

***REMOVING
BARRIERS
TO DER
PARTICIPATION
IN WHOLESALE
MARKETS***

**MULTISTAKEHOLDER
PERSPECTIVES FROM
e-LAB ACCELERATOR**



**ADVANCED
ENERGY
ECONOMY**

GridLAB



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MULTISTAKEHOLDER PERSPECTIVES FROM e⁻LAB ACCELERATOR

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DISCLAIMER

The views contained in this report do not represent the views of any of the team members' organizations and cannot be attributed to any single team member.

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1 EXECUTIVE SUMMARY

Over the equivalent of two and a half days in the summer of 2020, a team of ten experts with backgrounds working at ISOs/RTOs, technology companies, policy organizations, federal and state regulatory agencies, and independent consultancies met virtually at e-Lab Accelerator to think critically about how to remove barriers to the participation of distributed energy resources (DER) in wholesale markets. At the time the team was conceived, the much-anticipated FERC order on DER aggregations had seemingly stalled. As a result, Advanced Energy Economy (AEE) and GridLab were seeking an avenue to bring a group of parties together, specifically including RTOs/ISOs, to articulate a vision for active DER participation in wholesale markets and define a path forward to resolve the issues holding up RTOs/ISOs, utilities, and ultimately FERC. The team first considered the question of why it would be desirable to allow DER aggregations to participate in wholesale markets. It then crafted a set of high-level principles addressing how DER participation should be integrated into those markets, and leveraged their diverse perspectives to test and explore these principles more deeply. These principles traversed the subjects of eligibility and participation; communications, metering and performance; and processes for coordination.

Mid-way through the team's work, FERC Order 2222 was released. At that point, the team refocused its discussions on considering how the principles could be more directly and immediately useful for the forthcoming compliance process. The principles were compared against the compliance requirements of FERC Order 2222, and a set of recommendations to the RTOs/ISOs were developed. The recommendations traversed the subjects of eligibility to participate in wholesale markets; alignment of retail and wholesale participation; information and data requirements; coordination among RTOs, utilities/states, providers; and how to work towards a universal participation model.

It is worth noting that e-Lab Accelerator is a highly collaborative and time-limited activity (20 hours in total group time) intended to generate creative solutions in a rapid and iterative style, rather than focusing on extensive editing and achieving full consensus. The ideas presented in this report do not represent the views of any single team member or their professional affiliation. Nevertheless, we believe that this report, borne out of relevant multistakeholder participants, can serve as a useful contribution to solutions in the near and long term on DER participation in wholesale markets.

2 INTRODUCTION

2.1 BACKGROUND ON E-LAB ACCELERATOR TEAM

The e-Lab Accelerator concept and team were formed in early 2020. At that time, the FERC rulemaking that ultimately became FERC Order 2222 had seemingly stalled. AEE and GridLab were seeking an avenue to bring a group of parties together, specifically including RTOs/ISOs, to articulate a vision for active DER participation in wholesale markets and define a path forward to resolve the issues holding up RTOs/ISOs, utilities, and ultimately FERC. In response to this need, Ric O’Connell (GridLab) and Jeff Dennis (AEE) convened a diverse team of experts to develop this vision. They invited select individuals with backgrounds working at ISOs/RTOs, policy organizations, federal and state regulatory agencies, technology companies and independent consultancies to participate in **e-Lab Accelerator** as a team.

RMI’s e-lab Accelerator

is an annual innovative project bootcamp, designed to advance projects whose successes are critical to advancing the clean energy transition. Small teams of key industry stakeholders make rapid progress on complex challenges through facilitated problem-solving activities. In response to COVID-19, this year’s Accelerator program adapted the core tools and techniques to be entirely virtual.



The team included:

- **Ric O’Connell** *Executive Director of GridLab*
- **Jeff Dennis*** *Managing Director and General Counsel of Advanced Energy Economy*
- **Priya Sreedharan*** *Program Director of GridLab*
- **Betty Watson** *Senior Director of Modern Energy*
- **Chris Villareal** *President of Plugged in Strategies*
- **Doug Smith** *Technical Manager, Market and Resource Administration at ISO New England*
- **Jennie Chen** *President of ReGrid*
- **Kristin Swenson** *Senior Advisor of Market Strategy at MISO*
- **Miles Farmer** *Energy policy consultant*
- **Scott Baker** *Business Solutions Engineer at PJM*
- **Lorenzo Kristov**** *Independent expert*
- **Facilitators: Anthony Teixeira and Katerina Stephan** *Manager and Associate at RMI*

* *team lead*

** *team faculty, provided insights and support to guide project work*

At the beginning of e-Lab Accelerator, which predated the release of FERC Order 2222, the group focused on first exploring why DER participation in wholesale markets is desirable, and then developing principles that could guide ISOs/RTOs and others in developing wholesale market participation models. At the midpoint of the e-Lab Accelerator activities, FERC Order 2222 was released. From that point on, the team explored how the principles could be converted into recommendations for ISOs/RTOs, given the compliance requirements of FERC Order 2222.

How do you define DER?

In order to avoid a lengthy discussion to align on a single definition for what a DER is, the team decided to adopt as broad a definition as possible. This included but was not limited to distributed generation, demand response and flexible demand, storage, electric vehicles, and energy efficiency.

The Accelerator process is designed to leverage both individual expertise and collaborative problem solving. Additionally, it forces teams to move quickly through their working sessions. The team had just 20 hours of facilitated working sessions to define their objectives and make meaningful progress on their goals. Over the course of the program, the team used structured brainstorming tools and facilitated discussions to approach the complex topic from multiple angles. At times, the team revisited past work to provide clarity, but prioritized generative discussion over being comprehensively exhaustive.

Given the limited time together and the unwieldy nature of the topic, the team intentionally adopted a broad definition of DERs and outlined topics that were out of scope. Topics out of scope included:

- The issue of coordination between distribution system operators and transmission system operators (recognized as critical, though addressed in the ongoing EPRI “TSO/DSO Coordination Initiative”)
- Questions defending or articulating the value of DERs or specific value streams
- Determining which implementation pathway — whether it is utility-focused or ISO/RTO-focused — might be a better pathway for capturing that value (similarly, this work does not identify a singular pathway for increasing the penetration of DERs in the market).

