



November 2, 2021

The Honorable Kimberly D. Bose  
Secretary  
Federal Regulatory Energy Commission  
888 First Street, NE  
Washington, DC 20426

**Re: California Independent System Operator Corporation  
Response to Letter Requesting Additional Information**

**Docket No. ER21-2455-\_\_\_**

Dear Secretary Bose:

The California Independent System Operator (“CAISO”) provides the following responses to the letter requesting additional information issued in this docket on October 1, 2021.<sup>1</sup> The majority of questions in the Commission’s letter seek to understand how distributed energy resource aggregations (“DERAs”) will work in actual practice in the CAISO. Although the CAISO and its stakeholders have significant experience with distributed energy resources (“DERs”) and demand response, DERAs remain a nascent idea. The issues DERAs may face will be new, complex, and cross many jurisdictional boundaries. Accordingly, it is critical that the Commission provide sufficient flexibility to the CAISO, DER aggregators, utility distribution companies (“UDCs”), and local regulatory authorities as they gain actual experience with DERAs. Highly specific, prescriptive directives on every hypothetical DERA issue may create unnecessary constraints and undermine the development of DERAs. ISOs and RTOs need flexibility to work with all affected stakeholders to refine rules, practices, and processes for DERAs as DERAs begin to navigate wholesale electric market participation.

Turning to the specific questions in the letter, the CAISO responds as follows.

**I. Small Utility Opt-In**

In Order No. 2222, the Commission added section 35.28(g)(12)(iv) to the Commission’s regulations to provide that Regional Transmission Organizations

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<sup>1</sup> Due to technical issues, the CAISO was unable to file this response with code 80 on November 1, 2021, Therefore, the CAISO is submitting this response on November 2, 2021 with code 180 as directed via email by the eTariff Response team. In order to meet the November 1, 2021 deadline, the CAISO submitted this response as comments on November 1, 2021; eTariff response team staff has indicated that the November 1 version of this filing will likely be removed from eLibrary once this filing is received.

and Independent System Operators (RTOs/ISOs) may not accept bids from distributed energy resource aggregators aggregating customers of small utilities unless the relevant electric retail regulatory authority allows such customers of small utilities to participate in distributed energy resource aggregations (i.e., to opt in).<sup>2</sup> The Commission declined to include a mechanism for all relevant electric retail regulatory authorities to prohibit all distributed energy resources from participating in the RTO/ISO markets through distributed energy resource aggregations (i.e., to opt out). The Commission stated that the participation of demand response in distributed energy resource aggregations is subject to the opt-out and opt-in requirements of Order Nos. 719 and 719-A.<sup>3</sup>

1. CAISO states that it proposes to adapt the small utility opt-in provision in its *pro forma* Demand Response Provider agreement for CAISO's *pro forma* Distributed Energy Resource Provider Agreement, replacing references to demand response with references to Distributed Energy Resources.<sup>4</sup> CAISO's proposed Article 4.1.4 of the Distributed Energy Resource Provider Agreement states in part that a "Distributed Energy Resource Provider that aggregates in utilities that distribute four million MWh or less in the previous fiscal year must certify to the CAISO that its participation is permitted by the Local Regulatory Authority applicable to Distributed Energy Resources, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority."
  - a. Please explain when and, if applicable, how often, a Distributed Energy Resource Provider must make such certification.

**Response:** Based on the CAISO's experience with demand response, the CAISO is unaware of any California utility that prohibits resources from participating in wholesale electricity markets. The CAISO proposes only to require the DERP certify upon initially registering the DERA. The CAISO may re-evaluate the need for annual certification requirements with stakeholders if utilities or local regulatory authorities change their rules.

- b. Please explain the steps a Distributed Energy Resource Provider must take under the CAISO tariff if the Local Regulatory Authority permits the Distributed Energy Resource Provider's participation at the time of the

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<sup>2</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 56.

<sup>3</sup> Order No. 2222, 172 FERC ¶ 61,247 at 145; see Order No. 2222-B, 175 FERC ¶ 61,227 at P 29.

<sup>4</sup> Transmittal at 7.

certification, then decides in the future to prohibit that Distributed Energy Resource Provider's participation.

**Response:** Pursuant to the modification requirements, the DERP should notify the CAISO, and the CAISO will work with the DERP, the UDC, and the local regulatory authority to ensure compliance. Based on the CAISO's experience with local regulatory authorities in this area, the CAISO believes there is little to no risk this situation would occur.

2. CAISO's proposed Article 4.1.4 of the Distributed Energy Resource Provider Agreement provides that "[a] Distributed Energy Resource Provider that aggregates in utilities that distribute . . . over four million MWh in the previous fiscal year must certify to the CAISO that its participation is not prohibited by the Local Regulatory Authority."
  - a. Please explain how this proposed requirement complies with the Commission's decision to decline to include a mechanism for all relevant electric retail regulatory authorities to prohibit all distributed energy resources from participating in the RTO/ISO markets through distributed energy resource aggregations (i.e., to opt out) and the Commission's finding that the participation of demand response in distributed energy resource aggregations is subject to the opt-out and opt-in requirements of Order Nos. 719 and 719-A.

**Response:** Neither utilities nor local regulatory authorities in the CAISO's balancing authority area prohibit resources from participating in the wholesale electricity markets. Accordingly, this requirement in no way prevents DERAs from participating in the CAISO's markets. Any proposed CAISO provision regarding small utilities is the result of attempting to comply with Order No. 2222. The CAISO will accept any necessary revision in this area on compliance.

## **II. Definition of Distributed Energy Resource**

In Order No. 2222, the Commission amended section 35.28(b) of the Commission's regulations to define a distributed energy resource as "any resource located on the distribution system, any subsystem thereof or behind a customer meter."<sup>5</sup>

1. CAISO proposes to revise its definition of Distributed Energy Resource as follows: "Any resource located on the distribution system, any subsystem thereof, or behind a customer meter in a

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<sup>5</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 114.

Utility Distribution Company or a Metered Subsystem.”<sup>6</sup> CAISO states that this proposed revision includes the Commission’s clarifications on subsystem and behind-the-meter interconnections while preserving the CAISO’s tariff-specific terms for Utility Distribution Company and Metered Subsystem.

- a. Please explain whether, with CAISO’s addition of “in a Utility Distribution Company or a Metered Subsystem,” the definition of Distributed Energy Resource would include *any* resource connected to the distribution system, any subsystem thereof, or behind a customer meter. If it does not, please describe which distributed energy resources CAISO’s definition would exclude.

**Response:** The CAISO’s definition includes any resource connected to the distribution system, any subsystem thereof, or behind a customer meter. The CAISO’s definition does not exclude a resource from participating in its markets based upon its interconnection.

### **III. Eligibility to Participate in RTO/ISO Markets through a Distributed Energy Resource Aggregator**

#### **A. Participation Model**

In Order No. 2222, the Commission added section 35.28(g)(12)(i) to the Commission’s regulations to require each RTO/ISO to establish distributed energy resource aggregators as a type of market participant and to allow distributed energy resource aggregators to register distributed energy resource aggregations under one or more participation models in the RTO’s/ISO’s tariff that accommodate the physical and operational characteristics of the distributed energy resource aggregation.<sup>7</sup>

1. CAISO proposes to require that a Distributed Energy Resource Aggregation have at least one Distributed Energy Resource capable of injecting energy.<sup>8</sup> In addition, CAISO proposes to maintain its existing demand response models for homogeneous aggregations that include Demand Response Resources only.
  - a. If a heterogeneous aggregation containing injecting resources and Distributed Curtailment Resources fails to inject energy over a certain interval, i.e. if the aggregation only provides demand response to CAISO, would CAISO

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<sup>6</sup> Transmittal at 7-8.

