

179 FERC ¶ 61,197
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;
James P. Danly, Allison Clements,
Mark C. Christie, and Willie L. Phillips.

California Independent System Operator Corporation Docket Nos. ER21-2455-000
ER21-2455-001

ORDER ON COMPLIANCE FILING

(Issued June 17, 2022)

1. On July 19, 2021, as amended on November 1, 2021, California Independent System Operator Corporation (CAISO) submitted proposed revisions to its Open Access Transmission Tariff (Tariff)¹ in compliance with the requirements of Order No. 2222,² which removes barriers to the participation of distributed energy resource aggregations in the capacity, energy, and ancillary service markets operated by Regional Transmission Organizations and Independent System Operators (RTO/ISO markets). In this order, we accept CAISO's compliance filing, to become effective June 16, 2022, with a limited number of revisions to become effective no later than November 1, 2022, subject to a further compliance filing, as discussed below. We also direct CAISO to notify the Commission of the actual effective date of the Tariff revisions within five business days of their implementation.

I. Background

2. In Order No. 2222, the Commission adopted reforms to remove barriers to the participation of distributed energy resource aggregations in the RTO/ISO markets.³ The

¹ Appendix A lists the Tariff sections filed by CAISO. Capitalized terms that are not defined in this order have the meaning specified in Appendix A to CAISO's Tariff.

² *Participation of Distributed Energy Res. Aggregations in Mkts. Operated by Reg'l Transmission Orgs. & Indep. Sys. Operators*, Order No. 2222, 172 FERC ¶ 61,247 (2020), *order on reh'g*, Order No. 2222-A, 174 FERC ¶ 61,197, *order on reh'g*, Order No. 2222-B, 175 FERC ¶ 61,227 (2021).

³ Order No. 2222, 172 FERC ¶ 61,247 at P 1.

Commission modified section 35.28 of its regulations⁴ pursuant to its authority under Federal Power Act (FPA) section 206⁵ to require each RTO/ISO to revise its tariff to ensure that its market rules facilitate the participation of distributed energy resource aggregations. The Commission found that, by removing barriers to the participation of distributed energy resource aggregations in the RTO/ISO markets, Order No. 2222 will enhance competition and, in turn, help ensure that the RTO/ISO markets produce just and reasonable rates.

3. In Order No. 2222, the Commission amended its regulations to require each RTO/ISO to include tariff provisions addressing distributed energy resource aggregations that: (1) allow distributed energy resource aggregations to participate directly in RTO/ISO markets and establish distributed energy resource aggregators as a type of market participant; (2) allow distributed energy resource aggregators to register distributed energy resource aggregations under one or more participation models that accommodate the physical and operational characteristics of the distributed energy resource aggregations; (3) establish a minimum size requirement for distributed energy resource aggregations that does not exceed 100 kilowatts (kW); (4) address locational requirements for distributed energy resource aggregations; (5) address distribution factors and bidding parameters for distributed energy resource aggregations; (6) address information and data requirements for distributed energy resource aggregations; (7) address metering and telemetry requirements for distributed energy resource aggregations; (8) address coordination between the RTO/ISO, the distributed energy resource aggregator, the distribution utility, and the relevant electric retail regulatory authorities (RERRAs); (9) address modifications to the list of resources in a distributed energy resource aggregation; and (10) address market participation agreements for distributed energy resource aggregators.⁶ Additionally, under Order No. 2222, each RTO/ISO must accept bids from a distributed energy resource aggregator if its aggregation includes distributed energy resources that are customers of utilities that distributed more than 4 million megawatt-hours (MWh) in the previous fiscal year. An RTO/ISO must not accept bids from a distributed energy resource aggregator if its aggregation includes distributed energy resources that are customers of utilities that distributed 4 million megawatt-hours or less in the previous fiscal year, unless the RERRA permits such customers to be bid into RTO/ISO markets by a distributed energy resource aggregator.

⁴ 18 C.F.R. § 35.28 (2021).

⁵ 16 U.S.C. § 824e.

⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 8.

II. Compliance Filing

4. In its filing, CAISO states that because it was the first RTO/ISO to establish a Distributed Energy Resource Aggregation⁷ model, its Tariff already complies with the vast majority of the mandates in Order No. 2222.⁸ Thus, CAISO explains that its compliance filing describes how its existing Tariff provisions and the few incremental changes it proposes to align its Tariff with the final rule comply with Order No. 2222.

5. On October 1, 2021, Commission staff issued a data request advising CAISO that additional information was necessary to process its July 19, 2021 filing (Data Request).⁹

6. On November 2, 2021, in Docket No. ER21-2455-001, CAISO filed a response to the Data Request, which amended its July 19, 2021 filing (Data Request Response).

7. CAISO proposes revisions to sections 4.17.3, 4.17.4, 4.17.5, 4.17.7, 11.6.5.1, and 30.5.2.6 of its Tariff, and to Appendices A and B.21 of its Tariff to comply with Order No. 2222. CAISO seeks an effective date of no later than November 1, 2022 for proposed revisions to Tariff sections 4.17.7, 11.6.5.1, and 30.5.2.6.¹⁰ For all other Tariff revisions, CAISO seeks an effective date contemporaneous with the Commission's acceptance of those revisions.

III. Notice of Filing and Responsive Pleadings

8. Notice of CAISO's filing was published in the *Federal Register*, 86 Fed. Reg. 39,016 (July 23, 2021), with interventions and protests due on or before August 9, 2021.

⁷ CAISO's Tariff defines Distributed Energy Resource Aggregation as "[a] resource comprised of one or more Distributed Energy Resources." CAISO, CAISO eTariff, app. A (Definitions) (Distributed Energy Resource Aggregation) (0.0.0). CAISO's proposed revised definition of Distributed Energy Resource is "[a]ny resource located on the distribution system, any subsystem thereof, or behind a customer meter in a Utility Distribution Company or Metered Subsystem." *Id.*, app. A (Definitions) (Distributed Energy Resource) (1.0.0).

⁸ CAISO July 19, 2021 Compliance Filing, Transmittal at 2 (Transmittal).

⁹ *Cal. Indep. Sys. Operator Corp.*, Docket No. ER21-2455-001, at 1 (filed Oct. 1, 2021).

¹⁰ Transmittal at 29.

9. Notice of CAISO's Data Request Response, which amended the July 19, 2021 filing, was published in the Federal Register, 86 Fed. Reg. 62,162 (Nov. 9, 2021), with interventions and protests due on or before November 23, 2021.

10. The City of Santa Clara, California, Modesto Irrigation District, Southern California Edison Company, Enerwise Global Technologies, LLC d/b/a CPower (CPower), Advanced Energy Economy (AEE), Bear Valley Electric Service, Inc., NRDC/Sustainable FERC Project (SFP), Pacific Gas and Electric Company, Northern California Power Agency, the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (collectively, Six Cities), NRG Power Marketing LLC, Xcel Energy Services Inc., and Edison Electric Institute filed timely motions to intervene.

11. AEE and SFP (together, AEE/SFP) and CPower filed timely protests.

12. On September 3, 2021, CAISO filed an answer to the protests submitted by AEE/SFP and CPower.

13. In response to CAISO's Data Request Response, American Public Power Association filed a motion to intervene and AEE/SFP and CPower each filed protests.

IV. Discussion

A. Procedural Matters

14. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2021), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

15. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2021), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We accept CAISO's answer because it has provided information that assisted us in our decision-making process.

B. Substantive Matters

16. In its filing, CAISO states that because it was the first RTO/ISO to establish a Distributed Energy Resource Aggregation model, it already complies with the vast majority of the mandates in Order No. 2222.¹¹ While we recognize CAISO's efforts to advance the participation of Distributed Energy Resources in its markets, we find that CAISO's proposal partially complies with Order No. 2222. Accordingly, we accept CAISO's compliance filing, to become effective June 16, 2022, with a limited number of

¹¹ Transmittal at 2.

revisions to become effective no later than November 1, 2022, subject to a further compliance filing to be submitted within 60 days of the date of issuance of this order, as discussed below.

17. As a preliminary matter, we find that CAISO has complied with the following requirements of Order No. 2222 that required RTOs/ISOs to: (1) make any necessary tariff changes to reflect the Commission's guidance in declining to exercise jurisdiction over the interconnection of distributed energy resources;¹² (2) propose definitions for distributed energy resource and distributed energy resource aggregator that are consistent in scope and applicability with the Commission's definitions;¹³ (3) allow a single qualifying distributed energy resource to avail itself of the proposed distributed energy resource aggregation rules by serving as its own distributed energy resource aggregator;¹⁴ (4) establish locational requirements for distributed energy resources to participate in a distributed energy resource aggregation that are as geographically broad as technically feasible;¹⁵ (5) establish market rules that address modification to the list of resources in a distributed energy resource aggregation;¹⁶ (6) establish market rules that address market participation agreements for distributed energy resource aggregators;¹⁷ and (7) establish

¹² Order No. 2222, 172 FERC ¶ 61,247 at PP 90, 104. *See* Transmittal at 6, 29 n.169; *see also* CAISO, CAISO eTariff, § 25.2 (Interconnections to the Distribution System) (2.0.0).

¹³ Order No. 2222, 172 FERC ¶ 61,247 at PP 114, 115, 118. *See* Transmittal at 7-8; Data Request Response at 4; *see also* CAISO, CAISO eTariff, app. A (Definitions) (Distributed Energy Resource) (1.0.0); *id.* app. A (Definitions) (Distributed Energy Resource Provider) (0.0.0).

¹⁴ Order No. 2222, 172 FERC ¶ 61,247 at P 185. *See* Transmittal at 16-17; *see also* CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(a).

¹⁵ Order No. 2222, 172 FERC ¶ 61,247 at PP 204-207. *See* Transmittal at 17; *see also* CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(e).

¹⁶ Order No. 2222, 172 FERC ¶ 61,247 at PP 335-338. *See* Transmittal at 27-28; *see also* CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0); *id.* § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0), § 4.17.4.1 (Modifications to Distributed Energy Resource Aggregations).

¹⁷ Order No. 2222, 172 FERC ¶ 61,247 at PP 352-356. *See* Transmittal at 28; *see also* CAISO, CAISO eTariff, app. B.21 (Distributed Energy Resource Provider Agreement) (1.0.0). We also note that the executed agreements that conform to the Distributed Energy Resource Provider Agreement, which we find complies with the

market rules that address information requirements and data requirements for distributed energy resource aggregations.¹⁸ CAISO's compliance with these requirements is not contested in this proceeding. We address the remaining compliance requirements and comments and protests below.

1. Stakeholder Process

a. Protest

18. AEE/SFP state that CAISO did not conduct a stakeholder process before making its compliance filing and that the lack of a full stakeholder process further underscores the need for the Commission to direct CAISO to remedy the shortcomings of its proposal to ensure that it complies with Order No. 2222.¹⁹

b. Data Request Response Protests

19. In response to CAISO's Data Request Response, AEE and SFP reiterate that CAISO did not conduct a stakeholder process before submitting its compliance filing, and that doing so would have provided an opportunity for Distributed Energy Resource owners and aggregators to raise issues with CAISO and develop solutions that would maximize participation of Demand Response Resources and other Distributed Energy Resources.²⁰

requirements of Order No. 2222, should be reported in CAISO's Electric Quarterly Reports, retained and made available for public inspection, consistent with the Commission's requirements. *Revised Pub. Util. Filing Requirements*, Order No. 2001, 99 FERC ¶ 61,107, at P 196 (2002); 18 C.F.R. § 35.1(g) (2021).

¹⁸ Order No. 2222, 172 FERC ¶ 61,247 at PP 236-240. *See* Transmittal at 19-21; CAISO Data Request Response at 15-17; *see also* CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0); *id.* § 10.3.2 (Responsibilities of Scheduling Coordinators and the CAISO) (7.0.0), § 10.3.2.1.2 (Requirements for SCs Representing Distributed Energy Resource Aggregations); *id.* § 10.3.10 (Requirement For Audit And Testing) (1.0.0); *id.* § 11.6.5 (Settlement of Distributed Energy Resource Aggregations) (2.0.0); *id.* § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.1 (Common Elements for Supply Bids); *id.* § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.6 (Supply Bids for Distributed Energy Resource Aggregations).

¹⁹ AEE/SFP Protest at 5.

²⁰ AEE/SFP Protest to Data Request Response at 6, 10, 12.

c. Commission Determination

20. Order No. 2222 did not require each RTO/ISO to conduct a formal stakeholder process before submitting its compliance filing. Therefore, we find these protests to be beyond the scope of this compliance proceeding.

2. Small Utility Opt-In

21. In Order No. 2222, the Commission added section 35.28(g)(12)(iv) to the Commission's regulations to provide that RTOs/ISOs may not accept bids from distributed energy resource aggregators aggregating customers of small utilities unless the RERRA allows such customers of small utilities to participate in distributed energy resource aggregations (i.e., to opt in).²¹ Specifically, the Commission directed each RTO/ISO to amend its market rules as necessary to: (1) accept bids from a distributed energy resource aggregator if its aggregation includes distributed energy resources that are customers of utilities that distributed more than 4 million MWh²² in the previous fiscal year; and (2) not accept bids from distributed energy resource aggregators if its aggregation includes distributed energy resources that are customers of utilities that distributed 4 million MWh or less in the previous fiscal year, unless the RERRA permits such customers to be bid into RTO/ISO markets by a distributed energy resource aggregator (small utility opt-in).²³ The Commission also required each RTO/ISO to explain how it will implement this small utility opt-in, noting that an RTO/ISO may choose to implement this requirement in a similar manner as it currently implements the small utility opt-in provision under Order No. 719-A.²⁴ In Order No. 2222-A, denying a

²¹ Order No. 2222, 172 FERC ¶ 61,247 at P 56.

²² The 4 million MWh cutoff stems from the Small Business Size Standards component of the North American Industry Classification System, which previously defined a small utility as one that, including its affiliates, is primarily engaged in the generation, transmission, or distribution of electric energy for sale, and whose total electric output for the preceding fiscal year did not exceed 4 million MWh. 13 C.F.R. § 121.201 (2013) (Sector 22, Utilities, North American Industry Classification System (NAICS)). Currently, the number of employees is the basis used to measure whether electric power generation, transmission, and distribution industries are small businesses. *Id.*

²³ Order No. 2222, 172 FERC ¶ 61,247 at P 65; *see* Order No. 2222-A, 174 FERC ¶ 61,197 at PP 34-35 (dismissing arguments on rehearing about the small utility opt-in).

²⁴ Order No. 2222, 172 FERC ¶ 61,247 at P 66.

request for clarification, the Commission found that the small utility opt-in established in Order No. 2222 applies to energy efficiency resources.²⁵

a. Filing

22. CAISO proposes to adapt the small utility opt-in provision in its *pro forma* Demand Response Provider Agreement²⁶ for use in its *pro forma* Distributed Energy Resource Provider Agreement,²⁷ replacing demand response references with Distributed Energy Resource references.²⁸ Specifically, CAISO proposes to include the following language in section 4.1.4 of its Distributed Energy Resource Provider Agreement:

A Distributed Energy Resource Provider that aggregates in utilities that distribute: (1) 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;^[29] or (2) 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

²⁵ Order No. 2222-A, 174 FERC ¶ 61,197 at P 36.

²⁶ CAISO's Demand Response Provider Agreement is "[a]n agreement between the CAISO and a Demand Response Provider, a *pro forma* version of which is set forth in Appendix B.14." CAISO, CAISO eTariff, app. A (Definitions) (Demand Response Provider Agreement) (1.0.0).

²⁷ CAISO's Distributed Energy Resource Provider Agreement is "[a]n agreement between the CAISO and a Distributed Energy Resource Provider, a *pro forma* version of which is set forth in Appendix B.21." CAISO, CAISO eTariff, app. A (Definitions) (Distributed Energy Resource Provider Agreement) (0.0.0). A Distributed Energy Resource Provider is "[t]he owner/operator of one or more Distributed Energy Resource Aggregations that participates in the CAISO markets as such." *Id.*, app. A (Definitions) (Distributed Energy Resource Provider) (0.0.0).

²⁸ Transmittal at 7.

²⁹ A Local Regulatory Authority is "[t]he state or local governmental authority, or the board of directors of an electric cooperative, responsible for the regulation or oversight of a utility." CAISO, CAISO eTariff, app. A (Definitions) (Local Regulatory Authority) (LRA) (0.0.0).

applicable rules and regulations of the Local Regulatory Authority.³⁰

b. Data Request Response

23. In its Data Request, Commission staff asked CAISO to explain when, and if applicable, how often, a Distributed Energy Resource Provider that aggregates in utilities that distribute 4 million MWh or less in the previous fiscal year must certify to CAISO that its participation is permitted by the relevant Local Regulatory Authority, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority.³¹ In response, CAISO states that based on its experience with demand response, it is unaware of any California utility that prohibits resources from participating in wholesale electricity markets. CAISO states that it proposes only to require the Distributed Energy Resource Provider certify upon initially registering the Distributed Energy Resource Aggregation, and explains that it may re-evaluate the need for annual certification requirements with stakeholders if utilities or Local Regulatory Authorities change their rules.³²

24. Commission staff also asked CAISO to explain the steps a Distributed Energy Resource Provider must take under the Tariff if the Local Regulatory Authority permits the Distributed Energy Resource Provider's participation at the time of the certification, then decides in the future to prohibit that Distributed Energy Resource Provider's participation.³³ In response, CAISO explains that, pursuant to the modification requirements, the Distributed Energy Resource Provider should notify CAISO, and CAISO will work with the Distributed Energy Resource Provider, the Utility Distribution Company,³⁴ and the Local Regulatory Authority to ensure compliance. Based on its

³⁰ *Id.*, app. B.21 (Distributed Energy Resource Provider Agreement) (1.0.0), § 4.1.4, Small Utility Limits.

³¹ Data Request at 2.

³² Data Request Response at 2.

³³ Data Request at 3.

³⁴ CAISO's Tariff defines a Utility Distribution Company as "[a]n entity that owns a Distribution System for the delivery of Energy to and from the CAISO Controlled Grid, and that provides regulated retail electric service to Eligible Customers, as well as regulated procurement service to those End-Use Customers who are not yet eligible for direct access, or who choose not to arrange services through another retailer." CAISO, CAISO eTariff, app. A (Definitions) (Utility Distribution Company) (UDC) (0.0.0).

experience with Local Regulatory Authorities in this area, CAISO explains that it believes there is little to no risk this situation would occur.³⁵

25. In its Data Request, Commission staff also asked CAISO to explain how its proposed requirement 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” complies with Order No. 2222.³⁶ In response, CAISO explains that neither utilities nor Local Regulatory Authorities in CAISO’s balancing authority area prohibit resources from participating in the wholesale electricity markets. Accordingly, CAISO asserts, this requirement in no way prevents Distributed Energy Resource Aggregations from participating in CAISO’s markets. According to CAISO, any proposed Tariff provision regarding small utilities is the result of its efforts to comply with Order No. 2222, and CAISO will accept any necessary revision in this area on compliance.³⁷

c. Commission Determination

26. We find that CAISO’s proposal partially complies with the small utility opt-in requirement in Order No. 2222.³⁸ Specifically, we find that CAISO’s proposal complies with the requirement that an RTO/ISO not accept bids from a distributed energy resource aggregator if its aggregation includes distributed energy resources that are customers of utilities that distributed 4 million MWh or less in the previous fiscal year, unless the RERRA permits such customers to be bid into RTO/ISO markets by a distributed energy resource aggregator.³⁹ CAISO’s proposal requires a Distributed Energy Resource Provider that aggregates in utilities that distributed 4 million MWh or less in the previous fiscal year to certify to CAISO that its participation is permitted by the applicable Local Regulatory Authority, and that it has satisfied all applicable rules and regulations of the Local Regulatory Authority.⁴⁰ We find that this proposal generally satisfies the small utility opt-in requirement. However, the language in CAISO’s proposal deviates without explanation from the requirements of Order No. 2222 because it replaces

³⁵ Data Request Response at 3.

³⁶ Data Request at 3.

³⁷ Data Request Response at 3.

³⁸ Order No. 2222, 172 FERC ¶ 61,247 at P 65.

³⁹ *Id.*

⁴⁰ CAISO, CAISO eTariff, app. B.21 (Distributed Energy Resource Provider Agreement) (1.0.0), § 4.1.4 (Small Utility Limits).

“aggregation includ[ing] distributed energy resources *that are customers of* utilities that distributed . . .” (emphasis added)⁴¹ with “Distributed Energy Resource Provider that *aggregates in utilities* that distribute . . .”⁴² We believe that CAISO’s proposal lacks necessary precision because the Commission specifically “determine[d] that customers of [small] utilities . . . may not participate in distributed energy resource aggregations unless the [RERRA] affirmatively allows such customers to participate in distributed energy resource aggregations” and the Commission codified similar language in its regulations.⁴³ Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises section 4.1.4 of Appendix B.21 to provide that “A Distributed Energy Resource Provider that aggregates Distributed Energy Resources that are customers of utilities that distribute . . .” Alternatively, we direct CAISO to explain why the revision is unnecessary.