The insights presented in this report emerged from the structured discussions and exercises held over the course of the process.

2.2 PURPOSE OF THIS REPORT

This report is intended to memorialize the work of the team and lay a foundation for productive conversations around a complex topic—integration of DERs into wholesale markets and the implementation of FERC Order 2222—with a clear articulation of critical issues for compliance. It is meant to be a resource for ISO/RTO stakeholders, within ISO/RTO staff, and between other stakeholders critical to implementation (states, utilities, etc.). This report captures leading thinking from multiple ISOs/RTOs operating in distinct contexts, as well as representatives from key stakeholder groups. The resulting insights are a product of ideas that are both diverse and well-informed.

This report does not document official positions from the organizations represented. Participation in Accelerator is informal and is intended to generate new ideas rather than engage in formal negotiations. Similarly, this report is not a compliance guide. While this resource does characterize key issues, ISOs/RTOs and their stakeholders will need to dive much more deeply into a broader range of topics than what is covered here in order to comply with FERC Order 2222.

¹ As of the time of this writing, this initiative had developed the following draft document: DER Group Management for Coordinated Operations Across the T&D Interface, EPRI, December 2020: 3002016174

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WHY INTEGRATE DERs INTO WHOLESALE MARKETS

There are numerous potential benefits to integrating DERs into wholesale markets, sometimes creating challenges for discussions on the topic since key stakeholders are not always aligned on why they are working to integrate DERs into wholesale markets. The team addressed this question in their working sessions, identifying why it is important to integrate DERs into wholesale markets and aligning on a list of eight critical objectives. While each of the objectives was deemed important by at least some of the team members, not all team members agreed that all eight objectives were important. However, there was generally strong agreement on which of the eight objectives were the most important.

The following list lays out the objectives in priority order as voted on by the team. For this exercise, priority was just related to integrating DERs into wholesale markets, not the importance of these objectives overall.

- One objective rose to the top as a primary objective for almost all team members:
 - + Improving market efficiency and lowering costs or maintaining low costs
- The following 3 objectives were also deemed to be primary or secondary objectives for all team members:
 - + Increasing flexibility
 - + Maintaining reliability
 - + Increasing competition and access to markets
- The following objective was the most controversial, considered a primary objective by some, a secondary objective by most, and not important by others:
 - + Decarbonizing the grid
- The following 2 objectives were considered secondary objectives by most team members, but not important to others:

Why NOT work on integrating DERs into wholesale market?

The team also explored the reasons why it might not be a good idea to integrate DERs into wholesale markets to pressure-test their thinking on critical objectives. Some examples of potential counterpoints included:

- *It's better to focus on capturing the value of DERs on distribution systems*
- *It's premature—with current deployment of DERs the potential impact is limited*
- *There are too many barriers (e.g., state regulatory barriers)*

- + Increasing resilience
- + Increasing customer engagement
- The last objective was considered not important by most team members—the team indicated that this objective should be achieved anyway if DERs are delivering on the other objectives
- + Driving DER adoption

This list of objectives was primarily intended to prioritize the team's work but is also indicative of the most compelling reasons for DERs to be integrated into wholesale markets more generally.

4

PRINCIPLES FOR INTEGRATING DERs INTO WHOLESALE MARKETS

One key output from the team’s work was a set of principles for how to integrate DERs into wholesale markets. These principles were first developed before FERC Order 2222 was released. As a result, the team took a blue-sky approach to developing the principles and they were not initially informed by the contents of the eventual order. The principles are meant to establish a foundation of agreement and disagreement across the diverse perspectives represented on the team, providing a starting point for deeper discussions beyond the team. The diversity of perspectives on the team is a valuable filter for the principles—they should be less biased than a set of principles developed from a single perspective.

The team also aimed to develop a set of principles that was collectively exhaustive to support the development of implementation pathways. The principles should clarify critical issues for implementation of FERC Order 2222, working in concert with the order and providing guidance on how to implement it. The principles could also be used as a guide to evaluate different implementation pathways.

4.1 HOW TO INTEGRATE DERs INTO WHOLESALE MARKETS

The table below lays out the seven principles that the team developed in their work. The principles as written below don’t capture the full depth of discussion that was required to create them, or the additional future discussion required to resolve key implementation issues. The second column in the table below captures areas where further discussion is needed to refine each principle. In some cases, these notes represent other areas of exploration that the team didn’t dive deeply into during the working sessions (e.g., additional questions to answer). In other cases, these are key points of contention that may be difficult to resolve. In both cases, the notes highlight the complexity of the discussions around these topics and the need for more multi-stakeholder work to refine these principles further.

What makes a good principle?

To guide their work, the team agreed that good principles should be:

- *broadly applicable (i.e., they hold true across multiple test cases), but not so broad to be meaningless*
- *easily digestible*
- *unambiguous*
- *feasible*
- *designed to support agreed-upon objectives for DER integration*

PRINCIPLE

AREAS FOR FURTHER DISCUSSION

1. DERs should be able to offer and be fairly compensated for the services they are technically capable of providing to both the wholesale and retail markets. States programs may still offer incentives to DERs as a resource they'd like to incent for public policy reasons (e.g., through NEM programs).	<ul style="list-style-type: none">• Some on the team questioned whether this principle for fair compensation should extend to retail services. In general, more discussion is needed on how distribution level services are provided and compensated.• What constitutes fair compensation?
2. Allow DERs to participate in both wholesale markets and retail programs while preventing double-counting of service. Enable dual participation through clear and flexible bidding parameters, wholesale market financial incentives and penalties, and operational coordination among the RTO, distribution utility, and DER provider.	<ul style="list-style-type: none">• Another critical issue identified but not discussed in detail was resolving conflicting operating instructions for DERs participating in multiple programs or markets.• There's a need to more clearly define what the double counting problem is (i.e., identifying specific cases where it's an issue). Double-counting was identified as a particularly difficult issue to resolve among stakeholders.
3. DERs should be able to participate on the supply or the demand side comparably to other resources.	n/a
4. Communications standards should balance state and ISO/RTO capabilities and needs, and account for requirements on both sides (e.g., NERC).	Should interoperability be incorporated into this principle? To what extent should communication standards apply at the aggregation level vs. individual DERs? (related to metering and telemetry, below)
5. There need to be forums and processes for coordination between ISOs/RTOs, distribution utilities, state regulators, and DER providers that is resource-efficient and connects to all relevant proceedings at both levels.	<ul style="list-style-type: none">• What other critical stakeholders should be included in coordination forums and processes?• What are the specific objectives for coordinating across these stakeholders (e.g., interconnection requirements, standards for curtailment of DERs, etc.)?• How does this coordination occur on different time scales (e.g., setting up rules vs. during operations)?
6. Metering and telemetry requirements should focus on the amount and quality of data necessary to ensure that a DER aggregation is providing comparable service, without creating unnecessary barriers.	<ul style="list-style-type: none">• How is "comparable service" technically defined?• Should requirements also be based on ensuring reliability or supporting coordination between system operators?• Some team members proposed adding more language around pursuing opportunities to streamline requirements to further reduce barriers to participation.

