrative event, MISO declared a Maximum Generation Event in June 2021 for which over 400 MW of load reduction was provided by ARCs for the three-hour event, delivering more than their commitment and proving that aggregations can provide reliable and quick responses during high-value events (FERC, 2021). While MISO’s Order 2222 compliance filing proposed an implementation deadline of 2030 (MISO, 2022), the Organization of MISO States “argues that Order 2222 should be implemented sooner than 2030 in order to take advantage of the reliability and economic benefits of DER aggregation.” (OMS, 2022) Existing DERs in MISO and SPP could be a source of untapped potential, and their participation in organized wholesale markets could provide valuable bulk system services.

The purpose of this document is to highlight key considerations and potential options for state regulators⁴ to explore participation by ARCs if they wish to aggregate DERs in regulated retail utility service territories and directly participate in organized wholesale markets, especially those in the footprints of SPP or MISO, that previously opted out under Order 719. This document provides a high-level policy overview of the retail regulator’s role in a selection of processes, rules, and regulations related to Order 2222 implementation and related experience from states that currently allow ARCs. This paper does not provide legal analysis nor is it meant to prescribe recommendations for states. While this paper focuses specifically on the perspective of state regulators in SPP and/or MISO footprints, their Commission-jurisdictional utilities, and interconnected DERs, the findings may apply to a broader audience.

³ In October 2022, the Missouri PSC issued a list of Contemporary Resource Planning Issues (Docket Nos. EO-2023-0099, EO-2023-0100, EO-2023-0101, EO-2023-0102) that includes a requirement that utilities include modeling for participation scenarios of commercial and industrial customer participation in third-party aggregated DR and an analysis of what impacts aggregated DR would have on IRPs (MoPSC, 2022). In December 2022, the Indiana IURC established an Order 2222 stakeholder working group process; the Michigan PSC issued an order in U-20348 lifting the prohibition of participation in organized wholesale markets for ARCs of resources with enrolled load exceeding 1 MW; and the Minnesota PUC issued a notice in Docket no. 22-600 requesting comments related to potential ARC participation in organized wholesale markets and utility programs and policy considerations related to ARC verification, consumer protection. Michigan’s order notes that, “In light of the tightening capacity market within the MISO footprint and LRZ in particular, the Commission seeks comment on whether the ban on DR aggregation described in the August 8 order should now be lifted,” while Minnesota’s Notice asks, “Should the Commission permit aggregators of retail customers to bid demand response into organized markets?”

⁴ In this paper, “state regulators” is used to broadly refer to the subset of retail regulators that include state public service commissions, public utilities commissions, etc.

2. Methods

This review focused on several policy questions, clustered into seven topic categories (Figure 1).

1: General History	•How have states’ regulations for DR and/or DER aggregation evolved? What are states’ general experiences with allowing aggregations and are there any “best practices”?
2: Jurisdiction	•What is the state regulator’s legal jurisdiction, if any, regarding DR/DER aggregators?
3: Dispute resolution	•What are the processes or rules, if any, related to resolving disputes involving aggregators?
4: Registration and licensing	•Which authority manages registration/licensing of aggregators and what are the related processes, rules, requirements, or fees?
5: Double counting	•How is “double counting” defined and prevented? Which entities are responsible for detecting and resolving instances of non-compliance?
6: Role of, limitations on aggregators	•Are there limitations on aggregators based on customer class, technology type, geographic spread, etc.?
7: Data protection	•What data is necessary, from whom, and for whom? How are these data shared, and what are the limitations and protections needed or currently in place?

Figure 1: Seven topic categories of focus for document review and interviews

While primarily focused on vertically integrated states in the MISO and/or SPP footprints, many of these states are in the early stages of investigating similar topics and thus have limited relevant procedural history or policy implementation experience to reference. As a result, the states reviewed include MISO and SPP states that did not opt out, as well as states outside of MISO’s and SPP’s footprints that may provide key insights regardless of geography, market footprint, or market structure. This included Northeast and Mid-Atlantic states as well as California (see Figure 2). Ultimately, this report investigates each topic category, incorporating material from 12 states. See Appendix C for state-specific summaries and Appendix A for an index of state-specific resources.

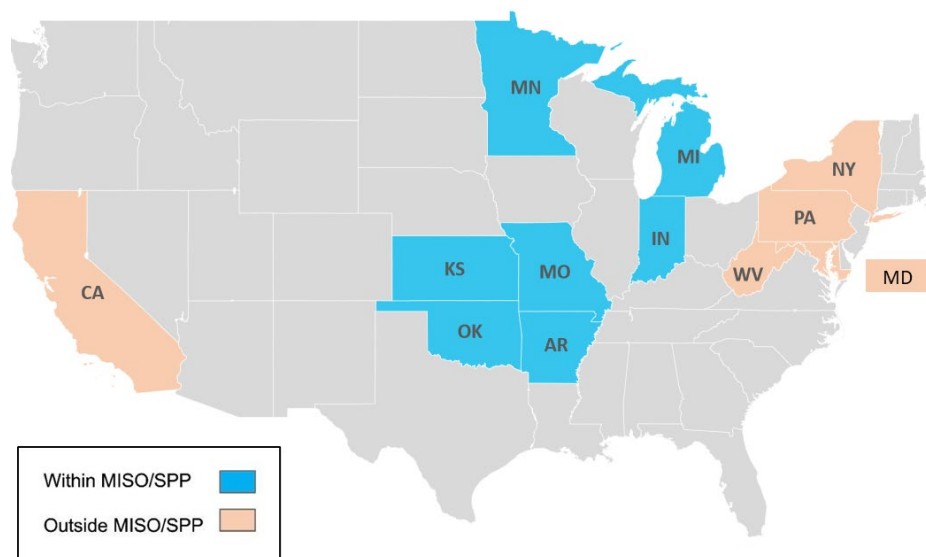


Figure 2: States included for the document review and interviews, separated into those within and those outside of MISO and SPP.

First, we conducted a regulatory document review, supplemented with interviews of key stakeholders. Initial document review focused on identifying key documents and forming procedural histories for states in MISO or SPP footprints that had implemented policies for ARCs or that had considered reversing an Order 719 opt out. This initial review found that state regulators in 17 of 19 vertically integrated states in MISO and SPP opted out of allowing third-party ARCs to participate in organized wholesale markets, while Kansas and Oklahoma did not opt out but have not comprehensively developed policies to support ARC participation. Within the states that did opt out, some have allowed regulator-approved third-party aggregation in specific retail markets or programs,⁵ while others took (as in the case of Arkansas (AR PSC, 2018)) or are currently taking steps (as in the case of Indiana (IURC, 2022), Michigan (MI PSC, 2022), Minnesota (MN PUC, 2022a), and Missouri (MoPSC, 2022)) towards investigating and phasing in third-party wholesale market aggregators.

To supplement this document review, we interviewed retail regulatory staff and experts from industry, advisory, and national research organizations to better understand the historical and current policy landscape more broadly. This allowed a deeper understanding of state experiences both in considering and implementing policy across these topic categories. Initial interviews were conducted in the Fall of 2022. They lasted between 30 and 45 minutes with follow-ups via email or phone where necessary. The interview questions focused on the topic categories (see Appendix B), and subsets of these questions were selected depending on the stakeholder and region.

In total, eighteen interviews took place throughout the Fall of 2022. Nine of these interviews were with 18 state regulatory staff, one interview with a state consumers’ advocate, and eight interviews with officials from industry, advisory, and national research organizations. Note that there has been much activity in this topic over recent months, and this report represents the

⁵ At least Indiana, Louisiana, Minnesota, Mississippi, Montana, North Dakota, South Dakota have allowed utilities to contract third party aggregators to facilitate aspects of retail DR programs.

regulatory environment through December 2022. For example, the Michigan Public Service Commission (MI PSC) filed No. U-20348-0044 clarifying matters related to the PSC’s December 2022 Order permitting large customers to participate in third-party aggregations (MI PSC, 2023), and Evergy’s application to the Kansas Corporation Commission (Tracking No. 2300305) proposed to implement tariff changes related to customer participation in third-party aggregations (Evergy Kansas, 2023).

3. Results and Discussion

Results from the document review and interviews are summarized here as “General Findings,” highlighting commonalities between many of the documents and interviewees, and “Policy Findings,” focusing on the topic categories and a more specific review of frameworks utilized by states to regulate ARCs directly or indirectly. Both the general and policy findings help contextualize the larger discussion on DER participation and value in wholesale markets, existing market and policy barriers, and potential solutions for states that may aim to reduce those barriers and allow for direct ARC participation in organized wholesale markets.

3.1 General Findings

Though there are many differences among states, five general findings emerged through the documents and interviews with those states.

3.1.1 The vast majority of MISO and SPP states opted out of third-party ARCs after FERC Order 719

After FERC issued Order 719, 17 of the 20 states in MISO and SPP opted out of allowing ARCs to directly bid DR into organized wholesale markets. Of the three that did not opt out, Illinois is considered an outlier as the only state of the 20 with full retail choice (as opposed to vertical integration).⁶ The remaining two states, Kansas and Oklahoma, did not host active wholesale ARC participation until the introduction of commercial and industrial (C&I) DR aggregation in recent years (Champion and Rush, 2022; McClanahan et al., 2022).

⁶ This was laid out in the RAP report for the Arkansas PSC on page 30 (AR PSC, 2018).

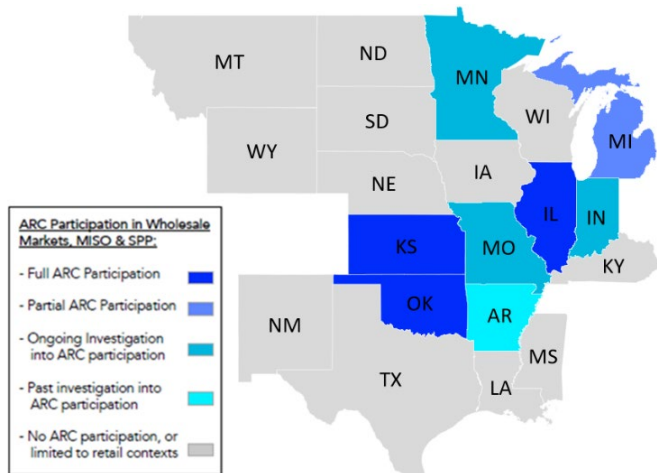


Figure 3: Status of ARC organized wholesale market participation rules in MISO and SPP

In the years since the issuance of Order 719 and the subsequent state decisions to opt out, only state regulators in Michigan, Arkansas, Minnesota, Missouri, and Indiana have formally explored the possibility of reversing or modifying their opt-out orders – with preliminary activity in Minnesota, Missouri, and Indiana occurring only recently, in late 2022 (AR PSC, 2018; IURC, 2022; MI PSC, 2019; MN PUC, 2022a; MoPSC, 2022). Michigan and Arkansas each facilitated years-long stakeholder processes, but the Arkansas PSC chose not to reverse its opt out despite recommendations to do so in a report commissioned by the Arkansas PSC and attached to an order in the Arkansas PSC’s Investigation into Policies Related to Distributed Energy Resources (AR PSC, 2018). In the case of Michigan, the state regulators partially reversed the opt out for all retail choice customers who made up 10 percent of the state’s electricity market (MI PSC, 2019). They then sought comments in October 2020 on whether to lift the ban citing a “tightening capacity market within the MISO footprint” (MI PSC, 2020). Most recently in December 2022, the Michigan PSC lifted the ban “on DR aggregation for bundled commercial and industrial customers with enrolled load of 1 MW or higher” (MI PSC, 2022). Nevertheless, due to concerns surrounding customer protections and a desire to propose a licensing process before seeking authority, the ban remains in effect for non-retail choice residential and other small customers for the time being. Consequently, while Michigan has made preliminary policy changes towards enabling ARC participation in organized wholesale markets and remains the only state thus far in MISO or SPP footprints to codify a partial lifting of its previous ban, the opt out established after Order 719 has yet to be fully reversed.

3.1.2 Third-party ARCs in MISO and SPP states currently exist in some forms

Past MISO and SPP state policy activity among the seven topic categories in Figure 1 rarely pertain specifically to ARCs, providing few uniform “best practices”. Several topic categories, such as dispute resolution (No. 3), registration and licensing (No. 4) and data governance (No. 7) are often relevant to third-party activity beyond the context of ARCs. To this end, states in MISO and SPP have borrowed or built procedures on top of existing RTO ARC processes, state statutes, and state regulator rules such as those related to registration, interconnection, dispute resolution,

metering and telemetry requirements, and customer data transfer. For example, officials interviewed in Kansas and Oklahoma indicated that there have been no disputes resulting from ARC activity in organized wholesale markets for which a dedicated process would be necessary, nor instances of grid reliability issues associated with the absence of more established market rules (Champion and Rush, 2022; McClanahan et al., 2022). In Michigan, the retail regulator is leveraging existing MISO registration and licensing processes to accommodate new large commercial and industrial customer access to organized wholesale markets, while it explores developing its own process.

The incremental process taken by the Michigan PSC is described further in the “Policy Findings” section. Their 2022 Order states: “As experience is gained with DR aggregation among bundled C&I customers, the Commission anticipates that problem areas and issues will be identified with greater specificity as to how the Commission, with utility, aggregator, and customer involvement, can improve DR aggregation” (MI PSC, 2022). Similarly, Minnesota and Indiana have both initiated more comprehensive processes moving the states towards ARC participation, each following lessons learned by ARC engagement in retail utility programs (IURC, 2022; MN PUC, 2022a).

Two conclusions stem from this. The first is that ARCs may be able to participate in organized wholesale markets without comprehensive rulemaking, especially for large commercial and industrial customers. Often, processes from retail utilities and RTOs can be applied to ARCs, such that specific rulemaking may not be necessary. Secondly, an incremental approach to reversing an Order 719 opt out may offer an opportunity for states to more quickly implement a selection of rules or processes while developing more comprehensive rulemaking in parallel.

3.1.3 Restructured states outside of MISO and SPP exhibit heterogeneity in how they approach aggregations, but may still offer helpful considerations

Among states outside of MISO and SPP in restructured states with active ARCs, policy landscapes related to these seven topic categories are varied. Though different in many ways from vertically integrated MISO and SPP states, restructured states provide insight into how jurisdiction, oversight, and rulemaking are delegated to ARCs, state regulators, RTOs, and retail utilities. For example, Pennsylvania’s state regulator has jurisdiction to regulate ARCs⁷ when they interact with jurisdictional retail utilities (PA PUC, 2015). As a prerequisite for market participation, ARCs are required to register as CSPs by completing application forms designed by the retail regulator. As described in Finding 3.1.2, further market facilitation and enforcement (in that case, dispute resolution) is often delegated to the RTO.