27. We also find that CAISO’s proposal partially complies with the requirement to explain how it will implement the small utility opt-in.⁴⁴ We find that CAISO does not clearly explain the process by which a Distributed Energy Resource Provider must notify CAISO of a change in the RERRA’s opt-in determination, specifically, when a RERRA that previously authorized the participation of a resource that is a customer of a small utility decides to bar such participation. CAISO explains in its Data Request Response that it requires the Distributed Energy Resource Provider to provide a certification upon initially registering the Distributed Energy Resource Aggregation, and that, pursuant to CAISO’s modification requirements, the Distributed Energy Resource Provider should notify CAISO of any changes to this certification.⁴⁵ However, CAISO’s proposed modification requirements do not apply to such a change.⁴⁶ Accordingly, we direct

⁴¹ Order No. 2222, 172 FERC ¶ 61,247 at P 65.

⁴² CAISO, CAISO eTariff, app. B.21 (Distributed Energy Resource Provider Agreement) (1.0.0), § 4.1.4 (Small Utility Limits).

⁴³ Order No. 2222, 172 FERC ¶ 61,247 at P 64; *see* 18 C.F.R. § 35.28(g)(12)(iv) (prohibiting RTOs/ISOs from accepting bids if the distributed energy resource aggregation “includes distributed energy resources that are customers of [small utilities], unless the [RERRA] permits such customers to be bid in . . .”).

⁴⁴ *See* Order No. 2222, 172 FERC ¶ 61,247 at P 66.

⁴⁵ Data Request Response at 2-3.

⁴⁶ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0), § 4.17.4.1 (Modifications to Distributed Energy Resource Aggregations) (“The Distributed Energy Resource Provider will notify the CAISO of any changes to the information it provided during the registration process due to the removal, addition, or modification of a Distributed Energy Resource or Distributed Curtailment

CAISO to file, within 60 days of the issuance of this order, a further compliance filing that clarifies the Distributed Energy Resource Provider's responsibilities associated with changes to a RERRA's opt-in determination.

28. Lastly, we find that CAISO's proposal inappropriately allows a Local Regulatory Authority to prevent participation in the CAISO markets by "[a] Distributed Energy Resource Provider that aggregates in utilities that distributed: (1) over 4 million MWh in the previous fiscal year..." Specifically, CAISO's proposal requires a Distributed Energy Resource Provider that aggregates in utilities that distributed over 4 million MWh in the previous fiscal year to certify to CAISO that its participation is not prohibited by the Local Regulatory Authority. Order No. 2222 did not provide a mechanism for RERRAs to provide for such a limitation on participation. Rather, the Commission specifically declined to provide an opt-out that enables RERRAs to prohibit all distributed energy resources from participating in the RTO/ISO markets through distributed energy resource aggregations.⁴⁷

29. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises section 4.1.4 of Appendix B.21 to eliminate the proposed requirement that a Distributed Energy Resource Provider that aggregates in utilities that distributed over 4 million MWh in the previous fiscal year certify to CAISO that its participation is not prohibited by the Local Regulatory Authority.

3. Eligibility to Participate in RTO/ISO Markets through a Distributed Energy Resource Aggregator

a. Participation Model

30. 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.⁴⁸ The Commission explained that each RTO/ISO can comply with the requirement to allow

Resource within the Distributed Energy Resource Aggregation. The Distributed Energy Resource Provider also will notify the CAISO of any *changes to its Distributed Energy Resource Aggregation's physical or operational characteristics.*") (emphasis added).

⁴⁷ Order No. 2222, 172 FERC ¶ 61,247 at PP 57-60.

⁴⁸ *Id.* P 130.

distributed energy resource aggregators to participate in its markets by modifying its existing participation models to facilitate the participation of distributed energy resource aggregations, by establishing one or more new participation models for distributed energy resource aggregations, or by adopting a combination of those two approaches.⁴⁹ The Commission stated that it will evaluate each proposal submitted on compliance to determine whether the proposal meets the goals of Order No. 2222 to allow distributed energy resources to provide all services that they are technically capable of providing through aggregation.⁵⁰

i. Filing

31. CAISO states that it already has a pre-existing defined term, Distributed Energy Resource Provider, to denote the owner or operator of one or more Distributed Energy Resource Aggregations that participates in CAISO markets.⁵¹ CAISO further notes that it uses the term Distributed Energy Resource Aggregation⁵² to refer to the aggregation itself as a market resource, distinct from the provider in charge of the Distributed Energy Resource Aggregation, and that these two definitions are consistent with the Commission's definitions.⁵³ With respect to the Commission's requirement that each RTO/ISO have tariff provisions allowing Distributed Energy Resource Aggregations to participate directly in its markets, CAISO states that it already complies, insofar as section 4.17 of its Tariff broadly describes the rules for Distributed Energy Resource Aggregations to participate in CAISO markets. CAISO offers, for example, that

⁴⁹ *Id.*

⁵⁰ *Id.* In Order No. 841, the Commission clarified that "technically capable" of providing a service means meeting all of the technical, operational, and/or performance requirements that are necessary to reliably provide that service. Order No. 2222, 172 FERC ¶ 61,247 at P 3 n.9 (citing *Elec. Storage Participation in Mkt Operated by Reg'l Transmission Orgs. & Indep. Sys. Operators*, Order No. 841, 162 FERC ¶ 61,127, at P 78 (2018), *order on reh'g*, Order No. 841-A, 167 FERC ¶ 61,154 (2019), *aff'd sub nom. Nat'l Ass'n of Regul. Util. Comm'rs v. FERC*, 964 F.3d 1177 (D.C. Cir. 2020)).

⁵¹ CAISO, CAISO eTariff, app. A (Definitions) (Distributed Energy Resource Provider) (0.0.0).

⁵² *Id.* app. A (Definitions) (Distributed Energy Resource Aggregation) (0.0.0).

⁵³ Transmittal at 8.

section 4.17.1 states that CAISO “will accept bids for energy and ancillary services from Distributed Energy Resource Aggregations.”⁵⁴

32. However, according to CAISO, the Distributed Energy Resource Aggregation model has not historically included demand response resources, which participate under CAISO’s Proxy Demand Resources or Reliability Demand Response Resources.⁵⁵ CAISO, therefore, proposes to implement a “heterogeneous” Distributed Energy Resource Aggregation model that can include technologies that inject to serve load and those that curtail demand. CAISO avers that, in addition to this, it will maintain its existing demand response models for homogeneous aggregations that include only demand response resources.⁵⁶ For this reason, CAISO proposes a new term, “Distributed Curtailment Resource” to denote Distributed Energy Resources that will curtail demand in a Distributed Energy Resource Aggregation.⁵⁷ CAISO asserts that this term will allow it to distinguish between demand response resources in the Distributed Energy Resource Aggregation model and those in its demand response models. CAISO further proposes, in Tariff section 4.17.7, that a Distributed Energy Resource Aggregation may not consist of only Distributed Curtailment Resources, and must include at least one Distributed Energy Resource capable of injecting energy.⁵⁸ CAISO states that it is neither necessary nor efficient to collapse all of its demand response rules into the Distributed Energy Resource Aggregation model, and that doing so would delay any implementation significantly with little apparent gain.⁵⁹

ii. Protests

33. In its protest, CPower argues that, for reasons neither explained nor apparent, CAISO proposes to prohibit aggregations consisting of only demand response resources

⁵⁴ *Id.* at 9.

⁵⁵ CAISO states that Proxy Demand Resources bid economically like other supply resources, and that reliability demand response resources are included in optimization and dispatch only when CAISO is near or experiencing an emergency. *Id.* at 9 n.45.

⁵⁶ *Id.* at 9 n.46.

⁵⁷ *Id.* at 10 n.47 (citing CAISO, CAISO eTariff, app. A (Definitions) (Distributed Curtailment Resource) (0.0.0)).

⁵⁸ *Id.* at 10 n.49.

⁵⁹ *Id.* at 10 n.50.

from participating under the Distributed Energy Resource Aggregation model.⁶⁰ CPower contends that this decision creates an artificial barrier that is inappropriate and begs the question of why aggregators may only participate in the Distributed Energy Resource Aggregation model if the aggregation includes one or more resources with injection capability. CPower states that aggregators may oppose having to maintain functions for two different participation models.⁶¹ CPower adds that aggregators may avoid aggregating heterogeneous resources if they will be required to switch models if they add a non-demand response resource to a previously homogeneous demand response aggregation.⁶² CPower contends that the potential risk of being disqualified and the administrative burden of redoing the preliminary requirements to qualify in the Distributed Energy Resource Aggregation model could be easily avoided if homogeneous demand response aggregations were eligible for the Distributed Energy Resource Aggregation participation model.

34. AEE/SFP raise several concerns regarding Distributed Energy Resource participation with respect to CAISO's proposal. First, AEE/SFP state that limits in the enrollment process create barriers to the full participation of technically capable aggregations of residential demand response resources in CAISO.⁶³ AEE/SFP state that CAISO needs to consider whether its existing and proposed participation models fully accommodate the participation of all aggregations of demand response resources because the Commission noted in Order No. 2222 that existing demand response programs "often limit the operations of some types of distributed energy resources."⁶⁴ AEE/SFP highlight examples such as smart thermostats and water heaters as demand response technologies that CAISO's existing participation models do not fully accommodate. According to AEE/SFP, CAISO's market enrollment processes currently require access to customer meter data to participate in demand response, due to data requirements for market settlement. AEE/SFP contend that this is a high friction process that presents a significant barrier for dispatchable residential demand response resources and reduces customer participation substantially. AEE/SFP argue that the Commission should require CAISO, in a further compliance filing, to explain why changes to its tariff and market

⁶⁰ CPower Protest at 10.

⁶¹ *Id.* at 10-11.

⁶² *Id.* at 11

⁶³ AEE/SFP Protest at 9.

⁶⁴ *Id.* (quoting Order No. 2222, 172 FERC ¶ 61,247 at P 28).

participation models are not needed to allow these technically capable residential demand response resources to participate in its markets, as Order No. 2222 requires.⁶⁵

35. Second, AEE/SFP state that aggregations of Distributed Energy Resources participating under CAISO's existing Distributed Energy Resource Provider model are unable to qualify as resource adequacy resources in CAISO today, which limits the wholesale services and reliability and resilience value they can provide to CAISO.⁶⁶ AEE/SFP state that they recognize that the resource adequacy program is under the California Public Utility Commission's (CPUC) primary authority, but nevertheless suggest that several actions within CAISO's purview to remove barriers to the ability of aggregated Distributed Energy Resources to provide resource adequacy value are necessary to ensure full compliance with Order No. 2222. AEE/SFP aver that the Commission should direct CAISO to consider its existing definition of deliverability for storage resources that are located behind the customer meter and the procedures by which resources get deliverability status.⁶⁷ Additionally, AEE/SFP contend that the Commission should direct CAISO to use its existing Tariff authority to set a qualifying capacity value for behind the meter Distributed Energy Resources and hybrid resources.

iii. Answer

36. CAISO reiterates that it does not believe it is necessary or efficient to collapse its pre-existing demand response models into the Distributed Energy Resource Aggregation model.⁶⁸ CAISO argues that the potential to reduce the administrative work of switching participation models for developers who may later want to change the composition of their aggregation does not justify the delay and expense it would require for CAISO to combine its Distributed Energy Resource models.⁶⁹ CAISO states that allowing Distributed Energy Resource Aggregations to consist of demand response resources alone would not provide developers any new market opportunities, but it would allow them to choose among Tariff requirements despite having no underlying difference in resource characteristics. Moreover, CAISO argues, the Commission could have required the collapse of existing demand response models into a single Distributed Energy Resource Aggregation model in Order No. 2222, as New York Independent System Operator, Inc. (NYISO) has done, but it did not. Instead, CAISO states, the Commission required

⁶⁵ *Id.* at 10.

⁶⁶ *Id.* at 11.

⁶⁷ *Id.* at 12.

⁶⁸ CAISO Answer at 18-19.

⁶⁹ *Id.* at 19.

RTOs/ISOs to allow Distributed Energy Resources to aggregate with demand response resources in heterogeneous aggregations.⁷⁰ CAISO asserts that because every RTO/ISO has already established demand response models under Order No. 745, Order No. 2222 does not establish a requirement for demand-response-only aggregations. Therefore, CAISO contends that CPower's arguments are outside the scope of Order No. 2222.

37. CAISO states that the Commission should disregard AEE/SFP's arguments related to demand response as inaccurate and irrelevant to CAISO's compliance with Order No. 2222.⁷¹ CAISO states that allowing demand response resources to participate in Distributed Energy Resource Aggregations was a clear and significant portion of CAISO's compliance filing. CAISO claims that it does not discriminate against any resource providing demand response and it has implemented more flexible demand response models and baseline methodologies for performance measurement for demand response than any other market operator. According to CAISO, resources capable of curtailing demand may participate in a heterogeneous Distributed Energy Resource Aggregation or in a demand response aggregation. CAISO asserts that every participant in the nearly 1,000 demand response aggregations participating in its markets today has provided its service account and meter data, which belies AEE/SFP's allegations of a high friction process.

38. CAISO states that AEE/SFP fail to explain how CAISO could register and account for demand response participants and comply with the requirements of Order No. 2222 regarding double counting and coordination without knowing where the resources are located.⁷² Finally, as to meter data, CAISO explains that demand response resources are Scheduling Coordinator Metered Entities, and CAISO does not poll their meters or perform any validation, estimation, or editing.⁷³ Rather, CAISO explains, the Scheduling Coordinator merely provides CAISO with the final meter data for settlement. CAISO states that its Tariff expressly allows demand response providers to submit a statistical sampling of energy usage data, in cases where interval metering is not available for the entire population of underlying service accounts. CAISO adds that if there is any friction accessing customer meter data, it may occur between the Distributed Energy Resource Provider and the Utility Distribution Company or load-serving entity, but not as a result of CAISO requirements.

⁷⁰ *Id.* (citing Order No. 2222, 172 FERC ¶ 61,247 at P 142).

⁷¹ *Id.* at 11.

⁷² *Id.* at 11-12.

⁷³ *Id.* at 12.

39. Finally, with respect to resource adequacy, CAISO states that it appreciates and understands the economic challenges that Distributed Energy Resource Aggregations face when they are unable to provide resource adequacy, and explains that it has worked with the CPUC and Local Regulatory Authorities on this issue.⁷⁴ However, CAISO asserts that it should not preempt the CPUC and Local Regulatory Authorities by establishing eligibility for resources that the CPUC has not yet found capable of delivering energy to load centers during peak conditions. CAISO also states that Order No. 2222 does not require it to establish eligibility for such resources. CAISO asserts that it will continue to work with the CPUC and Local Regulatory Authorities in relevant state proceedings on whether Distributed Energy Resource Aggregations can provide resource adequacy capacity, and notes that this is slated as a near-term activity for Local Regulatory Authorities like the CPUC. According to CAISO, AEE/SFP's other suggestions regarding deliverability and qualifying capacities warrant CAISO's consideration, but they are outside the scope of Order No. 2222 and the Commission should disregard them here.

iv. Data Request Response

40. In its Data Request, Commission staff asked, in the case of a heterogeneous aggregation containing injecting resources and Distributed Curtailment Resources that fails to inject energy over a certain interval, whether CAISO would require the aggregation to register in one of CAISO's demand response models in order to participate in the CAISO markets.⁷⁵ In response, CAISO states that it has not proposed a rule with regard to how frequently a heterogeneous Distributed Energy Resource Aggregation is expected to inject energy.⁷⁶ CAISO posits that if it appeared that a Distributed Energy Resource Aggregation was not capable of injecting energy, CAISO would discuss the issue with the CAISO Department of Market Monitoring and the Commission's Office of Enforcement, as it is a potential Tariff compliance question. CAISO reiterates that demand response aggregations have the option to participate as Proxy Demand Resources or Reliability Demand Response Resources, models that the Commission has previously approved.

41. As to whether there are substantive differences between the Tariff requirements that apply to a Demand Response Resource and those that would apply to a Distributed Curtailment Resource,⁷⁷ CAISO states that there are no such differences, and that both

⁷⁴ *Id.* at 4.

⁷⁵ Data Request at 4.

⁷⁶ Data Request Response at 5.

⁷⁷ Data Request at 6.

resource classes are subject to the rules and principles of Order No. 745.⁷⁸ According to CAISO, the only difference is that Distributed Curtailment Resources participate in the Distributed Energy Resource Aggregation model, which has distinct registration requirements. CAISO states that the purpose of the Distributed Curtailment Resource term is to avoid confusion with the Tariff requirements that apply to Proxy Demand Resources and Reliability Demand Response Resources. According to CAISO, the alternative would have been to call demand response resources participating in a Distributed Energy Resource Aggregation “Proxy Demand Resources,” which likely would have led to confusion.

42. Finally, regarding whether a Distributed Curtailment Resource could also provide Demand Response Services or the equivalent,⁷⁹ CAISO states that a Distributed Curtailment Resource provides Demand Response Services, i.e., demand curtailment.⁸⁰ CAISO further explains that, as expected of any other resource subject to the requirements of Order No. 745, Distributed Curtailment Resources and Demand Response Resources receive compensation for curtailing their baseline demand.⁸¹

v. Data Request Response Protests

43. AEE/SFP continue to express concern that CAISO would not allow aggregations composed solely of demand resources to participate via the Distributed Energy Resource Aggregation model, or that CAISO will limit the ability of Distributed Energy Resource Aggregations to provide load reductions in the CAISO markets as a wholesale service.⁸² AEE/SFP allege that such a result would run contrary to the directives of Order No. 2222. AEE/SFP argue that, because the Commission expressly included demand response in the definition of Distributed Energy Resource, the directive to ensure that Distributed Energy Resources are able to provide all services they are technically capable of providing through the aggregation includes demand resources and the load reductions they offer.⁸³

44. Furthermore, AEE/SFP state, in failing to identify an interval within which a heterogeneous Distributed Energy Resource Aggregation must inject energy to

⁷⁸ Data Request Response at 6.

⁷⁹ Data Request at 6.

⁸⁰ Data Request Response at 6-7.

⁸¹ *Id.* at 7.

⁸² AEE/SFP Data Request Response Protest at 2.

⁸³ *Id.* at 2-3 (citing Order No. 2222, 172 FERC ¶ 61,247 at PP 115-118).

participate as a Distributed Energy Resource Aggregation, CAISO exposes potential aggregators and participating resources to unreasonable and unclear risks.⁸⁴ AEE/SFP argue that the threat of referral to the Market Monitor or Commission's Office of Enforcement is likely to chill Distributed Energy Resource participation in CAISO's markets and would not protect CAISO markets from manipulation or improper behavior.⁸⁵

45. In addition, AEE/SFP further explain that while the Commission in Order No. 2222 stated that it did not intend to disturb the market participation of existing aggregators, the Commission also acknowledged that existing models limit the operations of Distributed Energy Resources, as well as the services they are eligible to provide.⁸⁶ According to AEE/SFP, the Commission identified these limitations as a part of the legal basis for the directives of Order No. 2222. In order to comply with Order No. 2222, AEE/SFP argue, CAISO must show how its existing participation models comply with the rule or propose revisions according to the rule's directives.⁸⁷ AEE/SFP maintain that the Commission did not exempt or exclude review of whether existing Demand Response Resource rules fully allow participation as contemplated by Order No. 2222.⁸⁸

46. According to AEE/SFP, CAISO's other responses similarly fail to explain how demand response resources are able to provide all of the services they are technically capable of providing through aggregation in CAISO's markets.⁸⁹ AEE/SFP state that CAISO does not explain how the definition of Distributed Curtailment Resources facilitates the participation of demand response resources in aggregations. AEE/SFP also argue that CAISO has not explained how its existing baseline methodologies allow Demand Response Resources to fully participate in accordance with Order No. 2222. Finally, AEE/SFP state that the Commission should encourage CAISO to conduct a robust stakeholder process on these issues.⁹⁰

⁸⁴ *Id.* at 4.

⁸⁵ *Id.* at 4-5.

⁸⁶ *Id.* at 3 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 28).

⁸⁷ *Id.* at 5-6 (citing Order No. 2222, 172 FERC ¶ 61,247 at PP 102-103).

⁸⁸ *Id.* at 4.

⁸⁹ *Id.* at 5.