PRINCIPLE

7. The performance of DERs will be supported by direct measurements of DER power consumption/injection. Both individual DER data and aggregated data will be shared with the ISO/RTO. (Assumption that this is feasible in all cases.)

AREAS FOR FURTHER DISCUSSION

- An earlier version, *“The performance of DERs will be supported by direct measurements of DER power consumption/injection where feasible; where infeasible, performance will be supported by standardized engineering or statistical models. Both individual DER data and aggregated data will be shared with the ISO/RTO.”* was revised for the following reason:
- Some team members argued direct measurements are always feasible, though other team members maintained direct measurements require some level of mathematical modeling, particularly when generating an aggregated signal.

4.2 CONSIDERING THE DIVERSITY OF DER TYPES AND USE CASES

Throughout the process of developing the principles, the team recognized that principles need to be exercised against specific DER types and use cases, and that new market rules need to be similarly “pressure-tested” at that level of specificity. Striving to be technology-agnostic when designing rules is important, but broad conceptual discussions can sometimes break down without grounding in specific examples. For example, current participation models for demand response that rely on baselines generally won’t work for resources that are capable of injecting power, necessitating discussions about how rules account for different types of DERs. To support further productive discussion of these key issues, there’s a need to clarify definitions (e.g., what’s a DER and what isn’t?) and create frameworks to segment DER types (e.g., injecting vs. non-injecting, market-informed vs. market-integrated).

In addition, some team members expressed the view that the practical application of this order is for behind-the-meter storage and resources that inject power since previous FERC orders already addressed demand response participation. This is another critical issue that will need to be resolved in further work on implementing FERC Order 2222.

4.3 APPLYING THE PRINCIPLES TO SPECIFIC USE CASES

The team pressure-tested the principles against specific use cases in order to identify if there were situations where the principles break down. The team recognized the breadth of use cases for DERs participating in wholesale markets, and that

the principles could be refined further to make them more robust and internally consistent. The table below summarizes some key use cases that were raised in the discussion:

EXAMPLE USE CASE	HOW THE USE CASE CHALLENGES THE PRINCIPLES
<p>DERs participating in retail programs that provide value to the distribution system (e.g., non-wires solutions program) while also participating in wholesale markets</p>	<p>In this case, both the distribution system operator and ISO/RTO are receiving services from the DER and providing compensation. This may create a conflict between providing fair compensation for services and avoiding double counting (principles #1 and #2).</p> <p>In addition, the principles don't clarify what happens when a resource is participating on the supply side in wholesale markets (presumably with more stringent performance requirements) and dispatch signals conflict with needs on the distribution system. Do the principles encourage coordination between system operators that leads to the most efficient use of the DERs to serve both systems?</p> <p>Finally, it's unclear how differences in geographical needs at the distribution system and bulk system level would be resolved (i.e., the two levels of the system may require overlapping but not identical boundaries for aggregations).</p>
<p>An aggregation of DERs that are not directly measurable that is providing ancillary services</p>	<p>In this case, DERs participating on the supply side may be exposed to onerous metering and telemetry requirements in order to provide "comparable service" to other supply side resources, creating an unnecessary barrier to participation (principles #3 and #6). It's not clear here whether existing requirements designed for traditional resources are necessary or unnecessary for aggregations of DERs.</p> <p>If participation is allowed without direct measurement, some team members raised concerns over the complexity of M&V that would be required, especially in the case where multiple heterogeneous technologies behind a single meter are participating in an aggregation.</p>
<p>An aggregation that includes a mix of directly measurable DERs and non-directly measurable DERs</p>	<p>The principles don't clearly indicate how heterogeneous aggregations satisfy metering and telemetry requirements (principles #6 and #7).</p>
<p>An aggregation of EVs and EV charging equipment where the aggregator owns the charging equipment and does not own the EVs, but has the right to use them to provide wholesale and retail grid services when they are plugged in</p>	<p>The mobile nature of EVs and uncertainty of when they will be plugged in (which drastically increases the complexity of bidding) puts stress on the principles around double counting and dual participation, supply side participation, and operational coordination (principles #2, #3, and #5).</p>
<p>An aggregation of behind-the-meter DERs that are paying retail rates but also participating in wholesale markets</p>	<p>It's not clear how double counting would be resolved in this case (potentially violating principle #2)</p>

5

KEY COMPLIANCE ISSUES: FERC ORDER 2222

FERC Order 2222, which mandates that ISOs/RTOs revise their market rules to allow DER aggregations to participate in their markets, was released in the middle of the team's working sessions. This provided more concrete grounding for the team's work, creating an opportunity to assess and map the team's principles against key compliance issues highlighted in the order and provide specific recommendations for ISOs/RTOs as they implemented the order. The team prioritized the following list of key compliance issues to focus on with their limited time at e-Lab Accelerator:

- Eligibility of DER Aggregators to Participate in Wholesale Markets
- Information and Data, and Metering and Telemetry Requirements
- Coordination Between RTOs/ISOs, DER Aggregators, Distribution Utilities, and State and Local Regulators

This section summarizes the following items for each of these four key compliance issues:

- Summary of FERC Order 2222 requirements
- Applicable principles
- Recommendations from the team

The team recognized that the following topics were also critical, but due to time limitations, they were not discussed:

- Allowed Geographic Scope of DER Aggregations
- Establishment of Distribution Factors and Bidding Parameters
- Establishment of Standard Market Participation Agreements

5.1 ELIGIBILITY OF DER AGGREGATORS TO PARTICIPATE IN WHOLESALE MARKETS

5.1.1 Summary of FERC Order Requirements²

RTOs/ISOs May Not Prohibit Particular Technologies or Combinations of Technology Type All DERs are eligible for participation in DER aggregations, and the aggregation can be heterogeneous (i.e., different technologies can participate in a single aggregation). The RTO/ISO interacts with the market participant (i.e., the aggregator), as opposed to the individual DERs.