<sup>7</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 130.

<sup>8</sup> Transmittal at 10.

require the aggregation to register in one of CAISO's demand response models in order to participate in the CAISO markets? If so, please explain when CAISO would require this change in registration and indicate where this process is documented.

**Response:** The CAISO has not proposed a rule regarding how often a heterogeneous DERA must inject energy. If the situation this question describes persisted<sup>9</sup> and it did not appear the DERA had a DER in its aggregation capable of injecting energy, the CAISO likely would discuss the issue with the CAISO Department of Market Monitoring and the Commission's Office of Enforcement, similar to any other *potential* compliance question. Aggregations of demand response resources within the CAISO have the option to participate as Proxy Demand Resources or Reliability Demand Response Resources. The Commission has previously approved CAISO tariff rules that establish this structure and has not subsequently determined that these rules are unjust or unreasonable.

#### **B. Types of Technologies**

To implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, the Commission in Order No. 2222 required that each RTO's/ISO's rules not prohibit any particular type of distributed energy resource technology from participating in distributed energy resource aggregations.<sup>10</sup> In addition, the Commission required each RTO/ISO to revise its tariff to allow different types of distributed energy resource technologies to participate in a single distributed energy resource aggregation (i.e., allow heterogeneous distributed energy resource aggregations).<sup>11</sup> The Commission stated that the requirements in Order No. 745 would apply to demand response resources participating in heterogeneous aggregations.<sup>12</sup>

In Order No. 2222-B, the Commission stated that only those reductions that meet the definition of demand response in the Commission's regulations and are used to reduce customer load from a validly established baseline pursuant to Order Nos. 745 and 745-A must be compensated consistent with those orders.<sup>13</sup>

1. CAISO proposes to create a new term, Distributed Curtailment Resource, to describe a Distributed Energy Resource that will

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<sup>9</sup> The CAISO notes such a situation is extremely unlikely given the success of the CAISO's demand response programs and their eligibility to provide resource adequacy capacity.

<sup>10</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 141.

<sup>11</sup> *Id.* P 142.

<sup>12</sup> *Id.* P 145.

<sup>13</sup> Order No. 2222-B, 175 FERC ¶ 61,227 at P 42.

curtail demand within a Distributed Energy Resource Aggregation, distinguishing that resource from a Demand Response Resource.<sup>14</sup> In its answer, CAISO states that “allowing [Distributed Energy Resource Aggregations] to consist of demand response resources alone . . . would allow [developers] to choose among different tariff requirements with no underlying difference in resource characteristics.”<sup>15</sup>

- a. Please identify and explain any substantive differences between the tariff requirements that apply to a Demand Response Resource and those that would apply to a Distributed Curtailment Resource.

**Response:** There are no substantive differences between the tariff requirements that apply to a Demand Response Resource and a Distributed Curtailment Resource. Both classes are subject to the rules and principles of Order No. 745. The only difference is that Distributed Curtailment Resources participate through a DERA, and therefore have distinct registration requirements. The purpose of the Distributed Curtailment Resource term is to avoid confusion with the separate tariff requirements for Proxy Demand Resources and Reliability Demand Response Resources. The alternative would have been to call Distributed Curtailment Resources “Proxy Demand Resources,” which likely would have led to confusion.

2. Could a Distributed Curtailment Resource also provide Demand Response Services, or services equivalent to Demand Response Services? What does it mean for a Distributed Curtailment Resource to provide “Demand curtailment” per the definition? CAISO proposes that Scheduling Coordinators for heterogeneous aggregations must bid above the market clearing price established by the net benefits test, which establishes the bid floor for demand response resources under Order No. 745.<sup>16</sup> CAISO indicates that each bid from a heterogeneous Distributed Energy Resource Aggregation must be dispatched and settled as a single resource, and that there is no mechanism for CAISO to apply the net benefits

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<sup>14</sup> Transmittal at 10.

<sup>15</sup> CAISO Answer at 19.

<sup>16</sup> The net benefits test is used to determine whether the overall benefit of dispatching demand response resources exceeds the cost of dispatching those resources. See *Demand Response Compensation in Organized Wholesale Energy Markets*, Order No. 745, 134 FERC ¶ 61,187, at PP 79-80 *order on reh'g and clarification*, Order No. 745-A, 137 FERC ¶ 61,215 (2011), *reh'g denied*, Order No. 745-B, 138 FERC ¶ 61,148 (2012), *vacated sub nom. Elec. Power Supply Ass'n v. FERC*, 753 F.3d 216 (D.C. Cir. 2014), *rev'd & remanded sub nom. FERC v. Elec. Power Supply Ass'n*, 136 S.Ct. 760 (2016).

test to only a portion of the Distributed Energy Resource Aggregation.

**Response:** A Distributed Curtailment Resource provides Demand Response Services, *i.e.*, demand curtailment. Consistent with any other resource subject to the requirements of Order No. 745, Distributed Curtailment Resources and Demand Response Resources receive compensation for curtailing their expected/typical/baseline demand.

- a. Please explain why CAISO must dispatch and settle a bid from a Distributed Energy Resource Aggregation as a single resource.

**Response:** The CAISO dispatches and settles bids and performance at a Resource ID level. Under the market participation model for DERAs, the aggregation (not the individual DERs) has the Resource ID. Besides the requirement of 100 kW, nothing prevents a DERP from registering as many DERAs as it wants. As such, if a DERA would rather bid and be settled as two DERAs or three DERAs, etc., it only has to change its registration. Once registered, however, the CAISO market will optimize and settle the DERA as a single resource.

- b. Please explain whether CAISO is able to use different bidding parameters to distinguish Demand curtailment bids by a heterogeneous aggregation for the purpose of dispatching and settling them separately from other types of bids provided by that same aggregation?

**Response:** The CAISO does not have such capability. With robust DER and demand response participation in the CAISO markets,<sup>17</sup> and with utility retail programs being more attractive than DERAs for small DERs,<sup>18</sup> developing such bidding parameters would require significant time and expense. It is not apparent what efficiency or reliability gains these parameters might offer the CAISO's markets.

- c. Please explain whether CAISO's proposal to apply the net benefits test to the entire Distributed Energy Resource Aggregation could prevent a Distributed Energy Resource Aggregation that is capable of providing energy injections or withdrawals (*i.e.*, from non-Distributed Curtailment

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<sup>17</sup> CAISO Compliance Filing at 6 (Since 2005, the CAISO has added over 500 DERs comprising over 2,200 MW, and an additional 2,000 MW of demand response resources).

<sup>18</sup> CAISO Compliance Filing at 2-3 ("Small DERs that would make up a DERA generally are co-located with load and eligible to participate under net energy metering programs, which compensate them at a much higher retail rate instead of a lower wholesale rate. For example, according to the U.S. Energy Information Administration, the average retail price of electricity in California in 2019 was \$168.90/MWh, compared to an average CAISO wholesale rate of about \$41/MWh").

Resources) from economically clearing the market when the net benefits test establishes a market price above \$0/MWh. Please explain why this approach would not present a barrier to the participation of Distributed Energy Resource Aggregations.