Finally, it is important to note that rules in many states, including those outside of MISO and SPP, are very much in flux as they make changes to implement Order 2222. For example, in September 2022, New York retail electric utilities submitted to the New York PSC proposed tariff updates that consider Order 2222 implementation, the approval of which would implement new compensation mechanisms enabling dual participation and addressing double counting issues (Central Hudson, 2022; conEdison, 2022; National Grid, 2022; NYSEG and RG&E, 2022; O&R,

⁷ In this case, the ARCs are encompassed by “Conservation Service Providers” or “Curtailed Service Providers”, defined by PJM

2022). In addition, California has begun to explore the impacts of heterogeneous, aggregated DERs participating not only in organized wholesale markets, but dually across both retail and organized wholesale markets (Baker, 2022).

3.1.4 States view some policy topics as higher priority than others

Exploring jurisdictional questions, defining the characteristics and eligibility requirements of ARCs, designing a registration process, and ensuring customer data protection tend to be of immediate concern to states interested in allowing third-party ARCs. On the other hand, addressing issues related to double counting and dispute resolution are typically considered next, usually within organized wholesale or retail markets (e.g., as part of registration processes or utility tariffs), or more recently in the context of Order 2222 implementation.

Importantly, the relative prioritization of policy issues may not reflect their overall importance as much as their temporal role in enabling markets. Registration processes, for example, integrate retail regulators' role in DER and ARC aggregation and will equip state regulators with core information about the ARCs active in their state. By contrast, designing ARC-specific dispute resolution processes may be of lower priority considering several states' experience that disputes have been limited and existing processes may be adaptable (Mosier et al., 2022; Gebhardt et al., 2022). This topic is described further in the next section, "Policy Findings."

3.1.5 This is an evolving and timely topic with many retail regulators and other stakeholders conveying a high level of engagement and similar interest in the seven topic categories, regardless of market footprint and structure

Among the various state regulatory staff that were interviewed, regardless of market footprint, structure, or whether ARCs were actively participating within their states, there was widespread enthusiasm to better understand the issues surrounding aggregations, ARCs, and the role of retail regulators. For example, the National Association of Regulatory Utility Commissioners released a summary of expert recommendations to support DER aggregation in line with Order 2222 (Fitzpatrick and Paslawski, 2023).

3.2 Policy Findings

MISO and SPP both submitted their Order 2222 compliance filings to FERC in April 2022 (MISO, 2022; SPP, 2022). However, as of this report's completion, FERC has ruled on neither MISO's nor SPP's compliance plan and has requested further information from both RTOs. This introduces some uncertainty because specific details may change. Regardless, it is helpful to understand the similarities between the MISO and SPP filings and to understand the direction that the RTOs may take in

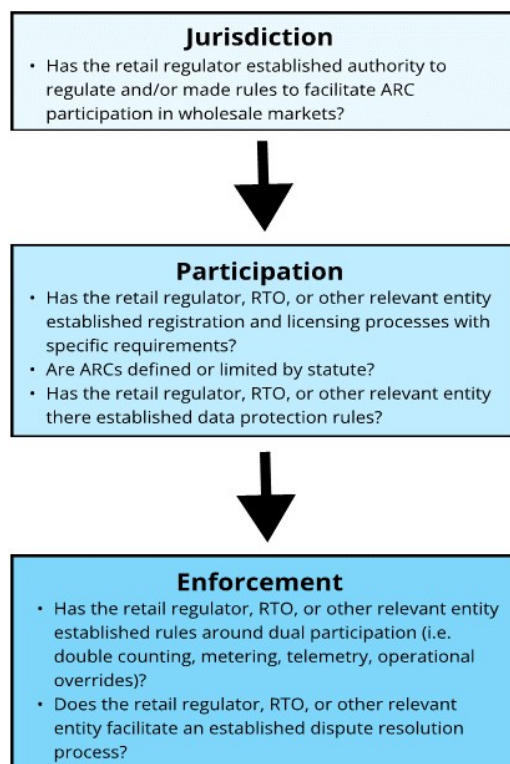


Figure 4: Framework for third-party aggregation rulemaking

implementing Order 2222. The role of the RERRA, which includes the state regulator for DERs interconnected within regulated retail utility service territories, is outlined in both preliminary compliance filings. Relevant processes over regulated retail utilities and the DERs interconnected in their territories such as interconnection tariffs, data reporting requirements, and other rules and oversight requirements, still apply to the individual DERs within an aggregation participating at the wholesale level.

Within the context of Order 2222 implementation, retail regulators were interested in state regulatory practices and whether changes to rules or tariffs may be necessary to ensure safe and adequate distribution service, protect consumers and fairly allocate costs as ARCs and retail customers participate in the organized wholesale markets. Regulators were also in how these practices may be prioritized: what is needed in the near term, versus medium or long term?

Here we introduce a framework that organizes the policy findings via a progression through three steps: jurisdiction, participation, and enforcement (Figure 4). This section includes text box callouts that describe specific cases and regulatory context in greater detail. In addition, this section groups specific policies and examples from states addressing various challenges of each step. These actions are categorized in summary tables for each subsection within Tiers I, II, and III, which roughly correspond to the potential level of involvement or change necessary by state regulators and/or legislators to implement these actions. The tier level does not indicate any value judgement, as each state has respective regulatory limitations and each decision reflects various tradeoffs. One clear tradeoff would be between simplicity and quick implementation versus a more comprehensive, but lengthy approach. In many cases, actions in Tier I could possibly be implemented without significant changes by relying on the use of existing processes applied to an ARC context. On the other hand, many actions in Tier III are specifically designed to address ARC participation in organized wholesale markets, but often require more significant changes including the involvement of additional parties through stakeholder engagement or legislative action.

Although in some cases these tiers are discrete, state regulators may also choose to progress through various tiers sequentially as they phase in ARCs while learning from their experience. For example, Michigan phased the reversal of its opt out with minimal near-term changes to existing rules for retail customers and larger C&I customers, while recognizing that more stakeholder engagement and ARC-specific legislation will be needed before progressing to a full reversal that would include smaller customers due to concerns over customer protections (MI PSC, 2022). In general, a phased approach may allow state regulators who previously opted out to gain experience with ARCs and begin implementation of Order 2222 ahead of RTO compliance. Addressing the topic categories of jurisdiction, dispute resolution, registration and licensing, and data protection earlier in the implementation process may allow state regulators to spend more time on complex issues such as those related to dual participation (e.g., double counting rule enforcement, metering and telemetry, operational overrides). Additionally, a phased approach may allow insight into third-party ARC participation in organized wholesale markets and the development of state-specific best practices. Ultimately, how state regulators understand and contextualize these options within their unique landscape will help to select which actions to take. Additionally, within the context of Order 2222, MISO and SPP implementation plans, when finalized, will guide actions as well.

3.2.1 Jurisdiction

In their preliminary compliance filings, both MISO and SPP acknowledge local jurisdiction over retail utilities and DERs connected at the distribution level. For state regulators, this jurisdiction includes that over investor-owned utilities and the DERs interconnected within their service territories. The RTOs have accepted FERC’s list of possible roles and responsibilities of retail regulators that may include but are not limited to: developing interconnection agreements and rules; developing local rules to ensure distribution system safety and reliability, data sharing, and/or metering and telemetry requirements; overseeing retail utility review of DER participation in aggregations; establishing rules for multi-use applications; and resolving disputes between DER aggregators and retail utilities over issues such as access to individual DER data (FERC, 2020). MISO specifies that these roles also include the voluntary participation in pre-enrollment, enrollment, modification, and dispute resolution (MISO, 2022).⁸ SPP similarly explains that states can exercise influence via interconnection processes as well as local rules and oversight regarding distribution system operation and DER integration (SPP, 2022).⁹ Both MISO and SPP (as well as FERC) recognize the inherent jurisdiction of retail regulators over retail utilities and interconnection processes as well as generally resources connected to their system(s). Moreover, a recent report by the aggregator CPower Energy cites the Opt-Out/Opt-In under Order 719 and a 2010 clarification from FERC to PJM as acknowledging retail regulators’ jurisdiction over certain issues related to ARCs as well such as that over regulated retail utilities and the customers within those service territories (Dotson-Westphalen and Schisler, 2022).

Beyond the context of FERC Orders, it is important to analyze states with existing aggregations and identify which entities have regulatory jurisdiction over ARCs and their activity, as well as how this jurisdiction was established (see Summary Table 1). Vertically integrated states have generally taken one of two paths towards asserting jurisdiction. They have either established explicit authority to regulate ARCs via existing statutes made by their state legislature, or state regulators have exercised implicit authority over certain issues via jurisdiction over regulated retail utilities and the DERs interconnected within those service territories.¹⁰

⁸ Specifically, MISO’s compliance filing states that “DER interconnections to the distribution system are based on [relevant electric retail regulatory authority] rules, and as mentioned previously, [relevant electric retail regulatory authority] may choose to develop and oversee [distributed energy aggregated resource] Technical Review processes, including any [relevant electric retail regulatory authority]-defined DER interconnection rules. Under the proposal, [relevant electric retail regulatory authority] may also put rules in place governing operational overrides of [distributed energy aggregated resource]. Additionally, during the registration and modification of registration processes, the [relevant electric retail regulatory authority] will confirm that the DER is eligible to participate in a wholesale program. This process includes confirmation by the [relevant electric retail regulatory authority] that the DER is not participating in a retail program that would result in double counting or double compensation if the DER also participates in a wholesale aggregation.”

⁹ Specifically, SPP’s compliance filing states that “the role of the relevant electric retail regulatory authority is important in coordinating the participation of DER Aggregations in the Energy and Operating Reserve Markets. That role may include voluntary actions such as: Development of interconnection agreements and rules; Development of local rules to ensure distribution system safety and reliability, data sharing, or metering and telemetry requirements; Oversight of the Distribution Utility review process for DERs to participate in DER Aggregations; Establishment of rules for multi-use applications; and Resolution of disputes between DERAs, LSEs, and Distribution Utilities over issues such as access to individual DER data or other disputes exclusively between the DERA and the LSE or Distribution Utility.”

¹⁰ Restructured states outside of MISO and SPP have established jurisdiction specific to their market structures (and are thus not highlighted here in the main body of the report). Specifically, CA, NY, and PA have established authority via state statute and MD and OH have done so through retail law.

Summary Table 1: Actions taken in states related to state regulator jurisdiction

Tier & Description	Example	Source
<p>Tier I: State regulator defaults to RTO authority over ARCs and completely delegates relevant processes.</p>	<p>“The Commission is limited by statutory constraints.... While the Commission has broad authority over rate-regulated utilities and more limited authority over other entities such as municipally owned utilities, cooperatives, and alternative energy suppliers, that legislatively granted authority does not extend to third-party DR aggregators. For instance, the Commission has licensing authority over alternative energy suppliers, but the Commission does not have licensing, registration, or other statutorily defined authority over DR aggregators directly. However, MISO and PJM maintain authority through FERC-approved tariffs over DR aggregators, as market participants and have detailed registration processes and requirements outlined in the tariffs applicable to ARCs or CSPs as well as additional procedures set out in MISO’s Business Practice Manuals and PJM’s Manuals.”</p>	<p>Michigan PSC 2022 order permitting demand response aggregation among resources exceeding 1 MW. (MI PSC, 2022)</p>
<p>Tier II: State regulator uses existing jurisdiction to regulate certain issues related to interactions between ARCs and regulated retail electric utilities. Such interactions may be associated with jurisdiction over regulated retail electric utilities and their customers at the distribution level.</p>	<p>“Respondent Utilities should investigate whether the provision of cost-effective demand response offerings could be enhanced by working with an aggregator, but note that any such agreements should be presented to the Commission for approval.”</p>	<p>Indiana IURC 2010 order prohibiting direct participation of third-party demand response providers in organized wholesale markets. (IURC, 2010)</p>
	<p>In West Virginia, state regulators have “jurisdiction over 3rd party aggregations not over terms of service, but over the utility and things impacting retail load.”</p>	<p>Interview with West Virginia PSC staff. (Roberts, 2022)</p>
<p>Tier III: State regulator coordinates with state legislature to pass legislation explicitly defining the state regulator’s jurisdiction over ARCs or initiating a process to address jurisdictional questions as part of Order 2222 implementation.</p>	<p>“[T]he marketing, selling, or marketing and selling of demand response within the State of Arkansas by electric public utilities or aggregators of retail customers is subject to regulation [by the Arkansas PSC]. The Commission may establish the terms and conditions for the marketing, selling, or marketing and selling of demand response by electric public utilities or aggregators of retail customers to retail customers or by electric public utilities, aggregators of retail customers, or retail customers into wholesale electricity markets.”</p>	<p>Arkansas Code Section 23-18-1003, developed pursuant to the 2013 Arkansas “Regulation of Electric Demand Response Act.” (AR State Legislature, 2013)</p>

Arkansas is currently the only example of a state that we reviewed in which the PSC has been delegated explicit statutory authority over ARCs participating in competitive markets. This jurisdiction was established in the 2013 “Regulation of Demand Response Act,” which amended Arkansas Code to simultaneously place the marketing and sale of demand response under Arkansas PSC regulation while prohibiting the direct sale of DR resources by ARCs or retailers without commission authorization. Despite never reversing its Order 719 opt out, the Arkansas PSC has leveraged its jurisdiction to initiate investigations into DR and other types of DER, such as solar, wind, and energy storage technologies (AR PSC, 2018). The Arkansas PSC drew the distinction between regulating rates paid to ARCs in the competitive wholesale market, which would go beyond its jurisdiction, and regulating codes of conduct for customer participation in ARC activity, which is within its jurisdiction. The Order found that compliance plans, compliance audits, complaint procedures and logs, and penalties for such contracts are within the PSC’s authority under the Act (AR PSC, 2018). It included the provision that applicants for DER aggregation “will consent to the jurisdiction of the Arkansas Commission and courts and the service of process” as part of a certification process (AR PSC, 2018).