⁹⁰ *Id.* at 6.

vi. Commission Determination

47. We find that CAISO's proposal partially complies with the participation eligibility requirements of Order No. 2222. Specifically, we find that CAISO complies with the requirement to establish distributed energy resource aggregators as a type of market participant.⁹¹ Consistent with this requirement, CAISO defines a Distributed Energy Resource Provider as the owner or operator of one or more Distributed Energy Resource Aggregations that participates in the CAISO markets.⁹²

48. However, we find that CAISO only partially complies with the requirement to allow distributed energy resource aggregators to register distributed energy resource aggregations under one or more participation models in CAISO's Tariff that accommodate the physical and operational characteristics of the distributed energy resource aggregation. As expressly permitted by Order No. 2222, CAISO's proposal comprises a combination of new and existing participation models: (1) its existing Distributed Energy Resource Aggregation model; and (2) a new heterogeneous Distributed Energy Resource Aggregation model that can include technologies that inject to serve load and those that curtail demand. Order No. 2222 gave each RTO/ISO the flexibility to modify its existing participation models to facilitate the participation of distributed energy resource aggregations and/or to establish new participation models, as CAISO proposes here, and did not require that each RTO/ISO establish a single participation model that could accommodate every possible aggregation, so long as its proposal allows distributed energy resources to provide all services that they are technically capable of providing through aggregation.⁹³ With one exception discussed below, we find that CAISO's proposal satisfies this requirement because it allows homogeneous and heterogeneous aggregations to participate as resources directly in CAISO's energy and ancillary services markets.⁹⁴

49. We find that CAISO's proposal accommodates the physical and operational characteristics of aggregations that are not exclusively composed of demand response-type Distributed Energy Resources and allows Distributed Energy Resources in such aggregations to provide all services they are technically capable of providing through aggregation. However, we find that CAISO's proposal to not allow aggregators

⁹¹ Order No. 2222, 172 FERC ¶ 61,247 at P 130.

⁹² CAISO, CAISO eTariff, app. A (Definitions) (Distributed Energy Resource Provider) (0.0.0)).

⁹³ Order No. 2222, 172 FERC ¶ 61,247 at P 130.

⁹⁴ See CAISO, CAISO eTariff, § 4.17.1 (Relationship with Distributed Energy Resource Providers) (0.0.0).

of only demand response resources (i.e., homogeneous demand response aggregators) to participate as Distributed Energy Resource aggregators does not comply with Order No. 2222. CAISO asserts that allowing Distributed Energy Resource Aggregations to consist of demand response resources alone would not provide developers with any new market opportunities but would allow them to choose among Tariff requirements despite having no underlying difference in resource characteristics. We disagree. CAISO's existing demand response models (i.e., the Proxy Demand Resource (PDR) and Reliability Demand Response Resource (RDRR) Program), while compliant with Order Nos. 719 and 745, do not fully comply with Order No. 2222. For example, (1) CAISO's Reliability Demand Response Resource Program maintains a 500 kW minimum size threshold,⁹⁵ which does not comply with the directive of Order No. 2222 to implement a minimum size requirement not to exceed 100 kW for all distributed energy resource aggregations,⁹⁶ and (2) CAISO's Tariff provisions that allow the Utility Distribution Company to review the demand response provider's location detail and provide comments with regard to its accuracy⁹⁷ do not meet the requirements of Order No. 2222 for distribution utility review processes.⁹⁸ For example, CAISO does not address the requirement that RTOs/ISOs must include potential impacts on distribution system reliability as a criterion in the distribution utility review process, as discussed in further detail below. Moreover, Order No. 2222 requires that RTOs/ISOs must allow distributed energy resources to provide all services that they are technically capable of providing through aggregation,⁹⁹ including an aggregation solely with other demand response resources,¹⁰⁰ therefore, we disagree with CAISO that the participation of homogeneous demand response aggregations is outside the scope of Order No. 2222.

⁹⁵ *Id.* § 4.13.5, Characteristics of PDRs and RDRRs (1.0.0), § 4.13.5.2.2, RDRRs.

⁹⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 171.

⁹⁷ CAISO, CAISO eTariff, § 4.13.2 (Applicable Requirements for RDRRs, PDRs and DRPs) (4.0.0).

⁹⁸ Order No. 2222, 172 FERC ¶ 61,247 at PP 292-299; Order No. 2222-A, 174 FERC ¶ 61,197 at PP 70-72, 75-76.

⁹⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 130 (stating that the Commission will evaluate each proposal submitted on compliance to determine whether it meets the goals of the final rule to allow distributed energy resources to provide all services that they are technically capable of providing through aggregation).

¹⁰⁰ *Id.* P 118 (clarifying that, because demand response falls under the definition of distributed energy resource, an aggregator of demand response could participate as a

50. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that either: (1) revises its Distributed Energy Resource Aggregation model to allow a homogeneous aggregation of Distributed Curtailment Resources to participate; or (2) demonstrates that its existing demand response models are compliant with Order No. 2222. If CAISO chooses to demonstrate that its existing demand response models are compliant with Order No. 2222, CAISO may need to revise these models to comply with Order No. 2222, such that CAISO's Tariff contains an Order No. 2222-compliant set of market rules applicable to homogeneous demand response aggregations.

51. Finally, we find AEE/SFP's request that the Commission direct CAISO to take various actions to help enable Distributed Energy Resource Aggregations to provide resource adequacy to be outside of the scope of Order No. 2222. Order No. 2222 requires each RTO/ISO to establish tariff provisions that allow distributed energy resource aggregations to participate directly in RTO/ISO markets, which the Commission defined as "the capacity, energy, and ancillary services markets operated by the RTOs and ISOs."¹⁰¹ The California resource adequacy program is not an RTO/ISO-administered capacity market and, therefore, is outside the scope of the Commission's directives in Order No. 2222. However, we acknowledge CAISO's commitment to continue working with the CPUC and other Local Regulatory Authorities to develop methods for allowing Distributed Energy Resource Aggregations to provide resource adequacy capacity.

b. Types of Technologies

52. To implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, the Commission 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.¹⁰² In addition, to implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, 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).¹⁰³ The Commission explained that requiring that RTOs/ISOs allow heterogeneous aggregations will further enhance competition in RTO/ISO markets

distributed energy resource aggregator); *see id.* P 42 (referencing distributed energy resource aggregators that only aggregate demand resources).

¹⁰¹ *Id.* P 129 & P 1 n.2.

¹⁰² *Id.* P 141.

¹⁰³ *Id.* P 142.

by ensuring that complementary resources, including those with different physical and operational characteristics, can meet qualification and performance requirements such as minimum run times, which will help ensure that RTO/ISO markets produce just and reasonable rates.¹⁰⁴

53. With respect to the participation of demand response resources in distributed energy resource aggregations, the Commission stated that the benefits of allowing heterogeneous aggregations outweigh commenters' preferences to limit the types of resources that can participate in aggregations.¹⁰⁵ The Commission stated that the requirements in Order No. 745 would apply to demand response resources participating in heterogeneous aggregations.¹⁰⁶

54. 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.¹⁰⁷ In addition, the Commission clarified that, if an individual distributed energy resource is a behind-the-meter generator, it may participate within a distributed energy resource aggregation as a demand response resource or as a different type of distributed energy resource.¹⁰⁸ The Commission stated that, if the distributed energy resource participates as demand response, the requirements in Order No. 745 would apply, and the RTOs/ISOs are required to allow that distributed energy resource to aggregate with other types of distributed energy resources in a heterogeneous distributed energy resource aggregation. The Commission stated that, if the behind-the-meter resource participates as another type of distributed energy resource (i.e., not as a demand response resource), the requirements in Order No. 745 would not apply.

i. Filing

55. CAISO states that its Distributed Energy Resource Aggregation model does not distinguish between distributed generating supply technologies and energy storage, or

¹⁰⁴ *Id.* P 142.

¹⁰⁵ *Id.* P 145; *see also* Order No. 2222-A, 174 FERC ¶ 61,197 at P 54.

¹⁰⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 145.

¹⁰⁷ *Id.* P 42.

¹⁰⁸ *Id.* P 44.

among distributed and behind-the-meter resources.¹⁰⁹ CAISO further states that the definitions of Distributed Energy Resource, Distributed Energy Resource Aggregation, and Distributed Energy Resource Provider do not specify technologies.¹¹⁰ CAISO explains that heterogeneous Distributed Energy Resource Aggregations will be subject to all the requirements in proposed Tariff section 4.17.7—namely that these resource aggregations will participate under a single Resource ID and submit bids or self-scheduling for energy and ancillary services representing net injections/withdrawals.¹¹¹ CAISO states that the Scheduling Coordinator for heterogeneous Distributed Energy Resource Aggregations must calculate the demand curtailment at each interval under CAISO's existing demand response rules using one of CAISO's seven established demand response methodologies.¹¹²

56. CAISO states that it will settle each heterogeneous Distributed Energy Resource Aggregation as a single supply resource based on the sum of: (1) the net energy provided by its Distributed Energy Resources, accounting for any charging energy from energy storage resources; and (2) the demand curtailment provided by Distributed Curtailment Resources, represented as positive supply.¹¹³ CAISO explains that each Scheduling Coordinator must submit the following data points: (1) net injection or withdrawal from non-demand curtailment Distributed Energy Resources; (2) demand curtailment by demand curtailment resources; (3) the load or generator output baseline used to calculate demand curtailment; and (4) the underlying energy or consumption during all hourly intervals for the calendar days for which meter data was collected to develop the baseline. CAISO indicates that it successfully instituted nearly identical data requirements in its Energy Storage and Distributed Energy Resource Phase II stakeholder initiative.¹¹⁴

57. CAISO notes that, consistent with the requirement of Order No. 2222-B that demand response resources be subject to the net benefits test to ensure that dispatching a resource to curtail demand is cost-effective relative to supply, CAISO proposes to apply

¹⁰⁹ Transmittal at 9.

¹¹⁰ *Id.* at 9 n.44.

¹¹¹ *Id.* at 10.

¹¹² *Id.* at 11.

¹¹³ *Id.*

¹¹⁴ *Id.* at 11-12. CAISO explains that its Energy Storage and Distributed Energy Resource Phase II stakeholder initiative sought to remove barriers to distributed energy resource participation generally and address emerging issues regarding energy storage. *Id.* at 5.

the net benefits test as a bid floor, so that Scheduling Coordinators for heterogeneous Distributed Energy Resource Aggregations must bid above the market clearing price established by the net benefits test.¹¹⁵ CAISO explains that this proposal is consistent with its compliance with Order No. 745, whereby CAISO applies the market clearing price established by the net benefits test as a bid floor for demand response resources. CAISO argues that it has no mechanism by which to apply the net benefits test to only part of an aggregation.¹¹⁶ CAISO asserts that it does not believe that its application of the net benefits test will constrain heterogeneous Distributed Energy Resource aggregations because it has no reason to believe that Distributed Energy Resources providing demand response within a Distributed Energy Resource Aggregation would have economics different than homogeneous demand response aggregations, which generally submit bids among the most expensive.¹¹⁷ In addition, CAISO notes that the net benefits test frequently establishes a market clearing price of \$0/MWh.

ii. Protests

58. CPower states CAISO is incorrect that applying the net benefits test to all Distributed Energy Resources in a heterogeneous aggregation is unavoidable.¹¹⁸ CPower contends that there is nothing in Order No. 2222 that necessitates applying the net benefits test to the entirety of a heterogeneous aggregation that includes demand response, and that imposing the test on the aggregated offer of those resources would erect a new barrier to their participation.

59. CPower asserts that the net benefits test was not intended to be applied to other types of Distributed Energy Resources but to ensure that demand response resources did not receive wholesale compensation if their offers did not create net benefits at the wholesale level.¹¹⁹ Applying the test to an entire aggregation, CPower argues, would inhibit a heterogeneous Distributed Energy Resource Aggregations from making offers as a price taker, and—in instances where the market clearing price was lower than the net benefits threshold—would prevent the Distributed Energy Resource Aggregation from

¹¹⁵ *Id.* at 12.

¹¹⁶ *Id.* at 12-13.

¹¹⁷ *Id.* at 13.

¹¹⁸ CPower Protest at 11.

¹¹⁹ *Id.* at 11-12.

clearing.¹²⁰ CPower further suggests that this could lead to more efficient or environmentally beneficial resources failing to clear in CAISO's markets.

60. CPower points out that, contrary to CAISO's assertions that any other approach is unworkable, NYISO appears to have proposed a straightforward means of applying the test to only demand response resources upon settlement.¹²¹ CPower, therefore, asks that the Commission reject CAISO's approach and direct an approach which applies the net benefits test to only the demand response resources in a heterogeneous aggregation.¹²²

iii. Answer

61. CAISO concedes that it could be possible to create a means to apply the net benefits test in settlement but that doing so is neither sensible nor required by Order No. 2222.¹²³ CAISO avers that energy injections and demand response are not simply a question of settlement, and that both reliability and market efficiency depend on the Distributed Energy Resource Aggregation's ability to respond to dispatch. CAISO further states that when a heterogeneous Distributed Energy Resource Aggregation bids, CAISO has no means of knowing whether its response to dispatch will come in the form of energy injection or demand curtailment.¹²⁴ With only back-end settlement corrections, CAISO argues, the aggregation risks responding to dispatch while failing the net benefits test.¹²⁵

62. CAISO disagrees with CPower that its application of the net benefits test creates a barrier.¹²⁶ CAISO reiterates that there is no reason to believe that Distributed Energy Resources providing demand response within a Distributed Energy Resource Aggregation would have economics different from those using the Proxy Demand

¹²⁰ *Id.* at 12.

¹²¹ *Id.* (citing New York Independent System Operator, Inc., Compliance Filing, Docket No. ER21-2460-000, Transmittal at 23-24 (filed July 19, 2021)).

¹²² *Id.*

¹²³ CAISO Answer at 20.

¹²⁴ *Id.* at 20-21.

¹²⁵ *Id.* at 21.

¹²⁶ *Id.* at 22.

Resource model, which generally submit bids among the most expensive, whereas the net benefits test frequently creates a market clearing price of \$0/MW.¹²⁷

63. CAISO notes that reverting to applying the net benefits test in settlement would pose significant costs by delaying CAISO's ability to implement software enhancements to comply with Order No. 2222 and requiring each demand response resource to be within the same load-serving territory.¹²⁸ CAISO argues that unlike the bid floor approach, reverting back to the single load entity approach could be a potential barrier to Distributed Energy Resource Aggregations.¹²⁹ CAISO notes that it changed its application of the net benefits test for homogeneous demand response aggregations from settlement adjustment to a bid floor in 2019.¹³⁰ In that filing, CAISO argues that it explained that when it applied the net benefits test upon settlement, it required aggregations of demand response to be located within the same load-serving territory; otherwise, the default load adjustment would be too complex to manage, making it difficult to determine how to allocate costs proportionately to each load-serving entity.

iv. Data Request Response

64. In the Data Request, Commission staff asked CAISO to explain why it must dispatch and settle a bid from a Distributed Energy Resource Aggregation as a single resource.¹³¹ In response, CAISO states that it dispatches and settles bids and performance at a Resource ID level, and that under the Distributed Energy Resource Aggregation model, the aggregation (not the individual resources) has the Resource ID. CAISO explains that aside from the 100 kW requirement, nothing prevents a Distributed Energy Resource Provider from registering as many aggregations as it wants. CAISO states that a Distributed Energy Resource Provider could choose to change its registration to be bid and settled as two Distributed Energy Resource Aggregations, but once the registration is finalized, CAISO will optimize and settle each aggregation as a single resource.

¹²⁷ *Id.* at 21.

¹²⁸ *Id.* at 22.

¹²⁹ *Id.* at 23.

¹³⁰ *Id.* at 22 (citing Cal. Indep. Sys. Operator Corp., ESDER 3 Transmittal, Docket No. ER19-2733-000 at 9 (filed Sep. 3, 2019); *Cal. Indep. Sys. Operator Corp.*, Docket No. ER19-2733-000 (Nov. 6, 2019) (delegated order)).

¹³¹ Data Request at 6.

65. In response to Commission staff's question as to 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,¹³² CAISO states that it does not have such a capability.¹³³ According to CAISO, developing such bidding parameters would require significant time and expense because of robust Distributed Energy Resource and demand response participation in the CAISO markets, and the attractiveness of retail programs for small Distributed Energy Resources.

66. As to whether applying the net benefits test to the entirety of an aggregation could prevent a Distributed Energy Resource Aggregation that is capable of providing energy injections or withdrawals from economically clearing the market,¹³⁴ CAISO argues that such an outcome is possible but not likely, and that if it did occur, it would not pose an meaningful barrier to Distributed Energy Resource Aggregation participation in CAISO markets.¹³⁵ CAISO reiterates that the market clearing price established by the net benefits test historically is very low, and it never has exceeded the average wholesale energy price; therefore, Distributed Energy Resources providing energy injections are very unlikely to have costs below the market clearing price.¹³⁶ Furthermore, CAISO avers, such a scenario would only occur when a Distributed Energy Resource Aggregation's Distributed Curtailment Resources are not providing demand response services in the same interval as its energy-injecting Distributed Energy Resources. In such a scenario, CAISO posits, the aggregator would much more likely forego the heterogeneous Distributed Energy Resource Aggregation model and, instead, form a homogeneous Distributed Energy Resource Aggregation of energy-injecting Distributed Energy Resources—which would not be subject to the net benefits test—and a separate aggregation of end users under one of CAISO's demand response models. CAISO further notes that the economic incentive challenges Distributed Energy Resource Aggregations may face, such as competition from net metering programs or other wholesale models, does not make this potential outcome a meaningful barrier to Distributed Energy Resource Aggregation participation.

¹³² *Id.*

¹³³ Data Request Response at 7.

¹³⁴ Data Request at 6-7.

¹³⁵ Data Request Response at 7-8.

¹³⁶ *Id.* at 8.

v. Commission Determination

67. We find that CAISO's proposal complies with the requirements of Order No. 2222 with respect to types of technologies. We find that CAISO complies with the requirement to not prohibit any particular type of distributed energy resource technology from participating in distributed energy resource aggregations.¹³⁷ CAISO's proposal, which includes a technology-neutral definition for Distributed Energy Resource, does not prohibit any type of technology from participating in a Distributed Energy Resource Aggregation.¹³⁸

68. In addition, we find that CAISO complies with the requirement to allow heterogeneous aggregations.¹³⁹ Specifically, we find that CAISO's heterogeneous Distributed Energy Resource Aggregation participation model complies with this directive by allowing both injecting and demand curtailing resources (i.e., Distributed Curtailment Resources) to aggregate and participate in CAISO's markets as a single supply resource.¹⁴⁰

69. We also find that CAISO complies with the requirement of Order No. 2222 to apply the requirements of Order No. 745 to demand response resources participating in heterogeneous aggregations.¹⁴¹ CAISO applies the requirements of Order No. 745 to Distributed Curtailment Resources by curtailing load from a validly established baseline and applying the market clearing price established by the net benefits test as a bid floor for Distributed Curtailment Resources.

70. Next, we find that CAISO's application of the net benefits test complies with Order No. 2222 because it applies the net benefits test to all demand response resources participating in Distributed Energy Resource Aggregations. Furthermore, this approach is consistent with CAISO's existing Commission-approved¹⁴² application of that test to

¹³⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 141.

¹³⁸ *See supra* P 17.

¹³⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 142.

¹⁴⁰ Transmittal at 9; *id.* at 10 n.49 (citing CAISO, CAISO eTariff, § 4.17.7 (Heterogeneous Distributed Energy Resource Aggregations) (0.0.0)).

¹⁴¹ Order No. 2222, 172 FERC ¶ 61,247 at P 145; Order No. 2222-B, 175 FERC ¶ 61,227 at P 43 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 145).

¹⁴² *See Cal. Indep. Sys. Operator Corp.*, Docket No. ER19-2733-000 (Nov. 6, 2019) (delegated order).

homogeneous demand response aggregations.¹⁴³ In response to CPower, while Order No. 2222 did not specifically discuss applying the net benefits test to the entirety of a heterogeneous aggregation that includes demand response, we find that CAISO's approach is reasonable and compliant with the requirements of Order No. 2222 because it does not result in a practical barrier to heterogeneous aggregations. As CAISO asserts, the net benefits test frequently establishes a market clearing price of \$0/MWh, whereas, in 2021, the market-clearing price ranged from \$16/MWh to \$41/MWh.¹⁴⁴ In addition, CAISO notes that demand response aggregations are frequently some of the highest bids dispatched, and that heterogeneous aggregations may bid similarly.¹⁴⁵ However, the bidding behavior of heterogeneous aggregations would not present a barrier to their participation so long as any bids by such aggregations exceed CAISO's threshold price established by the net benefits test, which, as explained above, has historically been low, according to CAISO. As a result, Distributed Energy Resources that are not Distributed Curtailment Resources in heterogeneous aggregations are unlikely to experience any barriers to participation in CAISO based on historic market-clearing prices established by the net benefits test.

c. Double Counting of Services

71. To implement section 35.28(g)(12)(ii)(a) of the Commission's regulations, the Commission in Order No. 2222 allowed RTOs/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.¹⁴⁶ 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 multiple wholesale services; and (3) include any appropriate restrictions on the distributed energy resources' participation in RTO/ISO markets through distributed energy resource

¹⁴³ Transmittal at 12 (citing CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.6 (providing that CAISO applies the market clearing price established by the net benefits test as a bid floor for heterogeneous Distributed Energy Resource Aggregations); CAISO, CAISO eTariff, § 30.6.3 (Net Benefits Test for PDRs or RDRRs) (4.0.0) (providing that CAISO applies the market clearing price established by the net benefits test as a bid floor for demand response resources)).