**Response:** This outcome is possible but very unlikely. And although possible, the issue in no way presents a meaningful barrier to the participation of DERAs in the CAISO's markets. First, as the CAISO explained in detail in its Answer to Comments in this proceeding, the market clearing price established by the net benefits test generally is very low, and it never has exceeded the average wholesale energy price. DERs providing energy injections are thus very unlikely to have costs below the market clearing price. Second, the hypothetical described in this question would only occur where a DERA is heterogeneous but its Distributed Curtailment Resources are not providing demand response services in the same interval as energy-injecting DERs.<sup>19</sup> Because the CAISO's demand response programs are well-established and eligible to provide resource adequacy capacity, a DERP would only elect to forego those models and use the heterogeneous DERA model if its Distributed Curtailment Resources consistently provides demand curtailment simultaneously with the energy-injecting DERs in the DERA. In other words, the aggregator that could face this hypothetical would much more likely forego the heterogeneous DERA model and instead have a homogeneous DERA of energy-injecting DERs—which would not be subject to the net benefits test—and a separate aggregation of end users under one of the CAISO's demand response models.

Finally, the economic incentive challenges DERAs may face—including competition from net metering programs or other wholesale models—does not make this potential outcome a meaningful barrier to DERA participation. In any case, the unlikely situation described in this question is the result of the requirements of Order Nos. 745 and 2222.

### **C. Double Counting of Services**

To implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, the Commission in Order No. 2222 allowed RTO/ISOs to limit the participation of resources in RTO/ISO markets through a distributed energy resource aggregator that are receiving compensation for the same services as part of another program. More specifically, the Commission required each RTO/ISO to revise its tariff to: (1) allow distributed energy resources that participate in one or more retail programs to participate in its wholesale markets; (2) allow distributed energy resources to provide

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<sup>19</sup> Because all analyses of demand response providers demonstrate their costs would easily raise any heterogeneous DERA bid above the market clearing price, as explained in the CAISO's Answer to Comments in this proceeding.



multiple wholesale services; and (3) include any appropriate restrictions on the distributed energy resources' participation in RTO/ISO markets through distributed energy resource aggregations, if narrowly designed to avoid counting more than once the services provided by distributed energy resources in RTO/ISO markets.<sup>20</sup>

1. To address double counting concerns, CAISO proposes to revise its tariff by adding proposed section 4.17.3(h), which states "A Distributed Energy Resource Aggregation may not receive compensation from retail programs for capacity, Energy, or other services it provides the CAISO Markets." CAISO explains that this tariff provision creates a compliance obligation on the Distributed Energy Resource Aggregation and the Distributed Energy Resource Provider to avoid double counting.<sup>21</sup> Additionally, revised section 4.17.4 states that "[t]he Utility Distribution Company or Metered Subsystem will have an opportunity to ... raise concerns with respect to whether the Distributed Energy Resources ... (5) receive compensation from retail programs for capacity, Energy, or other services that would be offered to the CAISO Markets..."
  - a. CAISO's proposed revision suggests that CAISO intends to limit the compensation that a Distributed Energy Resource Aggregation may receive from retail programs. Please explain how CAISO plans to ensure that a Distributed Energy Resource Aggregation does not receive retail compensation when providing the same services to the CAISO markets and how CAISO plans to address a Distributed Energy Resource Aggregation's failure to comply with proposed section 4.17.3(h).

**Response:** The CAISO does *not* intend "to limit the compensation that a Distributed Energy Resource Aggregation may receive from retail programs." The CAISO has neither visibility nor jurisdiction over how much compensation a DERA receives from a retail program. The CAISO can only work to ensure a DERA does not receive wholesale compensation for the same energy, capacity, or service for which the DERA already receives retail compensation. The CAISO also must work with the UDC, LSE, and DERA to ensure a DERA is actually capable of providing the CAISO energy, capacity, or wholesale services, and that other retail programs do not impede the provision of those services by the DERA. For example, a DER in a net energy metering program already receives compensation at a retail rate for all of its energy injections. The DER would thus be ineligible to participate in a DERA. Absent this rule, ratepayers

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<sup>20</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 160.

<sup>21</sup> Transmittal at 14.

would pay both a wholesale rate and a retail rate for the same energy. Put another way, ratepayers would pay more without any incremental benefit.

The CAISO's mechanism to avoid double-counting is the DERA registration process, specifically, when the CAISO provides the UDC and LSE with the account numbers of each DERA participant. Despite the current lack of DERAs, this is already a well-established process due to robust demand response participation. The UDC and LSE review the registration information of the aggregation and verify those participants are not already in an aggregation or other program that would make them ineligible. The UDC and LSE then notify the CAISO of any account numbers that may be problematic, and the parties then work with the aggregator to address potential concerns. Absent resolution of those concerns, the CAISO will not allow the registration of the DERA to proceed.

2. In its answer, CAISO states that its proposed rule allows for service differentiation, time-of-use differentiation, and capacity differentiation.<sup>22</sup> CAISO explains that “it would be premature to offer a prescriptive list of specific double-counting scenarios” and that “[a]s retail programs allow for multiple use applications, and the CAISO, [Utility Distribution Companies], and developers gain experience with actual double-counting scenarios, the CAISO can enumerate permissible and prohibited practices in its business practice manuals and tariff.”<sup>23</sup>
  - a. Please explain and provide an example of how CAISO plans to assess “service differentiation” to determine whether the service in a retail market or program is the same as a service in the CAISO markets and whether CAISO will specify the criteria by which CAISO will determine what constitutes the same service.

**Response:** The CAISO's goal—and sole criterion—in restricting “double-counting” is preventing ratepayers from paying twice for the same thing, or from paying for a service they actually will not receive because the retail program impedes or exhausts the DER's ability to participate in the wholesale markets. Service differentiation is simply a term used to examine whether retail and wholesale programs, tariffs, or services meet this goal. Even if they do *not*, capacity and time differentiation could still allow wholesale participation. The resource could dedicate some capacity for its retail programs and some for its wholesale programs, or it could provide retail services during some dedicated hours, days, or months, and wholesale services at other times.

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<sup>22</sup> CAISO Answer at 14.

<sup>23</sup> *Id.* at 13.

As explained above, providing energy exports under a net energy metering tariff does not leave any incremental energy for the wholesale markets, leaving ratepayers with a larger bill but nothing to show for it. However, the same site could provide demand response in the CAISO markets (either as a demand response resource or through a DERA). In the latter case, ratepayers would gain wholesale services they would not otherwise have. There are many other new and developing retail programs that potentially leave room for wholesale participation. DERs can defer distribution upgrades or participate as stand-by generation for microgrids and still participate in the wholesale markets without double-counting concerns. Both are services for which the CAISO does not offer compensation, and both services may not necessarily exhaust or impede the DER such that it could not physically provide wholesale services. The CAISO intends to enumerate in its business practice manuals both prohibited and permissible multiple-use applications under the double-counting rules as the CAISO and counterparties gain real-world experience with actual examples.

#### **D. Minimum and Maximum Size of Aggregation**

In Order No. 2222, the Commission added section 35.28(g)(12)(iii) to the Commission's regulations to require each RTO/ISO to implement a minimum size requirement not to exceed 100 kW for all distributed energy resource aggregations.<sup>24</sup> The Commission stated that it will consider any future post-implementation requests to increase the minimum size requirement above 100 kW if the RTO/ISO demonstrates that it is experiencing difficulty calculating efficient market results and there is not a viable software solution for improving such calculations.<sup>25</sup>

1. CAISO states that it proposes to lower its minimum capacity requirement for Distributed Energy Resource Aggregations to 100 kW.
  - a. CAISO Tariff Appendix K (Ancillary Service Requirements Protocol) includes a 500 kW minimum size requirement for a non-storage resource providing Regulation, Spinning Reserve, or Non-Spinning Reserve as an ancillary service. Please explain how this provision is consistent with the requirement to implement a minimum size requirement not to exceed 100 kW for all distributed energy resource aggregations.