In contrast, there are also many examples of state regulators establishing implicit or de facto arrangements with ARCs as they interact with Commission-jurisdictional utility territories. For example, the Kansas Commission staff regulate ARCs based on their engagement with regulated retail utilities and their distribution system, although this policy has not been codified via legislation or Commission order (McClanahan et al., 2022). Similarly, the Indiana Utility Regulatory Commission (IURC) regulated DR aggregation through implicit jurisdiction over ARC relationships with regulated retail utilities, but was later granted explicit legislative authority to investigate whether it has jurisdiction over ARCs as “public utilities” when the ARC is acting in organized wholesale markets. (See Text Box 1) (IURC, 2022, 2010).

Text Box 1: Indiana seeks to apply broader jurisdiction to ARCs.

The Indiana Utility Regulatory Commission (IURC) investigated end-use customer participation in MISO and PJM DR programs in 2010, ultimately limiting DR aggregation activity to retail utility programs and tariffs (IURC, 2010). The Order noted that, while customer enrollment in ARCs directly participating in organized wholesale markets would introduce uncertainty about regulatory authority and other challenges, limiting ARC activity within retail utility programs and tariffs allowed the regulator to leverage existing statute related to resource planning. The limitation allowed the state regulator to regulate DR that was “incorporated into the IRP process while maintaining Commission oversight of the effect of demand response offerings on participating and non-participating customers” (IURC, 2010).

2022 legislation directed the Indiana Commission to initiate a stakeholder process to implement FERC Order 2222, which is ongoing and specifically authorizes the Commission to design rules around DER aggregation (122nd Indiana General Assembly, 2022). While Indiana’s DR aggregation activity has historically taken place in retail utility programs, retail regulators are considering options to expand their oversight of DR aggregation as Indiana moves towards Order 2222 implementation. Regulators are evaluating whether state code provides sufficient basis to assert direct jurisdiction, while simultaneously working with stakeholders in the Commission’s Order 2222 implementation process to determine whether to regulate DR aggregators as “public utilities.” (IURC, 2022)

3.2.2 Participation

Once the extent and breadth of jurisdiction is established or clarified, retail regulators should clarify their role in facilitating rules and processes for ARC participation in organized wholesale markets (i.e. requirements for registration, licensing, and data governance) in coordination with retail utility and RTO processes. Both MISO¹¹ and SPP¹² preliminary compliance filings state that the retail regulator governs eligibility for a DER to enroll in an aggregation participating in organized wholesale markets (MISO, 2022; SPP, 2022). For example, in MISO during the enrollment review process, the ARC must affirm that they are in compliance with local rules. Both the retail utility and retail regulator are given time to review and confirm that the individual DERs comply with local regulation and interconnection requirements (which is state regulation in the

¹¹ Registration information from individual DERs includes the technology type, size, location, and operating characteristics needed by MISO and the retail utility. During operation, revenue grade data must be collected and provided in compliance with MISO participation requirements.

¹² In SPP, an aggregator must attest that each DER is eligible, compliant with local tariffs, that the retail provider affirmed that the DER is not providing the same service at the retail level, etc. To the RTO, aggregators must establish real-time telemetry at the point of aggregation interconnection and collect revenue quality data, also available to the distribution utility for review.

case of DERs in regulated retail utility territory) and do not violate double counting criteria, also consistent with state regulation. Additionally, the compliance filings place the coordination, data collection, and reporting burden on the ARC. To the retail utility, ARCs must submit registration information and ensure compliance with local regulation. To the RTO, ARCs must comply with wholesale market participation requirements and provide revenue-grade data at the aggregation level, similar to any other wholesale market participant. Real-time operational data from the ARC will be made available to both the retail utility and RTO to ensure grid reliability (i.e., no trigger of an override condition from the distribution network). Since all DERs must comply with local regulation, it will be important for the state retail regulators to consider what constitutes impermissible “double counting” and what conditions may trigger a distribution system override as ARC participation in organized wholesale markets increases.

3.2.2.1 Registration and licensing

Consistent with language in the MISO and SPP Order 2222 compliance filings, ARCs have registration obligations to the retail utility and/or RTO. Retail regulators directly impact the interaction between ARCs and the retail utility via interconnection agreements, data sharing agreements, metering and telemetry requirements, and any other requirements for DERs. While retail regulators do not have jurisdiction over RTO registration processes, FERC has emphasized that DERs must comply with state rules, and that the data affirming DER compliance will be made available to state regulators. Therefore, state regulators will have a right to access these data, and building off of existing jurisdictional practices (e.g., interconnection agreements or DER requirements) could be used to address issues that relate to ARCs or Order 2222 implementation.

Some states may have relevant registration and licensing processes in place for individual DERs and/or DER aggregations. In states where significant aggregation activity takes place in retail markets (e.g. California), retail aggregator registration and licensing processes apply to the wholesale context in the case of dual participation. Moreover, registration processes for individual DERs within aggregations are prerequisites for individual customer-generators or aggregators within that retail utility’s service area to participate in both retail and wholesale programs (PG&E, 2017).

In some states that have sought or received jurisdiction to regulate aspects of aggregations in both retail and organized wholesale markets, regulator-facilitated registration and licensing processes often complement processes facilitated by relevant RTOs. For example, Michigan plans to utilize MISO’s existing registration process to collect basic contact, resource type, timing, and other information while seeking to develop a complementary PSC licensing process to ensure consumer protections (See Text Box 2).

Lastly, some states default to wholesale processes. In Oklahoma and Kansas, where organized wholesale DR aggregation occurs with limited retail regulatory oversight, ARCs register directly with SPP, upon which the retail regulator and affected utilities usually receive a notification from the ARC or RTO (Champion and Rush, 2022; McClanahan et al., 2022). In another example, New York DER suppliers including ARCs can enter into retail or organized wholesale contracts without following a PSC registration process,¹³ but are subject to PSC rules facilitating sales agreements,

¹³ With the exception of Community Distributed Generation and Mass Market DG.

enforcement of violations, and terms of termination; customer data privacy and security, distribution-level cybersecurity, and terms of compliance with PSC oversight in the event of data requests or audits (NY PSC, 2019a).

In sum, since different aspects of ARCs are subject to various authorities in different states, and full wholesale participation may require ARCs register through multiple processes and/or authorities. Summary Table 2 highlights actions taken in New York, Michigan, and Indiana.

Text Box 2: Michigan uses MISO registration processes for extra-large customers, seeks jurisdiction for customer-centered retail regulator licensing process.

In December 2022, the Michigan PSC issued an order reversing the state’s prohibition of aggregated demand response participation in wholesale markets for commercial and industrial resources with enrolled load exceeding 1 MW. For this limited market segment, the PSC maintained an existing registration process for which several authorities are involved: “The load balancing authority (LBA), transmission provider (i.e., MISO), and relevant electric retail regulatory authority (RERRA) (i.e., the Commission) play a role in receiving and verifying registration information from the ARC regarding the DR resource(s) including the ARC name, [load serving entity] name(s), resource type, end use customer account number(s), effective date, termination date, and customer’s maximum level of participation.” (MI PSC, 2022). However, as Michigan works towards broadening its reversal to smaller customers (including the residential customer class), the order describes the PSC’s intention to design an expanded licensing processes that ensures customer protections and complements MISO’s existing processes. Specifically, the PSC demonstrates its intention to work with stakeholders to “outline the desired consumer protections to guard against deceptive marketing tactics that have been employed in the past by certain AESs and their third-party marketers”— and then seek jurisdiction to implement whatever licensing process it produces (MI PSC, 2022). In a February 2023 order responding to intervenor petitions for rehearing, the Michigan PSC clarified the purpose of utilizing MISO procedures as a ‘placeholder’ process as it further develops consumer data protection requirements: “The ARC’s registration as a MISO market participant and the ARC’s receipt of a letter of authorization from participating customers should provide assurance to [load serving entities] and [load balancing authorities] that the necessary data can be shared.” (MI PSC, 2023)

Summary Table 2: Actions taken in states related to registration and licensing requirements

Tier & Description	Example	Source
<p>Tier I: State regulators rely on the RTO’s existing ARC and proposed Order 2222 DER amendments for registration. If required, State regulator directs retail utilities and/or requests RTOs to provide the state regulator with DER and/or ARC registration data at some specified frequency (e.g. one-time, quarterly, yearly) to ensure compliance with existing and/or amended state regulation.</p>	<p>“Staff shall develop and issue a registration form that complies with the requirements set forth in the UBP-DERS by October 30, 2017. That registration form shall be filed in Case 15-M-0180 and shall be posted on the Department’s website.” In New York, DER Suppliers encompass individual DERs as well as ARCs, and the registration form required by this order applies to both.</p>	<p>New York PSC 2017 Order establishing an oversight framework and uniform business practices for DER suppliers. (NY PSC, 2017)</p>
<p>Tier II: Initiate a process or issue an order clarifying the separate roles of the state regulator, regulated retail utility, and recognizing the role of the RTO in adapting and facilitating registration processes to accommodate new ARC market access.</p>	<p>See Text Box 2: Michigan uses MISO registration processes for extra-large customers, seeks jurisdiction for customer-centered retail regulator licensing process.</p>	<p>Michigan PSC 2022 order permitting demand response aggregation among resources exceeding 1 MW. (MI PSC, 2022)</p>
<p>Tier III: Initiate a process or issue an order specifically designed to clarify the retail regulator’s role in developing eligibility requirements for ARCs such as for registration and licensing process. Additionally, if required, this process could consider changes to individual DER and/or ARC processes consistent with Order 2222 implementation.</p>	<p>The IURC’s FERC Order 2222 stakeholder process highlights several discussion topics aligned with the policy issues raised by Order 2222 that would be prerequisite for aggregator participation including dual participation, interconnection, and coordination among RTO, retail utility, ARC, and the IURC.</p>	<p>IURC’s FERC Order 2222 implementation stakeholder process. (IURC, 2022)</p>

3.2.2.2 Data governance

Data governance refers to the privacy and security of customer meter data, as well as the security of operational data exchanged among individual DERs, ARCs, retail utilities, and the RTOs in the process of DER aggregation activity (i.e., cybersecurity). While these topics are important within the context of ARCs, many state regulators may choose to focus on DERs more broadly, which would then apply to any DER participating in an ARC.

In many states, ARCs must comply with customer protections as a minimum requirement of any registration process. In such cases, retail utilities or RERRAs establish rules governing which entities have access to individualized customer data. For example, in certain cases RERRAs bar third parties from accessing data or implement tools and regulations to ensure data confidentiality or anonymization (MN PUC, 2020). On the other hand, the Michigan PSC clarified in a February 2023 Order that MISO’s current process requires customers to give ARCs, retail utilities, and the RTO consent to access sufficient data to make aggregation activity feasible (MI PSC, 2023).

Several states are interested in establishing rules that ensure efficient and secure data transfer and coordination between retail utilities, ARCs, RTOs, and retail regulators (See Summary Table 3). For example, the Michigan PSC prioritizes the development of consumer data protection requirements to incorporate into a future PSC-facilitated registration and licensing process (MI

PSC, 2022). Furthermore, the Indiana state regulatory commission is prioritizing these issues as discussion topics as part of its FERC Order 2222 implementation process (IURC, 2022).

In designing data governance rules related to ARCs and DER integration more broadly, retail regulators have had to balance conflicting priorities: ensuring that relevant entities have sufficient data access to achieve operational success, while addressing concerns about customer data privacy and cybersecurity concerns. This dynamic was described in an order establishing a comment period within Minnesota’s Investigation into Distribution Grid Data Security (MN PUC, 2022b): “The Commission instituted the investigation in this docket to better understand how best to provide disclosure of distribution grid data necessary for efficient DER deployment while minimizing any potential grid and customer security issues that may be created through the increased access to the data.”

Retail regulators have addressed these issues in various regulatory contexts, spanning from broad DER-centered data governance investigations (e.g. Minnesota (MN PUC, 2020), Arkansas (AR PSC, 2018)); investigations specific to third-party customer data access (e.g. Pennsylvania (PA PUC, 2022), California (CPUC, 2011), Minnesota (MN PUC, 2020)); to rulemaking specific to DER supplier and ARC participation (e.g. New York (NY PSC, 2019b, 2017), Maryland (MD PSC, 2011)). Nearly all retail regulatory staff interviewed for this report stressed the importance of addressing data governance issues related to ARCs and DER integration more broadly (see Summary Table 3).

There are examples of DER aggregation rules developed to ensure secure and private customer meter data; however, rules addressing operational distribution data security and cybersecurity are more nascent (NERC, 2022b). Minnesota's Open Data Access Standards (MN PUC, 2020) and New York’s Uniform Business Standards for DER (NY PSC, 2019a) exemplify standard, statewide approaches for third-party access to customer data, including procedures for aggregation and anonymization. Many of the questions addressed by Minnesota and New York’s statewide standards are being actively explored in the Pennsylvania Commission’s “Investigation into Conservation Service Provider and Other Third Party Access to Electric Distribution Company Customer Data” (See Text Box 3).

Examples of data requirements established by various arrangements across the states investigated in this report include:

- DER provider confirmation of customer consent for access to their meter data, the terms of which must be clearly communicated (NY PSC, 2019a).
- DER provider identification of intended activities and stated use of customer data (MN PUC, 2020; NY PSC, 2019a).
- The specific frequency (i.e. intervals), format, and characteristics of data that ARCs have access to (MD PSC, 2011; NY PSC, 2019a; PG&E, 2017).
- Rules to facilitate the exchange of information between retail utility and ARCs, like customer contact information, tax information, rate class, electric load profile, consumption and billing information, etc. (NY PSC, 2019a).
- Protocols to enforce violations or elaborate on retail regulator oversight (CPUC, 2011; MN PUC, 2020).

- Prohibition of ARCs from selling or otherwise disclosing customer data (MN PUC, 2020; NY PSC, 2019a).
- Prohibition of ARCs from reverse engineering aggregate or anonymized customer data (MN PUC, 2020).
- Prohibition of retail utilities from charging DER suppliers for customer data (NY PSC, 2019a).

Text Box 3: Pennsylvania is investigating data governance issues specific to ARC activity.