RTOs/ISOs May Limit DER Participation to Guard Against “Double Counting” of Services RTOs/ISOs must develop market rules that allow DERs to participate in retail programs and wholesale markets, as long as they are not compensating for the same services. The Order specifies limited conditions under which restrictions can apply. DERs can provide multiple services in wholesale markets, and it is the responsibility of the RTO/ISO to describe how it will account for these different services.

Minimum/Maximum Size of DER Aggregations Each RTO/ISO can establish a minimum size of DER aggregation (less than or equal to 100kW), and individual DERs can participate as “DER aggregations” if they meet the requirements for wholesale market participation.

Minimum/Maximum Capacity Size of Individual DERs in an Aggregation RTOs/ISOs are each required to define a maximum capacity size or explain why such a requirement is not necessary; no maximum or minimum is defined by FERC.

5.1.2 Applicable Principles

- DERs should be able to offer and be fairly compensated for the services they are technically capable of providing to both the wholesale and retail markets. States programs may still offer incentives to DERs as a resource they’d like to incent for public policy reasons (e.g., through NEM programs).
- Allow DERs to participate in both wholesale markets and retail programs while preventing double-counting of service. Enable dual participation through clear and flexible bidding parameters, wholesale market financial incentives and penalties, and operational coordination among the RTO, distribution utility, and DER provider.

² For more information on FERC Order 2222 requirements, see: “Opening the Door to DERs”, AEE, 2020. <https://info.aee.net/opening-the-door-to-ders>

- DERs should be able to participate on the supply or the demand side comparably to other resources.

5.1.3 Recommendations

The following recommendations were developed through small-group discussions among team members without seeking consensus across the entire team, given time limitations.

- Discussions on eligibility should start as broad and technology-agnostic, which is consistent with how FERC Order 2222 approaches eligibility issues.
- When considering participation and eligibility, consider different time frames and processes—participation and eligibility should be considered both in planning and operations.
- ISOs/RTOs, retail regulatory authorities, and utilities should collaborate to resolve double counting issues.
 - + Start by establishing a clear definition of double counting, starting from the FERC definition from the order: “DER performance should not be compensated both as increased supply and reduced load...”
 - The team developed the following language to attempt to further clarify the definition: “When planning, operations or settlement result in a DER providing a specific service twice.”
 - Illustrative example: provision of energy under NEM should not also receive LMP at wholesale.
 - + ISOs/RTOs should develop a detailed understanding of retail-level programs to identify where double counting may be occurring.
 - + Where possible, should define specific use cases to support discussions.
 - + Strive to develop the least restrictive rules that prevent double counting to minimize cases where DERs must choose between retail and wholesale participation.

Double Counting

Double counting was a topic that came up several times and was highlighted as a particularly challenging issue. Team members noted that this has been a contentious issue in previous proceedings (New York and California) and remains a barrier to DER participation in wholesale markets. Despite discussions, the team was unable to fully resolve questions on double counting, including the group’s definition of double counting, and identifying all use cases of double counting, highlighting that significant further discussion is needed on the topic.

- + Clearly define what entity is responsible for ensuring that double counting is not occurring.
 - To the extent that the utility must sign off on eligibility, should define a reasonable timeline for this verification that isn't burdensome for the aggregators, and establish an objective standard to avoid undue discrimination.
- + Suppliers for facilities participating in an aggregation should be involved/reconstituted.
- Consider past examples (e.g., CAISO DERP participation model) to identify lessons learned and remaining unresolved barriers to participation.

5.2 INFORMATION AND DATA, METERING AND TELEMETRY REQUIREMENTS

5.2.1 While information and data, and metering and telemetry are distinct topics, they are closely related. Many of the team's recommendations apply to both topics, so these two topics have been consolidated into this section.

Summary of FERC Order Requirements

Aggregate Settlement Data and Performance Data For auditing purposes, RTO/ISOs must require DER aggregators to provide aggregate settlement data and retain performance data for individual DERs in the aggregation, consistent with requirements imposed on other market participants.

Physical Parameters of the DER Aggregation RTOs/ISOs can request physical parameter data, if it's not already captured in general registration requirements or bidding parameters.

Obligation to Provide a List of DERs in an Aggregation, and to Update that List as Changes Occur DER aggregators are required to provide and maintain an updated list of the individual DERs in an aggregation. If the RTO/ISO wants additional information, it must identify and explain what specific information is necessary.

Metering and Telemetry Requirements No specific requirements are outlined in the order, but RTOs/ISOs can establish requirements for metering and telemetry at the aggregator level and/or individual DER level, if it's demonstrated that such detail is necessary.

5.2.2 Applicable Principles

The performance of DERs will be supported by direct measurements of DER power consumption/injection. Both individual DER data and aggregated data will be shared with the ISO/RTO. (Assumption that this is feasible in all cases.)

5.2.3 Recommendations

The following recommendations were developed through small-group discussions among team members without seeking consensus across the entire team, given time limitations.

- Tailor requirements to meet specific needs for different market products or DER types.
 - + Data needs should be commensurate with the products and services being offered into the ISO/RTO market (e.g., ancillary service data requirements are different than capacity service data requirements).
 - + Tailor the requirements to different sizes of resources. Recognize that fixed costs might not justify participation for smaller resources.
- Ensure clarity, transparency, and flexibility for requirements.
 - + RTO/ISO tariffs should include detailed, transparent criteria that define what information is needed and allow flexibility in how DERs can provide that information.
 - + Develop clear guidelines for verification of performance, and be open-minded to new approaches that remove barriers to these resources participating in the market
- Consider different timescales of data to be provided: what is needed in advance (e.g., for supporting models), what is needed to support real time operations, and what is needed in settlements to verify or audit performance.