¹⁴⁴ *Id.* at 13.

¹⁴⁵ *Id.*

¹⁴⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 160.

aggregations, if narrowly designed to avoid counting more than once the services provided by distributed energy resources in RTO/ISO markets.¹⁴⁷

72. The Commission in Order No. 2222 found that it is appropriate for RTOs/ISOs to place narrowly designed restrictions on the RTO/ISO market participation of distributed energy resources through aggregations, if necessary to prevent double counting of services.¹⁴⁸ Thus, the Commission found that it is appropriate for RTOs/ISOs to place restrictions on the RTO/ISO market participation of distributed energy resources through aggregations after determining whether a distributed energy resource that is proposing to participate in a distributed energy resource aggregation is: (1) registered to provide the same services either individually or as part of another RTO/ISO market participant;¹⁴⁹ 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.¹⁵⁰ The Commission provided RTOs/ISOs with regional flexibility with respect to the restrictions that they propose in their tariffs to minimize market impacts caused by the double counting of services provided by distributed energy resources in RTO/ISO markets.¹⁵¹

73. In Order No. 2222-A, the Commission clarified that, when the Commission stated that "if a distributed energy resource is offered into an RTO/ISO market and is not added back to a utility's or other load serving entity's load profile, then that resource will be double counted as both load reduction and a supply resource," the Commission was indicating that, for planning purposes, double counting of services would occur if the same distributed energy resource reduces the amount of a service that an RTO/ISO

¹⁴⁷ *Id.*

¹⁴⁸ *Id.* P 161. For instance, the Commission explained that, if a distributed energy resource is offered into an RTO/ISO market and is not added back to a utility's or other load serving entity's load profile, then that resource will be double counted as both load reduction and a supply resource. Also, the Commission stated that, if a distributed energy resource is registered to provide the same service twice in an RTO/ISO market (e.g., as part of multiple distributed energy resource aggregations, as part of a distributed energy resource aggregation and a standalone demand response resource, and/or a standalone distributed energy resource), then that resource would also be double counted and double compensated if it clears the market as part of both market participants. *Id.*

¹⁴⁹ For example, as part of another distributed energy resource aggregation, a demand response resource, and/or a standalone distributed energy resource. *Id.* P 161 n.414.

¹⁵⁰ *Id.* P 161.

¹⁵¹ *Id.* P 164.

procures on a forward-looking basis in a certain time period while also acting as a provider of that same service in that same delivery period.¹⁵² Further, the Commission clarified that, to the extent that an RTO/ISO already has restrictions in place to avoid double counting of services, it is not required to propose new restrictions but rather must explain on compliance how these existing restrictions prevent double counting.¹⁵³ Such restrictions would only be appropriate “if necessary to prevent double counting of services,”¹⁵⁴ and each RTO/ISO must otherwise “allow distributed energy resources that participate in one or more retail programs to participate in its wholesale markets.”¹⁵⁵

74. In Order No. 2222-B, the Commission clarified that payment of full locational marginal price in the energy market to behind-the-meter distributed energy resources participating as demand response resources in distributed energy resource aggregations does not constitute double counting, so long as the requirements of Order No. 745, including the net benefits test, are satisfied.¹⁵⁶

i. Filing

75. CAISO asserts that it complies with the requirements of Order No. 2222 that distributed energy resource aggregations be permitted to participate in retail and wholesale markets.¹⁵⁷ CAISO notes that it does not restrict a Distributed Energy Resource Aggregation from providing any market or service, as long as it meets the requirements for eligibility. Similarly, CAISO states, Distributed Energy Resource Aggregations are allowed to provide multiple wholesale services, akin to other supply resources.

76. CAISO argues that it has existing Tariff provisions that protect against double counting. Specifically, CAISO cites to section 4.17.3(d), which prevents a Distributed Energy Resource from participating in a Distributed Energy Resource Aggregation if that resource already participates in a retail net energy metering program that does not

¹⁵² Order No. 2222-A, 174 FERC ¶ 61,197 at P 63 (quoting Order No. 2222, 172 FERC ¶ 61,247 at P 161).

¹⁵³ *Id.* P 64 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 161).

¹⁵⁴ *Id.* (quoting Order No. 2222, 172 FERC ¶ 61,247 at P 161).

¹⁵⁵ *Id.* (quoting Order No. 2222, 172 FERC ¶ 61,247 at P 160).

¹⁵⁶ Order No. 2222-B, 175 FERC ¶ 61,227 at P 43.

¹⁵⁷ Transmittal at 14.

expressly permit wholesale market participation.¹⁵⁸ CAISO states that this provision is not an outright prohibition, in that the rule allows for dual participation in a net energy metering program and the CAISO markets where the retail tariff authorizes participation in the wholesale markets. CAISO avers that this rule ensures that the applicable Utility Distribution Company will work with CAISO and the Distributed Energy Resource Provider to resolve concerns about Distributed Energy Resources that participate in net energy metering programs should they arise.

77. CAISO states that rather than try to offer a prescriptive list of retail programs that could present double-counting issues, it proposes two broad Tariff provisions.¹⁵⁹ First, CAISO states that it proposes language providing that a Distributed Energy Resource Aggregation “may not receive compensation from retail programs for capacity, Energy, or other services it provides the CAISO Markets.”¹⁶⁰ CAISO states that in proposing this provision, it aims to create a compliance obligation on the Distributed Energy Resource Aggregation and the Distributed Energy Resource Provider to avoid double counting. Second, CAISO states that it proposes to require the Utility Distribution Company and CAISO to confer about any concerns that a Distributed Energy Resource Aggregation could “receive compensation from retail programs for capacity, Energy, or other services that would be offered to the CAISO Markets.”¹⁶¹ CAISO states that it intends for this provision to allow Utility Distribution Companies to verify that the Distributed Energy Resources in an aggregation are not already receiving compensation from other programs that could led to double counting.¹⁶² CAISO states that, should the Utility Distribution Company raise any such concerns, CAISO will notify the Distributed Energy Resource Provider, which it expects to work with the Utility Distribution Company toward resolution.

78. CAISO contends that, through its Utility Distribution Company coordination process, it already complies with the requirement of Order No. 2222 to only restrict the RTO/ISO market participation of Distributed Energy Resources through aggregations after determining whether a Distributed Energy Resource proposing to participate in a Distributed Energy Resource Aggregation is: (1) registered to provide the same services

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Id.* (citing CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(h)).

¹⁶¹ *Id.* at 14-15 (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

¹⁶² *Id.* at 15.

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 CAISO market.¹⁶³ CAISO states that its Utility Distribution Company coordination process verifies that each Distributed Energy Resource is not already participating in another Distributed Energy Resource Aggregation or retail or wholesale demand response program, and that the proposed new double-counting provisions will also serve to mitigate any risk of double counting.

ii. Protests

79. AEE/SFP contend that the existing Distributed Energy Resource Aggregation model requires Distributed Energy Resources to commit to participate exclusively in the CAISO markets, in such a way that it does not provide them a pathway to participate in one or more retail programs and the wholesale markets as required by Order No. 2222.¹⁶⁴ According to AEE/SFP, CAISO requires that participating Distributed Energy Resources be settled at wholesale prices for charging and discharging every hour, 24 hours a day, seven days per week; thus, CAISO prevents them from using offer parameters or other tools to hold themselves out to the wholesale market so that they can be available to participate in one or more retail programs.¹⁶⁵ They contend that the Distributed Energy Resource Aggregation model effectively forces Distributed Energy Resources to choose exclusively between participating in either retail or wholesale markets.¹⁶⁶ AEE/SFP assert that the existing Distributed Energy Resource Aggregation participation model does not comply with the requirement of Order No. 2222 that CAISO allow Distributed Energy Resources that participate in one or more retail programs to also participate in its wholesale markets or the requirement to only impose narrow restrictions on dual participation.¹⁶⁷ AEE/SFP elaborate that Distributed Energy Resources are typically adopted to provide a variety of services, with their primary use often to provide services under retail programs or meet customer needs behind the retail meter.¹⁶⁸ Therefore, according to AEE/SFP, precluding potential participants in Distributed Energy Resource Aggregations from taking advantage of opportunities outside the wholesale markets will limit the number and variety of aggregations that can be constructed, since some

¹⁶³ *Id.*

¹⁶⁴ AEE/SFP Protest at 6.

¹⁶⁵ *Id.* at 6-7.

¹⁶⁶ *Id.* at 6.

¹⁶⁷ *Id.* at 6-7.

¹⁶⁸ *Id.* at 7.

Distributed Energy Resources will not be installed without an opportunity for additional revenue streams. AEE/SFP argue that there are solutions to alleviate the complexities of compensation.

80. CPower alleges that CAISO's prohibition of participation in a net metering program that does not expressly permit wholesale market participation is an opt-in requirement, insofar as participation is prohibited unless the respective RERRA grants approval.¹⁶⁹ CPower argues that this provision far exceeds the Commission's decision not to require an opt-out,¹⁷⁰ and that this restriction invades the retail regulator's jurisdiction. CPower, therefore, asks that the Commission direct the deletion of paragraph (d) of section 4.17.3 as unnecessary and in violation of Order No. 2222.¹⁷¹

81. AEE/SFP also protest the net metering language in section 4.17.3(d) as it relates to ancillary services.¹⁷² AEE/SFP contend that retail net energy metering programs do not provide and are not compensated for wholesale ancillary services, thus eliminating any risk of double counting. AEE/SFP assert that avoidance of ancillary services costs by a net metering customer providing energy is purely a matter of retail cost allocation with no bearing on double counting for services provided.¹⁷³ AEE/SFP further state that a Distributed Energy Resource providing wholesale ancillary services while also participating in a retail net metering program is only receiving retail compensation for the energy incidentally provided. AEE/SFP request that the Commission require CAISO to update its Tariff to only prohibit Distributed Energy Resources in retail energy net metering programs from providing energy in the wholesale markets. AEE/SFP suggest that in the alternative, the Commission should direct CAISO to provide rigorous, settlement-grade accounting examples demonstrating how allowing net energy metering customers to provide ancillary services results in double counting.¹⁷⁴

82. In addition, AEE/SFP and CPower take issue with CAISO's proposed language in section 4.17.3(h), which provides that "A Distributed Energy Resource Aggregation may not receive compensation from retail programs for capacity, Energy, or other services it

¹⁶⁹ CPower Protest at 6 (citing CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.7.3(d)).

¹⁷⁰ *Id.* (citing Order No. 2222, 172 FERC ¶ 61,247 at P 56).

¹⁷¹ *Id.* at 7.

¹⁷² AEE/SFP Protest at 18.

¹⁷³ *Id.* at 19.

¹⁷⁴ *Id.* at 19-20.

provides the CAISO markets.”¹⁷⁵ AEE/SFP and CPower suggest that this provision is not narrowly designed, as required by Order No. 2222.¹⁷⁶

83. CPower points out that the Commission has expressly allowed dual participation, provided that the Distributed Energy Resource Aggregation is not being compensated for the same services.¹⁷⁷ CPower avers that, because CAISO’s proposed language is so vague, the language could be interpreted as suggesting that almost any type of retail arrangement could be subject to challenge, whether the Distributed Energy Resource in question is participating in a CAISO program or not. Similarly, AEE/SFP state that it is unclear what is meant by “capacity, energy, or other services.”¹⁷⁸ In order to avoid double counting the same wholesale services, CPower suggests that CAISO needs a system to verify that there are not duplicate registrations for the same customer.¹⁷⁹ CPower, therefore, asks the Commission to reject proposed Tariff section 4.17.3(h). CPower notes that retail compensation issues are of concern to retail regulators and should not fall under the Tariff.¹⁸⁰

84. CPower states that CAISO’s proposal will create all manner of unnecessary disputes.¹⁸¹ CPower asserts that experience in other RTO/ISO markets has shown that some load-serving entities and utilities at times seek to impede aggregator participation in wholesale markets.¹⁸² CPower asserts that CAISO itself lacks jurisdiction to resolve said disputes. CPower states disputes under section 4.17.3(h) will almost inevitably be referred back to retail regulators and the aggregator will likely have lost the customer to a program that will not cause delays.

85. AEE/SFP also argue that the proposed Tariff section 4.17.3(h) entirely ignores the framework put in place by the CPUC for multiple use applications of energy storage

¹⁷⁵ *Id.* at 15-18; CPower Protest at 7-10.

¹⁷⁶ CPower Protest at 5 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 160); AEE/SFP Protest at 15.

¹⁷⁷ CPower Protest at 8 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 159).

¹⁷⁸ AEE/SFP Protest at 15.

¹⁷⁹ CPower Protest at 9.

¹⁸⁰ *Id.* at 10-11.

¹⁸¹ *Id.* at 5, 7.

¹⁸² *Id.* at 8.

resources in 2018.¹⁸³ AEE/SFP contend that CAISO's proposed Tariff language raises unanswered questions about whether compensation received under the framework put in place by the CPUC would fall within the vague double-counting prohibition.

86. Additionally, AEE/SFP argue that the proposed Tariff section 4.17.3(h) risks an overly broad continued exclusion of Distributed Energy Resources from providing resource adequacy value.¹⁸⁴ AEE/SFP state that CAISO does not operate a capacity market and has no direct authority over capacity procurement for resource adequacy in California apart from the limited emergency use of a narrow capacity mechanism in its Tariff. AEE/SFP argue that, as a result, it is unclear how any retail program could provide compensation to a Distributed Energy Resource for capacity services it provides to the CAISO markets.

87. Finally, AEE/SFP argue that CAISO's proposal to limit the determination of whether double counting will occur to only the Utility Distribution Company and CAISO, two entities that are entirely divorced from the actual procurement and obligation of resources, is not just and reasonable and creates an unacceptable risk of undue discrimination.¹⁸⁵

iii. Answer

88. CAISO states that AEE/SFP's assertions about CAISO's 24-hour settlement requirements are inaccurate and beyond the scope of Order No. 2222.¹⁸⁶ CAISO states that allowing Distributed Energy Resource Aggregations to be settled only when they want would be unduly discriminatory. According to CAISO, nearly any supply resource could profit inappropriately from using their wholesale meter only at the opportune times. Specifically, CAISO explains that it would be profitable for any resource to participate in the wholesale markets only when its dynamic prices are high and rely on a static retail rate in other hours. However, CAISO states that settlement is merely the result of CAISO's market optimization that balances load and supply, ensuring reliability for the entire system. CAISO explains that the requirement for 24-hour settlement ensures resources cannot game the optimization and price formation simply to maximize their profits. CAISO states that if the Commission intended for Distributed Energy Resource Aggregations to be settled unlike any other supply resource, even though they are

¹⁸³ AEE/SFP Protest at 16.

¹⁸⁴ *Id.* at 17.

¹⁸⁵ *Id.*

¹⁸⁶ CAISO Answer at 9.

similarly situated to other supply resources, the Commission would have made that finding explicit in Order No. 2222.¹⁸⁷

89. CAISO also asserts that AEE/SFP's settlement claims are inaccurate. According to CAISO, the heterogeneous Distributed Energy Resource Aggregation model allows the Distributed Curtailment Resources within a Distributed Energy Resource Aggregation to be settled only when providing demand response services, not around the clock.¹⁸⁸ Moreover, CAISO contends that AEE/SFP do not explain why CAISO settlement rules force Distributed Energy Resources to commit solely to wholesale markets. According to CAISO, AEE/SFP fail to cite any example or otherwise explain how CAISO settlement impedes retail participation, nor do AEE/SFP specify a retail program or tariff that requires temporary wholesale participation. According to CAISO, the requirement of Order No. 2222 to allow retail participation is not a specific finding under FPA section 206 that RTOs'/ISOs' settlement rules are unjust and unreasonable and should be revised, and as such, AEE/SFP's arguments are out of scope.

90. CAISO disagrees that Tariff section 4.17.3(d) acts as an opt-in and counters that it is a reflection that Distributed Energy Resources providing energy in net energy metering programs do not have energy to provide the wholesale markets because they already receive retail compensation for that energy.¹⁸⁹ CAISO avers that Tariff section 4.17.3(d) clarifies that net energy metering participation constitutes double counting unless the retail authority has allowed for some level of differentiation between the markets.¹⁹⁰

91. CAISO argues that AEE fails to provide evidence the CAISO's tariff provisions are a barrier to Distributed Energy Resource Aggregations' ability to provide ancillary services.¹⁹¹ CAISO states that its proposed Tariff provision would allow net energy metering customers to provide energy or ancillary services where allowed by the retail tariff. CAISO further states that the provisions reflect that California net energy metering tariffs do not allow wholesale market participation and that the Commission has expressly ruled net energy metering customers are not Commission-jurisdictional.

92. CAISO agrees with AEE/SFP that community choice aggregators and other types of load-serving entities may have information relevant to the Distributed Energy

¹⁸⁷ *Id.* at 9-10.

¹⁸⁸ *Id.* at 10.

¹⁸⁹ *Id.* at 17-18.

¹⁹⁰ *Id.* at 18.

¹⁹¹ *Id.* at 17.

Resource Aggregation registration process.¹⁹² Accordingly, CAISO states that the Commission should require CAISO to include “and Load Serving Entity” after each reference to Utility Distribution Company in the second paragraph of section 4.17.4 of the Tariff.¹⁹³ CAISO states that this will allow load serving entities to raise any concern listed in that section and otherwise inform the registration process to ensure a safe, reliable, and market-efficient system.

93. CAISO states that it proposed a simple Tariff provision stating that if a Distributed Energy Resource within a Distributed Energy Resource Aggregation already receives wholesale compensation for a service, it may not receive retail compensation for that same service.¹⁹⁴ CAISO states that CPower and AEE/SFP imagine the worst with hypotheticals that create the constraints CAISO seeks to avoid in proposing this Tariff language. CAISO clarifies that it has no incentive to prohibit Distributed Energy Resources from participating in the Distributed Energy Resource Aggregation model. Rather, its provision on double counting was proposed as general language for two reasons: (1) to allow for flexibility to provide multiple services to both retail and wholesale markets; and (2) because it’s premature to provide an exhaustive list of all double counting scenarios.¹⁹⁵ CAISO avers that as retail programs allow for multiple use applications, and CAISO, the Utility Distribution Companies, and developers gain more experience with double counting scenarios, CAISO can enumerate permissible and prohibited examples in its manuals.

94. CAISO further argues that its general rule allows Distributed Energy Resources complete flexibility to provide multiple services if they do not receive compensation for the same service at both the retail and wholesale levels.¹⁹⁶ CAISO states that as long as ratepayers are not paying for something they would already receive through a retail program, any Distributed Energy Resource can provide service to the wholesale markets through an aggregation, that nothing in the CAISO tariff prevents this. According to CAISO, CPower and AEE/SFP misunderstand the ability of the Utility Distribution Company to prevent Distributed Energy Resources from entry due to double counting, that even before Order No. 2222, Utility Distribution Companies had no unilateral right to exclude a Distributed Energy Resource from a Distributed Energy Resource Aggregation. CAISO claims that Utility Distribution Companies can only raise concerns

¹⁹² *Id.* at 15-16.

¹⁹³ *Id.* at 16.

¹⁹⁴ *Id.* at 13.

¹⁹⁵ *Id.* at 12-13.

¹⁹⁶ *Id.* at 14-15.

in writing for the Distributed Energy Resource Provider to address and the local regulatory authority arbitrates disputes.