In 2021, the Pennsylvania Commission chose to deny a DR aggregation provider, Enerwise, access to customer usage data based on its failure to qualify as an ‘Electric Generation Supplier’ by state definition (PA PUC, 2021). While this definition is largely technical, it raised broader questions about third-party access to customer usage data. In the proceeding’s final order, the PUC directed its Office of Competitive Market Oversight, Law Bureau, and Bureau of Technical Utilities Services to initiate a new proceeding to “determine if a safe, acceptable path exists for CSPs to potentially gain access to customer data electronically from EDC data systems.” (PA PUC, 2021). The proceeding that was subsequently established represents a broad and detailed investigation of data governance issues relevant to CSP activity and has been receiving comments throughout 2022. The proceeding’s initiating letter published a set of questions for comment related to Electric Distribution Company (EDC) technical and legal concerns related to CSP and other third-party access to smart meter data, utility access to usage data and smart meters, Home Area Network (HAN) Protocols, automatic control of meters, and more (PA PUC, 2022).

Requirements addressing operational distribution data security and cybersecurity primarily facilitate DER provider compliance with the retail utility, RTO, retail regulator, or federal data security and cybersecurity practices and regulations. For example, Minnesota’s Investigation into Grid Data Security is considering the application of NERC’s Critical Infrastructure Protection standards to its bulk power system (MN PUC, 2022b), while New York’s Uniform Business Standards require DER providers to comply with processes and procedures consistent with the National Institute of Standards and Technology Cybersecurity Framework, and “comply with any data security requirements imposed by that utility or by Commission rules on ESCOs and/or any data security requirements associated with EDI eligibility” (NY PSC, 2019a).

In sum, several states have developed customer protection rules applying both to aggregations specifically and DERs more broadly; spanning the topics of customer protection, operational data security, and cybersecurity; and spanning from retail utility tariffs to broad retail regulator investigations and stakeholder processes (see Summary Table 3).

Summary Table 3: Actions taken in states related to data governance

Tier & Description	Example	Source
<p>Tier I: Leverage existing retail utility or state customer consent processes, cybersecurity, and/or data protection standards used for DERs, ARCs, and/or retail choice providers.</p>	<p>“The Applicant agrees that it shall neither disclose nor resell individual residential customer data provided to the Applicant by any Maryland electricity company. Disclosure or resale of individual non-residential customer data provided to the Applicant by a Maryland electricity company will be governed by customer contract.”</p>	<p>Maryland Application for License to Operate as a Curtailment Service Provider. (MD PSC, 2013)</p>
	<p>Ordering clauses direct utilities to “file a revised Data Security Agreement and Self Attestation” incorporating protections developed by the DPS, while noting that “Energy Service Entities seeking access to customer data through utility IT systems shall be required to execute a Data Security Agreement and Self Attestation.”</p>	<p>New York DPS 2019 Order establishing minimum cybersecurity and privacy protections (NY PSC, 2019c).</p>
<p>Tier II: Establish a proceeding to develop customer data protection standards. ARCs would be required to implement these standards into customer contracts or sales agreements.</p>	<p>The Pennsylvania PUC determined to “initiate a new proceeding to determine if a safe, acceptable path exists for CSPs to potentially gain access to customer data.” See Text Box 3.</p>	<p>Pennsylvania PUC 2022 Final Order of Enerwise’s petition to be granted Electric Generation Supplier status. (PA PUC, 2021)</p>
	<p>The sharing of any C&I customer information For DR wholesale market participation purposes shall comply with the utilities’ approved privacy tariffs. The Commission agrees with the Staff that addressing all DR aggregation issues prior to Order 2222 implementation is a worthy goal and finds that the issues surrounding sharing customer data with aggregators similar for DR aggregation and Order 2222 implementation and revisions to data privacy tariffs may be warranted... adopting Green Button Connect or an alternative with similar functionality allowing third parties access to data as needed is strongly encouraged for all utilities in order to facilitate the timely and accurate DR registrations from ARCs.”</p>	<p>Michigan PSC 2022 order permitting demand response aggregation among resources exceeding 1 MW. (MI PSC, 2022)</p>
	<p>The CPUC developed rules applicable to third-party providers interacting with California IOUs, related to the categories of transparency, individual participation, purpose specification, data minimization, use limitation, data quality and integrity, security, and accountability and auditing. It directed IOUs to develop rules based on these standards.</p>	<p>California PUC 2011 Final Order in its rulemaking to guide policy in California’s development of a smart grid system (CPUC, 2011).</p>
<p>Tier III: Together with relevant stakeholders, regulators can address customer and operational data governance with respect to FERC Order 2222 implementation. This could monitor issues, develop standards, and facilitate the adoption of tools to enable coordination and data sharing processes between all relevant entities.</p>	<p>The IURC’s FERC Order 2222 stakeholder process highlights several relevant discussion topics including “Operational oversight and control of DERs,” “distribution utility overrides of DERs to maintain reliability,” and “Coordination among RTO/utility/aggregator/IURC.”</p>	<p>IURC’s FERC Order 2222 implementation stakeholder process. (IURC, 2022)</p>

3.2.3 Enforcement

Enabling third-party ARC participation in organized wholesale markets necessitates data management across many behind-the-meter resources and the facilitation of compensation mechanisms at the individual DER level as well as the aggregation level (and sometimes across both retail and organized wholesale markets in the case of dual participation). The introduction of such complexity was part of Order 719's justification for permitting states to opt out of ARCs' access to organized wholesale markets (FERC, 2008) and some MISO and SPP states' decisions to maintain their opt-out years later (MI PSC, 2019). With the introduction of this complexity, it is important that retail regulators understand their role in allowing organized wholesale market participation while enforcing retail market rules to ensure reliable grid operation with respect to ARCs and avoid instances of double counting. The two key examples of such enforcement are for rules surrounding double counting of dually participating aggregations and dispute resolution.

3.2.3.1 Double counting

Order 2222 provides that state-level restrictions are allowed for DERs that are "registered to provide the same services either individually or as part of another RTO market participant or included in a retail program to reduce a utility's or other load serving entity's obligations to purchase services from the RTO/ISO market" (FERC, 2020). While double counting *within* markets has traditionally been enforced by relevant utilities or RTOs, enrolled resources that are participating dually across both retail and wholesale levels will likely require additional data collection, verification, and coordination to ensure that no double counting occurs across the organized wholesale and retail markets. Both MISO and SPP addressed this topic in their preliminary compliance filings, mostly in the context of enrollment and registration of ARCs.

Since double counting is a potential problem involving both retail utilities (retail market) and RTOs (organized wholesale market), the involvement of both entities in any rulemaking activity is paramount. In states where double counting is primarily a concern exclusively within retail markets (i.e. West Virginia) or organized wholesale markets (i.e. Maryland), enforcement is usually more squarely facilitated by the retail utility or RTO, respectively (Mosier, 2022; Roberts, 2022).

In states that are considering opening their markets to dual participation, the retail regulator often has a more significant role facilitating adequate coordination and data sharing practices across relevant entities. Key examples include Indiana, whose state regulator is explicitly considering double counting issues as part of its Order 2222 implementation process (Indiana IURC 2022), and Michigan, whose Commission noted that "more work needs to be done in establishing participation details and requirements for ESRs in these markets prior to allowing dual participation, and commits to continued involvement with the implementation of Order 2222" (MI PSC, 2022). For these states, New York may serve as a starting point due to its experience with dual participation. In New York, the PSC is reviewing retail utility tariff updates intended to align with NYISO's Order 2222 approved compliance filing, as well as comments from third-party DER suppliers, without having published explicit guidance in the proceeding (See Text Box 4) (Central Hudson, 2022; conEdison, 2022; National Grid, 2022; NYSEG and RG&E, 2022; O&R, 2022).

As MISO and SPP’s Order 2222 compliance filings become finalized and approved, states within their footprints may be able to learn from other state processes to serve as a starting point for their respective implementation (see Summary Table 4).

Text Box 4: New York’s Commission will review, implement NYISO Order 2222 compliance and utility tariffs.

In New York, the Department of Public Service (DPS) is reviewing and implementing dual participation rules developed by NYISO and integrated into retail utility tariffs. NYISO’s Order 2222 compliance filing and New York Joint Utilities’ updated tariffs each presented adjustments to ensure ARCs do not enroll DERs that provide the same service to both retail and wholesale markets (NYISO, 2022) as well as affirm customers’ ability to dually participate provided they adhere to double counting protections and the updated tariffs. In addition, each utility introduced a ‘Wholesale Value Stack’ methodology, in which aggregators would receive capacity and energy payments either from NYISO or directly through an ARC, eliminating the need for utilities to distribute payments and accommodating access to both markets (Central Hudson, 2022). Furthermore, in a November 2021 presentation in response to Order 2222, NYISO noted that it is “collaborating with the Joint Utilities to develop a services compatibility document identifying retail market services that conflict with wholesale market services to prevent double counting”(NYISO, 2021). New York regulators are now reviewing the proposed utility tariff adjustments for implementation in Docket No. 22-E0549 (NY DPS, 2022).

Summary Table 4: Actions taken in states related to dual participation

Tier & Description	Example	Source
<p>Tier I: Coordinate with retail utilities, RTOs, multi-state groups, and industry working groups to gather and provide feedback on this topic. As FERC rules on RTOs’ Order 2222 compliance filings and finalizes these, utilize RTOs’ proposed double counting guidance.</p>	<p>Coalitions could be coordinated via national associations, public entities, nonprofits, or expert consultants. NARUC’s Center for Partnerships & Innovation has facilitated technical work (i.e. webinars) on DER aggregation and FERC Order 2222 implementation, and NARUC’s August 2023 Mid-America Regulatory Conference includes many states within MISO’s and SPP’s footprints. This could present an appropriate venue for coordination.</p>	<p>NARUC CPI “Leveraging Distributed Energy Resource Capabilities through Transactive Energy”, NARUC Mid-America Regulatory Conference.</p>
	<p>“In its compliance efforts, MISO created a coordination framework for engagement between RERRAs, electric distribution companies, and DER aggregators and created a DER task force that meets on a monthly basis.”</p>	<p>Michigan PSC 2022 order permitting demand response aggregation among resources exceeding 1 MW. (MI PSC, 2022)</p>
<p>Tier II: Work with retail utilities and RTOs stakeholder processes to co-develop the definition of double counting and determine information necessary to identify cases. Direct retail utilities to submit updated tariff proposals addressing dual participation and prohibiting double counting.</p>	<p>“The proposed revisions filed herein clarify customer eligibility to participate in the Company’s DER retail programs when such DER also participate in the NYISO markets to prevent duplicative compensation from the Company and NYISO for the same service.”</p>	<p>Central Hudson Gas & Electric’s Order 2222 implementation tariff update. (Central Hudson, 2022)</p>
<p>Tier III: Address double counting as part of a comprehensive Order 2222 implementation process, considering additional development of statewide rules if required.</p>	<p>The IURC’s Order 2222 stakeholder process identifies “dual participation (retail and organized wholesale participation) and double-counting concerns or challenges” as a core discussion topic.</p>	<p>IURC’s FERC Order 2222 implementation stakeholder process. (IURC, 2022)</p>

3.2.3.2 *Dispute resolution*

MISO's and SPP's preliminary Order 2222 compliance filings refer to their existing dispute resolution processes for market participants. Even so, there is a role for retail regulators in a few specific scenarios. For example, MISO "recognizes in its proposal that disputes between the [distributed energy aggregation resource] and [electric distribution companies] may best be handled by the RERRA" whereas SPP mentions retail regulators' potential involvement if a dispute involves eligibility (MISO, 2022; SPP, 2022). As such, the RTOs' filings indicate that dispute resolution for ARCs will follow similar processes as other market participants, involving retail regulators only for disputes outside of FERC jurisdiction (and most likely within state jurisdiction). In both of these cases, existing state dispute resolution processes may suffice. If not, DER dispute resolution processes should be developed and applied to an ARC context. Summary Table 5 highlights some actions taken by states.

If disputes arise between entities involved in DER aggregation (i.e. customers, ARCs, retail utilities, RTOs), it is important that retail regulators have procedures in place to address them within their jurisdiction. Retail regulators usually maintain existing processes and staff resources for dispute resolutions between customers, third-party developers, and retail utilities, but few have developed processes specific to ARCs. Retail regulators from Arkansas, Indiana, Minnesota, and Pennsylvania each expressed that existing dispute resolution processes related to DERs should be flexible enough to be adapted for aggregations (Davies and Johnston, 2022; McDowell et al., 2022; Nixon, 2022; Rosier, 2022). Michigan PSC staff said that ARC-related disputes are usually addressed in the MISO registration process without PSC intervention (Hanser, 2022), while Maryland PSC staff noted that no disputes have arisen in the 11 years that CSPs have been bidding aggregations (mostly commercial and industrial) into PJM markets (Mosier, 2022; Schreim, 2022). The rules published by each of California's retail utilities regarding DER aggregation in retail programs is the sole example of existing broad dispute resolution procedures being explicitly referenced as statutorily applicable aggregation-related disputes (See Text Box 5) (PG&E, 2017).

Text Box 5: California utilities leverage existing statute to guide dispute resolution for aggregations.

The rules published by California utilities to guide DR aggregator participation in retail programs leverage existing California Commission statutes to clarify dispute resolution processes concerning DER aggregations. In doing so, these rules appear to be the only example of an existing dispute resolution process being repurposed to specifically apply to aggregations. While the California PUC facilitates dispute resolution processes for disputes related to ARCs within its jurisdiction (i.e. involving a retail utility), it follows Alternative Dispute Resolution procedures developed by CAISO (CAISO, 2021).

PG&E’s Rule 24 (PG&E, 2017), for example, references the California Commission’s existing processes as outlined in Article 4 of its Rules of Practice and Procedure (CPUC, 2021a) and Public Utilities Code Sections 451 (CPUC, 2021b), 701, and 702 (CPUC, 2018). Based on these statutes, dispute claims will be first directed to the California Commission’s Consumer Affairs Branch (CAB) to informally seek resolution among parties through the Alternative Dispute resolution process (CPUC 2005), then subsequently to its Safety and Enforcement Division if the claim remains contested. Following a formal litigated process, the Safety and Enforcement Division will have the option to exercise authority to issue a penalty or revoke Demand Response Providers’ registration status, in which case it would inform relevant parties (the Demand Response Provider, retail utility, and CAISO) via an established notification process (PG&E, 2017). Examples of ARC conduct that would warrant the initiation of California’s dispute resolution process include Rule 24 form forgery (or 32, in the case of SDG&E), deceptive advertising or marketing, improper registration, failure to notify customers or the retail utility about the initiation or discontinuation of DR services, violation of dual participation rules, and non-payment of fees (PG&E, 2017).