Overcoming Software Limitations

Integrating DERs into wholesale markets may require significant upgrades to current ISO/RTO software and systems, which requires significant stakeholder engagement and lead time. In some cases, major upgrades to ISO/RTO software and systems can delay implementation of new market rules. For example, MISO won't have to comply with FERC Order 841, which mandates participation models for storage, until 2022 due to an ongoing major upgrade to all their major market systems. Implementation of FERC Order 2222 may face similar delays.

- + Should consider how requirements could differ by timescale (e.g., can aggregate data be provided during operations, followed by individual resource data provided during settlements?)
- Where possible, standardize definitions, methodology, and requirements across ISOs/RTOs.
- + Consider working with organizations developing standards (e.g., IEEE) on this topic.

5.3 COORDINATION BETWEEN RTOS/ISOS, DER AGGREGATORS, DISTRIBUTION UTILITIES, AND STATE AND LOCAL REGULATORS

5.3.1 Summary of FERC Order Requirements

Distribution Utility Review of DERs Included in an Aggregation The review process, developed by RTOs/ISOs in coordination with distribution utilities, must outline transparent and specific criteria to evaluate (1) the ability of the DERs to participate and (2) that participation does not pose risks to system reliability and safety. RTOs/ISOs must also provide a reasonable timeline for the distribution utilities to review (max 60 days) and craft a dispute resolution process for contested results.

Coordination Regarding Operation of DERs RTOs/ISOs must adopt processes for ongoing coordination of data flows and communication between the RTO/ISO, DER aggregator and distribution utility (e.g., protocols that allow distribution utilities to override RTO/ISO dispatches when necessary to maintain the system).

Role of Retail Regulators RTO/ISOs must specify how it will “accommodate and incorporate voluntary RERRA involvement in coordinating” aggregated DER participation. The order outlines several possible roles and responsibilities but does not specify anything in particular.

5.3.2 Applicable Principles

- There need to be forums and processes for coordination between ISOs/RTOs, distribution utilities, state regulators, and DER providers that is resource-efficient and connects to all relevant proceedings at both levels
- Communications standards should balance state and ISO/RTO capabilities and needs, and account for requirements on both sides (e.g., NERC).

- Allow DERs to participate in both wholesale markets and retail programs while preventing double-counting of service. Enable dual participation through clear and flexible bidding parameters, wholesale market financial incentives and penalties, and operational coordination among the RTO, distribution utility, and DER provider.

5.3.3 Recommendations

The following recommendations were developed through small-group discussions among team members without seeking consensus across the entire team, given time limitations.

- Ensure that necessary stakeholders are incorporated in ISO/RTO stakeholder processes
 - + RTOs/ISOs should recognize that DER aggregators have different needs and viewpoints from other stakeholders and should be formally included in stakeholder processes, especially as ISOs/RTOs implement FERC Order 2222.
 - ISOs/RTOs should define a DER aggregator group within their stakeholder processes to ensure that DER aggregators are represented in decision-making and receive regular updates.
 - + Ensure that the appropriate stakeholders are involved to tackle retail/wholesale coordination issues, and have an ongoing forum to bring critical issues forward
- Coordinate with state regulations, policies, and programs
 - + Retail regulatory authorities need to ensure retail tariffs and other related policies (e.g., interconnection) do not unfairly limit opportunities for DERs to be aggregated and participate in wholesale markets
 - + ISOs/RTOs must have a common market design for multiple states, so individual state programs that allow for dual participation should be designed with input from the ISOs/RTOs
 - To tackle state issues, consider parallel stakeholder processes dedicated to each state in an ISO/RTO
 - + ISOs/RTOs must consider revenue streams from retail programs when mitigating DER offers into the wholesale markets
 - + Ensure that distribution utility ability to curtail DER dispatches for safety and reliability does not result in discrimination against DERs or result in penalties to DER providers for non-performance

- Stakeholder processes should be flexible as technologies change and mature (e.g., distributed solar might be a key technology today, but EVs may be more critical in the future)
- Create a centralized portal for data to support collaboration, building on the EPRI TSO/DSO Coordination Initiative, which is developing methods for coordinated operation between ISOs/RTOs and distribution system operators (e.g., how individual DERs within an aggregation should be identified).

6

GOING BEYOND COMPLIANCE

FERC Order 2222 is a landmark order that has the potential to unlock significant participation of DERs in wholesale markets. However, past experiences with participation models for DERs demonstrate that creating new market rules doesn't always lead to rapid scaling of participation. One example is the CAISO DERP participation model, which created a pathway for DER aggregations to participate in wholesale markets that has been underutilized to date.

Recognizing that compliance with FERC Order 2222 may not be sufficient to animate markets for DER aggregations, the team explored several themes throughout their working sessions that highlight potential pathways towards more impactful changes as a result of the order. These topics weren't discussed in great depth and would benefit from additional discussion between key stakeholders interested in fully capturing the opportunity presented by FERC Order 2222.

Making incremental changes to market rules vs. comprehensively overhauling market structures

ISOs/RTOs have traditionally made incremental updates to their market rules, building on existing frameworks. However, some team members raised the question of whether a more fundamental change is needed to effectively integrate DERs into ISO/RTO markets. FERC Order 2222 could be an opportunity to implement a more comprehensive overhaul of ISO/RTO market structures.

6.1 NEW FORUMS FOR COLLABORATION

There's significant need for additional forums for collaboration that create new connections between critical stakeholders across regions (i.e., collaboration across ISOs/RTOs) and across jurisdictional boundaries (i.e., collaboration between ISOs/RTOs and state regulators). As ISOs/RTOs implement the major rule changes necessary to comply with FERC Order 2222, there's an opportunity to collaborate more deeply to share best practices emerging across regions and support interoperability across markets. This would begin to address long-standing challenges created by the relative bifurcation of retail and wholesale markets in the US electricity industry. Where possible, these forums should utilize structured frameworks and discussions, and provide insights publicly to support further

discussion. These forums won't replace existing stakeholder processes but could provide useful input into those processes. The team identified the EPRI TSO/DSO Coordination Initiative and the UK Open Networks Project³ as examples to draw from.

Finally, to ensure that these collaboration forums are as useful as possible, they should engage a diverse range of key stakeholder types to ensure that all critical perspectives are represented. For example, DER providers have not traditionally been incorporated into ISO/RTO stakeholder processes need to be more fully brought into decision-making since they will be using new participation models.