95. CAISO states that should the Commission find it warranted, CAISO can amend its double counting rules to clarify on compliance.¹⁹⁷

iv. Data Request Response

96. In its Data Request, Commission staff asked CAISO how it intends to ensure that a Distributed Energy Resource Aggregation does not receive retail compensation when providing the same services in CAISO markets and how it plans to address failure to comply with proposed section 4.17.3(h).¹⁹⁸ In response, CAISO states that it has neither visibility into nor jurisdiction over how much compensation a Distributed Energy Resource Aggregation receives from a retail program. CAISO suggests that it can only verify that a Distributed Energy Resource Aggregation does not receive wholesale compensation for the same energy, capacity, or service for which the Distributed Energy Resource Aggregation already receives retail compensation. CAISO further states that it must work with the Utility Distribution Company, load serving entity, and Distributed Energy Resource Aggregation to ensure any such aggregation is capable of providing CAISO energy, capacity, or wholesale services, and that other retail programs do not impede the provision of those services by the Distributed Energy Resource Aggregation. CAISO avers that its mechanism to avoid double counting is the Distributed Energy Resource Aggregation registration process, in that CAISO provides the Utility Distribution Company and load serving entity with the account numbers of each Distributed Energy Resource Aggregation participant.¹⁹⁹ CAISO contends that this process is already well established due to robust demand response participation, such that the Utility Distribution Company and load serving entity 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.²⁰⁰ CAISO states that absent resolution of any concerns identified by the Utility Distribution Company and load serving entity, CAISO would not allow the registration of the Distributed Energy Resource Aggregation to proceed.

97. In response to Commission staff's question as to how CAISO plans to assess "service differentiation" to determine whether the service in a retail market or program is

¹⁹⁷ *Id.* at 15.

¹⁹⁸ Data Request at 7-8.

¹⁹⁹ Data Request Response at 9-10.

²⁰⁰ *Id.* at 10.

the same as a service in the CAISO markets,²⁰¹ CAISO responds that its only goal in restricting double counting is to ensure that ratepayers are not paying twice for a service or paying for a service they will not receive because the retail program exhausts the Distributed Energy Resource's ability to participate at the wholesale level.²⁰² CAISO explains that it uses the term service differentiation to examine whether retail and wholesale programs, tariffs, or services meet this goal. CAISO contends that capacity or time differentiation could also allow for wholesale participation if programs or tariffs do not meet this goal. CAISO further explains that while providing exports under a net metering tariff does not leave any incremental energy for wholesale markets, the same site could provide demand response in CAISO markets as either a demand response resource or an aggregation. CAISO contends that there are many new and developing retail programs that could leave room for wholesale participation, and that it intends to enumerate in its business practice manuals both prohibited and permissible multiple-use applications as it gains additional real-world experience.²⁰³

v. Data Request Response Protests

98. AEE/SFP state CAISO's response does not explain how its broadly stated prohibition on Distributed Energy Resources participating in net metering programs is narrowly designed to ensure that services are not counted, and compensated for, more than once.²⁰⁴ AEE/SFP argue that CAISO's proposed rules and criteria for determining when double counting occurs appear overly broad, impermissibly vague, and inappropriately focused on the total compensation a Distributed Energy Resource may receive rather than whether it is being paid twice for the same service. AEE/SFP argue that CAISO's explanations in its answer do not distinguish between services that net metered Distributed Energy Resources are capable of providing in retail and wholesale markets and the compensation they are receiving for those services, as Order No. 2222 requires.²⁰⁵ AEE/SFP contend that CAISO assumes without explanation that selling energy in a retail net metering program exhausts all of the services a Distributed Energy Resources can provide.²⁰⁶ Moreover, AEE/SFP assert that CAISO's initial filing and response to Commission staff's data request leaves ambiguity regarding the ability to

²⁰¹ Data Request at 8.

²⁰² Data Request Response at 10.

²⁰³ *Id.* at 11.

²⁰⁴ AEE/SFP Data Request Response Protest at 7.

²⁰⁵ *Id.* at 7-8.

²⁰⁶ *Id.* at 8.

aggregate other assets co-located with Distributed Energy Resources that participate in a net metering program (e.g., electric vehicle charging equipment, energy storage) without encountering double-counting restrictions. AEE/SFP also take issue with CAISO's proposal, as explained in its answer, to leave the resolution of disputes regarding double-counting concerns to Local Regulatory Authorities. AEE/SFP explain that, while it may be reasonable for RTOs/ISOs to defer to state and local regulators to set forth guidance in their own retail programs regarding dual participation and double counting, there is virtually no such guidance in California's retail programs today. AEE/SFP state that in the absence of such guidance, CAISO appears to suggest that it will make its own determinations, but as explained above, it has provided only vague guidance on double counting and sets forth no definitive criteria for determining when double counting will prevent dual participation. AEE/SFP argue that, as a result, CAISO's proposal does not fully comply with Order No. 2222.

99. CPower argues that, given that CAISO "has neither visibility nor jurisdiction over how much compensation a [Distributed Energy Resource Aggregation] receives from a retail program," it seems inappropriate that CAISO would put itself in the middle of making determinations about the nature of retail services, as its proposed language in section 4.17.3(h) does.²⁰⁷ Rather, CPower asserts that CAISO's tariff restrictions to prevent double compensation must be confined to those permitted by Order No. 2222 and the tariff should be clear that the authority to determine eligibility for participation in a retail program rests solely with the RERRA.

100. CPower reiterates that Tariff section 4.17.3(h) is overbroad because the terms capacity, Energy, and other services are generic.²⁰⁸ CPower explains that a resource can provide service to both a retail and wholesale program without the scenario involving double compensation, and the Commission has expressly allowed dual participation programs, provided that the Distributed Energy Resource Aggregation is not receiving compensation for the same services.²⁰⁹ CPower argues that the proposed tariff language should be revised to reflect this understanding.

101. In addition, CPower expresses concern regarding CAISO's response that until issues raised by a utility or load serving entity are resolved, it "will not allow the registration of the [Distributed Energy Resource Aggregation] to proceed."²¹⁰ CPower

²⁰⁷ CPower Protest to Data Request Response at 4 (quoting Data Request Response at 9).

²⁰⁸ *Id.* at 3.

²⁰⁹ *Id.* at 4 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 159).

²¹⁰ *Id.* at 5 (quoting Data Request Response at 9).

states that this provides any party with an interest in delaying entry of the aggregated resource with both the ability and incentive to delay the matter.

102. Further, CPower states that CAISO's suggestion that clearer double-counting rules will be developed and placed in various business practice manuals only makes matters worse.²¹¹ CPower states that CAISO lacks the jurisdiction and competence to resolve retail issues. CAISO's suggestion to kick the can down the road on its vague and problematic language violates the Commission's "rule of reason," which acknowledges that matters which significantly affect rates, terms and conditions of service must be made part of the tariff rather than other documents.²¹² CPower asserts that the process envisioned by CAISO will institutionalize a barrier that will result in more delay and not be subject to direct Commission oversight. CPower argues that the Commission should order the deletion of the tariff clauses discussed herein and in CPower's protest which contribute to the lack of clarity and should direct the inclusion of tariff provisions consistent with the intent of Order No. 2222.

vi. Commission Determination

103. We find that CAISO's proposal partially complies with the double counting requirements of Order No. 2222. We find that CAISO's proposal complies with the requirement to allow distributed energy resource aggregations to provide multiple wholesale services.²¹³ CAISO's proposal allows Distributed Energy Resource Aggregations to provide multiple wholesale services, akin to other supply resources.²¹⁴ Further, CAISO's proposal does not restrict a Distributed Energy Resource Aggregation that meets the relevant eligibility requirements from participating in any market or from providing any service.

104. In addition, we find that CAISO's proposal partially complies with the requirement to include appropriate restrictions on distributed energy resources' participation in CAISO's markets through distributed energy resource aggregations, if narrowly designed to avoid counting more than once the services provided by distributed energy resource aggregations in CAISO's markets.²¹⁵ CAISO states that its proposal

²¹¹ *Id.* at 5.

²¹² *Id.* (citing *Demand Response Coal. v. PJM Interconnection, L.L.C.*, 143 FERC ¶ 61,061, at P 17 (2013)).

²¹³ Order No. 2222, 172 FERC ¶ 61,247 at P 160.

²¹⁴ *See* Transmittal at 14.

²¹⁵ Order No. 2222, 172 FERC ¶ 61,247 at P 160.

ensures that a Distributed Energy Resource in a Distributed Energy Resource Aggregation that already receives wholesale compensation for a service may not receive retail compensation for the same service to ensure ratepayers do not pay twice for the same service.²¹⁶ We find that CAISO's proposal, with the revisions that we direct below,²¹⁷ is compliant because it creates an obligation for the Distributed Energy Resource Aggregation and the Distributed Energy Resource aggregator to avoid double counting of services.

105. We disagree with protesters who allege that CAISO's proposal is not narrowly designed and therefore noncompliant with Order No. 2222. Rather, we find that CAISO's proposal is narrowly designed because it does not broadly prohibit Distributed Energy Resource Aggregation participation in CAISO's markets unless the aggregation is providing the same service in a retail program.²¹⁸ We acknowledge the complexity of defining the same service, as explained by CAISO, and note that Order No. 2222 allowed flexibility regarding any proposed restrictions.²¹⁹ Further, we find CAISO's plans to rely on the Distributed Energy Resource registration and distribution utility review processes compliant with the requirement to properly account for the different services that distributed energy resources provide in the RTO/ISO markets.²²⁰ Thus, we decline to require CAISO to include "and Load Serving Entity" after each reference to Utility Distribution Company in the second paragraph of section 4.17.4 of the Tariff.²²¹ We encourage CAISO to develop guidance as it gains experience with Distributed Energy Resource Aggregations to provide market participants with additional clarity.²²²

²¹⁶ CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(h)).

²¹⁷ See *infra* P 107.

²¹⁸ Order No. 2222, 172 FERC ¶ 61,247 at P 161 (explaining that an example of a situation where a narrowly-designed restriction would be appropriate is "if a distributed energy resource is registered to provide the same service twice in an RTO/ISO market" because then that resource would be double counted and double compensated if it clears the market as part of both market participants).

²¹⁹ *Id.* P 164.

²²⁰ Data Request Response at 9-10; Order No. 2222, 172 FERC ¶ 61,247 at P 160.

²²¹ CAISO Answer at 16.

²²² For example, we note that NYISO is developing a matrix to identify corresponding retail services and programs that overlap with NYISO-administered markets and will post the matrix on its public website. See N.Y. Indep. Sys. Operator,

106. However, we find that section 4.17.3(h) is not fully compliant with Order No. 2222 because it does not contain a restriction on Distributed Energy Resource Aggregations' participation in the CAISO markets to avoid double counting for the same services as required by Order No. 2222.²²³ CAISO proposes to require the Utility Distribution Company and CAISO to confer on any concerns, and states that, should the Utility Distribution Company raise any such concerns, CAISO would notify the Distributed Energy Resource Provider, which it expects to work with the Utility Distribution Company toward resolution. However, we agree with CPower that CAISO lacks jurisdiction to resolve any disputes related to compensation in retail programs and note that CAISO only has the ability to withhold compensation from wholesale programs. We further agree with CPower that any delay caused by concerns raised between CAISO and the Utility Distribution Company could lead the aggregator to lose customers to a program that will not cause delays. This concern would be particularly salient if the Utility Distribution Company and CAISO were to confer without the aggregator.

107. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises its Tariff section 4.17.3(h) as follows, or to propose an alternate revision that establishes an appropriate restriction on Distributed Energy Resources' participation in CAISO's markets:

A Distributed Energy Resource Aggregation may not receive compensation **for capacity, Energy, or other services it provides in CAISO's markets if it provides the same services in** ~~from retail programs. for capacity, Energy, or other services it provides the CAISO Markets.~~

108. In addition, we find that CAISO's proposal fails to comply with the requirement to allow distributed energy resources that participate in one or more retail programs to participate in its wholesale markets.²²⁴ Specifically, we find that proposed Tariff section 4.17.3(d), which provides that "[a] A Distributed Energy Resource participating in a Distributed Energy Resource Aggregation may not also participate in a retail net energy metering program that does not expressly permit wholesale market participation,"²²⁵ and criterion (3) in proposed Tariff section 4.17.4, which provides that a

Inc., Data Request Response, Docket No. ER21-2460-001 at 33 (filed Nov. 19, 2021); *see also*, *N.Y. Indep. Sys. Operator, Inc.*, 179 FERC ¶ 61,198, at P 139 (2022) (declining to require NYISO to include the matrix in its tariff).

²²³ Order No. 2222, 172 FERC ¶ 61,247 at PP 160-161.

²²⁴ *Id.* P 160.

²²⁵ CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(d).

Utility Distribution Company or Metered Subsystem²²⁶ may raise concerns with respect to whether the Distributed Energy Resources “are participating in a retail net energy metering program that does not expressly permit wholesale market participation . . .”,²²⁷ are not compliant with Order No. 2222. We agree with CPower that CAISO’s provisions would in effect provide all RERRAs and Utility Distribution Companies with an opt-in to Distributed Energy Resource Aggregation participation in the CAISO markets. CAISO’s approach is inconsistent with the Commission’s decision in Order No. 2222 to provide an opt-in mechanism exclusively to customers of utilities that distributed 4 million MWh or less in the previous fiscal year.²²⁸

109. We also find that CAISO’s proposed restriction discussed above is not narrowly designed to avoid counting more than once the services provided by distributed energy resources in RTO/ISO markets.²²⁹ While RERRAs, such as the CPUC, have the authority to condition participation in *their* retail net energy metering programs on resources not also participating in RTO/ISO markets, Order No. 2222 does not allow RTOs/ISOs to include in their tariffs broad prohibitions on wholesale market participation for an entire class of distributed energy resources.²³⁰ Further, we disagree with CAISO that net energy metering participation constitutes double counting unless the retail authority has allowed for some level of differentiation between the markets.²³¹ Rather, the Commission in Order No. 2222 stated that a single distributed energy resource can participate in both retail and wholesale programs and be compensated in each for providing “distinctly different services.”²³² DERs participating in net energy metering programs arguably can also provide distinctly different services

²²⁶ Every reference to a utility distribution company in the Tariff provisions regarding Distributed Energy Resource Aggregations also refers to metered subsystems. For concision, we have omitted the metered subsystem reference below; however, metered subsystems share all the utility distribution company rights and obligations for DERAs.

²²⁷ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

²²⁸ Order No. 2222, 172 FERC ¶ 61,247 at P 65.

²²⁹ *Id.* P 160.

²³⁰ *Id.* P 61.

²³¹ CAISO Answer at 18.

²³² Order No. 2222, 172 FERC ¶ 61,247 at P 164 (citing *N.Y. Pub. Serv. Comm’n v. N.Y. Indep. Sys. Operator, Inc.*, 158 FERC ¶ 61,137, at P 33 (2017)).

(e.g., ancillary services) without constituting a double counting concern, and CAISO's broad prohibition does not constitute a restriction that is narrowly designed to avoid counting more than once the services provided by DERs in CAISO's markets.

110. Further, we disagree with CAISO that Commission precedent establishes that net energy metering *customers* are not Commission-jurisdictional. Rather, Commission precedent holds that net energy metering *sales* are not subject to the Commission's jurisdiction.²³³ This same precedent states that the Commission has jurisdiction over "the sale of electric energy at wholesale,"²³⁴ which can be made by Distributed Energy Resource Aggregations,²³⁵ including those comprised of Distributed Energy Resources that may also be participating in retail programs, such as net energy metering programs.

111. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises its Tariff to remove proposed section 4.17.3(d) and criterion (3) in section 4.17.4, as discussed above.

112. Finally, AEE/SFP argue that CAISO requires that participating Distributed Energy Resources be settled at wholesale prices for charging and discharging every hour, 24 hours a day, seven days per week, and that, in doing so, CAISO prevents them from using offer parameters or other tools refrain from participating in the wholesale market so that they can be available to participate in one or more retail programs. We find that the directive of Order No. 2222 to allow distributed energy resources that participate in one or more retail programs to also participate in RTO/ISO wholesale markets does not mean that RTOs'/ISOs' settlement rules are unjust and unreasonable or should be revised to allow for such participation. As such, AEE/SFP's arguments on CAISO's settlement practices are beyond the scope of Order No. 2222.

d. Minimum and Maximum Size of Aggregation

113. 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.²³⁶

²³³ *Sun Edison LLC*, 129 FERC ¶ 61,146, at PP 19-20 (2009) (explaining that Sun Edison did not make a wholesale sale subject to the Commission's jurisdiction because the net metering participant purchasing from Sun Edison did not make a net sale to a utility).

²³⁴ *Id.*

²³⁵ Order No. 2222, 172 FERC ¶ 61,247 at P 40.

²³⁶ *Id.* P 171.

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.²³⁷

114. The Commission was not persuaded by commenters to adopt a maximum size requirement for distributed energy resource aggregations that span multiple pricing nodes.²³⁸ The Commission stated that it did not see a need to adopt such a requirement because, to the extent that RTOs/ISOs allow for multi-node distributed energy resource aggregations, distribution factors and bidding parameters should provide the RTOs/ISOs with the information from geographically dispersed resources in a distributed energy resource aggregation necessary to reliably operate their systems regardless of the size of the aggregation.

i. Filing

115. CAISO proposes to lower its minimum capacity requirement for Distributed Energy Resource Aggregations from 500 kW to 100 kW to comply with Order No. 2222.²³⁹

ii. Data Request Response

116. In its Data Request, Commission staff asked CAISO to explain how its 500 kW minimum size requirement in Appendix K of its Tariff for non-storage resources to provide Regulation, Spinning Reserve, or Non-Spinning Reserve as an ancillary service is consistent with the requirement to implement a minimum size requirement not to exceed 100 kW for all Distributed Energy Resource Aggregations.²⁴⁰ In response, CAISO states that it proposed a minimum size requirement for Distributed Energy Resource Aggregations of 100 kW, but that Order No. 2222 did not opine on the justness and reasonableness of existing ancillary service certification requirements, which are independent and separate from wholesale energy market participation requirements.²⁴¹

²³⁷ *Id.* P 172.

²³⁸ *Id.* P 174.

²³⁹ Transmittal at 16 (citing CAISO, CAISO eTariff, § 4.17.5 (Characteristics of Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.1 (Size Limits)).

²⁴⁰ Data Request at 9.

²⁴¹ Data Request Response at 11.

iii. Data Request Response Protests

117. AEE/SFP argue that CAISO's response falls short of meeting the burden under Order No. 2222 to ensure that distributed energy resources can provide all of the services they are technically capable of providing through aggregation, and that CAISO does not explain why a higher minimum size requirement is necessary.²⁴² AEE/SFP state that certification requirements are not independent from wholesale market requirements, as they directly impact whether resources are permitted to offer wholesale service. AEE/SFP argue that CAISO must either lower the minimum size requirement applied to the provisions of wholesale services or provide an explanation for why a higher minimum size is technically necessary for a given service.²⁴³

iv. Commission Determination

118. We find that CAISO's proposal partially complies with minimum and maximum size requirements of Order No. 2222. We find that CAISO's implementation of a minimum size requirement in Tariff section 4.17.5.1 not to exceed 100 kW for Distributed Energy Resource Aggregations is consistent with the requirements.

119. However, we agree with AEE/SFP that the ancillary services requirements protocol in Appendix K is not independent from wholesale market requirements. Order No. 2222 requires that RTOs/ISOs allow distributed energy resource aggregations to provide all of the capacity, energy, and ancillary services that they are technically capable of providing through aggregation.²⁴⁴ We find that the 500 kW minimum size requirements in Appendix K for resources other than electric storage resources to provide Regulation, Spinning Reserve, and Non-Spinning Reserve fail to comply with the 100 kW minimum size requirement established in Order No. 2222. We disagree with CAISO's suggestion that the 500 kW minimum size requirements in Appendix K are outside the scope of Order No. 2222 compliance. We find that the 100 kW minimum size requirement established in Order No. 2222 applies to all services that a distributed energy resource aggregation is capable of providing, including ancillary services.

120. Accordingly, we direct CAISO to file within 60 days of the date of issuance of this order, a further compliance filing that lowers the minimum size requirement in

²⁴² AEE/SFP Data Request Response Protest at 9.

²⁴³ *Id.* at 9-10 (citing Order No. 2222, 172 FERC ¶ 61,247 at PP 171, 173).

²⁴⁴ Order No. 2222, 172 FERC ¶ 61,247 at PP 130, 141.

Appendix K sections A.1.1.1, B.1.1, and C.1.1 from 500 kW to 100 kW for all Distributed Energy Resource Aggregations.²⁴⁵

121. Additionally, we note that depending on how CAISO chooses to respond to the directive to either: (1) revise its Distributed Energy Resource Aggregation model to allow a homogeneous aggregation of Distributed Curtailment Resources to participate such that CAISO's Tariff contains an Order No. 2222-compliant set of market rules applicable to homogeneous demand response aggregations; or (2) demonstrate that its existing demand response models are compliant with Order No. 2222 and revise these models as necessary to comply with Order No. 2222,²⁴⁶ CAISO may need to further revise the minimum size requirements in its Tariff for Distributed Energy Resource Aggregations. For example, CAISO may need to revise the 500 kW minimum load requirement for reliability demand response resources in Tariff section 4.13.5.2.2 (Reliability Demand Response Resources).