Summary Table 5: Actions taken in states related to dispute resolution

Tier & Description	Example	Source
Tier I: Utilize existing dispute resolution processes to the extent possible for issues involving DERs within retail markets or in organized wholesale aggregation scenarios.	New York process for “Generally Applicable” DER Suppliers: "Department Staff will accept inquiries and complaints related to DER suppliers and will make efforts to investigate and resolve those complaints and, if necessary, bring those complaints to the Commission for consideration."	New York DPS 2019 Uniform Business Standards. (NY PSC, 2019b)
Tier II: Adapt processes, frameworks or general principles from existing dispute resolution procedures to specifically address ARCs.	California developed two options for customers seeking to open a dispute with Demand Response Providers (DRP): a formal complaint claimed through civil court, which could enable the PUC to take corrective action, or implementation of an informal Alternative Dispute Resolution (ADR) process as developed by CAISO, in which PUC officials facilitate or mediate a resolution without bringing it to court (see Text Box 5).	California Demand Response Provider (DRP) resource page. (CPUC, n.d.)
Tier III: Coordinate with state regulator staff responsible for managing dispute resolution to develop a new process specific to ARC disputes, possibly in the context of Order 2222 implementation.	The IURC’s Order 2222 stakeholder process identifies “[d]istribution utility overrides of DERs to maintain reliability, and disputes arising therefrom” as a targeted form of dispute to address as a discussion topic.	IURC’s FERC Order 2222 implementation stakeholder process. (IURC, 2022)

4. Conclusions and Policy Implications

DER aggregations across the country have provided various benefits, both in the form of increased value streams to the owner as well as societally beneficial grid services that increase distribution and/or bulk system grid operational efficiency such as peaking capacity, energy services, and ancillary services. The majority of MISO and SPP states opted out of allowing direct ARC participation in organized wholesale markets following FERC Order 719, providing few examples of “best practices” for states to follow when evaluating future actions and the possibility of establishing rules and regulations for ARCs. However, the issuance of FERC Order 2222 has led some states in MISO and SPP to explore reducing or reversing these restrictions. Despite most states’ approaches to these issues being in early stages, this document outlines five general findings across interviewees and further extracts several specific examples across states of how retail regulators have weighed different tradeoffs and taken different actions related to legal jurisdiction, participation requirements, and rule enforcement via a close document review.

These policy findings and specific state examples, grouped into Tiers I, II, and III could provide state regulators with examples and templates for how others are approaching questions within their respective topic categories, but they are not direct recommendations and should not be taken as such. With each state’s unique set of goals, challenges, and regulatory landscapes, there will be separate tradeoffs when choosing and developing a set of actions to allow direct ARC participation in organized wholesale markets.

In general, most Tier I examples may not require significant changes for most states and likely could be implemented on a shorter timeframe. On the other hand, Tier III examples generally require higher levels of stakeholder buy-in and coordination. However, this longer process can lead to more comprehensive and ARC-specific rulemaking that may offer more clear guidance on participation and important topics such as customer protection, dual participation, etc. These tiers are also not necessarily discrete options, as there are examples of states choosing to pursue parallel implementation strategies. In these cases, one track implements changes on quicker timeframes that apply existing processes to ARCs in the near term- sometimes limited to specific customer classes (aligned with Tier I options), while a parallel track focuses on a more comprehensive parallel process to specifically address ARCs or overall Order 2222 implementation (aligned with Tier II or III options). This incremental method allows states to loosen restrictions in the near term, learn from early experiences, and apply best practices to a more comprehensive rulemaking.

State rulemaking around ARCs has not coalesced around one set of recommendations, but instead has spanned a wide range of possible interventions. This leaves state regulators, along with their stakeholders, with various options. With multiple states in somewhat similar initial stages, there are opportunities for sharing findings as they emerge and iterating on implementation in order to capture the benefits of ARC participation in organized wholesale markets while ensuring grid reliability and efficiency.

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Appendix A. State DER Aggregation Resources Index

State	Proceeding(s)/ Topic(s)	Filing(s)	Primary Topic(s)	Description	Link
Arkansas	16-028-U	10	General History	Arkansas' investigation into DER issues, which addressed but never enacted policy related to DER aggregation.	- Proceeding: https://e9radar.link/kigp - Order 10 & RAP Report: https://e9radar.link/fxp0
	20-027-U	N/A	General History	Walmart's unresolved petition to aggregate DR.	https://e9radar.link/kigp
	09-090-U	14	Role of Aggregators	Arkansas' original opt-out proceeding, reopened to consider policy considerations related to potentially reversing the opt-out.	https://e9radar.link/2h8s
California	Retail DR rules	N/A	Registration	Utility aggregator registration rules.	- PG&E Rule 24: https://e9radar.link/b30 - SCE Rule 24: https://e9radar.link/m4v - SDG&E Rule 32: https://e9radar.link/hn5
	DRP FAQ page	N/A	Role of Aggregators	Demand Response Provider (DRP) frequently asked questions.	https://e9radar.link/js1
	R.08-12-009	11-07-056	Data	Order establishing customer data protection and privacy rules.	https://e9radar.link/ykj
	Retail Customer Protection Rule	N/A	Data	PG&E Customer Protection Rule 27.	https://e9radar.link/zj19
Indiana	43566	2010 WL 3073664	General History; Role of Aggregators	Order banning third-party aggregator participation in organized wholesale markets.	Indiana DR Order: https://e9radar.link/9oj
	H.B. 1111	N/A	All	Legislation changing state statutes, mandating IURC to investigate DER aggregations.	https://e9radar.link/ge6s
	(IC) 8-1-40.1-4	N/A	All	Code authorizing the IURC to regulate DER aggregation activity.	Code: https://e9radar.link/gmq1
	IURC FERC 2222 implementation page	N/A	All	Home page for the IURC's FERC Order 2222 Implementation Stakeholder Process, with presentations.	Web page: https://e9radar.link/xrvb FERC Presentation: https://e9radar.link/0tys MISO Presentation: https://e9radar.link/v8qi PJM Presentation: https://e9radar.link/lpyz
Kansas	23-EKCE-588-TAR	TR2300305	All	Evergy petition to develop registration requirements, a distribution utility-demand response aggregator agreement	Proceeding: http://e9radar.link/r541 TR2300305: https://e9radar.link/9jio
Maryland	9421	84275	Registration; Role of Aggregators	Qualified Curtailment Service Providers (CSPs) as electric generators and retail electric providers; established a registration process.	https://e9radar.link/35e609
	CSP Application Form	N/A	Registration	CSP application form.	https://e9radar.link/hne

Michigan	U-18369	U-18369-0015	Role of Aggregators	FERC 719 opt-out decision, relating to AEP petition.	https://e9radar.link/xi8	
	U-20438	U-20348-0013	Role of Aggregators	Affirming exclusion of third-party aggregators from DR markets.	https://e9radar.link/7vc	
	U-20645	N/A	Role of Aggregators	MI Power Grid investigation of DR and DER issues.	https://e9radar.link/1apl	
	U-21099; U-20348; U-21032; U-21225	U-20348-0036	Registration	Soliciting comments to inform licensing process design.	https://e9radar.link/6iq	
Minnesota	13-867	N/A	General History	Xcel community solar proceeding.	http://e9insight.com/state-redirect-mn/	
	15-825	N/A	General History	Minnesota Power community solar proceeding.		
	21-694	N/A	General History	Xcel Integrated Distribution Plan.		
	21-390	N/A	General History	Minnesota Power Integrated Distribution Plan.		
	21-101	N/A	Role of Aggregators	Xcel Load Flexibility pilots.	https://e9radar.link/71b839	
	19-685	Document ID 20228-188096-01	Data	PUC Investigation into Distribution Grid Data Security		
	19-505	Docket ID 202011-168476-01	Data	PUC petition to develop Open Data Access Standards, based on Xcel and Centerpoint's whole building data petition.		https://e9radar.link/c16d32
	20-800	Document ID 202010-167790-03 Document ID 20228-188405-01	Data	PUC Investigation into Grid Data Access		- 202010-167790-03: https://e9radar.link/bbaj 20228-188405-01: https://e9radar.link/58bn
Missouri	EW-2010-0187	Item No. 19 (31 Mar. 2010)	General History	Order Temporarily Prohibiting The Operation Of Aggregators Of Retail Customers	https://www.efis.psc.mo.gov/Case/Display/11575	
	EW-2021-0267		All	In the Matter of the Establishment of a Working Case Regarding FERC Order 2222 Regarding Participation of Distributed Energy Resource Aggregators in Markets Operated by Regional Transmission Organizations and Independent System Operators	https://efis.psc.mo.gov/Case/Display/11614	
New York	15-M-0180	271, 271 Appendix A	All	DER Regulation and Oversight proceeding, Uniform Best Practices material establishing	- Proceeding: http://e9radar.link/yn3l - Uniform Business Practices expansion: https://e9radar.link/1984d0 - Uniform Business Practices appendix: https://e9radar.link/1zu	

				myriad rules for DER supplier participation	- Cybersecurity order: https://e9radar.link/1d9634
	15-E-0751	N/A	General History	Value of DER proceeding	https://e9radar.link/3ec5bf
	14-M-0101	N/A	General History	Reforming the Energy Vision proceeding	http://e9radar.link/e4kn
	N/A	N/A	Registration	DER supplier registration form	https://e9radar.link/hta
	22-E-0549	Filing Nos. 2-7	Registration	New York utilities Order 2222 implementation tariff proposals.	- ConEd: https://e9radar.link/jtd - Central Hudson: https://e9radar.link/1fe - National Grid: https://e9radar.link/69de12 - NYSEG: https://e9radar.link/ebu - Orange & Rockland: https://e9radar.link/3b9f17 - RG&E: https://e9radar.link/dy3
Oklahoma	2021000172	Filing No. 30444860	Role of Aggregators	Public Service Company of Oklahoma petition for a Voluntary Curtailment Service tariff.	Proceeding: https://e9radar.link/7zd Proposed tariff: https://e9radar.link/urm6
Pennsylvania	HB 2200 (Act 129 of 2008)	N/A	Role of Aggregators	State law establishing and defining Conservation Service Providers (CSPs).	https://e9radar.link/8x9
	M-2008-2074154	“Final Order”	Role of Aggregators, Registration	Order implementing Act 129 and establishing qualifications for CSPs, including registration form.	https://e9radar.link/7xb
	List of CSP Orders	N/A	General History	List of orders related to CSP participation.	https://e9radar.link/626
	CSP registration	N/A	Registration	CSP form of registration.	https://e9radar.link/awg
	A-2019-3009271	“Final Order”	Data	Order in Enerwise petition denying CSPs access to customer data.	https://e9radar.link/90ec78
Oklahoma	M-2021-3029018	Document No. 1733535	Data	Investigation into CSP access to customer data, established following Docket No. A-2019-3009271 final order.	Proceeding: https://e9radar.link/35g Initiating letter: https://e9radar.link/050b4b

Appendix B. Interview questions

1. General history:

- Did your state opt-out of DR third-party aggregation (under FERC Order 719)?
- Do aggregators participate in the state currently? If so, how (i.e., directly bidding DR into the wholesale market or working with a utility in retail or wholesale DR programs)?
- What rules are most important for successful third-party aggregation?
 - What did you do in the first year of implementing DR (or DER) aggregation? I.e., what did you prioritize and, with hindsight, what would you have prioritized?
 - Within the following categories, how were these prioritized?
 - Jurisdiction
 - Dispute resolution
 - Registration and licensing
 - Double counting
 - Role of aggregators
 - Data protection
 - Other? (Is anything missing?)
 - What existing processes or rules were necessary to revise/create to allow for aggregators to participate?
- Timeline: What regulatory activities or proceedings were necessary to enable aggregation (i.e., rulemakings, tariff changes, etc.)? Were they staged (and perhaps revised) in subsequent years? If so, how?
- Based on experience in your state, are there insights or recommendations about how a retail regulator should prioritize or stage rulemaking or other implementation efforts?

2. *Jurisdiction (applicable mostly to regulators; less so for utilities and aggregators):*

- Are utilities in your state vertically integrated or under some other regulatory structure?
- What agency/entity has legal authority to regulate DR/DER aggregations and/or aggregators?
- If the state utility commission has authority, did that authority emanate from specific legislation or from the agency's general regulatory authority?
- If the utility commission does not have explicit authority, did the commission seek explicit authority from the state legislature, or does it plan to do so?
- For aggregators and utilities: Are you aware of situations where jurisdiction has been in dispute? If so, have you or others contested the authority/jurisdiction of a utility commission or other regulatory body?
- Aggregators: How are you able to operate in states that have opted out of third-party aggregation under FERC Order 719? Is participation limited to certain products or applications?

3. *Dispute resolution:*

- In your territory, are there processes or rules related to resolution of disputes involving aggregators? If so, what are they? If not, how are these disputes resolved?
- What types of disputes come up frequently? Are these similar or different than those that you anticipated? Could these have been avoided via changes in planning stages that should be considered?

4. *Registration/Licensing:*

- Is registration or licensing of aggregators required? Is there a template/list of requirements/process that you can share?
- How was this authority to require licensure granted? By specific legislation?
- Which authority manages registration?
- Are there fees charged? How much?

5. *Double Counting:*

- What is defined as “double counting”?
- What safeguards or procedures, if any, are in place to mitigate the occurrence of double counting? What has been successful? What has not?
- What entities are responsible for detecting or resolving instances of double counting in cases of non-compliance?
- Are there limitations imposed on aggregators operating dually across both retail and wholesale markets?
 - If yes, what are the limitations? Are they based on state statutes, state agency regulations, or PSC orders?
 - Have there ever been resulting litigation/challenges? If so, what has been the outcome?
- What telemetry and metering requirements are necessary to prevent or identify double counting? Does this vary based on situation (e.g., heterogeneous vs. homogeneous aggregations; geographic spread; dual participation; DR vs. injecting DERs; etc.) (limited question - *to utilities*)

6. *Role/Limitation of Aggregators:*

- Are there limitations on aggregators based on customer class, technology type, geographic spread, etc.? If so, is there a resource that outlines these?
- Who is responsible for ensuring compliance with established roles and limitations on aggregators? How is this done?