**Response:** The CAISO has proposed a minimum size requirement for DERAs of 100 kW, consistent with Order No. 2222. Order No. 2222 did not make any specific finding regarding the justness and reasonableness of existing ancillary service

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<sup>24</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 171.

<sup>25</sup> *Id.* P 172.

certification requirements, which are independent and separate from wholesale energy market participation requirements.

**E. Minimum and Maximum Capacity Requirements for Distributed Energy Resources Participating in an Aggregation**

To implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, the Commission in Order No. 2222 did not establish a minimum or maximum capacity requirement for individual distributed energy resources to participate in RTO/ISO markets through a distributed energy resource aggregation.<sup>26</sup>

1. CAISO states that it has capped individual Distributed Energy Resource capacity at one MW to participate in a Distributed Energy Resource Aggregation, for the reasons described in Order No. 2222 and because large Distributed Energy Resources participating together in a Distributed Energy Resource Aggregation could pose greater challenges to the Utility Distribution Company.<sup>27</sup>
  - a. Please explain in more detail why CAISO specifically chose a one MW threshold for participation.

**Response:** Under the CAISO's tariff, individual generating units located in the CAISO balancing authority that are 1 MW or greater are required to become participating generators and are not be eligible to aggregate their capacity through a DERP. The definition of Participating Generator in Appendix A to the CAISO tariff, Master Definitions and Supplement reads, "A Generator or other seller of Energy or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid (1) from a Generating Unit with a rated capacity of 1 MW or greater, (2) from a Generating Unit with a rated capacity of from 500 kW up to 1 MW for which the Generator elects to be a Participating Generator, or (3) from a Generating Unit providing Ancillary Services or submitting Energy Bids through an aggregation arrangement approved by the CAISO, which has undertaken to be bound by the terms of the CAISO Tariff, in the case of a Generator through a Participating Generator Agreement, Net Scheduled PGA, or Pseudo-Tie Participating Generator Agreement." As such, a DER that is a generating unit and is 1 MW or greater must participate in the CAISO's markets as a participating generator as opposed to pursuant to a DERA. Moreover, the purpose of the DERA model is to allow smaller DERs that are otherwise unable to meet the CAISO's minimum size requirements to aggregate together. Allowing larger resources to aggregate not only fails to fulfill this purpose, but it leads to less efficient market optimization and dispatch. In the CAISO's discussions with developers on the challenges DERAs face, no developer cited the 1 MW DER cap as a challenge. To the contrary, the CAISO has had robust participation in the wholesale markets from DERs

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<sup>26</sup> *Id.* P 179.

<sup>27</sup> Transmittal at 16.

using stand-alone models like the participating generator model and the non-generator resource model.

2. As support for its proposal, CAISO cites to existing tariff section 4.6.3.2, which states that “A Generator with a Generating Unit directly connected to a Distribution System will be exempt from compliance with this Section 4.6 and Section 10.1.3 in relation to that Generating Unit provided that (i) the rated capacity of the Generating Unit is less than one (1) MW, and (ii) the Generator does not use the Generating Unit to participate in the CAISO Markets.”
  - a. Please explain how exempting generators under one MW from certain generator requirements amounts to setting a maximum capacity requirement for Distributed Energy Resources at one MW. Could a generator-type Distributed Energy Resource that is greater than one MW participate in a Distributed Energy Resource Aggregation so long as it meets the requirements of sections 4.6 and 10.1.3 of the CAISO tariff (i.e., meets the requirements of the exempted sections)?

**Response:** The language quoted from Section 4.6.3.2 is not relevant to DERAs or Order No. 2222. That language pertains to distributed generating units that are *not* participating in the CAISO markets. DERs within a DERA participate in the CAISO markets. The CAISO cited to Section 4.6.3.2 because later in that provision it states, “A Generating Unit with a rated capacity of less than 500 kW, *unless the Generating Unit is (a) participating in an aggregation agreement approved by the CAISO or (b) a storage resource with a rated capacity of 100 kW or more, is not eligible to participate in the CAISO Markets and the Generator is not a Participating Generator for that Generating Unit.*” This sentence demonstrates the CAISO does not have a minimum size requirement for DERs within a DERA; only stand-alone DERs participating individually in the CAISO markets.

#### **IV. Distribution Factors and Bidding Parameters**

In Order No. 2222, the Commission added section 35.28(g)(12)(ii)(c) to the Commission’s regulations to require each RTO/ISO to establish market rules that address distribution factors and bidding parameters for distributed energy resource aggregations.<sup>28</sup> The Commission stated that RTOs/ISOs that allow multi-node aggregations must, at a minimum, propose clear protocols explaining how a distributed

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<sup>28</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 225.

energy resource aggregation can provide the required information and update that information when needed.<sup>29</sup>

1. CAISO states that it requires each Distributed Energy Resource Aggregation to provide a net response at its Pricing Node (PNode) or PNodes within its sub-Load Aggregation Point that follows CAISO dispatch instructions and the distribution factors the Distributed Energy Resource Aggregation provided in its bid or as default factors in CAISO's Master File.<sup>30</sup> In addition, CAISO explains that it requires Distributed Energy Resource Aggregations to register in the Master File or submit as part of its bid the common bid components for supply resources, and bid components specifically needed for Distributed Energy Resource Aggregations, including the distribution factor, ramp rate, minimum and maximum operating limits; energy limit, and contingency flag.
  - a. Please clarify whether CAISO requires Distributed Energy Resource Aggregations to update distribution factors if they change.

**Response:** Scheduling coordinators can update distribution factors with each bid based on which DERs within the DERA will respond to dispatch, or other temporary factors. The master file distribution factors are a default if the scheduling coordinator does not submit them as a bid component. Scheduling coordinators should update the master file distribution factors if they become infeasible or otherwise inaccurate for the DERA.

- b. Please describe the protocols explaining how a Distributed Energy Resource Aggregation updates its information in the Master File and where in the tariff or manuals these protocols are located.

**Response:** Master file update procedures are set forth in Attachment B to the CAISO's Business Practice Manual for Market Instruments.<sup>31</sup> The CAISO processes master file updates within 11 days.<sup>32</sup>

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<sup>29</sup> *Id.* P 229.

<sup>30</sup> Transmittal at 18.

<sup>31</sup> <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Instruments>.

<sup>32</sup> Section 30.7.3.2 of the CAISO tariff.

## **V. Information and Data Requirements**

In Order No. 2222, the Commission added section 35.28(g)(12)(ii)(d) to the Commission's regulations to require each RTO/ISO to establish market rules that address information requirements and data requirements for distributed energy resource aggregations.<sup>33</sup> The Commission required each RTO/ISO to revise its tariff to (1) include any requirements for distributed energy resource aggregators that establish the information and data that a distributed energy resource aggregator must provide about the physical and operational characteristics of its aggregation; (2) require distributed energy resource aggregators to provide a list of the individual resources in their aggregations; and (3) establish any necessary information that must be submitted for the individual distributed energy resources. The Commission also required each RTO/ISO to revise its tariff to require distributed energy resource aggregators to provide aggregate settlement data for the distributed energy resource aggregation and to retain performance data for individual distributed energy resources in a distributed energy resource aggregation for auditing purposes.