6.2 SUPPORTING TIMELY AND FLEXIBLE RULE CHANGES AT ISOS/RTOS

DER technologies, costs, use cases, and business models are rapidly evolving today. As a result, there's a need to quickly implement rule changes before they become irrelevant, and to ensure flexibility to adapt rules to account for new information and learning as DER deployment increases. The team identified that current ISO/RTO change processes don't match the speed of change in the DER market and suggested some potential pathways to support timely implementation of new market rules for DERs:

- Consider allowing ISOs/RTOs to more quickly pilot new participation models and refine them through an iterative process. Gathering data through pilots would also support more informed decision-making regarding rule changes and build comfort with new technologies.
- Explore ways to maintain strong stakeholder input while supporting shorter implementation timelines.
- Explore ways to expedite the approval process at FERC.

6.3 WORKING TOWARDS A UNIVERSAL PARTICIPATION MODEL

A universal participation model is a generalized participation model that works for any resource regardless of technology, location, or scale. There are no current ISO/RTO participation models that fit this definition. However, due to the broad applicability of FERC Order 2222 to a wide range of DER types, some team members noted that the order might signal that it's an opportune time to explore the implementation of universal participation models that would work for all resources

³ <https://www.energynetworks.org/creating-tomorrows-networks/open-networks>

participating in the market. The emergence of utility-scale “hybrid resources” (combinations of technology types like wind, solar, and energy storage behind a point of interconnection), and the need to consider whether existing participation models can be used by them, has also raised questions about whether a universal participation model should be created.

The following list of recommendations was developed by the team as first steps to work towards a universal participation model:

- Shift thinking to technology-agnostic participation models
 - + Base market rules around the definition of the services being procured and market designs to procure those services, not the type of resource providing the service.
 - FERC-style participation models could define how a particular type of resource can provide the defined service.
 - + Remove fuel-specific requirements or requirements that unnecessarily set preferences for specific technologies where possible
 - + Design compensation structures to be uniform regardless of whether the DER aggregation is comprised of flexible load or generation. Reductions in load should receive the same compensation as increases in generation.
 - + Consider resources that might be available in the future and/or consider revising participation models on a periodic basis
- Recognizing that ISOs/RTOs may not be ready to implement universal participations models, consider what first steps are needed
 - + Map out the failure points of existing market design for facilitating a universal participation model
 - + Determine milestones that are or could be prerequisites to implementing a universal participation model, which could include:
 - Creating retail pricing structures that compensate for demand flexibility
 - Providing training and tools for grid operators to support a transition to new modes of operating their systems
 - Assessing whether market design changes are necessary (e.g., assessing the need for, or redesigning, capacity markets)
- Build on existing or emerging work on new participation models
 - + Consider how to leverage FERC Order 841 for DER aggregations
 - + Use emerging work on hybrid technologies as inspiration for work on universal participation models



APPENDIX

FULL LIST OF FERC ORDER 2222 COMPLIANCE REQUIREMENTS

(number in parentheses refers to paragraph number in FERC Order 2222)

REQUIREMENTS FOR RTO/ISO TARIFFS FROM FERC ORDER 2222

FURTHER CLARIFICATION IN ORDER 2222

A. COMMISSION JURISDICTION	
1. Scope of Final Rule	
<i>(no specific tariff requirements)</i>	“Only exercising jurisdiction in this final rule over the sales by DER aggregators into the RTO/ISO markets.” (43)
2. Opt-Out	
a. “May not accept bids from DER aggregators aggregating customers of small utilities unless the relevant RERRA allows such customers of small utilities to participate in DER aggregations (i.e., to opt in).” (56)	“Participation of demand response in DER aggregations is subject to the opt-out and opt-in requirements of Order Nos. 719 and 719-A.” (145)
3. Interconnection	
<i>(no specific tariff requirements)</i>	“Decline to exercise our jurisdiction over interconnections of DER to distribution facilities for the purpose of participating in RTO/ISO markets exclusively as part of a DER aggregation.” (90)
B. DEFINITION OF DER	
a. “Define a DER as ‘any resource located on the distribution system, any subsystem thereof or behind a customer meter.’” (114)	“May include, but are not limited to, resources that are in front of and behind the customer meter, electric storage resources, intermittent generation, distributed generation, demand response, energy efficiency, thermal storage, and electric vehicles and their supply equipment...” (114) “‘Customer sites capable of demand reduction’ may meet the definition of DER.” (115)

- b. "Can propose their own definitions for the Commission's evaluation as long as the scope and applicability of the proposed definitions are consistent with the Commission's definition..." (115)

C. ELIGIBILITY TO PARTICIPATE THROUGH A DER AGGREGATOR

1. Participation Model

- a. "Have tariff provisions that allow DER aggregations to participate directly in RTO/ISO markets." (129)
- b. "Establish DER Aggregators as type of market participant..." (129)
- c. "Allow DER Aggregators to register DER aggregations under one or more participation models in the RTO/ISO tariff that accommodate the physical and operational characteristics of the DER aggregation." (129)
 - i. "Can comply... by modifying existing participation models to facility the participation of DER aggregations, by establishing one or more new participation models for DER aggregations or by adopting a combination of those two approaches." (130)

2. Types of Technologies

- | | |
|--|--|
| <ul style="list-style-type: none"> a. "Do not prohibit any particular type of DER part participating in DER Aggregations." (141) | <p>"The aggregator, not the RTO/ISO, would be responsible for ensuring that the DER aggregation meets applicable RTO/ISO performance and registration requirements." (143)</p> |
| <ul style="list-style-type: none"> b. "Allow different technology types of DER technologies to participate in a single DER aggregation (i.e., allow heterogeneous DER aggregations)." (142) | <p>"The means by which an aggregation is able to provide wholesale services does not change the value of that service to the wholesale grid." (145)</p> <p>"Clarify that the requirements in Order No. 745 would apply to demand response resources participation in heterogeneous aggregations." (145).</p> |

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
IN ORDER 2222**

3. Double Counting of Services

a. "Allow RTOs/ISOs to limit the participation of resources in RTO/ISO markets through a DER aggregator that are receiving compensation for the same services as part of another program." (159)

"It is appropriate for RTOs/ISOs to place restrictions on the RTO/ISO market participation of DER through aggregations after determining whether a DER that is proposing to participate in a DER aggregation is (1) registered to provide the same services either individually or as part of another RTO/ISO market participant; or (2) 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." (161)