7. *Data protection:*

- Is there a template of required data or an established process that can be shared?
- Is there a data governance framework or other regulations in place?
- How does operational data flow from the DER device to aggregator to distribution utility to the RTO and with what frequency? In the other direction, how do RTO market or dispatch signals flow down and with what frequency?
- How do other data such as registration, commitments, compensation, etc. get shared between aggregators, utilities, and/or RTOs? How and with what frequency?
- Who has access to the data that is exchanged between the aggregator, the utility and the RTO?
- What are the limitations on how data is shared or used?
- How do customers provide consent for data to be shared? Are there any other rules or practices regarding transparency or customer privacy in place?

- What rules or practices are in place regarding cybersecurity?

8. *Implementation challenges/Wrap up:*

- Can you summarize three takeaways based on your experience?
- Is there anything important in your experience that we haven't asked or issues that we missed?

Appendix C. State Profiles

ARKANSAS

General History Arkansas opted out of FERC 719 in 2013 with the passage of the Regulation of Electric Demand Response Act. The legislation amended Arkansas Code Section 23-18-1003 to place demand response aggregation under PSC jurisdiction and prohibited third-party demand response aggregation without explicit commission approval. Since then, the Arkansas Public Service Commission (PSC) has investigated the topic in its DER proceeding (Docket No. 16-028-U) but never designed rules, and aggregators are not active in the state. Order #10 in Docket No. 16-028-U included a report authored by the Regulatory Assistance Project (RAP) offering a set of policy recommendations related to DER and DR aggregation, the adoption of which would have supported increased ARC participation. That order also identified the following issues for future consideration in the proceeding: third party access to utility data; communications upgrades; cybersecurity; confidentiality and privacy; processes for customer consent for access to data, data agreements, and programs such as Green Button; interconnection standards; hosting capacity; and DER services, DER compensation mechanisms, programs, and issues of subsidy and stranded costs. Neither these issues nor RAP's recommendations were further considered by the PSC in any rulemaking capacity. In 2020 Walmart applied for permission to aggregate DR resources in Docket No. 20-027-U, but the matter never received a PSC ruling.

In 2020, the Arkansas PSC's original FERC 719 opt-out proceeding was reopened to consider another round of comments (Docket No. 09-090-U, Order 14). In June 2022, the PSC issued a set of questions considering potential implementation considerations if the state were to open its wholesale market to DR aggregator participation.

Regulation of Electric Demand Response Act (Act 1078): <https://e9radar.link/iuob>

Docket No. 16-028-U: <http://e9radar.link/irmz>

Docket No. 16-028-U, Order 10: <https://e9radar.link/69d>

Docket No. 20-027-UN: <https://e9radar.link/n42>

Docket 09-090-U, Order 14: <https://e9radar.link/oao>

Jurisdiction The Arkansas PSC has explicit jurisdiction to regulate ARCs. The Regulation of Electric Demand Response Act amended Arkansas Code Section 23-18-1003 to provide that “[t]he marketing, selling, or marketing and selling of demand response within the State of Arkansas by electric public utilities or aggregators of retail customers” is subject to regulation by the Arkansas PSC or, in the case of a municipally owned electric utility or a consolidated municipal utility improvement district, the local governing authority (AR State Legislature, 2013). According to PSC staff officials, the rules as established are broad and have yet to be implemented. Jurisdictional rules that would apply to ARCs if DR was implemented would also potentially apply to DERs.

Arkansas Code Section 23-18-1003: <https://e9radar.link/244n>

Dispute Resolution Arkansas has not established an ARC-specific process due to the lack of activity in the state. The PSC has experience addressing dispute resolution related to net metering applications.

Registration and Licensing Arkansas has not established an ARC-specific process but has an established process for net metering facilities. Entities proposing net metered projects submit applications which are followed by PSC hearings.

Dual Participation Arkansas has not established double-counting rules for DR. The PSC's 2018 report addresses double counting and proposes mechanisms to create communication and synergy between

aggregators and utilities.

**Role of
Aggregators**

Not yet considered.

Data Protection

Data protection was discussed during DER Investigation workshops but has not since been addressed in any rulemaking capacity. According to a PSC staff official, "Data protection I think will come later" (AR PSC, 2022).

CALIFORNIA

General History California's demand response market is dominated by retail programs offered by the state's utilities. Between 2016 and 2018, the California Public Utilities Commission (PUC) approved rules proposed by each utility facilitating aggregator or Demand Response Provider (DRP) registration, customer subscription, and operation. Separately, the CPUC has developed rules addressing customer data privacy and protection. An official from the CPUC's Public Advocate Office held the opinion that California is not a national leader in demand response, at least in the retail market context.

CAISO has its own rules and processes to facilitate direct participation of demand response resources directly into wholesale energy markets. These include telemetry requirements and ability to qualify for minimum load curtailment and run time benchmarks. Since the majority of demand response resources in California take service from one of the state's three retail utilities, satisfying retail requirements to qualify as a DRP would serve as a prerequisite to dual participation between retail and CAISO markets.

PG&E Rule 24: <https://e9radar.link/b30>

SCE Rule 24 home page: <https://e9radar.link/0c72>

SDG&E Rule 32: <https://e9radar.link/hn5>

DRP FAQ: <https://e9radar.link/js1>

Jurisdiction CPUC DR jurisdiction rules were designed and are exercised mostly in the context of utility programs. Each utility's rules clarify the types of entities that qualify for DR program participation. For example, PG&E identifies the following entities as subject to its Rule 24:

- a. Utilities acting on behalf of its customers as the Load Serving Entity (LSE), DRP, Utility Distribution Company (UDC), Meter Data Management Agent (MDMA), or Meter Service Provider (MSP).
- b. Affiliates of utilities acting as a DRP
- c. Non-Utility affiliated DRPs enrolling Bundled Service customers.
- d. Bundled Service customers acting as a DRP for their own load.

An official from the CPUC's Public Advocate Office noted that jurisdictional requirements related to registration and reporting were designed to ensure that DR resources are able to meet the state's reliability needs.

Dispute Resolution The CPUC has established a formal dispute resolution process based on California codes of standards and/or conduct.

Registration and Licensing Aggregators participating in retail markets are required to register, provide information about their customers, and post a bond. Customers are required to download and fill out a consent form, which was designed as a two-page document for accessibility. Substantive provisions are found in utility tariffs: Rule 24 for Pacific Gas & Electric/Southern California Edison, and Rule 32 for San Diego Gas & Electric. Customers registering with CAISO apply through its Demand Response Registration System (DRRS), which requires basic and technical information about the resource including business, address, locational information, operational timeline, and reporting about the resource itself including performance and load values and anticipated use limits.

[NEW] DRRS User Guide: <https://e9radar.link/bvb7>

Dual Participation California aggregators must comply with the CPUC and CAISO's Dual Participation rules. Since DR participation in wholesale markets is more limited in California, double counting between mutually exclusive retail programs or tariffs is more of a concern. According to its DRRS Userr Guide, CAISO's registration process "performs a series of processes... to ensure the uniquely identified end-use customer is being registered appropriately and not participating in overlapping registrations or retail programs" (CAISO, 2020). NEM customers are not allowed to also participate in DR programs.

Role of Aggregators Each utility has established eligibility requirements for and/or limitations on aggregators. While California has DR resources active in most or every rate class, programs may have specific eligibility requirements.

Data Protection California developed statewide data governance rules related to privacy and customer protection in 2011, within Docket No. R.08-12-009. These rules do not allow for the disclosure of customers' personal information, such as name, address, phone number, or electric or gas account and billing information, to third parties unless customers expressly authorize them to do so. The order implemented a U.S. Department of Homeland Security framework for information systems affecting national security called Fair Information Practice (FIP) principles, which cover issues related to transparency, individual participation, purpose specification, data minimization, use limitation, data quality and integrity, security, and accountability and auditing. The final order of Docket No. R.08-12-009 directed utilities to develop tariffs, eligibility requirements, and procedures for Commission oversight over third-party energy usage data access, which in practice have largely been implemented within utility retail DR aggregation rules (i.e. PG&E Rule 27).

Docket No. R.08-12-009, Decision 11-07-056 <https://e9radar.link/ykj>
PG&E Rule 27: <https://e9radar.link/zj19>

INDIANA

General History A 2010 order in the Indiana Utility Regulatory Commission's (IURC) investigation into end-use customer participation in MISO and PJM DR programs, Indiana opted out of FERC 719 (Filing WL 3073664, Cause No. 43566). Specifically, citing potential regulatory challenges including introduced uncertainty to utility resource planning and potential cost-shifting, the IURC ultimately found that, "Although direct customer participation in RTO demand response programs may make sense for customers in competitive retail and wholesale markets, we lack the evidence necessary to determine this structure would work effectively for customers in Indiana's traditionally regulated retail jurisdiction" (IURC, 2010). The order encouraged Indiana distribution utilities to work with aggregators to propose retail demand response programs and tariff offerings, noting a gap in retail DR offerings for small and medium C&I customers and adding that "explore opportunities with CSPs which may further enhance participation in demand response by customers of all sizes, classes, and sophistication" (IURC, 2010). I&M's C&I wholesale capacity program is one example of a retail DR program that emerged following filing WL 3073664.

In March 2022, the Indiana legislature passed H.B. 1111, adopting Indiana Code Chapter 40.1 section 8-1-40.1-4 and directing the IURC to "adopt rules that the commission determines to be necessary to implement Federal Energy Regulatory Commission Order No. 2222 concerning distributed energy resources and distributed energy resource aggregators" (IN State Legislature, 2022). In December 2022, the IURC hosted its first stakeholder workshop on the matter in which FERC, MISO, and PJM each presented; stakeholder comments are due on February 2, 2022. IURC staff described the stakeholder process as designed to be as "open-minded and flexible as possible," noting the goal of "distilling a strong straw-man set of rules" and the possibility of opening a formal docketed investigation depending on stakeholder feedback (IURC, 2022). The scope of the IURC's regulatory effort is directly relevant to several of the policy topics below, including adjudication of aggregation disputes, double counting concerns, questions around whether to define aggregators as 'public utilities', operational oversight, and coordination between the RTO, utilities, aggregators and IURC.

Cause No. 43566, WL 3073664: <https://e9radar.link/9oj>
H.B. 1111: <https://e9radar.link/ge6s>
Indiana Code (IC) 8-1-40.1-4: <https://e9radar.link/gmq1>
IURC FERC 2222 Implementation Page: <https://e9radar.link/xrvb>
FERC Presentation: <https://e9radar.link/0tys>
MISO Presentation: <https://e9radar.link/v8qi>
PJM Presentation: <https://e9radar.link/lpyz>

Jurisdiction IURC staff held the opinion that DR and DER aggregators would fall under IURC jurisdiction. The outcomes of the IURC's FERC 2222 implementation process will likely put this principle into practice, and is further considering questions around state vs. federal jurisdiction over DERs and whether aggregators will be regulated as 'public utilities'.

Dispute Resolution No rules have been established, but the topic has been internally discussed among IURC staff. DER interconnection rules have not yet been updated to address resource aggregations, but "Adjudication of (pre-registration/aggregation registration) disputes" and "Distribution utility overrides of DERs to maintain reliability, and disputes arising therefrom" are two topics for comment in the IURC's FERC 2222 implementation process (IURC, 2022). The IURC has a consumer division and established procedures around complaints, unspecific to DER or DR aggregation.

Registration and Licensing	Under the existing arrangement, registration of DR aggregators must be facilitated through the filing and approval of a utility retail program or tariff. The IURC's FERC 2222 implementation process is likely to provide guidance for customer registration processes facilitating direct wholesale market participation.
Dual Participation	The IURC's FERC 2222 implementation process is considering "dual participation (retail and wholesale participation) and double-counting concerns or challenges" (IURC, 2022).
Role of Aggregators	The IURC's 2010 opt-out order describes Curtailment Service Providers (CSPs, i.e. aggregators) as an "interface or agent between an RTO and an end-use customer for the provision of demand response through the customer's curtailment of electricity" (IURC, 2010). Since that order, CSPs in Indiana have facilitated aspects of aggregation for utility retail DR programs. The IURC's FERC 2222 implementation process is evaluating whether to regulate aggregators as 'public utilities' and may lead to new guidance around limitations or eligibility requirements of aggregators.
Data Protection	The IURC's FERC 2222 implementation process emphasizes the need to develop rules around operational control and oversight of DERs and rules governing coordination between entities, each of which will require it to develop data governance rules. FERC, MISO, and PJM's presentations in the process's first workshop each addressed data governance issues.

KANSAS

General History Kansas did not opt out of FERC 719, although it has sometimes been characterized as such (i.e. in filings related to FERC 2222). Kansas Corporation Commission (KCC) staff officials expressed viewing the introduction of aggregators over the past 18 months-2 years through the frame of a 'modified conditional opt-out'. This means that the KCC soon hopes to develop rules and conditional requirements for aggregators, potentially in the next 6 months.

A January 2023 filing by Evergy in (Tracking No. TR2300305 in Docket No. 23-EKCE-588-TAR) may offer the KCC a venue to develop such rules. Evergy petitioned to amend its tariff to develop several processes to facilitate the registration and operation of Demand Response Aggregators (DRA) and their customers in the state. The changes would define DRA; require customers enrolling in DRAs to submit "Customer Registration and Consent Form" to Evergy; and require DRAs to enter into a Distribution Utility – Demand Response Aggregator (DU-DRA) Agreement with Evergy, a proposed template of which Evergy attached in the filing. Evergy presents the DU- DRA Agreement as representing a "business registration" form intended to create "a uniform and transparent approach to reviewing demand response participation requests" (Evergy, 2023). Evergy presents that agreement would represent not only a KCC-approved registration process that involves utilities and aggregators, but also a central mechanism to clarify entity responsibilities, facilitate customer protection and operational data sharing, prevent double counting, mitigate administrative delays, and ultimately "strike a balance between facilitating certain retail customers' desires to participate in the wholesale market as demand response resources and ensuring Evergy's ability to fulfill its distribution utility and retail service responsibilities for all customers' in its service area" (Evergy, 2023). The proceeding remains open as of March 2023.

Docket No. 23-EKCE-588-TAR: <http://e9radar.link/r541>

Tracking No. TR2300305: <https://e9radar.link/9jj0>

Jurisdiction KCC staff officials assumed that aggregation activity will primarily operate through the state's investor-owned utilities. In those cases, it would regulate DER or DR aggregation activity through its jurisdiction over state utilities. This approach will likely play out in the context of Evergy's petition in Docket No. 23-EKCE-588-TAR.