1. CAISO states that section 4.17 of the CAISO tariff broadly establishes "the information and data that a distributed energy resource aggregation must provide about the physical and operational characteristics of its aggregation."<sup>34</sup>
  - a. Please provide citations to the specific sections of the tariff that describe the information and data that a Distributed Energy Resource Aggregation must provide about the physical and operational characteristics of its aggregation.

**Response:** Section 4.17.4 of the CAISO tariff. Please see the CAISO's response to Question V(2)(a), below.

2. CAISO states that the Distributed Energy Resource Provider will provide information, as described in the Business Practice Manual, identifying each of its Distributed Energy Resource Aggregations and information regarding the location, capacity, operating characteristics, and distribution factors as may be reasonably requested from time to time by CAISO.<sup>35</sup>
  - a. Please clarify what information the Distributed Energy Resource Provider must provide pursuant to tariff section

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<sup>33</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 236.

<sup>34</sup> Transmittal at 19.

<sup>35</sup> *Id.* at 19 (citing CAISO tariff section 4.17.4).

4.17.4 regarding the operating characteristics of its  
Distributed Energy Resource Aggregation.

**Response:** Similar to all other supply resources, before participating in the CAISO markets scheduling coordinators for DERAs will submit a grid resource data template<sup>36</sup> with applicable master file characteristics for the CAISO's network model.

3. CAISO explains that Article 4.2.1 of the *pro forma* Distributed Energy Resource Provider Agreement provides that the "Distributed Energy Resource Provider has identified the Distributed Energy Resources that it owns, operates, or has a contractual entitlement to as part of a Distributed Energy Resource Aggregation in Schedule 1, as required by Section 4.17 of the CAISO Tariff."<sup>37</sup> In addition, CAISO states that section 4.17.4 of the CAISO tariff states that, "[e]ach Distributed Energy Resource Provider will provide information, as described in the Business Practice Manual, identifying each of its Distributed Energy Resource Aggregations and such information regarding the location, capacity, operating characteristics and applicable Generation Distribution Factors of its Distributed Energy Resource Aggregation(s) as may be reasonably requested from time to time by the CAISO . . . ."
- a. Please indicate whether tariff section 4.17.4 or another subsection of section 4.17 requires the Distributed Energy Resource Provider to provide a list of the individual Distributed Energy Resources in its Distributed Energy Resource Aggregation.

**Response:** The requirement to identify each DER in the DERA registration process is captured in Section 4.17.4's requirement to identify the DERA and its location.

- b. To the extent that CAISO needs additional information beyond the list of individual Distributed Energy Resources participating in a Distributed Energy Resource Aggregation, please identify and explain what additional specific information about the individual Distributed Energy Resources included in a Distributed Energy Resource Aggregation CAISO needs.

**Response:** The CAISO does not have additional information requirements beyond the requirements identified in this question. The CAISO's current requirements

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<sup>36</sup> <http://www.caiso.com/Documents/GeneratorResourceDataTemplate.xlsx>.

<sup>37</sup> *Id.* at 19.



ensure the CAISO has sufficient information for the market optimization and the UDC/LSE coordination process.

4. CAISO states that, for auditing purposes, tariff section 10.3.2.1.2 requires the Scheduling Coordinator for a Distributed Energy Resource Aggregation to retain the settlement quality meter data of each Distributed Energy Resource comprising a Distributed Energy Resource Aggregation for a period of at least three years, and to provide this information to CAISO as may be reasonably requested by CAISO.<sup>38</sup> CAISO also explains that, because Distributed Energy Resource Aggregations are Scheduling Coordinator Metered Entities, the Scheduling Coordinator is also subject to the inspection, retention, and audit requirements for supply resources.<sup>39</sup>
  - a. Please indicate whether CAISO's requirement that the Scheduling Coordinator retain the settlement quality meter data of each Distributed Energy Resource comprising a Distributed Energy Resource Aggregation for a period of at least three years for auditing purposes is consistent with the auditing data requirements applied to other market participants. If not, please explain why auditing data requirements differ for Distributed Energy Resource Aggregations.

**Response:** This requirement is unique to DERAs. Other scheduling coordinator metered entities are subject to biennial auditing requirements.<sup>40</sup> DERAs are unique in two ways that warrant retaining data for three years for auditing purposes. First, DERAs represent a new and unique resource class, and the CAISO, aggregators, scheduling coordinators, UDCs, LSEs, market monitors, and regulatory authorities do not have experience with them. As such, data will have significantly more value for longer than with other resource classes. Second, the same entities are completely dependent on the aggregator to compile the settlement quality meter data because only the aggregator has visibility into the performance of each DER within the DERA in response to dispatch.

The CAISO notes stakeholders did not raise any concerns with this requirement when originally implemented. Nevertheless, the CAISO may revisit this requirement as it gains experience with DERAs.

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<sup>38</sup> *Id.* at 20.

<sup>39</sup> *Id.* at 20 (citing CAISO tariff section 10.3.10).

<sup>40</sup> See Sections 10.3.10.1 and 10.3.10.2 of the CAISO tariff.

## **VI. Metering and Telemetry System Requirements**

In Order No. 2222, the Commission added section 35.28(g)(12)(ii)(f) to the Commission's regulations to require each RTO/ISO to revise its tariff to establish market rules that address metering and telemetry hardware and software requirements necessary for distributed energy resource aggregations to participate in RTO/ISO markets.<sup>41</sup> The Commission stated that it would not prescribe the specific metering and telemetry requirements that each RTO/ISO must adopt; rather, the Commission provided the RTOs/ISOs with flexibility to establish the necessary metering and telemetry requirements for distributed energy resource aggregations, and required each RTO/ISO to explain in its compliance filing why such requirements are just and reasonable and do not pose an unnecessary and undue barrier to individual distributed energy resources joining a distributed energy resource aggregation.<sup>42</sup>

The Commission stated that each RTO's/ISO's proposed metering requirements should rely on meter data obtained through compliance with distribution utility or local regulatory authority metering system requirements whenever possible for settlement and auditing purposes.<sup>43</sup> To the extent that the RTO/ISO proposes that such information come from or flow through distribution utilities, the Commission required that RTOs/ISOs coordinate with distribution utilities and relevant electric retail regulatory authorities to establish protocols for sharing metering and telemetry data, and that such protocols minimize costs and other burdens and address concerns raised with respect to privacy and cybersecurity.<sup>44</sup>

1. CAISO states that Distributed Energy Resource Aggregations are Scheduling Coordinator Metered Entities in CAISO, and the Scheduling Coordinator and not the CAISO polls the Distributed Energy Resources' meters; performs the validation, estimation, and editing; and then submits the aggregate settlement quality meter data for the Distributed Energy Resource Aggregation to CAISO.<sup>45</sup> CAISO states that it does not impose its physical metering standards on each Distributed Energy Resource or Distributed Curtailment Resource, and that section 4.17.5.2 of the CAISO tariff states that each Distributed Energy Resource must be directly metered under a meter that complies with the Utility Distribution Company tariff and any standards of the Local Regulatory

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<sup>41</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 262.

<sup>42</sup> *Id.* P 263.

<sup>43</sup> *Id.* P 269.

<sup>44</sup> *Id.* P 270.

<sup>45</sup> Transmittal at 21.

Authority. If no tariff or local regulatory standards exist, CAISO states that a Distributed Energy Resource must comply with the metering standards in the CAISO's business practice manual for metering.<sup>46</sup>

- a. Please explain whether CAISO will allow Distributed Energy Resource Aggregations to rely on meter data from the relevant Distribution Utility or relevant electric retail regulatory authority.