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

122. 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.²⁴⁷ Although the Commission declined to establish a specific maximum capacity requirement for individual distributed energy resources in an aggregation, the Commission directed each RTO/ISO to propose a maximum capacity requirement for individual distributed energy resources participating in its markets through a distributed energy resource aggregation or, alternatively, to explain why such a requirement is not necessary.²⁴⁸

i. Filing

123. CAISO asserts that it already complies with the minimum and maximum capacity requirements for Distributed Energy Resources participating in an aggregation under Order No. 2222. CAISO states that it does not have a minimum capacity requirement for

²⁴⁵ CAISO, CAISO eTariff, app. K (Ancillary Service Requirements Protocol) (14.0.0), art. A.1.1.1 and B.1.1

²⁴⁶ See *supra* P 50.

²⁴⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 179.

²⁴⁸ *Id.*

any Distributed Energy Resource in a Distributed Energy Resource Aggregation.²⁴⁹ CAISO explains that it capped individual Distributed Energy Resource capacity at one MW to participate in a Distributed Energy Resource Aggregation for the reasons discussed 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 Companies.²⁵⁰

ii. Data Request Response

124. In its Data Request, Commission staff asked CAISO to explain in more detail why CAISO specifically chose a one MW threshold for participation.²⁵¹ In response, CAISO states that individual generating units located in the CAISO balancing authority that are one MW or greater are ineligible to aggregate capacity through a Distributed Energy Resource Provider under its Tariff.²⁵² CAISO explains that those Distributed Energy Resource units measuring one MW or greater must instead participate in CAISO's markets as a participating generator. Further, CAISO asserts that the purpose of the Distributed Energy Resource Aggregation model is to allow smaller Distributed Energy Resources unable to meet minimum size requirements to aggregate together; allowing larger resources to aggregate defeats this purpose and leads to market-optimization and dispatch inefficiencies. CAISO claims that it received no feedback from developers challenging the one MW Distributed Energy Resource cap, and that it has had robust participation in wholesale markets from Distributed Energy Resources using stand-alone models.

125. Commission staff also asked CAISO to explain how exempting generators under one MW from certain requirement amounts to setting a maximum capacity requirement for Distributed Energy Resources at one MW, and specifically asked CAISO to explain if a generator-type Distributed Energy Resource greater than one MW could participate in a Distributed Energy Resource Aggregation so long as it met the requirements of Tariff

²⁴⁹ Transmittal at 16 (citing CAISO, CAISO eTariff, § 4.17 (Distributed Energy Resource Aggregations) (0.0.0)).

²⁵⁰ *Id.* (citing CAISO, CAISO eTariff, § 4.6.3 (Requirements for Certain Participating Generators) (6.0.0), § 4.6.3.2 (Exemption for Generating Units Less Than One MW); CAISO, CAISO eTariff, app. A (Definitions) (Participating Generator) (5.0.0)).

²⁵¹ Data Request at 9.

²⁵² Data Request Response at 12 (citing CAISO, CAISO eTariff, app. A (Definitions) (Participating Generator) (5.0.0)).

sections 4.6 and 10.1.3.²⁵³ In response, CAISO clarifies that section 4.6.3.2 of its Tariff pertains to distributed generating units that are *not* participating in CAISO markets, and is not relevant to generating units participating in Distributed Energy Resource Aggregations or to Order No. 2222. CAISO explains that it cited to section 4.6.3.2 because that provision later describes the exemption for generating units participating in an aggregation. CAISO asserts that it does not have a minimum size requirement for Distributed Energy Resources in a Distributed Energy Resource aggregation, only stand-alone Distributed Energy Resources participating individually in CAISO markets.²⁵⁴

iii. Data Request Response Protests

126. AEE/SFP claim that CAISO has not adequately explained why the one MW maximum capacity threshold is appropriate and meets the objectives of Order No. 2222.²⁵⁵

iv. Commission Determination

127. We find that CAISO's proposal complies with the minimum and maximum capacity requirements of Order No. 2222 because CAISO proposed a maximum capacity requirement for individual Distributed Energy Resources participating in its markets through a Distributed Energy Resource Aggregation.

128. We disagree with AEE/SFP's claim that CAISO has not adequately justified its one MW threshold. In Order No. 2222, the Commission explained that capping the maximum capacity size of an individual distributed energy resource participating in a distributed energy resource aggregation would ensure that larger resources are required to participate individually, thereby allowing RTOs/ISOs to independently model and verify the metering of these larger resources. CAISO states that it established a maximum capacity threshold for the reasons discussed 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 Companies. Further, CAISO notes that the purpose of the Distributed Energy Resource Aggregation model is to allow smaller Distributed Energy Resources the opportunity to participate,

²⁵³ Data Request at 10.

²⁵⁴ Data Request Response at 13.

²⁵⁵ AEE/SFP Data Request Response Protest at 10 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 181).

and that aggregations of larger resources create market efficiencies. Therefore, we find that CAISO's explanation sufficiently supports CAISO's one MW maximum threshold.

4. Distribution Factors and Bidding Parameters

129. 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.²⁵⁶ Specifically, the Commission required each RTO/ISO that allows multi-node aggregations to revise its tariff to: (1) require that distributed energy resource aggregators give to the RTO/ISO the total distributed energy resource 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 (2) incorporate appropriate bidding parameters into its participation models as necessary to account for the physical and operational characteristics of distributed energy resource aggregations.

130. The Commission stated that, in meeting the requirement to incorporate appropriate bidding parameters into its participation models as necessary to account for the physical and operational characteristics of distributed energy resource aggregations, each RTO/ISO must either: (1) incorporate appropriate bidding parameters that account for the physical and operational characteristics of distributed energy resource aggregations into its one or more new participation models for such aggregations; and/or (2) adjust the bidding parameters of the existing participation models to account for the physical and operational characteristics of distributed energy resource aggregations.²⁵⁷ The Commission noted that bidding parameters could include, for example, response rates, ramp rates, and upper and lower operating limits.²⁵⁸

131. The Commission stated that, in meeting the requirement to account for distribution factors and bidding parameters, each RTO/ISO may revise its tariff to manage the locational attributes of distributed energy resource aggregations in a manner that reflects the RTO's/ISO's unique network configuration, infrastructure, and existing operational processes.²⁵⁹ The Commission stated that it would evaluate each RTO's/ISO's proposal to ensure that it will provide the RTO/ISO with sufficient information from resources in a multi-node distributed energy resource aggregation that is necessary to reliably operate

²⁵⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 225.

²⁵⁷ *Id.* P 227.

²⁵⁸ *Id.* P 227 n.558.

²⁵⁹ *Id.* P 229.

its systems without imposing undue burden on individual distributed energy resources or utility distribution companies. The Commission stated that RTOs/ISOs that allow multi-node aggregations must, at a minimum, propose clear protocols explaining how a distributed energy resource aggregation can provide the required information and update that information when needed.

a. **Filing**

132. CAISO states that its existing Tariff complies with the requirements of Order No. 2222 involving distribution factors and bidding parameters.²⁶⁰ First, CAISO states that its Tariff specifically requires each Distributed Energy Resource Aggregation to provide a net response at its 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 bid²⁶¹ or as default factors in CAISO's master file.²⁶² Second, CAISO states that its Tariff requires Distributed Energy Resource Aggregations to submit the common bid components for supply resources,²⁶³ 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.²⁶⁴

b. **Protests**

133. AEE/SFP argue that, to comply with the requirement to incorporate bidding parameters needed to account for the physical and operational characteristics of

²⁶⁰ Transmittal at 18.

²⁶¹ *Id.* CAISO states that section 30.5.2.6 of the Tariff requires each distributed energy resource aggregation to submit distribution factors with each bid. If the scheduling coordinator does not submit the generation distribution factors for the bid, CAISO will use the distributed energy resource aggregation's default generation distribution factors registered in CAISO's master file.

²⁶² *Id.* (citing CAISO, CAISO eTariff, § 4.17.3 (Requirements for Distributed Energy Resource Aggregations) (2.0.0), § 4.17.3(f)).

²⁶³ *Id.* (citing CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.1 (Common Elements for Supply Bids)).

²⁶⁴ *Id.* (citing CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.6 (Supply Bids for Distributed Energy Resource Aggregations)). CAISO states that the contingency flag is a common tool for resources to designate when their reserve bids are Contingency Only.

Distributed Energy Resource Aggregations, CAISO should be directed to develop must-offer obligations and technical requirements for behind-the-meter storage and hybrid resources participating under the Distributed Energy Resource Provider model.²⁶⁵ AEE/SFP state that the lack of such parameters prevents these resources from providing resource adequacy under the CPUC resource adequacy program today.²⁶⁶ AEE/SFP contend that CAISO can conduct this work in advance of the CPUC establishing its own qualifying capacity methodology and can recommend a methodology to the CPUC. AEE/SFP state that even though the resource adequacy program is under the CPUC's authority, CAISO should take steps to lower barriers to Distributed Energy Resources providing resource adequacy.²⁶⁷

c. **Answer**

134. CAISO states that AEE/SFP's suggestion regarding must-offer obligations warrants CAISO's consideration, but is outside the scope of Order No. 2222 and the Commission should disregard it here.²⁶⁸

d. **Data Request Response**

135. In its Data Request, Commission staff asked CAISO to clarify whether CAISO requires Distributed Energy Resource Aggregations to update distribution factors if they change.²⁶⁹ In response, CAISO states that Scheduling Coordinators can update distribution factors with each bid based on which Distributed Energy Resources within the aggregation will respond to dispatch, or other temporary factors. CAISO states that the master file distribution factors are a default if the Scheduling Coordinator does not submit them as a bid component. CAISO states that Scheduling Coordinators should update the master file distribution factors if they become infeasible or otherwise inaccurate for the aggregation.²⁷⁰

136. Commission staff also asked CAISO to describe the protocols explaining how an aggregation updates its information in the master file and where in the Tariff or manuals

²⁶⁵ AEE/SFP Protest at 12-13.

²⁶⁶ *Id.* at 13.

²⁶⁷ *Id.* at 11.

²⁶⁸ CAISO Answer at 4.

²⁶⁹ Data Request at 11.

²⁷⁰ Data Request Response at 14.

these protocols are located.²⁷¹ In response, CAISO explains that master file update procedures are set forth in Attachment B to CAISO's Business Practice Manual for Market Instruments, and that CAISO processes master file updates within 11 days.²⁷²

e. Commission Determination

137. We find that CAISO's proposal complies with the requirement of Order No. 2222 to establish market rules that address distribution factors and bidding parameters for distributed energy resource aggregations.²⁷³

138. First, we find that CAISO's proposal complies with the requirement that each RTO/ISO that allows multi-node aggregations revise its tariff to require that distributed energy resource aggregators give to the RTO/ISO the total distributed energy resource 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. CAISO proposes to allow multi-node aggregations and, accordingly, CAISO's existing Tariff requires that Distributed Energy Resource aggregators provide to CAISO distribution factors with each bid reflecting the total Distributed Energy Resource Aggregation response that would be provided from each pricing node and register default distribution factors in CAISO's master file.²⁷⁴ Moreover, CAISO's Tariff requires that all information that the Distributed Energy Resource Provider provides CAISO regarding its operational and technical characteristics be accurate, which will ensure that Distributed Energy Resource Providers provide up-to-date distribution factors for their aggregations.²⁷⁵

139. In addition, we find that CAISO's proposal complies with the requirement to incorporate appropriate bidding parameters into its participation models as necessary to account for the physical and operational characteristics of distributed energy resource aggregations.²⁷⁶ Under CAISO's existing Tariff, Distributed Energy Resource

²⁷¹ Data Request at 11.

²⁷² Data Request Response at 14.

²⁷³ Order No. 2222, 172 FERC ¶ 61,247 at P 225.

²⁷⁴ Transmittal at 18; CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (20.0.0), § 30.5.2.6 (Supply Bids for Distributed Energy Resource Aggregations).

²⁷⁵ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

²⁷⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 227.

Aggregations must submit 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.²⁷⁷ Therefore, we find that CAISO's proposal will allow it to manage the locational attributes of multi-node Distributed Energy Resource Aggregations and ensure that it has sufficient information to reliably operate its system without imposing undue burden on individual Distributed Energy Resources or utility distribution companies, consistent with Order No. 2222.

140. We also find that CAISO has proposed clear protocols explaining how a Distributed Energy Resource Aggregation can provide the required information and update that information when needed, consistent with Order No. 2222.²⁷⁸ As CAISO explains, Distributed Energy Resource Aggregations must provide distribution factors and other bid components with each bid.²⁷⁹ Distributed Energy Resource Providers may also update the information registered in the master file through the master file update procedures, which are set forth in Attachment B to CAISO's Business Practice Manual for Market Instruments.²⁸⁰

141. Finally, consistent with our finding above,²⁸¹ we find to be outside the scope of this compliance proceeding AEE/SFP's argument that, in order to comply with the requirement of Order No. 2222 to incorporate the necessary bidding parameters, the Commission should direct CAISO to develop must offer obligations and technical requirements for certain Distributed Energy Resources to reduce barriers to providing resource adequacy. As discussed above, the California resource adequacy program is not an RTO/ISO-administered capacity market. Accordingly, we decline to direct CAISO to develop additional bidding parameters.

²⁷⁷ Transmittal at 18.

²⁷⁸ *Id.* at 18, 21; Data Request Response at 14; CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0); CAISO Business Practice Manual for Market Instruments, attach. B.

²⁷⁹ Transmittal at 18; CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (20.0.0), § 30.5.2.6 (Supply Bids for Distributed Energy Resource Aggregations).

²⁸⁰ Data Request Response at 14.

²⁸¹ *See supra* P 51.

5. Metering and Telemetry System Requirements

142. 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.²⁸² The Commission explained that it understood the need to balance, on one hand, the RTO's/ISO's need for metering and telemetry data for settlement and operational purposes, and, on the other hand, not imposing unnecessary burdens on distributed energy resource aggregators.²⁸³ Therefore, 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.

143. To implement this requirement, the Commission directed each RTO/ISO to explain, in its compliance filing, why its proposed metering and telemetry requirements are necessary.²⁸⁴ The Commission stated that this explanation should 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 distributed energy resource aggregators and individual resources in distributed energy resource aggregations that may create an undue barrier to their participation in RTO/ISO markets.

144. In Order No. 2222, the Commission stated that the distributed energy resource aggregator is the single point of contact with the RTO/ISO, responsible for managing, dispatching, metering, and settling the individual distributed energy resources in its

²⁸² Order No. 2222, 172 FERC ¶ 61,247 at P 262.

²⁸³ *Id.* P 263.

²⁸⁴ *Id.* P 264. For example, the Commission indicated that metering requirements could be necessary for the distributed energy resource aggregator to provide the settlement and performance data to the RTO/ISO, or to prevent double counting of services. *Id.* (referring to discussions on provision of such data and double counting); *see also* PP 159-64 (discussing requirements concerning double counting), 240 (discussing requirements concerning settlement and performance data). The Commission indicated that telemetry requirements could be necessary for the RTO/ISO to have sufficient situational awareness to dispatch the aggregation and the rest of the system efficiently. *Id.* P 264.

aggregation.²⁸⁵ The Commission further found that the distributed energy resource aggregator is the entity responsible for providing any required metering and telemetry information to the RTO/ISO.

145. The Commission stated that it would not require uniform metering requirements across all RTOs/ISOs, nor would it require each RTO/ISO to impose uniform metering requirements on individual distributed energy resources.²⁸⁶ Rather, the Commission provided flexibility to RTOs/ISOs to propose specific metering requirements, including any that may apply to individual distributed energy resources that the RTO/ISO demonstrates are needed to obtain any required performance data for auditing purposes and to address double compensation concerns. Similarly, the Commission provided flexibility to the RTO/ISO as to whether to propose specific telemetry requirements for individual distributed energy resources in an aggregation. The Commission stated that the need for such requirements may depend, for example, on whether the RTO/ISO allows multi-node aggregations or how multi-node aggregations are implemented.

146. The Commission stated that it would not require RTOs/ISOs to establish metering and telemetry hardware and software requirements for distributed energy resource aggregations that are identical to those placed on existing resources, or to establish different or additional metering and telemetry requirements for distributed energy resource aggregations.²⁸⁷ Rather, the Commission expected that RTOs/ISOs will base any proposed metering and telemetry hardware and software requirements for distributed energy resource aggregations on the information needed by the RTO/ISO while avoiding unnecessary requirements that may act as a barrier to individual distributed energy resources joining distributed energy resource aggregations or to distributed energy resource aggregations participating in the wholesale markets. However, the Commission required that metering data for settlement purposes at the distributed energy resource aggregation level be consistent with settlement data requirements for other resource types.

147. 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.²⁸⁸ The Commission further found that this requirement also applies to existing telemetry infrastructure. With respect to jurisdictional concerns raised by some

²⁸⁵ *Id.* P 266; *see id.* P 239.

²⁸⁶ *Id.* P 267.

²⁸⁷ *Id.* P 268.

²⁸⁸ *Id.* P 269.

commenters, the Commission noted that any additional RTO/ISO metering and telemetry requirements would not change those required by state or local regulatory authorities and would be required solely to assist with settlements and audits of activity in RTO/ISO markets, or to provide RTOs/ISOs with the real-time information needed to reliably and efficiently dispatch their systems.

148. In response to concerns about potential costs and burdens that could be imposed on distribution utilities as a result of the requirement that RTOs/ISOs rely on metering and telemetry data obtained through compliance with distribution utility or local regulatory authority metering system requirements whenever possible, the Commission stated that it expected that, in general, this information will be provided by individual distributed energy resources to distributed energy resource aggregators, and from distributed energy resource aggregators to RTOs/ISOs.²⁸⁹ However, 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 RERRAs 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.

149. Finally, the Commission found that the RTO/ISO tariffs should include a basic description of the metering and telemetry practices for distributed energy resource aggregations as well as references to specific documents that will contain further technical details.²⁹⁰

a. Filing

150. CAISO states that its existing Tariff complies with the metering and telemetry requirements of Order No. 2222.²⁹¹ CAISO explains that Distributed Energy Resource Aggregations are Scheduling Coordinator Metered Entities in CAISO, which means the Scheduling Coordinator and not 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.²⁹² CAISO explains that the settlement quality meter data must be an accurate

²⁸⁹ *Id.* P 270.

²⁹⁰ *Id.* P 271.

²⁹¹ Transmittal at 22.

²⁹² *Id.* at 21 (citing CAISO, CAISO eTariff, § 10.3.2 (Responsibilities of Scheduling Coordinators and the CAISO) (7.0.0), § 10.3.2.1.2 (Requirements for SCs Representing Distributed Energy Resource Aggregations); *id.* § 4.17.5 (Characteristics of

measure of the actual production or consumption of energy by a Distributed Energy Resource that comprises a Distributed Energy Resource Aggregation in each settlement period. Importantly, CAISO states, only the Distributed Energy Resource Aggregation itself is subject to the CAISO's wholesale metering requirements.

151. CAISO asserts that because each Distributed Energy Resource has interconnected under a retail tariff or a Wholesale Distribution Access Tariff (WDAT), CAISO does not impose its physical metering standards on each Distributed Energy Resource or Distributed Curtailment Resource.²⁹³ CAISO explains that section 4.17.5.2 of the Tariff expressly 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 Authority.²⁹⁴ According to CAISO, section 4.17.5.2 of the Tariff provides that if no tariff or local regulatory standards exist, then a Distributed Energy Resource will comply with the metering standards in CAISO's business practice manual for metering.

152. CAISO explains that, similar to other supply resources, CAISO only requires relatively larger capacity resources to provide real-time telemetry—at the aggregate level—to CAISO's energy management system.²⁹⁵ Specifically, CAISO states, any Distributed Energy Resource Aggregation providing ancillary services, and any Distributed Energy Resource Aggregation 10 MW or greater must provide direct telemetry consistent with CAISO's telemetry standards for supply resources.²⁹⁶ CAISO states that it does not require each Distributed Energy Resource to provide direct telemetry.

Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.2 (Metering and Telemetry)).

²⁹³ *Id.*

²⁹⁴ *Id.* at 21-22.

²⁹⁵ *Id.* at 22 (citing CAISO, CAISO eTariff, § 4.17.5 (Characteristics of Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.2 (Metering and Telemetry)).