"RERRAs may decide whether to permit the customers of small utilities to participate in the RTO/ISO markets through DER aggregations and RERRAs continue to have authority to condition participation in their retail DER programs on those resources not also participating in RTO/ISO markets..." (162)

i. "Allow DER that participation in one or more retail programs to participate in its wholesale markets;" (160)

"A single DER can... be compensated in each for providing 'distinctly different services.'" (164)

ii. "Allow DER to provide multiple wholesale services;" (160)

iii. "Include any appropriate restrictions on the DER's participation in RTO/ISO markets through DER aggregations, if narrowly designed to avoid counting more than once the services provided by DER in RTO/ISO markets." (160)

iv. "Describe how the RTO/ISO will properly account for the different services that DER provide in the RTO/ISO markets." (160)

4. Minimum and Maximum Size of Aggregation

a. "Implement minimum size requirement not to exceed 100 kW for all DER aggregations." (171)

5. Minimum and Maximum Capacity Requirements for DERs Participating in an Aggregation

- a. “Propose maximum capacity requirement for individual DER participating through a DER aggregation or, alternatively, explain why such a requirement is not necessary” (181)

6. Single Resource Aggregation

- a. “Allow a single qualifying DER to avail itself of DER aggregation rules by serving as its own DER Aggregator.” (185)

D. LOCATIONAL REQUIREMENTS

- a. “Establish locational requirements for DER to participate in a DER Aggregation that are as geographically broad as technically feasible.” (204)

- b. “Provide detailed technical explanation for the geographical scope of proposed locational requirements.” (204)

“This explanation could include, for example, a discussion of the RTO/ISO’s system topology and regional congestion patterns , or any other factors that necessitate proposed locational requirements.” (204)

E. DISTRIBUTION FACTORS AND BIDDING PARAMETERS

- a. “Establish market rules that address distribution factors and bidding parameters for DER Aggregations.” (225)

- b. “Each RTO/ISO that allows multi-node aggregations must revise tariff to:” (225)

- i. “Require that DER Aggregators give to the RTO/ISO the total DER aggregation response that would be provided from each pricing node, where applicable, when they initially register their aggregation and to update these distribution factors if they change; and” (225)

- ii. “Incorporate bidding parameters into its participation models as necessary to account for the physical and operational characteristics of DER aggregations.” (225)

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
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c. "Incorporate bidding parameters into its participation models as necessary to account for the physical and operational characteristics of DER aggregations... Each RTO/ISO must either:" (227).

i. "Incorporate appropriate bidding parameters that account for physical and operational characteristics of DER aggregations into its one or more new participation models for such aggregations; and/or" (227)

ii. "Adjust the bidding parameters of the existing participation models to account for the physical and operational characteristics of DER aggregations." (227)

d. "May revise its tariff to manage the locational attributes of DER aggregations in a manner that reflects the RTO/ISO's unique network configuration, infrastructure, and existing operational processes." (229)

e. "RTOs/ISOs that allow multi-node aggregations must, at a minimum, propose clear protocols explaining how a DER aggregation can provide the required information and update that information when needed." (229)

F. INFORMATION AND DATA REQUIREMENTS

a. "Include any requirements for DER aggregators that establish the information and data that a DER aggregator must provide about the physical and operational characteristics of its aggregation;"

"DER aggregator, not an individual DER in the aggregation, is the single point of contact with the RTO/ISO, and the aggregator would be responsible for managing, dispatching, metering, and settling the individual DER in its aggregation." (239)

b. "Require DER aggregators to provide a list of the individual resources in its aggregation; and" (236)

c. "Establish any necessary information that must be submitted for the individual DERs. (236)

d. "Require DER aggregators provide aggregate settlement data for the DER aggregation and to retain performance data for individual DERs in a DER aggregation for auditing purposes." (236)

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
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e. “Establish any necessary physical parameters that DER Aggregators must submit as part of their registration process only to the extent these parameters are not already represented in general registration requirements or bidding parameters applicable to DER aggregations.” (237)

f. “Require DER aggregators to provide a list of the individual DERs participating in their aggregations to the RTO/ISO.” (238)

i. “If RTO/ISO needs additional information, should identify and explain in its compliance filing what additional specific information about the individual DER within an aggregation that the RTO/ISO needs.” (238)

g. “Propose how the information requested must be shared with the RTO/ISO and affected distribution utilities.” (238)

h. “Require that the DER aggregator update the list of individual resources and associated information as it changes.” (238)

“RTO/ISO may only need the information necessary to model and dispatch the DER aggregation as a whole, and thus we agree with commenters that sharing detailed information about the individual DERs may be an unnecessary and unduly burdensome requirement.” (239)

i. “Require each DER aggregator to maintain and submit aggregate settlement data for the DER aggregation, so the RTO/ISO can regularly settle with the DER aggregator, and to provide, upon request from the RTO/ISO, performance data for individual resources in a DER aggregation for auditing purposes.” (240)

“Requirements for settlement and performance data should be consistent with the settlement and auditing data requirements for other market participants.” (240)

“DER aggregators should only be required to retain that performance data for individual DERs in an aggregation that the RTO/ISO deems necessary for auditing purposes.” (240)

G. METERING AND TELEMETRY SYSTEM REQUIREMENTS

a. “Establish market rules that address metering and telemetry hardware and software requirements necessary for DER aggregations to participate in RTO/ISO markets.” (262)

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
IN ORDER 2222**

i. “Explain... why proposed metering requirements are necessary (e.g., for the DER aggregator to provide the settlement and performance data to the RTO/ISO... or to prevent double counting of services...” and why its proposed telemetry requirements are necessary (e.g., for the RTO/ISO to have sufficient situational awareness to dispatch the aggregation and the rest of the system efficiently).” (264)

“Should also include a discussion about whether, for example, the proposed requirements are similar to requirements already in existence for other resources and steps contemplated to avoid imposing unnecessarily burdensome costs on the DER aggregators and individual resources in DER aggregations that may create an undue barrier to their participation in RTO/ISO markets.” (264)

H. COORDINATION BETWEEN THE RTO/ISO, AGGREGATOR, AND DISTRIBUTION UTILITY

1. Market Rules on Coordination

a. “Establish market rules that address coordination between the RTO/ISO, the DER aggregator, the distribution utility, and the RERRAs.” (278)