**Response:** Yes, if the data comes from a meter that complies with the Utility Distribution Company tariff and any standards of the Local Regulatory Authority.<sup>47</sup> Under the CAISO tariff, the scheduling coordinator for the DERA is responsible for submission of this meter data.

- b. Please clarify whether there are circumstances under which metering and telemetry data will come from or flow through distribution utilities. If so, please indicate whether CAISO coordinated with distribution utilities and relevant electric retail regulatory authorities to establish protocols for sharing metering and telemetry data and describe any such protocols.

**Response:** All supply resources are represented by scheduling coordinators authorized and contracted to represent them. The CAISO only receives meter data from the scheduling coordinator, and would not receive meter data for a resource from a third party such as the UDC. However, nothing prevents the scheduling coordinator from submitting data it receives from or shares with the UDC. The scheduling coordinator may arrange with the UDC or any third party to obtain meter data on its behalf. The CAISO simply requires that distributed meters comply with the UDC and local regulatory authority requirements.<sup>48</sup>

Telemetry is a direct telecommunication from the resource, in this case, the DERA. As such, it cannot come from the UDC, but nothing prevents the DERA from providing telemetry to the CAISO and the UDC from the same source and equipment. The CAISO's direct telemetry requirements are flexible regarding equipment, and as such, can accommodate any UDC telemetry requirements.

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<sup>46</sup> *Id.* at 22.

<sup>47</sup> See Section 10.3.9 of the CAISO tariff.

<sup>48</sup> *Id.*

In both cases, DERAs are very similar to Proxy Demand Resources, and their aggregators have not expressed any challenges with metering and telemetry requirements.

2. CAISO states that any Distributed Energy Resource Aggregation that is 10 MW or greater or provides ancillary services must provide direct telemetry consistent with CAISO's telemetry standards for supply resources.<sup>49</sup> CAISO also states that it does not require each Distributed Energy Resource in a Distributed Energy Resource Aggregation to provide direct telemetry.
  - a. Please explain whether it is possible for CAISO to receive direct telemetry from a Distributed Energy Resource Aggregation if not all Distributed Energy Resources within the Distributed Energy Resource Aggregation have direct telemetry. If so, please provide an example of a possible configuration that would allow CAISO to receive direct telemetry. Please indicate in your response whether an individual Distributed Energy Resource participating in a Distributed Energy Resource Aggregation could provide calculated rather than directly measured metering and telemetry data.

**Response:** Yes, it is possible for the CAISO to receive direct telemetry from a DERA if not all DERs within a DERA have direct telemetry. A DERP has the responsibility to aggregate data from the DERs that comprise a DERA and make that aggregated data available to the CAISO through telemetry if telemetry requirements apply to the DERA because of its size or because it is providing ancillary services. DERPs could acquire the data on each DER by any means, including by calculation. The CAISO reiterates that DERAs and Proxy Demand Resources are very similar if not identical in this regard, and Proxy Demand Resources have not expressed any challenges in meeting the CAISO's telemetry requirements.

## **VII. Coordination among the RTO/ISO, Aggregator, and Distribution Utility**

### **A. Role of Distribution Utilities**

To implement section 35.28(g)(12)(ii)(g) of the Commission's regulations, the Commission in Order No. 2222 required each RTO/ISO to modify its tariff to incorporate a comprehensive and non-discriminatory process for timely review by a distribution utility of the individual distributed energy resources that comprise a distributed energy resource aggregation, which is triggered by initial registration of the distributed energy

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<sup>49</sup> *Id.*

resource aggregation or incremental changes to a distributed energy resource aggregation already participating in the markets.<sup>50</sup>

In Order No. 2222-A, the Commission clarified that, although it is providing each RTO/ISO with the flexibility to develop review procedures and criteria appropriate for its region, the Commission expects that the criteria proposed on compliance will require that an RTO/ISO decision to deny wholesale market access to a distributed energy resource for reliability reasons be supported by a showing that the distributed energy resource presents significant risks to the reliable and safe operation of the distribution system.<sup>51</sup>

1. CAISO states that section 4.17.4 of the CAISO tariff explains the Utility Distribution Company review process.<sup>52</sup> CAISO has proposed to revise section 4.17.4 to provide that Utility Distribution Companies may raise concerns with respect to whether a Distributed Energy Resource may pose a “significant” threat to the safe and reliable operation of the distribution system, if operated as part of a Distributed Energy Resource Aggregation.
  - a. Please explain the criteria, including any specific metrics, by which the Utility Distribution Companies would determine whether the participation of each proposed Distributed Energy Resource in a Distributed Energy Resource Aggregation would pose “significant” risks to the reliable and safe operation of the distribution system.

**Response:** The CAISO defers to UDCs and local regulatory authorities on this question. Reliability and safety standards generally are set forth in the UDCs’ tariff, distribution handbooks, and applicable regulations and orders of local regulatory authorities.

- b. Please explain what showing is required from the Utility Distribution Company to support the decision that a Distributed Energy Resource presents significant risks to the reliable and safe operation of the distribution system.

**Response:** The CAISO has not prescribed a specific showing because the circumstances may differ among DERAs and issues. Based on Section 4.17.4 of the

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<sup>50</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 292.

<sup>51</sup> Order No. 2222-A, 174 FERC ¶ 61,197 at P 76 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 292) (referencing the criteria by which the distribution utilities will determine whether a proposed distributed energy resource will pose “significant risks to the reliable and safe operation of the distribution system”).

<sup>52</sup> Transmittal at 23.

CAISO tariff, the UDC must provide a showing, analysis, or model sufficiently detailed that the CAISO and DERP can evaluate it and respond.

2. Section 4.17.4 of the CAISO tariff states that “[a]s further described in the Business Practice Manual, the CAISO will confer with the applicable Utility Distribution Company or Metered Subsystem regarding information provided about Distributed Energy Resources comprising a Distributed Energy Resource Aggregation(s).”
  - a. Please provide more information regarding how CAISO will “confer” with the applicable Utility Distribution Company or Metered Subsystem pursuant to section 4.17.4 of the CAISO tariff.

**Response:** The CAISO expects the DERA registration process to resemble the demand response registration process very closely. In the demand response registration process, the CAISO simply provides via email to the UDC and LSE the list of account numbers within the aggregation. The UDC and LSE then verify those account numbers are not already registered in other aggregations or otherwise problematic. To date, UDCs and LSEs have raised issues very sparingly, and the issues generally are simple and inadvertent errors immediately resolved by the aggregator. If more significant issues arise, the CAISO expects to hold teleconferences among the parties to discuss the UDC or LSE’s written concerns.

To support this distribution utility review process, the Commission stated in Order No. 2222 that RTOs/ISOs must share with distribution utilities any necessary information and data about the individual distributed energy resources participating in a distributed energy resource aggregation.<sup>53</sup> In Order No. 2222-A, the Commission clarified that the specific information regarding a distributed energy resource that is provided by a distribution utility to an RTO/ISO as part of the distribution utility review process should be shared with the distributed energy resource aggregator.<sup>54</sup>

3. CAISO states that, if the Utility Distribution Company raises one of these six concerns described in section 4.17.4 of the CAISO tariff, CAISO will provide the Distributed Energy Resource Provider with the Utility Distribution Company’s written comments, and the Distributed Energy Resource Provider will resolve those concerns with the Utility Distribution Company before CAISO allows the individual Distributed Energy Resource to participate in a Distributed Energy Resource Aggregation.<sup>55</sup>

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<sup>53</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 292; *see id.* PP 236-40.