Dispute Resolution No established process.

Registration and Licensing Aggregators in Kansas currently register as a Demand Response Aggregators (DRA) market participant through SPP. SPP protocols then require a notice be sent to both the relevant distribution utility and the KCC, initiating a 45-day period to raise any concerns about a retail customer's registration with SPP. According to the background information in Evergy's petition to change the DRA registration process, the utility "then reviews the registration information to confirm, among other items, that the registration reflects accurate information about the customer account and applicable load, and that the customer does not participate under a retail tariff or program that would conflict with such customer's wholesale market participation." Largely in its review of Customer Data Authorization forms, it also "seeks to confirm that the retail customer has consented to the registration and SPP market participation" (Evergy, 2023).

Evergy's petition in Docket No. 23-EKCE-588-TAR seeks to adjust two tariffs to implement new prerequisite steps to the DRA registration process. It proposes that DRAs would first be required to enter into a Distribution Utility – Demand Response Aggregator (DU-DRA) Agreement with its

jurisdictional utility, which covers data protection, data sharing, double counting, and administrative issues and a template of which is attached in Tracking No. TR2300305. DRAs would also be required to submit “Customer Registration and Consent Form” for participating customers to Evergy.

Dual Participation In one instance, there was some concern about an example of double counting in which a large customer was being compensated for an Evergy Kansas DR program and attempted to also participate in the wholesale market. In response, Evergy Kansas companies' tariff established a protocol for aggregators to shift participation from SPP's Operating Reserves Market to Evergy load curtailment. Aggregators like Voltus provide SPP with load data and dispatch notifications to confirm the absence of double counting, which are accessible to the distribution utility.

In its petition in Docket No. 23-EKCE-588-TAR, Evergy proposes a Distribution Utility-Demand Response Aggregator (DU-DRA) Agreement that would require the DRA to affirm that there are no double compensation, double counting, or compliance issues with its participation in SPP markets. The DU-DRA also requires the DRA to confirm that it has complied with all KCC, FERC, and SPP requirements for participation in the wholesale market, including the double compensation rules laid out in FERC Order 2222 and SPP's Order 2222 compliance filing.

Role of Aggregators Evergy's petition in Docket No. 23-EKCE-588-TAR proposes to define Demand Response Aggregators (DRA) as "an entity that aggregates the load of one or more Customers for purposes of participation as demand response in the SPP Integrated Marketplace" (Evergy, 2023). Most if not all DR in the state is with commercial & industrial customers.

Data Protection Currently, Evergy ensures that customers have signed and submitted a Customer Data Authorization form when it reviews applications for DRA participation received from SPP.

Evergy's petition in Docket No. 23-EKCE-588-TAR seeks to further implement a “Customer Registration and Consent Form” intended so that customers have sufficient knowledge of their data usage to deliver consent. Evergy's proposed process further seeks to standardize data coordination between entities to ensure operational safety and performance. For example, "the DU-Aggregator Agreement contains provisions that ensure protection of both Evergy and customer information that has been disclosed to the DRA and memorializes that the DRA may request and Evergy may provide to the DRA customer-specific data, but such information can be shared only pursuant to an executed Customer Data Authorization form" (Evergy, 2023). The proposal would also provide Evergy with rights to audit the accuracy of data and information provided by the DRA.

MARYLAND

General History	<p>Maryland did not opt out of FERC 719 and has hosted third-party demand response aggregators, primarily contracting with commercial & industrial customers, since the 2000s. In 2011, the Maryland Public Service Commission (PSC) issued an order in its Investigation of the Regulation of Curtailment Service Providers (CSPs) (Case No. 9421) ruling that CSPs qualify as electricity generators and retail suppliers under Maryland law and establishing a registration process.</p> <p>Since then, the Maryland PSC has not initiated further rulemaking addressing CSPs and DR aggregation policy. PSC staff officials generally felt that DR aggregation markets were functioning without issue and do not require immediate regulatory intervention.</p> <p>Case No. 9421 Order No. 84275: https://e9radar.link/35e609</p>
Jurisdiction	<p>In 2011, Maryland established jurisdiction to regulate CSPs as electricity providers.</p>
Dispute Resolution	<p>The Maryland PSC has a customer division that would be capable of handling disputes related to CSPs, but has not received a complaint in the 11 years since CSPs have been active in the state. Establishing a DR-specific dispute resolution process may be a topic of consideration as the commission moves toward FERC 2222 implementation.</p>
Registration and Licensing	<p>In 2011, Maryland established a registration process in which CSPs are required to provide the Commission with basic information including name, company credentials, and contact information. According to PSC staff officials, the Commission has approved every CSP application it has received.</p> <p>Maryland CSP Application: https://e9radar.link/hne</p>
Dual Participation	<p>According to PSC staff officials, double counting has not been "a topic of discussion," considering that "the market seems to work pretty well." Officials noted that PJM has more specific procedures in place to enforce the prohibition of double counting.</p>
Role of Aggregators	<p>CSP's classification as electric suppliers allows broad participation. In practice, most if not all of Maryland's CSPs work with commercial & industrial customers.</p>
Data Protection	<p>The 2011 order established the CSPs' need to "maintain the confidentiality of retail customer data and commercially sensitive information." There has not been further directly relevant rulemaking. CSPs handle data issues directly with customers. According to PSC staff officials, "There's not much need for us to make [data governance] protections for residential customers, as they [CSPs] would likely go after bigger companies that should have more protection for themselves."</p>

MICHIGAN

General History Michigan opted out of FERC 719 in 2017, maintaining the free participation of aggregators in the 10% of its market that allows retail competition. The 2017 decision in Case No. U-18369 affirmed the ability of utilities to contract with third-party demand response aggregators in commission-approved arrangements.

In the late 2010s, the Michigan Public Service Commission (PSC) hosted years-spanning working group activity related to demand response issues in two separate proceedings (Case Nos. U-20348, U-20645). A 2019 order (Filing No. U-20348-0013) argued that opening the market to third-party DR aggregation may introduce uncertainty and complexity to integrated planning and operational challenges if participation was not implemented transparently, ultimately not enacting changes to the state's vertically integrated market. However, this 2019 Order rescinded the PSC's 2017 limitation on third-party aggregation and allowed third-party aggregators to directly bid aggregated DR for retail choice load into wholesale markets.

In December 2022, the Michigan PSC revisited its 2019 order (Filing No. U-20348-0042) in light of the experience gained with retail choice DR aggregation and a tightening capacity market. In Docket No. U-20348, the PSC lifted the prohibition on aggregated demand response participation in wholesale markets for "extra large" resources with enrolled load exceeding 1 MW. The order was framed as a preliminary step towards further opening market access to aggregated resources, and framed the 1 MW limit as a "temporary size minimum for participation," limited to large C&I customers "in order to address consumer protection issues and to minimize the administrative burden on utilities." The order continued that the Commission "intends to work with stakeholders to develop appropriate consumer protection policies for resources smaller than 1 MW... and may revisit the ban on aggregation for bundled retail loads smaller than 1 MW" (MI PSC, 2022). The order stresses the need to develop and gain authority to implement licensing processes for smaller resources that ensure adequate customer protection. It recognizes the need for further investigation and identifies the existing MI Power Grid DR Workgroup as an effective venue to continue developing market rules. A February 2023 Order (Filing No. U-20348-0044) clarified that an exception to the 1MW threshold will be permitted for corporate C&I customers in Michigan and that these entities may aggregate load across multiple sites to meet the 1MW threshold.

Filing No. U-18369-0015: <https://e9radar.link/xi8>

Case No. U-20438: <https://e9radar.link/g0e>

Filing No. U-20348-0013: <https://e9radar.link/7vc>

Case No. U-20645: <https://e9radar.link/1apl>

Filing No. U-20348-0042: <https://e9radar.link/hwdy>

Filing No. U-20348-0044: <https://e9radar.link/p4us>

Jurisdiction The PSC has not established jurisdiction over aggregators. Its December 2022 order partially lifting Michigan's opt-out explains its intention to determine its authority over aggregators before developing a licensing process for smaller DR and DER aggregations.

Dispute Resolution According to PSC staff officials, disputes related to DR or DERs usually arise from inaccurate data. They typically do not rise to the level of a state-level dispute resolution process and are addressed through the MISO registration process. If an aggregator or similar market participant submits incorrect data as part of their registration, the utility either rejects that registration outright or flags the error for the aggregator to fix and resubmit.

The PSC's December 2022 order partially lifted Michigan's opt-out notes that MISO's aggregator licensing process and tariffs delegate aspects of market enforcement to the RTO and FERC. MISO's tariffs "provide consequences for failure to abide by MISO's established requirements and in no way prohibit any party from filing a complaint with FERC" (MI PSC, 2022 p. 36).

Registration and Licensing

Registration occurs through MISO, which requires accreditation documentation supporting an ARC's demand reduction capability at MISO Coincident Peak as well as names and contact information for the relevant utility, the PSC, and customers involved. As part of the registration process, MISO sends high-level details like peak load contribution and business data to the commission. The commission does not have access to customer-specific data within these interactions and the data that the Commission receives is treated as confidential. Prompted by issues related to participation in regional resource capacity markets, the PSC issued an order in June 2022 including questions aimed at designing an aggregator licensing process.

While the PSC delegates registration to MISO for the large customers authorized for direct participation in wholesale markets in its December 2022 order, it emphasizes that the development of a PSC-facilitated licensing process will be a key enabling factor for expanding the reversal to smaller and residential customers. The order notes the PSC's intention to "work with its stakeholders and aggregators to outline a proposed licensing process" in 2023, and subsequently seek the jurisdictional authority to facilitate such a process (MI PSC, 2022 p. 37).

Filing No. U-20348-0036: <https://e9radar.link/6iq>

Dual Participation

According to PSC staff officials, there is concern about double counting and double compensation within the PSC and among Michigan ratepayers, but enforcing its prohibition will likely remain a responsibility for the utilities per the RTO registration process. Before the PSC's December 2022 order partially lifting Michigan's opt-out, utilities expressed concerns about double counting in their resistance to the reversal. The PSC argued that, "MISO's aggregation tariff has in place a process to identify and prevent double counting, which the Commission finds sufficiently addresses and ensures that double counting and double compensation is avoided" (MI PSC, 2022 p. 37).

Role of Aggregators

Michigan uses MISO's definition of an ARC: "A Market Participant that represents demand response on behalf of one or more eligible retail customers, for which the participant is not such customers' LSE, and intends to offer demand response directly into the Transmission Provider's Energy and Operating Reserve Markets, as a Planning Resource or as an EDR resource." While aggregators currently have no additional definitional limitations in Michigan, the PSC demonstrated its interest in its December 2022 order in expanding competitive utility protocol to the aggregator space. This could materialize as a licensing process with baseline requirements including financial stability, an office in MI, a contact within the MSPC, adequate customer protections, etc.

Data Protection

According to PSC staff officials, data protection and sharing are of immediate concern to Michigan. Officials describe that simple, yet secure customer data sharing is important to ensure aggregators have the information they need to correctly submit data in the MISO registration process. Officials stated that in Michigan aggregators must receive customer consent to share their data in order to access utility information via utility data portals or direct utility communications.

The PSC's December 2022 order partially lifting Michigan's opt-out identifies the need to develop stronger customer protection rules as part of expanding its reversal to smaller and residential customers. The Order explains that, "Prior to lifting the DR aggregation ban for

bundled residential and smaller C&I customers, the Commission will endeavor to outline the desired consumer protections to guard against deceptive marketing tactics that have been employed in the past by certain AESs and their third-party marketers" (MI PSC, 2022 p. 37).

With regard to sharing of customer information across entities, the order explained that ARC access to data is necessary for them to know which C&I customers have already committed load to a utility program and market function overall. The Commission found that concerns about customer data sharing and security "can be resolved through the use of non-disclosure agreements that maintain confidentiality and protect customer's proprietary information." The order ultimately encouraged utilities to "work in good faith to expedite consumer access to the DR market and provide aggregators access to the required data on an as-needed basis," citing Green Button Connect as a useful existing tool for energy data sharing. Citing its authority over the treatment of customer information, the Commission also notes that data sharing activity will be subject to approved utility privacy tariffs (MI PSC, 2022 pp. 38-39).

MINNESOTA

General History Minnesota opted out of FERC 719 in 2010 and opened an "Investigation into the Potential Role of Third-Party Aggregation of Retail Customers," Docket No. 22-600, to review a potential reconsideration in December 2022. The proceeding's opening Notice of Comment Period invites comments addressing whether the Commission should permit aggregators of retail customers to bid demand response into organized markets; create tariffs to allow third-party aggregators to participate in utility programs; whether the PUC would need to verify or certify aggregators prior to their participation; and whether additional customer protections would be necessary if aggregators were allowed to participate in organized markets. Comments and reply comment deadlines are set for spring 2023.

In March 2022, the PUC approved Xcel's load flexibility pilot, which represented a limited experiment with third-party aggregation and set the stage for Docket No. 22-600. The proceeding produced a 43 MW program and tariff which allows third-party aggregation of demand response among Xcel customers (Docket No. 21-101). The Minnesota PUC describes the program as a "dispatchable load-shedding program for commercial customers designed to test options to increase customer participation in demand response." Previously, Minnesota hosted activity related to third-party-owned DER through the Minnesota Public Utilities Commission (PUC) Community Solar Gardens proceedings (Docket Nos. 13-867, 15-825). While PUC staff officials noted that utility Integrated Distribution Plans (IDPs) may be a future venue for discussion about DR aggregation, the topic was mostly sidelined by in the first round of utility proposals in 2022 (Docket Nos. 21-694, 21-390).

Xcel Community Solar Garden proceeding: Docket No. 13-867
Minnesota Power Community Solar Garden proceeding: Docket No. 15-825
Xcel Integrated Distribution Plan: Docket No. 21-694
Minnesota Power Integrated Distribution Plan: Docket No. 21-390
<http://e9insight.com/state-redirect-mn/>

Xcel Load Flexibility Pilot Order: <https://e9radar.link/7hb6>
PUC Notice of Comment Period: <https://e9radar.link/71d394>

Jurisdiction No jurisdiction has been established. PUC staff officials noted in an interview it's an issue they are having conversations about. The topic will likely be addressed by commenters in the PUC's "Investigation into the Potential Role of Third-Party Aggregation of Retail Customers."