2. Role of Distribution Utilities

a. “Incorporate a comprehensive and non-discriminatory process for timely review by a distribution utility of the individual DERs that comprise a DER aggregation, which is triggered by initial registration of the DER aggregation or incremental changes to a DER aggregation already participating.” (292)

“RTOs/ISOs must share with distribution utilities any necessary information and data collected... about the individual DER participating in a DER aggregation.” (292)

“The results of the distribution utility’s review must be incorporated into the DER aggregation registration process.” (292)

b. “Must coordinate with distribution utilities to develop a distribution utility review process that includes criteria by which the distribution utilities would determine whether:” (292)

i. “Each proposed DER is capable of participation in a DER aggregation; and” (292)

ii. “The participation of each proposed DER in a DER aggregation will not pose significant risks to the reliable and safe operation of the distribution system.” (292)

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
IN ORDER 2222**

c. “Demonstrate on compliance with this final rule... that its proposed distribution utility review process is transparent, provides specific review criteria that the distribution utility should use, and provides adequate and reasonable time for distribution utility review.” (293)

d. “Specify, as part of its proposed distribution utility review process, the time that a distribution utility has to identify any concerns regarding a DER seeking to participate in the RTO/ISO markets through an aggregation.” (295)

“Expect a reasonable amount of time may vary among RTOs/ISOs but should not exceed 60 days.” (295)

e. “Include, as part of its proposed distribution utility review processes, the distribution utility review criteria by which distribution utilities can determine that a DER: (1) Is capable of participating in an aggregation, e.g., the DER is not already participating in a retail DER program in which the RERRA conditioned the resource’s participation on not participating in RTO/ISO markets; and does not pose significant risks to the reliable and safe operations of the distribution system.” (296)

f. “Must include potential impacts on distributions system reliability as a criterion in the distribution utility review process.” (297)

“Distribution utility should have the opportunity to request that the RTO/ISO place operational limitations on an aggregation or removal of a DER from an aggregation based on specific significant reliability or safety concerns that it clearly demonstrates to the RTO/ISO and DER aggregator on a case-by-case basis.” (297)

g. “Describe how existing dispute resolution procedures are sufficient or, alternatively, propose amendments to its procedures or new dispute resolution procedures specific to this subject.” (299)

3. Ongoing Operational Coordination

a. “Establish a process for ongoing coordination, including operational coordination, that addresses data flows and communication among itself, the DER aggregator, and the distribution utility; and” (310)

b. “Require the DER aggregator to report to the RTO/ISO any changes to its offered quantity and related distribution factors that result from distribution line faults or outages.” (310)

**REQUIREMENTS FOR RTO/ISO TARIFFS
FROM FERC ORDER 2222**

**FURTHER CLARIFICATION
IN ORDER 2222**

c. "Include coordination protocols and processes for the operating day that allow distribution utilities to override RTO/ISO dispatch of a DER aggregation in circumstances where such override is needed to maintain the reliable and safe operation of the distribution system." (310)

d. "Apply any existing resource non-performance penalties to a DER aggregation when aggregation does not perform because a distribution utility overrides the RTO/ISO dispatch." (312).

4. Role of RERRAs

a. "Specify in its tariff, as part of the market rules on coordination between the RTO/ISO, the DER aggregator, and the distribution utility, how each RTO/ISO will accommodate and incorporate voluntary RERRA involvement in coordinating the participation of aggregated DER in RTO/ISO markets." (322)

"Roles delineated in CAISO's DER Provider tariff provisions may provide an example of how relevant RERRAs could be involved in coordinating the participation of DER in RTO/ISO markets." (323)

b. "Any such role for RERRAs in coordinating the participation of DER aggregations in RTO/ISO markets be included in the RTO/ISO tariffs and developed in consultation with the RERRAs." (324)

"Possible roles and responsibilities of relevant electric retail regulatory authorities in coordinating the participation of distributed energy resource aggregations in RTO/ISO markets 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 distribution utility review of distributed energy resource participation in aggregations; establishing rules for multi-use applications; and resolving disputes between distributed energy resource aggregators and distribution utilities over issues such as access to individual distributed energy resource data." (324)

c. "To the extent that metering and telemetry data comes from or flows through distribution utilities, we require the RTOs/ISOs coordinate with distribution utilities and the RERRAs to establish protocols for sharing metering and telemetry data that minimize costs and other burdens and address concerns raised with respect to customer privacy and cybersecurity." (324)

5. Coordination Frameworks

- a. “Encourage, but do not require each RTO/ISO to develop a coordination framework that addresses the needs of its region.” (330)

I. MODIFICATIONS OF LIST OF RESOURCES IN AGGREGATION

- a. “Establish market rules that address modification to the list of resources in a DER aggregation.” (335)

- b. Specify that DER aggregators must update their lists of DERs in each aggregation (i.e., reflect additions and subtractions from the list) and any associated information and data, but that, when doing so, DER aggregators will not be required to re-register or re-qualify the entire DER aggregation.” (336)

“While any modification of a DER will trigger distribution utility review, we clarify that it may be appropriate for each RTO/SO to abbreviate the distribution utility’s review of modifications to the DER aggregations.” (337)

- c. “Ensure that DER aggregators must update such information if any modification to the list of resources participating in the aggregation results in a change to the aggregation’s performance.” (338)

J. MARKET PARTICIPATION AGREEMENTS

- a. “Include a standard market participation agreement that defines the DER aggregator’s role and responsibilities and its relationship with the RTO/ISO and that an aggregator is required to execute before it can participate in the RTO/ISO markets.” (352)

“Must include an attestation that the DER aggregator’s aggregation is compliant with the tariffs and operating procedures of the distribution utilities and the rules and regulations of any RERRA.” (352)

- b. “Market participation agreements that the RTOs/ISOs include in their tariffs not limit the business models under which DER aggregators can operate.” (353)

K. COMPLIANCE

- a. File tariff changes within 270 days of the publication of the final rule in the Federal Register

Compliance filings due July 19, 2021

- b. Implementation of tariff provisions within 12 months from the date of compliance filing (361).

L. ISSUES BEYOND THE SCOPE OF THIS RULEMAKING

(no specific tariff requirements)