<sup>54</sup> Order No. 2222-A, 174 FERC ¶ 61,197 at P 75 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 292).

<sup>55</sup> Transmittal at 24.

- a. Please explain what, if any, information and data collected about the individual Distributed Energy Resources participating in a Distributed Energy Resource Aggregation as part of the distribution utility review process will be included in the written comments of the Utility Distribution Company.

**Response:** Neither Order No. 2222 nor the CAISO tariff prescribe what specific information or data the UDC must provide in order to raise a concern; however, it stands to reason that the information must be sufficient for the CAISO and the DERP to understand the concern, evaluate it, and address it.

In Order No. 2222, the Commission stated that the RTOs/ISOs must include potential impacts on distribution system reliability as a criterion in the distribution utility review process.<sup>56</sup> The Commission clarified in Order No. 2222-A that, when the Commission found that RTOs/ISOs must include potential impacts on distribution system reliability as a criterion in the distribution utility review process, the Commission was referring specifically to any incremental impacts from a resource's participation in a distributed energy resource aggregation that were not previously considered by the distribution utility during the interconnection study process for that resource.<sup>57</sup>

In Order No. 2222, the Commission found that the distribution utility should have the opportunity to request that the RTO/ISO place operational limitations on an aggregation or the removal of a distributed energy resource from an aggregation based on specific significant reliability or safety concerns that the distribution utility clearly demonstrates to the RTO/ISO and distributed energy resource aggregator on a case-by-case basis.<sup>58</sup>

2. CAISO states that section 4.17.4 of the CAISO tariff contains the Utility Distribution Company review process which allows the Utility Distribution Company to raise concerns regarding whether any Distributed Energy Resources may threaten the safe and reliable operation of the distribution system, if operated as part of a Distributed Energy Resource Aggregation.<sup>59</sup>

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<sup>56</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 297.

<sup>57</sup> Order No. 2222-A, 174 FERC ¶ 61,197 at P 79 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 297).

<sup>58</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 297. For example, the Commission stated that the RTOs/ISOs may consider requiring a signed affidavit or other evidence from the distribution utility that a distributed energy resource's participation in RTO/ISO markets would pose a significant risk to the safe and reliable operation of the distribution system, and processes to contest the distribution utility's recommendation for removal or for operational limitations to be placed on the aggregation. *Id.*

<sup>59</sup> Transmittal at 23-24.

- a. Please explain whether the potential impacts on distribution system reliability considered as part of the Utility Distribution Company review process would include any incremental impacts from a Distributed Energy Resource's participation in a Distributed Energy Resource Aggregation that were not previously considered by the Utility Distribution Company during the interconnection study process for that Distributed Energy Resource.

**Response:** The original interconnection studies evaluated each DER alone, and those studies may have been conducted serially based on the distribution topology at the time. Likewise, many of the original DER interconnection studies may not have accounted for wholesale market dispatch. For example, a typical small DER interconnection study generally assumes the DER will only inject energy in shoulder months and during mid-day hours.<sup>60</sup> The CAISO expects UDCs may need to evaluate the impact on reliability when the DERs participating in a DERA respond to a CAISO dispatch at other times, and do so *in aggregate*. The impact of a single DER on grid flows is manifestly different than the impact of many DERs.

- b. Please explain whether the Utility Distribution Company could request that CAISO place operational limitations on a Distributed Energy Resource Aggregation or the removal of a Distributed Energy Resource from Distributed Energy Resource Aggregation based on specific significant reliability or safety concerns on a case-by-case basis.

**Response:** Yes, the UDC could *request* removal of a DER or that the CAISO— or more likely, the DERP—limit the DERA in some way. The parties would discuss such proposals pursuant to Section 4.17.4 of the CAISO tariff. The CAISO believes that excluding a DER from a DERA should be a last resort, and all alternatives must be exhausted first.

In Order No. 2222, the Commission required each RTO/ISO to revise its tariff to incorporate dispute resolution provisions as part of its proposed distribution utility review process.<sup>61</sup> The Commission stated that each RTO/ISO should describe how existing dispute resolution procedures are sufficient or, alternatively, propose amendments to its procedures or new dispute resolution procedures specific to this subject. In Order No. 2222-A, the Commission stated that disputes regarding the distribution utility review process—including those between non-host distribution utilities and a host distribution utility or the RTO/ISO—may be resolved through the RTO's/ISO's dispute resolution

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<sup>60</sup> *I.e.*, during those times when solar penetration is high but demand is low.

<sup>61</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 299.



process, the Commission's Dispute Resolution Service, or complaints filed pursuant to Federal Power Act section 206<sup>62</sup> at any time.<sup>63</sup>

4. CAISO tariff section 4.17.4 provides that any unresolved concerns in the Utility Distribution Company review process "shall be undertaken with the applicable Governmental Authority for the Utility Distribution Company or Metered Subsystem and shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism."
  - a. Please explain why unresolved concerns in the Utility Distribution Company review process will not be resolved through CAISO's dispute resolution procedures.

**Response:** The CAISO developed this provision in coordination with stakeholders when the CAISO established the DERA model in 2016. The disputes the CAISO cannot resolve with the UDC and DERP likely will center on double-counting concerns or state-jurisdictional interconnection studies. The CAISO has neither jurisdiction nor visibility into retail tariffs or the distribution grid. As such, the CAISO and its dispute resolution process is unlikely to reach any meaningful resolution. Additionally, the CAISO's dispute resolution process is a relatively long process that could leave would-be DERAs in limbo for considerable periods, jeopardizing their participation. The CAISO and stakeholders thus concluded that raising disputes to the applicable governmental authority—likely the local regulatory authority—will be much faster and more likely to provide meaningful resolution. The CAISO already works with local regulatory authorities on distributed generation growth and multiple-use applications, so these communication pathways are well established. Moreover, involving the governmental authority will be more precedential than the CAISO's dispute resolution process, thereby saving time and preventing future disputes on similar facts and issues.

## **B. Ongoing Operational Coordination**

To implement section 35.28(g)(12)(ii)(g) of the Commission's regulations, in Order No. 2222, the Commission required each RTO/ISO to revise its tariff to include coordination protocols and processes for the operating day that allow distribution utilities to override RTO/ISO dispatch of a distributed energy resource aggregation in circumstances where such override is needed to maintain the reliable and safe operation of the distribution system.<sup>64</sup>

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<sup>62</sup> 16 U.S.C. § 824e.

<sup>63</sup> Order No. 2222-A, 174 FERC ¶ 61,197 at P 70 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 299).

<sup>64</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 310.

1. CAISO states that each Distributed Energy Resource Provider will operate its Distributed Energy Resource Aggregation in a manner that is consistent with limitations or operating orders established by the Utility Distribution Company.<sup>65</sup>
  - a. Please explain which CAISO tariff provision provides coordination protocols and processes for the operating day that allow Utility Distribution Companies to override RTO/ISO dispatch of a Distributed Energy Resource Aggregation in circumstances where such override is needed to maintain the reliable and safe operation of the distribution system.