Dispute Resolution Minnesota has engaged in dispute resolution related to third-party DER deployment & interconnection. Disputes between customers, developers, and utilities have emerged and often are sent to PUC regulatory staff if they include technical questions. Third-party developers can generate disputes when they are negligent in permitting or application processes. Some disputes are deferred to the Attorney General's office.

Registration and Licensing The closest activity to a DR resource registration process in Minnesota is facilitated by the Dept. of Labor and Agency, but PUC staff officials characterized it in an interview as more of a contractor certification. The Notice of Comment period in the PUC's "Investigation into the Potential Role of Third-Party Aggregation of Retail Customers" asks: "Should the Commission verify or certify aggregators of retail customers for demand response or distributed energy resources before they are permitted to operate, and if so, how?" (MN PUC, 2022).

Dual Participation PUC staff officials noted in an interview that they are aware of this concern but noted that there hasn't been an explicit reason to develop rules, so the issue remains more of an "awareness" (MN PUC, 2022).

Role of Aggregators Limitations or eligibility requirements are only established on a retail program basis.

Data Protection Minnesota has three key commission-led proceedings broadly addressing data governance issues. The first key proceeding, Docket No. 19-505, was established to respond to third-party customer data access issues related to a joint Xcel and Centerpoint petition to share building energy use data in small rental properties in compliance with Minneapolis ordinance. A 2020 Order, Docket ID 202011-168476-01, established a set of third-party Open Data Access Standards to go into effect beyond the scope of Xcel and Centerpoint's petition, which provide procedures for data aggregation and anonymization and terms of contracts between utilities and third-parties.

The second proceeding is the PUC's broad Distribution Grid Data Security (Docket No. 19-685), which was opened following DER integration-related data governance issues raised in Xcel's 2019 Hosting Capacity Analysis proceeding. This proceeding remains open and in October 2020 issued a Notice of Comment Period cofiled in a third data access proceeding, the PUC's Investigation into Grid Data Access (Docket No. 20-800). This notice (Docket ID 202010-167790-03) poses the issue: "What, if any, action by the Commission is needed to address electric distribution grid and customer security issues related to public display or access to grid data; including, but not limited to, distribution grid mapping, aggregated load data, and critical infrastructure?" (MN PUC, 2020). It asks the following sub-questions:

1. What are the electric distribution grid and customer security issues related to public display or access to grid data; such as, distribution grid mapping, aggregated load data, and critical infrastructure?
2. What framework should the Commission use to evaluate the risks, costs and benefits of providing access to electric distribution grid data publicly?
3. What models should the Commission look to for appropriately balancing access to electric distribution grid data with grid and customer security concerns?
4. Should the Commission host a workshop or facilitated discussion on this topic?

An August 2022 extension of the stakeholder comment period (Document ID 20228-188405-01) asked whether the PUC should adopt one of several intervenor frameworks and whether the proceeding should stay open.

In addition, the PUC's "Investigation into the Potential Role of Third-Party Aggregation of Retail Customers" requests comments on whether specific consumer protections are necessary to enable third-party aggregator participation in organized markets.

PUC Investigation into Distribution Grid Data Security: Docket No. 19-685
Document ID 20228-188096-01: <https://e9radar.link/71b839>
Whole Building Third-Party Data Access Petition: Docket No. 19-505

NEW YORK

General History	<p>The New York Department of Public Service (DPS) has developed rules relevant to DR aggregation in DER proceedings active since the mid-2010s, including its DER Regulation and Oversight (Case No. 15-M-0180), Value of DER (Case No. 15-E -0751), and Reforming the Energy Vision (Case No. 14-M-0101) proceedings. These proceedings and utility programs have developed DER rules relevant to DR aggregation. For example, in 2017 the DER Oversight proceeding issued Uniform Business Practices for DER that addressed foundational issues including sales agreements, customer data, customer inquiries and complaints, and more (Filing No. 188). The DPS updated these Practices in 2019, primarily addressing outstanding customer protection issues (Filing No. 271, Appendix A).</p> <p>New York utilities filed proposals updating their electric tariffs in Docket No. 22-E-0549 in September 2022. These updates were aligned with FERC Order 2222's requirement that each RTO and ISO revise its tariff to establish DER aggregators as a type of market participant. The main function of these tariffs is to facilitate the dual participation of DR aggregations in utility and wholesale markets and ensure the prohibition of double counting. Several of the companies' proposals (i.e. ConEd) implement a component of NYISO's approved tariff, which prohibits aggregators from enrolling wholesale resources that provide substantially the same service in a retail program.</p> <p>DER proceedings:</p> <ul style="list-style-type: none">- Case No. 15-M-0180: http://e9radar.link/yn3l- Case No. 15-E -0751: https://e9radar.link/3ec5bf- Case No. 14-M-0101: http://e9radar.link/e4kn- Case No. 15-M-0180, Filing No. 118: https://e9radar.link/8536a5- Case No. 15-M-0180, Filing No. 271: https://e9radar.link/1984d0- Case No. 15-M-0180, Filing No. 271 Appendix A: https://e9radar.link/f6dec0- DER supplier registration form: https://e9radar.link/hta <p>Utility tariffs:</p> <ul style="list-style-type: none">- Docket No. 22-E-0549 Item No. 1: https://e9radar.link/idth- ConEd (Filing No. 5): https://e9radar.link/jtd- Central Hudson: https://e9radar.link/1fe- National Grid (Filing No. 6): https://e9radar.link/69de12- NYSEG (Filing No. 7): https://e9radar.link/ebu- Orange & Rockland (Filing No. 2): https://e9radar.link/3b9f17- RG&E (Filing no. 4): https://e9radar.link/dy3
Jurisdiction	New York has asserted jurisdiction over regulating DER providers, which in compliance with FERC 2222 extends to DER and DRaggregators.
Dispute Resolution	The DER Uniform Business Standards established in 2019 state that "Department Staff will accept inquiries and complaints related to DER suppliers and will make efforts to investigate and resolve those complaints and, if necessary, bring those complaints to the Commission for consideration" (NY DPS, 2019). Suppliers are required to submit complaints to the DPS.
Registration and Licensing	Section 3 of the DER Uniform Business Standards established in 2019 provides details about community distributed energy (CDG) and on-site mass market DG providers' registration requirements, which apply to DR aggregators.

Dual Participation New York utility tariff proposals feature a new compensation option for "Value Stack Customers," titled the "Wholesale Value Stack." These customers will receive payment for energy and capacity from the NYISO while continuing to be eligible to receive the applicable Value Stack non-energy and non-capacity compensation from the utility.

Role of Aggregators Beyond the broad parameters established in the DER Uniform Business Standards around DER supplier eligibility, each of New York's utility tariff filings implements NYISO's prohibition of DER suppliers that provide substantially the same service in wholesale as retail markets.

Data Protection The DER Uniform Business Standards established in 2019 address issues related to protecting customer data, many of which were established in Docket No. 15-M-0180's Order Establishing Minimum Cybersecurity and Privacy Protections and Making Other Findings (Filing No. 316). In their registration process, DER suppliers are required to demonstrate how they plan to use customer data and receive consent. Customers retain the right to request blocking suppliers' access to their data. Suppliers are prohibited from selling customer data obtained by the utility and must comply with state data security rules. Many of the cybersecurity and data privacy protections were established in Docket No. 15-M-180's 2019 Order Establishing Minimum Cybersecurity and Privacy Protections, Filing No. 316.

Filing No. 316: <https://e9radar.link/1d9634>

OKLAHOMA

General History	<p>Oklahoma Corporation Commission (OCC) staff and counsel did not identify any historical filing indicating a request to opt out of FERC 719. In recent years third-party demand response aggregators have enrolled commercial & industrial customers and participated in Oklahoma markets. In early 2022, OCC began to address DR aggregation issues through a proceeding designed around a proposed Public Service Company of Oklahoma (PSO) Voluntary Curtailment Service tariff (Docket No. 2021000172, Filing No. 30444860). Although PSO's application is to implement a retail tariff, OCC staff described the proceeding as the main venue in which they are soliciting feedback from interveners about DR aggregation. The application does consider dual participation, responding to the Commission question, "If a customer is participating in another capacity-related demand response tariff will that customer taking service under this proposed VCS Tariff receive a capacity credit for curtailments?" (PSO, 2022).</p> <p>In January 2023, the OCC issued a final order in the case (Order No. 731145), approving the VCS tariff and ruling against PSO's contested language that, "Customers participating in a third-party demand response program are not eligible to participate under this tariff" (OCC, 2023).</p> <p>Docket No. 2021000172: https://e9radar.link/ysz2 Filing No. 30444860: https://e9radar.link/urm6 Order No. 731145: https://e9radar.link/a1ha</p>
Jurisdiction	No established jurisdiction.
Dispute Resolution	No established process.
Registration and Licensing	No formal process for registration. The OCC usually receives notifications from aggregators or SPP when new customers are registered.
Dual Participation	In the PSO's VCS Tariff proceeding, the utility sought to disallow customers taking service under its tariff to enroll in aggregations directly participating in wholesale markets, due to double counting concerns. In the proceeding's final order (Order No. 731145), the OCC dismissed PSO's concerns. It noted that double counting between PSO tariff is not substantially different than double counting between PSO and SPP offerings. The OCC concluded that, "As long as PSO has participation, operation, and metering data comparable to data it has for customers participating in PSO's own demand response riders and programs, the coordination and double counting concerns of PSO should be fully resolved" (OCC, 2023). The order adopted language to facilitate customer information-sharing regarding dual participation and related obligations, as well as implementing a 1-year suspension to the program in the event that customers fail to comply.
Role of Aggregators	No established rules.
Data Protection	While cybersecurity and data protection are topics that have been internally discussed by OCC staff, the state has not developed a new operating model to address customer and system protection from aggregators.

PENNSYLVANIA

General History	<p>Pennsylvania did not opt out of FERC 719. In 2008, the state legislature enacted HB 2200 or Act 129 into law, establishing Conservation Service Providers (CSPs) Subsequently, the Pennsylvania Public Utilities Commission (PUC) established, defined, and created rules for CSPs in Docket No. M-2008-2074154, which includes DER aggregators. CSPs have actively participated in demand response aggregation markets in the years since.</p> <p>Act 129 materials: https://e9radar.link/8x9 Docket No. M-2008-2074154: https://e9radar.link/bss Docket No. M-2008-2074154, Final Order & Registration Materials: https://e9radar.link/7xb List of orders establishing CSP qualifications: https://e9radar.link/626</p>
Jurisdiction	<p>PUC authorizing statute does not allow it to regulate DR aggregation, except in select circumstances. The Commission's jurisdiction over DER aggregations has not been established by any findings of fact, as it has not had the opportunity to formally examine the structure of any particular DER aggregator. The PUC has authority over distribution but not generation, so its jurisdiction over DER aggregation would depend on whether or not it qualifies as generation.</p> <p>PJM, Pennsylvania's regional transmission organization (RTO), deals directly with DR aggregators while PUC staff officials describe the PUC's role as an overhead authority. The PUC regulates DR aggregator registration and marketing but only intervenes in further activity on a case-by-case basis. Aggregators are technically within PUC jurisdiction when they do business with utility companies.</p>
Dispute Resolution	<p>Pennsylvania has not yet developed a process specific to DER aggregation, but its general complaint regulations are flexible and according to staff will likely be able to accommodate DER aggregation cases.</p>
Registration and Licensing	<p>The PUC and the Pennsylvania Department of State register CSPs. CSPs broadly include any company that wishes to do work for utility companies and are categorized based on a series of qualifying characteristics. In the application process, the PUC primarily reviews a company's financial fitness (bankruptcy, complaints, capacity to serve requirements).</p> <p>CSP Form of Registration: https://e9radar.link/awg</p>
Dual Participation	<p>Double counting is prohibited by Pennsylvania statute. Prohibition is enforced at the RTO level, through default service action or EGS with customers.</p>
Role of Aggregators	<p>Eligibility requirements for CSPs were established in the PUC's 2009 order.</p>
Data Protection	<p>In Pennsylvania currently, only Electric Generation Suppliers (EGSs) are allowed access to customer data through PUC/Dept. of Community & Economic Development-developed portals. By contrast, a final order in Enerwise's petition to be granted EGS status (Docket No. A-2019-3009271) affirmed that CSPs and other third parties are not allowed to access customer data and denied their ability to seek voluntary regulation as an EGS to gain access. The Enerwise order further mandated the establishment of a new proceeding to investigate CSP access to utility customer data (Docket No. M-2021-3029018), which was initiated in February 2022 and is currently receiving comments. The initiating letter (Document No. 1733535) published a set of questions for comment related to Electric Distribution Company (EDC) Smart Meter Customer Data Access by CSPs and Other Third Parties Technical Concerns; EDC Smart Meter Data</p>

Access by CSPs and Other Third Parties Legal Concerns; Utility Usage Data and Meter Access; Home Area Network (HAN) Protocols; Automatic Control; and Additional Concerns.

Docket No. A-2019-3009271, Final Order: <https://e9radar.link/90ec78>

Docket No. M-2021-3029018: <https://e9radar.link/35g>

Docket No. M-2021-3029018, Document No. 1733535 <https://e9radar.link/050b4b>

WEST VIRGINIA

General History	West Virginia did not opt out of FERC 719. As the state's small demand aggregation market has developed, state authorities have not taken substantive steps to develop rules. West Virginia Public Service Commission (PSC) staff officials expressed overarching confidence in the ability of the state's utilities and PJM to facilitate the market without issues.
Jurisdiction	PSC staff officials expressed that state regulators would likely have jurisdiction over third party aggregators via their impact on utility operations and retail load. In practice, the PSC has not asserted jurisdiction, instead allowing utilities to operate within wholesale market protocols.
Dispute Resolution	No established process.
Registration and Licensing	No established process.
Dual Participation	No established process. PUC staff officials expressed confidence that utilities' management and oversight of their retail programs address double counting issues.
Role of Aggregators	No established rules.
Data Protection	No established policies specific to DR aggregation. In the early 2010s, PSC staff officials referenced cases when utilities were resistant to providing market participant data, but noted that that problem no longer exists. PSC staff officials noted that Ohio's practices around data sharing provided a template for West Virginia's utilities, which are both subsidiaries of Ohio-based holding companies.