²⁹⁶ *Id.* (citing CAISO, CAISO eTariff, § 4.17.5 (Characteristics of Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.2 (Metering and Telemetry) (citing CAISO, CAISO eTariff, § 7.6.1 (Actions for Maintaining Reliability Of CAISO Controlled Grid) (1.0.0))).

b. Protests

153. AEE/SFP argue that CAISO fails to comply with the requirement of Order No. 2222 to explain why its telemetry requirements are necessary and “are just and reasonable and do not pose an unnecessary and undue barrier to individual distributed energy resources joining a distributed energy resource aggregation.”²⁹⁷ AEE/SFP state that CAISO’s Distributed Energy Resource Provider model applies telemetry requirements to Distributed Energy Resources that provide ancillary services as part of an aggregation.²⁹⁸ AEE/SFP contend that these requirements are designed around conventional generation technologies, apply regardless of size, and require that telemetry systems be installed that are capable of transmitting status information every four seconds. AEE/SFP argue that CAISO does not explain how these requirements account for the unique physical and operational characteristics of Distributed Energy Resources and Distributed Energy Resource Aggregations as Order No. 2222 requires. AEE/SFP assert that, while CAISO relies on the Commission’s approval in 2016 of its telemetry requirements, CAISO must explain more fully how those existing rules comply with the Commission’s more recent requirements. In addition, AEE/SFP state that while it appears that CAISO does not require individual telemetry to provide *energy*, that does not explain how telemetry requirements apply to *ancillary services*, or why CAISO’s existing telemetry requirements are just and reasonable in compliance with Order No. 2222.²⁹⁹

154. CPower argues that CAISO fails to comply with the Commission’s expectations that metering and telemetry requirements do not impose “unnecessary burdens on distributed energy resource aggregators” and are “just and reasonable and do not pose an unnecessary and undue barrier to individual distributed energy resources joining a distributed energy resource aggregation.”³⁰⁰ Specifically, CPower argues that indirectly imposing telemetry requirements on small Distributed Energy Resources could become a costly barrier.³⁰¹ CPower alleges that, once the 10 MW aggregation threshold is reached, all resources in the aggregation will be subject to telemetry requirements.³⁰² CPower

²⁹⁷ AEE/SFP Protest at 8 (quoting Order No. 2222, 172 FERC ¶ 61,247 at PP 263-64).

²⁹⁸ *Id.*

²⁹⁹ *Id.* at 8-9.

³⁰⁰ CPower Protest at 3 (quoting Order No. 2222, 172 FERC ¶ 61,247 at P 263).

³⁰¹ *Id.* at 4.

³⁰² *Id.*

states that this is so because it would not be possible for an aggregator to provide aggregate telemetry without telemetering every Distributed Energy Resource in the aggregation, regardless of size. CPower suggests that, to avoid this costly barrier, an aggregator must ensure its Distributed Energy Resources remain below 10 MW, which is itself a barrier to aggregation.

155. CPower contends that the 10 MW threshold for requiring telemetry may be appropriate, provided that telemetry not be required for individual resources below a rated capacity of one MW per resource.³⁰³ CPower states that experience in CAISO and other RTO/ISO markets demonstrates that requiring telemetry for resources smaller than one MW imposes costs that make participation in wholesale markets infeasible.³⁰⁴

c. Answer

156. CAISO reiterates that its telemetry requirements would apply to the aggregation only, and not the individual Distributed Energy Resources.³⁰⁵

157. CAISO states that its paramount responsibility is reliability, that telemetry is essential for any grid operator to ensure reliability, and that its proposal ensures reliability.³⁰⁶ According to CAISO, without telemetry, it would have no real-time visibility of the availability or response that supply resources such as Distributed Energy Resource Aggregations provide.³⁰⁷ CAISO states that Distributed Energy Resource Aggregations' energy or load levels, response to CAISO dispatches, and online status as a supply resource would be indiscernible to CAISO. CAISO asserts that this becomes increasingly problematic as Distributed Energy Resource Aggregations become larger and begin to become a greater percentage of resources electing to provide ancillary services. According to CAISO, providing regulation, for example, requires a constant telemetry signal to maintain system frequency.

158. CAISO argues that CPower's suggestion to impose telemetry on individual Distributed Energy Resources over one MW would lead to contradictory results.³⁰⁸

³⁰³ *Id.*

³⁰⁴ *Id.* at 5.

³⁰⁵ CAISO Answer at 5 (citing Transmittal at 22).

³⁰⁶ *Id.* at 6, 7.

³⁰⁷ *Id.* at 6.

³⁰⁸ *Id.*

CAISO explains that very large Distributed Energy Resource Aggregations could avoid any telemetry requirements by simply excluding any Distributed Energy Resource over one MW. According to CAISO, CAISO and the Utility Distribution Company would then face significant energy flows from the Distributed Energy Resource Aggregation with no real-time visibility, jeopardizing the reliability of the distribution and transmission grids. CAISO states that, by contrast, CAISO's proposal ensures reliability and does not grant Distributed Energy Resource Aggregations any undue preference.

159. CAISO states that its proposal also affords Distributed Energy Resource Aggregations flexibility without risking reliability.³⁰⁹ CAISO explains that a 10 MW Distributed Energy Resource Aggregation could simply bifurcate into two Distributed Energy Resource Aggregations of five MW each, or 10 Distributed Energy Resource Aggregations of one MW each, and so forth. CAISO states that this ensures Distributed Energy Resource Aggregations are on a level playing field with other resources, and it ensures the capacity of each resource would not threaten reliability because CAISO would optimize each smaller Distributed Energy Resource Aggregation, thereby mitigating the impact a large Distributed Energy Resource Aggregation could create. CAISO also notes that its telemetry requirements are flexible, allowing for several different technologies and approaches.

160. CAISO states that its proposal does not grant Distributed Energy Resource Aggregations any undue preference, whereas CPower essentially is seeking unduly preferential treatment.³¹⁰ CAISO states that Distributed Energy Resource Aggregations' telemetry requirements are the same as demand response providers', and demand response providers have not identified telemetry requirements as a barrier to entry. Also, according to CAISO, a Distributed Energy Resource Aggregation is subject to the same telemetry requirements as any supply resource.

161. Contrary to CPower's assertions, CAISO contends that it has worked extensively with developers to prepare for complying with Order No. 2222, including surveying stakeholders on the barriers Distributed Energy Resource Aggregations may face to participate in the wholesale markets.³¹¹ CAISO states that the survey respondents did not cite telemetry requirements as a barrier to Distributed Energy Resource Aggregation participation.³¹²

³⁰⁹ *Id.* at 7.

³¹⁰ *Id.* at 7.

³¹¹ *Id.*

³¹² *Id.* at 8.

d. Data Request Response

162. In its Data Request, Commission staff asked CAISO to explain whether CAISO will allow a Distributed Energy Resource Aggregation to rely on meter data from the relevant distribution utility or relevant electric retail regulatory authority.³¹³ In response, CAISO clarified that it will allow a Distributed Energy Resource Aggregation to rely on such meter data if the data comes from a meter that complies with the Utility Distribution Company tariff and any standards of the Local Regulatory Authority. CAISO states that under its Tariff, the Scheduling Coordinator for the Distributed Energy Resource Aggregation is responsible for submission of this meter data.³¹⁴

163. Commission staff also asked CAISO to clarify whether there are circumstances under which metering and telemetry data will come from or flow through distribution utilities. If so, Commission staff asked CAISO to 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.³¹⁵ In its response, CAISO states that all supply resources are represented by Scheduling Coordinators authorized to represent the supply resource, and that 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 Utility Distribution Company.³¹⁶ CAISO further states that nothing prevents the Scheduling Coordinator from submitting data it receives from or shares with the Utility Distribution Company, and the Scheduling Coordinator may arrange with the Utility Distribution Company or any third party to obtain meter data on its behalf. In addition, CAISO explains that telemetry is a direct telecommunication from the resource—in this case, the Distributed Energy Resource Aggregation—and as such, telemetry cannot come from the Utility Distribution Company, but the Distributed Energy Resource Aggregation can provide telemetry to CAISO and the Utility Distribution Company from the same source. CAISO states that its direct telemetry requirements are flexible regarding equipment and can accommodate any Utility Distribution Company telemetry requirements. Finally, CAISO states that Distributed Energy Resource Aggregations are very similar to Proxy Demand Resources with respect to the sharing metering and telemetry data, and their aggregators have not expressed any challenges with metering and telemetry requirements.

³¹³ Data Request at 15.

³¹⁴ Data Request Response at 19.

³¹⁵ Data Request at 15.

³¹⁶ Data Request Response at 19.

164. In its Data Request, Commission staff asked CAISO to 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, Commission staff asked CAISO to provide an example of a possible configuration that would allow CAISO to receive direct telemetry.³¹⁷ In its response, CAISO clarifies that it is possible to receive direct telemetry from a Distributed Energy Resource Aggregation if not all Distributed Energy Resources within a Distributed Energy Resource Aggregation have direct telemetry.³¹⁸ CAISO explains that a Distributed Energy Resource Provider has the responsibility to aggregate data from the Distributed Energy Resources that comprise a Distributed Energy Resource Aggregation and make that aggregated data available to CAISO through telemetry, if telemetry requirements apply to the Distributed Energy Resource Aggregation because of its size or because it is providing ancillary services. Commission staff also asked whether an individual Distributed Energy Resource participating in a Distributed Energy Resource Aggregation could provide calculated rather than directly measured metering and telemetry data. In its response, CAISO states that a Distributed Energy Resource Provider could acquire the data on each Distributed Energy Resource by any means, including calculation.³¹⁹

e. Data Request Response Protests

165. CPower states that, while encouraging, it is not clear what CAISO means by the aggregator “acquir[ing] the data . . . by any means, including by calculation,” and that some additional detail would be helpful in defining the obligation.³²⁰ CPower states that CAISO’s response suggests that some form of calculated data could be used in lieu of both direct metering and telemetry, and that if that is the case, the Tariff should say so. CPower states that the Tariff should be clear when telemetry, as opposed to calculated or estimated values, is and is not required.³²¹

³¹⁷ Data Request at 15.

³¹⁸ Data Request Response at 20.

³¹⁹ *Id.*

³²⁰ CPower Protest to Data Request Response at 6 (quoting Data Request Response at 20).

³²¹ *Id.* at 7.

f. Commission Determination

166. We find that CAISO's proposal partially complies with the metering and telemetry system requirements of Order No. 2222. As discussed below, we find that CAISO's proposal partially complies with the requirement 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 because of a lack of sufficient specificity in its Tariff with respect to its telemetry requirements. In addition, as discussed below, we find that CAISO's proposal partially complies with the requirement to explain why its proposed metering and telemetry requirements for distributed energy resource aggregations are just and reasonable and do not pose an unnecessary and undue barrier to individual distributed energy resources joining a distributed energy resource aggregation because of the lack of specificity noted above.

167. With respect to metering, we find that CAISO's proposal complies with the requirement for each RTO/ISO to revise its tariff to establish market rules that address metering requirements necessary for distributed energy resource aggregations to participate in its markets. CAISO's proposal to require individual Distributed Energy Resources to be directly metered under a meter that complies with the Utility Distribution Company tariff and any standards of the Local Regulatory Authority will allow Distributed Energy Resource Providers, as Scheduling Coordinator Metered Entities, to provide aggregated settlement quality meter data to CAISO that reflects an accurate measure of the actual production or consumption of energy by Distributed Energy Resources in the aggregation in each settlement period for settlement and auditing purposes. We also find that CAISO adequately explains why these requirements ensure that its metering requirements do not pose an unnecessary and undue barrier to Distributed Energy Resources, consistent with Order No. 2222.³²² We find that CAISO's proposal avoids imposing additional or duplicative physical metering requirements on each Distributed Energy Resource or distributed curtailment resource that could pose unnecessary or undue barriers.

168. We also find that CAISO's proposal is consistent with the Commission's finding in Order No. 2222 that the distributed energy resource aggregator is the entity responsible for providing any required metering information to the RTO/ISO. Under CAISO's proposal, Distributed Energy Resource Providers, as Scheduling Coordinator Metered Entities, provide aggregated settlement quality meter data to CAISO that reflects an accurate measure of the actual production or consumption of energy by Distributed Energy Resources in the aggregation in each settlement period for settlement and auditing purposes. Consistent with Order No. 2222, under CAISO's proposal, the Distributed

³²² Transmittal at 21.

Energy Resource Provider is the entity responsible for providing such metering information to CAISO, through its Scheduling Coordinator.³²³

169. Further, we find that CAISO's proposal is consistent with the Commission's finding in Order No. 2222 that 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 because CAISO's existing Tariff requires Distributed Energy Resources in a Distributed Energy Resource Aggregation to be directly metered under a meter that complies with the Utility Distribution Company tariff and any standards of the Local Regulatory Authority.³²⁴

170. In addition, we find that CAISO's proposal complies with the requirement of Order No. 2222 that metering data for settlement purposes at the distributed energy resource aggregation level be consistent with settlement data requirements for other resource types because CAISO's proposed metering rules follow its rules for supply resources and demand response resources and are consistent with settlement data requirements for other resource types.³²⁵ Finally, we find that CAISO's Tariff contains a basic description of its metering practices for Distributed Energy Resource Aggregations, consistent with Order No. 2222.³²⁶

171. With respect to telemetry, we find that CAISO's proposal partially complies with the requirement to revise its tariff to establish market rules that address telemetry requirements necessary for distributed energy resource aggregations to participate in RTO/ISO markets. For example, CAISO's proposal requires the Distributed Energy Resource Provider to provide direct telemetry for the aggregate resource, consistent with the Commission's finding in Order No. 2222 that the Distributed Energy Resource aggregator is the entity responsible for providing any required telemetry information to the RTO/ISO.³²⁷ In addition, consistent with Order No. 2222, we find that CAISO's proposed telemetry requirements could accommodate the use of existing telemetry infrastructure because CAISO explains that its telemetry requirements are flexible

³²³ *Id.* at 22; Data Request Response at 19.

³²⁴ CAISO, CAISO eTariff, § 4.17.5 (Characteristics of Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.2 (Metering and Telemetry).

³²⁵ Transmittal at 22.

³²⁶ CAISO, CAISO eTariff, § 4.17.5 (Characteristics of Distributed Energy Resource Aggregations) (1.0.0), § 4.17.5.2 (Metering and Telemetry).

³²⁷ Transmittal at 22; Data Request Response at 19.

regarding equipment and can accommodate any Utility Distribution Company telemetry requirements.³²⁸

172. However, we agree with AEE/SFP's and CPower's argument that CAISO does not comply with the requirement to explain why its telemetry requirements do not impose "unnecessary burdens on distributed energy resource aggregators" and are "just and reasonable and do not pose an unnecessary and undue barrier to individual distributed energy resources joining a distributed energy resource aggregation," due to the lack of specificity in CAISO's Tariff.³²⁹ More specifically, we agree with CPower that CAISO's Tariff lacks sufficient detail regarding how Distributed Energy Resources can provide data to the Distributed Energy Resource Provider in order to meet CAISO's aggregate telemetry requirements. In Order No. 2222, the Commission found that metering and telemetry requirements significantly affect the terms and conditions of the participation of distributed energy resource aggregations in RTO/ISO markets and, therefore, these requirements must be included in the RTO/ISO tariffs.³³⁰ Further, the Commission found that RTO/ISO tariffs should include a basic description of the metering and telemetry practices for distributed energy resource aggregations as well as references to any specific documents that will contain further technical details.³³¹ CAISO states in its Data Request Response that it can receive direct telemetry from a Distributed Energy Resource Aggregation if not all Distributed Energy Resources within a Distributed Energy Resource Aggregation have direct telemetry, but the Tariff does not specify the methods available to an aggregator for providing telemetry to CAISO without requiring telemetry from all of the individual DERs in the aggregation.³³² Likewise, in its answer, CAISO states that providing regulation requires a constant telemetry signal to maintain system frequency, but neither the Tariff nor the relevant business practice manual provide sufficient detail regarding how an aggregator could provide this constant telemetry signal without requiring the individual Distributed Energy Resources to invest in telemetry equipment.³³³

173. For these reasons, we find that without further detail regarding its telemetry requirements, CAISO's proposal does not fully comply with the requirement of Order

³²⁸ Order No. 2222, 172 FERC ¶ 61,247 at P 269; Data Request Response at 19.

³²⁹ Transmittal at 21.

³³⁰ Order No. 2222, 172 FERC ¶ 61,247 at P 271.

³³¹ *Id.*

³³² Data Request Response at 20.

³³³ CAISO Answer at 6.

No. 2222 to establish market rules that address telemetry requirements. Therefore, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing modifying its Tariff to specify the methods available to an aggregator for providing telemetry to CAISO without requiring telemetry from all of the individual Distributed Energy Resources in the aggregation. Additionally, we direct CAISO to also include in its Tariff references to any specific documents with further technical details, to the extent CAISO intends to include such details regarding its telemetry practices in its business practice manuals or other documents, consistent with Order No. 2222.³³⁴

174. Finally, given that CAISO does not propose that metering and telemetry data will come from or flow through Utility Distribution Companies, we need not address the requirement of Order No. 2222, that, to the extent that metering and telemetry data comes from or flows through distribution utilities, RTOs/ISOs must coordinate with distribution utilities and the relevant electric retail regulatory authorities 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.³³⁵

6. Coordination between the RTO/ISO, Aggregator, and Distribution Utilities

a. Market Rules on Coordination

175. In Order No. 2222, the Commission added section 35.28(g)(12)(ii)(g) to the Commission's regulations to require each RTO/ISO to revise its tariff to establish market rules that address coordination between the RTO/ISO, the distributed energy resource aggregator, the distribution utility, and the RERRAs.³³⁶ The Commission stated that coordination requirements should not create undue barriers to entry for distributed energy resource aggregations but must also consider the substantial role of distribution utilities and state and local regulators in ensuring the safety and reliability of the distribution system.³³⁷

i. Filing

176. CAISO states that its Tariff addresses coordination with the RTO/ISO, the Distributed Energy Resource Aggregator, the distribution utility, and the RERRAs in

³³⁴ Order No. 2222, 172 FERC ¶ 61,247 at P 271.

³³⁵ *Id.* P 324.

³³⁶ *Id.* P 278.

³³⁷ *Id.* P 279.

compliance with Order No. 2222.³³⁸ CAISO asserts that its distribution utility review process carefully balances the Utility Distribution Company's interests and obligations over its distribution grid with the Distributed Energy Resource Aggregation's rights to participate in wholesale markets.³³⁹ CAISO states that its process provides all parties with opportunities to resolve any concerns. CAISO maintains that it also complies with the requirements of Order No. 2222 regarding operational coordination and is unaware of any issue that would warrant changes to the CAISO, Utility Distribution Company, or Scheduling Coordinator processes for coordination.³⁴⁰ CAISO asserts that its existing processes are just and reasonable for maintaining reliability on the transmission and distribution grids, and that its Tariff complies with the requirement that RERRAs have a role in coordination.³⁴¹

ii. Commission Determination

177. We find that CAISO's proposal partially complies with the coordination requirements of Order No. 2222. While CAISO proposes market rules on coordination in compliance with Order No. 2222, we find that CAISO does not comply with certain coordination requirements, as discussed further below.

b. Role of Distribution Utilities

178. 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 resource aggregation or incremental changes to a distributed energy resource aggregation already participating in the markets.³⁴² The Commission required each RTO/ISO to demonstrate on compliance that its proposed distribution utility review process is

³³⁸ Transmittal at 22.

³³⁹ *Id.* at 24-25.

³⁴⁰ *Id.* at 26.

³⁴¹ *Id.* at 26-27.

³⁴² Order No. 2222, 172 FERC ¶ 61,247 at P 292.

transparent, provides specific review criteria that the distribution utilities should use, and provides adequate and reasonable time for distribution utility review.³⁴³

179. More specifically, the Commission stated that each RTO/ISO must coordinate with distribution utilities to develop a distribution utility review process that includes criteria by which the distribution utilities would determine whether: (1) each proposed distributed energy resource is capable of participation in a distributed energy resource aggregation; and (2) the participation of each proposed distributed energy resource in a distributed energy resource aggregation will not pose significant risks to the reliable and safe operation of the distribution system.³⁴⁴ 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.³⁴⁵ In addition, the Commission clarified that only the distribution utility hosting a distributed energy resource (i.e., the utility that owns and/or operates the distribution system to which the resource is interconnected) should be given an opportunity to review the addition of that resource to a distributed energy resource aggregation.³⁴⁶

180. To support this distribution utility review process, the Commission stated 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.³⁴⁷ 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

³⁴³ *Id.* P 293.

³⁴⁴ *Id.* P 292.

³⁴⁵ 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”).

³⁴⁶ *Id.* P 70.