**Response:** The CAISO's outage rules are set forth in Section 9 of the CAISO tariff. The CAISO's outage coordination protocols and processes already enable UDCs to override CAISO dispatch due to reliability or safety concerns. UDCs can "override" CAISO dispatch due to safety or reliability concerns in two ways. First, they can declare an outage on the relevant portion of the grid, and the CAISO's optimization will recognize which DERs or DERAs were affected. Second, UDCs can notify the scheduling coordinator for the DERA, and the DERA would ignore its CAISO dispatch. The scheduling coordinator for the DERA would submit a "transmission-induced outage" to the CAISO's outage management system either before or after the override based upon how much time the UDC provided the DERA. Although this class of outages is called "transmission-induced," the business practice manual for outages expressly notes that it includes distribution equipment for DERs.<sup>66</sup> In either case, the CAISO operators would coordinate with the scheduling coordinator for the DERA pursuant to CAISO operating procedure 3220, Generation Outages,<sup>67</sup> which explains the procedures for "transmission-induced outages" in detail for both forced/immediate outages and outages with more notice.<sup>68</sup> Because these are highly-used, transparent processes, and outages are already publicly reported, neither the CAISO nor stakeholders found cause to develop separate processes for DERAs. Because the CAISO has several hundred participating generators on the distribution grids and just as many demand response aggregations, scheduling coordinators, operators, and market participants are already accustomed to reporting resource outages due to distribution issues.

- b. Please explain how these coordination protocols and processes will be transparent and when a Distributed Energy

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<sup>65</sup> Transmittal at 25-26.

<sup>66</sup> Section 3.4 of the CAISO Business Practice Manual for Outage Management.

<sup>67</sup> <http://www.caiso.com/Documents/3220.pdf>.

<sup>68</sup> See Section 3.6 of CAISO Operating Procedure 3220.

Resource Provider will be informed of Utility Distribution Company overrides and by whom.

**Response:** The CAISO coordination protocols for transmission/distribution-induced generator outages are set forth in the CAISO business practice manual for outage management,<sup>69</sup> and CAISO Operating Procedure 3220. As illustrated there, scheduling coordinators report and see outages in the CAISO's outage management system, which also publishes results on the CAISO website, OASIS, and network model. For immediate outages with little notice before the dispatch interval, CAISO operators also coordinate in real-time with the affected generator/DERA scheduling coordinator.

The CAISO reiterates that these coordination protocols are transparent and well-used. Scheduling coordinators are already highly familiar with the CAISO's outage management systems, including for outages on the distribution grids impacting DERs. Creating separate, unique processes for DERAs would not benefit DERAs, UDCs, or market participants, and instead would likely lead to confusion and potentially jeopardize reliability.

### **C. Role of Relevant Electric Retail Regulatory Authorities**

In Order No. 2222, the Commission required each RTO/ISO to specify in its tariff, as part of the market rules on coordination between the RTO/ISO, the distributed energy resource aggregator, and the distribution utility, how each RTO/ISO will accommodate and incorporate voluntary relevant electric retail regulatory authority involvement in coordinating the participation of aggregated distributed energy resources in RTO/ISO markets.<sup>70</sup>

1. CAISO explains that existing tariff section 4.17.2(b) requires each Distributed Energy Resource Provider to comply with any applicable Local Regulatory Authority requirements, and that tariff section 4.17.4 allows Utility Distribution Companies to raise issues regarding non-compliance with Local Regulatory Authority requirements and requires resolution of Utility Distribution Company issues by the appropriate authority.<sup>71</sup>
  - a. Please explain whether, and, if so, more specifically how, CAISO allows for voluntary relevant electric retail regulatory authority involvement in coordinating the participation of

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<sup>69</sup> See Section 2.4 of the CAISO Business Practice Manual for Outage Management (providing a high-level overview of the application, how it receives inputs from market participants, operators, utilities, and reliability coordinators, and how to feeds results into other applications).

<sup>70</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 322.

<sup>71</sup> Transmittal at 27.

Distributed Energy Resource Aggregations in CAISO's markets, and how CAISO's existing tariff addresses this compliance directive.

**Response:** This tariff provision meets Order No. 2222's compliance directive by establishing the opportunity for the local regulatory authority to exercise authority over the matters within its jurisdiction to coordinate the participation of aggregated distributed energy resources in RTO/ISO markets. The CAISO actively coordinates with its local regulatory authorities on DER and DERA participation. Local regulatory authority tariffs and rules primarily set the interconnection, metering, telemetry, safety, reliability, and participation rules for the DERs most likely to participate in DERAs. As the Commission previously found: "[CAISO] tariff rules recognize that distributed energy resources participating in an aggregation must adhere to applicable utility distribution company interconnection tariffs. CAISO states that its tariff does not specify that the utility distribution company WDAT applies because, if the WDAT rules apply, they do so of their own force and effect."<sup>72</sup> The Commission agreed with the CAISO's approach, ruling:

We find that CAISO's proposed language is reasonable because it does not limit or expand upon the scope of entities that must interconnect through a WDAT.

We disagree with PG&E's request to require the local regulatory authority to certify that the local regulatory authority's rules and tariffs have been satisfactorily modified to accommodate CAISO's proposal. As CAISO states, no local regulatory authority has sought or supported PG&E's approach. We find that requiring a local regulatory authority to make such a certification is outside of our jurisdiction.<sup>73</sup>

Order No. 2222 itself broadly cites the CAISO's DER Provider Agreement for this requirement, stating it is "an example of how relevant electric retail regulatory authorities could be involved in coordinating the participation of distributed energy resource aggregations in RTO/ISO markets. CAISO's DER Provider model requires that distributed energy resource providers comply with applicable utility distribution company tariffs and operating procedures incorporated into those tariffs, as well as applicable requirements of the local regulatory authority."<sup>74</sup>

- b. Please specify whether the relevant electric retail regulatory authority will have a role in coordinating the participation of Distributed Energy Resource Aggregations in CAISO's markets by developing interconnection agreements and

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<sup>72</sup> *California Independent System Operator Corp.*, 155 FERC ¶ 61,229 at P 56 (2016).

<sup>73</sup> *Id.* at PP 60-61.

<sup>74</sup> Order No. 2222 at P 323 (referencing Article 4.1.1 of Appendix B.21 to the CAISO tariff).

rules; developing local rules to ensure distribution system safety and reliability, data sharing, and/or metering and telemetry requirements; overseeing Utility Distribution Company review of Distributed Energy Resource participation in Distributed Energy Resource Aggregations; establishing rules for multi-use applications; or resolving disputes between Distributed Energy Resource Aggregators and Utility Distribution Companies over issues such as access to individual Distributed Energy Resource data.

**Response:** Yes. Please see the CAISO's response to question VII(C)(1)(a). Not only does the local regulatory authority establish the interconnection and participation rules under its jurisdiction, the local regulatory authority also adjudicates any potential concern during the registration process, as explained in response to question VII(A)(4(a)).<sup>75</sup> The CAISO tariff also requires DERAs to certify compliance with local regulatory authority requirements for wholesale participation,<sup>76</sup> and for DERAs as scheduling coordinator metered entities to comply with local regulatory authority metering requirements.<sup>77</sup> As such, the local regulatory authority has a significant and robust role in coordinating with the CAISO for DERA participation. The CAISO has similar experience coordinating with local regulatory authorities for demand response participation, and it does not anticipate any challenges in coordinating with local regulatory authorities for DERAs.

Respectfully submitted,

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<sup>75</sup> See Section 4.17.4 of the CAISO tariff.

<sup>76</sup> See Sections 4.17.2 and 4.17.4 of the CAISO tariff.

<sup>77</sup> Section 10.3.9 of the CAISO tariff.

## **CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each party listed on the official service list for this proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010 (2018)).

Dated at Folsom, California on this 2nd day of November, 2021.

/s/ Jacqueline Meredith  
Jacqueline Meredith