³⁴⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 292; *see id.* PP 236-40.

with the distributed energy resource aggregator.³⁴⁸ The Commission explained that such information could include whether a resource: (1) affects the safety and reliability of the distribution system; or (2) is capable of participating in an aggregation.³⁴⁹ To the extent that a distribution utility declines to provide distributed energy resources with the information that they need to participate in RTO/ISO markets via an aggregation, the Commission stated that it expects that RTOs/ISOs will provide an avenue to facilitate those resources' participation, including, where appropriate, the use of the RTO/ISO dispute resolution procedures.³⁵⁰

181. In addition, in Order No. 2222, the Commission stated that the results of a distribution utility's review must be incorporated into the distributed energy resource aggregation registration process.³⁵¹

182. The Commission also required each RTO/ISO to revise its tariff to specify the time that a distribution utility has to identify any concerns regarding a distributed energy resource seeking to participate in the RTO/ISO markets through an aggregation.³⁵² The Commission stated that each RTO/ISO should propose a timeline that reflects its regional needs.³⁵³ In Order No. 2222-A, the Commission limited the length of distribution utility review to no more than 60 days.³⁵⁴ The Commission stated that, if an RTO/ISO believes unusual circumstances could give rise to the need for additional distribution utility review time, the RTO/ISO may propose provisions for certain exceptional circumstances that may justify additional review time.³⁵⁵ The Commission encouraged shorter review periods for smaller aggregations and resources to the maximum extent practicable, and

³⁴⁸ Order No. 2222-A, 174 FERC ¶ 61,197 at P 75 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 292).

³⁴⁹ *Id.*

³⁵⁰ *Id.*

³⁵¹ Order No. 2222, 172 FERC ¶ 61,247 at P 292.

³⁵² *Id.* P 295.

³⁵³ *Id.* The Commission stated that any distribution utility review must be completed within a limited but reasonable amount of time and that it expects a reasonable amount of time may vary among RTOs/ISOs but should not exceed 60 days.

³⁵⁴ Order No. 2222-A, 174 FERC ¶ 61,197 at P 72 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 295).

³⁵⁵ *Id.*

reiterated that any proposed review period must be shown to be reasonable based on what is being reviewed.³⁵⁶

183. 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.³⁵⁷ 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.³⁵⁸

184. In addition, 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.³⁵⁹ The Commission clarified in Order No. 2222-A that, to the extent a distribution utility recommends the removal of a distributed energy resource from an aggregation due to a reliability concern, an RTO/ISO should not remove the resource without a demonstration by the distribution utility that the resource's market participation presents a threat to distribution system reliability.³⁶⁰

185. In Order No. 2222, the Commission declined to provide a larger and decision-making role for the distribution utilities and stated that requiring or permitting

³⁵⁶ *Id.*

³⁵⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 297.

³⁵⁸ Order No. 2222-A, 174 FERC ¶ 61,197 at P 79 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 297).

³⁵⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 297. In Order No. 2222, the Commission described examples that such a showing could take, such as “a signed affidavit or other evidence from the distribution utility that a [DER]’s participation in RTO/ISO markets would pose a significant risk to the safe and reliable operation of the distribution system,” while also recognizing the need to allow for regional flexibility in developing review procedures appropriate to each particular RTO/ISO. *Id.* PP 292, 293, 297.

³⁶⁰ Order No. 2222-A, 174 FERC ¶ 61,197 at P 76 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 297).

distribution utilities to authorize the participation of distributed energy resources in RTO/ISO markets directly or as part of an aggregation could create a barrier to distributed energy resource aggregation.³⁶¹

186. Finally, the Commission required each RTO/ISO to revise its tariff to incorporate dispute resolution provisions as part of its proposed distribution utility review process.³⁶² 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.³⁶³ 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 process, the Commission's Dispute Resolution Service, or complaints filed pursuant to FPA section 206 at any time.³⁶⁴

i. Filing

187. CAISO states that the Utility Distribution Company review process is described in section 4.17.4 of the Tariff and complies with the requirements of Order No. 2222.³⁶⁵ In addition, CAISO notes that Order No. 2222 expressly cites the Tariff as meeting the principles of transparency, providing specific review criteria, and providing adequate and reasonable time for review.³⁶⁶

188. According to CAISO, once the Distributed Energy Resource Provider has met all of CAISO's informational requirements, CAISO will confer with the Utility Distribution Company regarding the Distributed Energy Resource Aggregation. CAISO states that the Utility Distribution Company must provide written comments within 30 days regarding the accuracy of the information about Distributed Energy Resources comprising a Distributed Energy Resource Aggregation or raise concerns regarding whether any Distributed Energy Resources: (1) are participating in another Distributed Energy

³⁶¹ Order No. 2222, 172 FERC ¶ 61,247 at P 298.

³⁶² *Id.* P 299.

³⁶³ *Id.*

³⁶⁴ Order No. 2222-A, 174 FERC ¶ 61,197 at P 70 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 299).

³⁶⁵ Transmittal at 23.

³⁶⁶ *Id.* (citing Order No. 2222, 172 FERC ¶ 61,247 at P 292 n.709).

Resource Aggregation; (2) are participating as demand response resources; (3) are participating in a retail net energy metering program that does not expressly permit wholesale market participation; (4) do not comply with the Utility Distribution Company tariffs or requirements of the Local Regulatory Authority; or (5) may threaten the safe and reliable operation of the distribution system, if operated as part of a Distributed Energy Resource Aggregation.³⁶⁷ CAISO proposes adding a sixth concern that the Utility Distribution Company may raise regarding the compensation a Distributed Energy Resource Aggregation will receive from retail programs for capacity, energy, or other services it provides to the CAISO markets.³⁶⁸

189. Under proposed new tariff language in section 4.17.4, if the Utility Distribution Company raises one of the six concerns, 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 the Distributed Energy Resource Aggregation. CAISO states that all other Distributed Energy Resources could participate in the Distributed Energy Resource Aggregation in the meantime.³⁶⁹ According to section 4.17.4, CAISO states that any disputes regarding Utility Distribution Company concerns would be brought to the applicable governmental authority for the Utility Distribution Company and shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism.³⁷⁰

190. CAISO proposes clarifying language to section 4.17.4 that it states is consistent with the requirement that if a Utility Distribution Company recommends removal of a Distributed Energy Resource from a Distributed Energy Resource Aggregation for reliability reasons, the RTO/ISO "should not remove the resource without ... a showing that the resource presents significant risks to the reliable and safe operation of the distribution system."³⁷¹ CAISO explains that the Utility Distribution Companies must provide sufficient information for CAISO and the Distributed Energy Resource Provider to confer and resolve concerns, and the form that information may take will vary on a

³⁶⁷ *Id.* at 23-24 (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

³⁶⁸ *Id.* at 24 (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

³⁶⁹ *Id.* at 24 n.142.

³⁷⁰ *Id.* at 24 (discussing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

³⁷¹ *Id.* (quoting Order No. 2222-A, 174 FERC ¶ 61,197 at P 76).

case-by-case basis.³⁷² CAISO claims that a prescriptive list of the documentation the Utility Distribution Company must provide would likely constrain the process at this time, and CAISO states that it plans to provide examples of supporting documentation in its business practice manuals. In addition, CAISO states that Article 4.1.1 of its Distributed Energy Resource Provider Agreement provides that each Distributed Energy Resource and the Distributed Energy Resource Aggregation must satisfy all applicable rules and regulations of the Utility Distribution Company tariffs and any requirements of the applicable Local Regulatory Authority, and applicable interconnection requirements, if any.³⁷³

ii. Data Request Response

191. In response to Commission staff's request for an explanation of the criteria, including any specific metrics, by which 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,³⁷⁴ CAISO states that it defers to Utility Distribution Companies and Local Regulatory Authorities.³⁷⁵ CAISO asserts that reliability and safety standards generally are set forth in the Utility Distribution Companies' tariff, distribution handbooks, and applicable regulations and orders of Local Regulatory Authorities.

192. Regarding 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,³⁷⁶ CAISO states that it has not prescribed a specific showing because the circumstances may differ among Distributed Energy Resource Aggregations and issues.³⁷⁷ CAISO states that, consistent with section 4.17.4 of the Tariff, the Utility Distribution Company must provide a showing, analysis, or model sufficiently detailed that CAISO and the Distributed Energy Resource Provider can evaluate it and respond.

³⁷² *Id.* at 24 n.146.

³⁷³ *Id.* at 24.

³⁷⁴ Data Request at 16.

³⁷⁵ Data Request Response at 21.

³⁷⁶ Data Request at 16.

³⁷⁷ Data Request Response at 21.

193. In response to Commission staff's request that CAISO provide more information regarding how it will "confer" with the applicable Utility Distribution Company regarding information about the Distributed Energy Resources that comprise a Distributed Energy Resource Aggregation,³⁷⁸ CAISO states that it expects the Distributed Energy Resource Aggregation registration process to closely resemble the demand response registration process.³⁷⁹ CAISO explains that in the demand response registration process, CAISO provides the Utility Distribution Company and load serving entity with the list of account numbers within the aggregation via email. CAISO states that the Utility Distribution Company and load serving entity then verify that those account numbers are not already registered in other aggregations or otherwise problematic. CAISO adds that, to date, Utility Distribution Companies and load serving entities have raised issues very sparingly, and the issues generally are simple and inadvertent errors immediately resolved by the aggregator. CAISO states that it expects to hold teleconferences among the parties to discuss the Utility Distribution Company or load serving entity's written concerns if more significant issues arise.

194. With respect to 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,³⁸⁰ CAISO argues that neither Order No. 2222 nor the Tariff prescribe what specific information or data the Utility Distribution Company must provide in order to raise a concern.³⁸¹ CAISO states that it stands to reason that the information must be sufficient for CAISO and the Distributed Energy Resource Provider to understand the concern, evaluate it, and address it.

195. As to 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,³⁸² CAISO states that for existing resources, the original interconnection studies

³⁷⁸ Data Request at 17.

³⁷⁹ Data Request Response at 22.

³⁸⁰ Data Request at 17.

³⁸¹ Data Request Response at 22-23.

³⁸² Data Request at 18-19.

evaluated each Distributed Energy Resource alone.³⁸³ CAISO further states that those studies may have been conducted serially based on the distribution topology at the time. CAISO states that, likewise, many of the original Distributed Energy Resource interconnection studies may not have accounted for wholesale market dispatch. CAISO states that it expects that Utility Distribution Companies may need to evaluate the impact on reliability when the Distributed Energy Resources participating in a Distributed Energy Resource Aggregation respond to a CAISO dispatch at other times, and do so in aggregate. CAISO acknowledges that the impact of a single Distributed Energy Resource on grid flows is manifestly different than the impact of many Distributed Energy Resources.

196. CAISO confirms that a 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 a Distributed Energy Resource Aggregation based on specific significant reliability and safety concerns on a case-by-case basis.³⁸⁴ CAISO also states that the Utility Distribution Company could request removal of a Distributed Energy Resource from a Distributed Energy Resource Aggregation or that CAISO, or more likely the Distributed Energy Resource Provider, could limit the Distributed Energy Resource Aggregation in some way. CAISO explains that the parties would discuss such proposals pursuant to section 4.17.4 of the Tariff. CAISO notes that excluding a Distributed Energy Resource from a Distributed Energy Resource Aggregation should be a last resort, and all alternatives must be exhausted first.

197. In response to Commission staff's question regarding why unresolved concerns in the Utility Distribution Company review process will not be resolved through CAISO's dispute resolution procedures,³⁸⁵ CAISO states that it developed this provision in coordination with stakeholders when it established the Distributed Energy Resource Aggregation model in 2016.³⁸⁶ CAISO argues that the disputes it cannot resolve with the Utility Distribution Company and the Distributed Energy Resource Provider will likely center on double-counting concerns or state-jurisdictional interconnection studies. CAISO states that it has neither jurisdiction nor visibility into retail tariffs or the distribution grid and, as such, CAISO and its dispute resolution process are unlikely to reach any meaningful resolution. CAISO additionally states that its dispute resolution process is a relatively long process that could leave would-be Distributed Energy Resource Aggregations in limbo for considerable periods, jeopardizing their

³⁸³ Data Request Response at 23-24.

³⁸⁴ *Id.* at 24 (citing Data Request at 19).

³⁸⁵ Data Request at 19.

³⁸⁶ Data Request Response at 25.

participation. As such, CAISO and its stakeholders 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. CAISO states that it already works with Local Regulatory Authorities on distributed generation growth and multiple-use applications, so these communication pathways are well established.

iii. Data Request Response Protests

198. AEE/SFP argue that CAISO's responses to Commission staff's questions and CAISO's proposed Tariff provisions do not put in place a distribution utility review process that meets the requirements of Order No. 2222.³⁸⁷ AEE/SFP assert that CAISO sets forth only subjective standards for review, and does not provide Distributed Energy Resource owners and aggregators with upfront certainty as to the parameters and criteria that will be applied to determine whether reliability or safety concerns will result in exclusion from a Distributed Energy Resource Aggregation.

199. AEE/SFP further argue that Distributed Energy Resources that seek to participate in a Distributed Energy Resource Aggregation in virtually all cases have already completed the interconnection process managed by the Utility Distribution Company under state and local regulatory standards.³⁸⁸ AEE/SFP contend that if a Utility Distribution Company asserts that a safety or reliability issue will be created by a Distributed Energy Resource's participation in a Distributed Energy Resource Aggregation, even after the DER went through the interconnection process, it should be required to show with adequate specificity what unique circumstances are caused by wholesale market participation.³⁸⁹ AEE/SFP state that, otherwise, an opaque process could lead to unjust and unreasonable and unduly discriminatory exclusion of Distributed Energy Resources from participation in the markets through Distributed Energy Resource Aggregations or improper regulation of the terms of participation in wholesale markets by state and local regulators. AEE/SFP state that, for these reasons, the Commission should direct CAISO to more clearly articulate in its Tariff the parameters and criteria that will be applied to determine whether reliability or safety concerns will result in exclusion from a Distributed Energy Resource Aggregation, after conducting a stakeholder process that allows Distributed Energy Resource aggregators, Utility Distribution Companies, and community choice aggregators to collaborate on an appropriate aggregation review process that meets the requirements of Order No. 2222

³⁸⁷ AEE/SFP Data Request Response Protest at 11.

³⁸⁸ *Id.* at 11-12.

³⁸⁹ *Id.* at 12.

and ensures that Distributed Energy Resources do not face unreasonable barriers to providing services through aggregation.

iv. Commission Determination

200. We find that CAISO's proposal partially complies with the requirements of Order Nos. 2222 and 2222-A with respect to the role of the distribution utility. As an initial matter, we find that CAISO developed its existing distribution utility review process through consultation with distribution utilities, consistent with the requirement of Order No. 2222.³⁹⁰ We direct CAISO to continue to coordinate with distribution utilities in developing the further compliance filing that we direct below.

201. We also find that CAISO's proposal includes a distribution utility review process that is triggered by the initial registration of the distributed energy resource aggregation or incremental changes to a distributed energy resource aggregation already participating in CAISO's markets, consistent with Order No. 2222.³⁹¹ Pursuant to CAISO's proposed Tariff, each Distributed Energy Resource Provider is required to provide information to CAISO regarding each of its Distributed Energy Resource Aggregations, and when that information changes due to the removal, addition, or modification of a Distributed Energy Resource or Distributed Curtailment Resource within a Distributed Energy Resource Aggregation.³⁹² Subsequently, CAISO confers with the applicable Utility Distribution Company regarding the information provided, thereby commencing the distribution utility review process. We find that CAISO's proposed requirement that each Distributed Energy Resource Provider provide information and that CAISO confer with the applicable Utility Distribution Company regarding the information, is consistent with the requirement of Order No. 2222 that initial registration and incremental changes trigger the distribution utility review process. Similarly, we also find that CAISO's proposal complies with the requirement that the results of a distribution utility's review be incorporated into the distributed energy resource aggregation registration process.³⁹³ As CAISO explains in its Data Request Response, it will discuss with the Utility Distribution Company the results of the distribution utility review process as part of the registration process, similar to CAISO's existing process for demand response

³⁹⁰ Transmittal at 1; Order No. 2222, 172 FERC ¶ 61,247 at P 292.

³⁹¹ Order No. 2222, 172 FERC ¶ 61,247 at P 292.

³⁹² CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

³⁹³ Order No. 2222, 172 FERC ¶ 61,247 at P 292.

registration.³⁹⁴ In addition, we find that by conferring with the *applicable* Utility Distribution Company, CAISO complies with the requirement that only the distribution utility hosting a distributed energy resource has the opportunity to review the addition of that resource to a distributed energy resource aggregation.³⁹⁵

202. We also find that CAISO's proposal complies with the requirement to provide adequate and reasonable time for distribution utility review that does not exceed 60 days.³⁹⁶ CAISO's proposal specifies that a Utility Distribution Company has 30 days to identify any concerns regarding a Distributed Energy Resource seeking to participate in the CAISO markets through an aggregation.³⁹⁷

203. Furthermore, we find that CAISO complies with the requirement that the distribution utility 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 CAISO and the distributed energy resource aggregator, on a case-by-case basis.³⁹⁸ We similarly find that CAISO's existing Tariff requirement that a Utility Distribution Company may provide "written comments" regarding whether a Distributed Energy Resource satisfies the reliability criteria³⁹⁹ meets the requirement that the distribution utility will provide a showing that explains any reliability findings, as required by Order No. 2222.⁴⁰⁰ We find that section 4.17.4 of CAISO's Tariff complies with these requirements because the Utility Distribution Company is able to request removal of a Distributed Energy Resource or request that CAISO or the Distributed Energy Resource Provider limit the Distributed Energy

³⁹⁴ Data Request Response at 22.

³⁹⁵ Order No. 2222-A, 174 FERC ¶ 61,197 at P 70; CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

³⁹⁶ Order No. 2222-A, 174 FERC ¶ 61,197 at P 72 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 295).

³⁹⁷ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

³⁹⁸ Order No. 2222, 172 FERC ¶ 61,247 at P 297.

³⁹⁹ Transmittal at 24 (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

⁴⁰⁰ Order No. 2222, 172 FERC ¶ 61,247 at P 297; Order No. 2222-A, 174 FERC ¶ 61,197 at P 76 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 297).

Resource Aggregation, only if the Utility Distribution Company presents concerns about safety and reliability in written comments to CAISO.⁴⁰¹

204. However, although we find that CAISO largely complies with the requirements in Order No. 2222 regarding the role of distribution utilities, as discussed above, we find that CAISO only partially complies with the requirement to incorporate a comprehensive and non-discriminatory review process.⁴⁰² In addition, we find that CAISO only partially complies with the requirement to demonstrate that its proposed distribution utility review process is transparent.⁴⁰³ Accordingly, we find that CAISO must address the following four coordination requirements to ensure a fully comprehensive, non-discriminatory, and transparent distribution utility review process.

205. First, we find that CAISO's proposal partially complies with the requirement to include criteria by which distribution utilities would determine whether each proposed distributed energy resource is capable of participating in a distributed energy resource aggregation.⁴⁰⁴ In Tariff section 4.17.4, CAISO proposes that a Utility Distribution Company will have the opportunity to raise concerns with respect to whether the Distributed Energy Resources: (1) are participating in another Distributed Energy Resource Aggregation; (2) are participating as a demand response resource; (3) are participating in a retail net energy metering program that does not expressly permit wholesale market participation; (4) do not comply with applicable Utility Distribution Company tariffs or requirements of the Local Regulatory Authority; and (5) receive compensation from retail programs for capacity, energy, or other services that would be offered to the CAISO markets.⁴⁰⁵ We find that criteria (1), (2), and (4) in proposed section 4.17.4 of the Tariff are sufficiently specific and transparent and will allow Utility Distribution Companies to review and identify concerns regarding the ability of Distributed Energy Resources to participate in a Distributed Energy Resource Aggregation. As discussed above, CAISO must revise its language in criterion (3) in

⁴⁰¹ Data Request Response at 24 (explaining that the parties would discuss such proposals pursuant to section 4.17.4 of the Tariff); CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

⁴⁰² Order No. 2222, 172 FERC ¶ 61,247 at P 292.

⁴⁰³ *Id.* P 293.

⁴⁰⁴ *Id.* P 292.

⁴⁰⁵ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

proposed section 4.17.4 of the Tariff to comply with the requirements of Order No. 2222.⁴⁰⁶

206. Second, we find that CAISO's proposal partially complies with the requirement to develop a distribution utility review process that includes criteria by which the distribution utilities will determine whether the participation of each proposed distributed energy resource in a distributed energy resource aggregation will not pose significant risks to the reliable and safe operation of the distribution system.⁴⁰⁷ CAISO specifies that a Utility Distribution Company will have the opportunity to raise concerns with respect to whether the Distributed Energy Resources 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.⁴⁰⁸ However, CAISO does not address the requirement that RTOs/ISOs must include potential impacts on distribution system reliability as a criterion in the distribution utility review process, as discussed below.

207. We disagree with AEE/SFP's argument that CAISO only sets forth subjective standards for review and does not provide distributed energy resource aggregators with certainty as to criteria that will be applied. As discussed above, we find that consistent with Order No. 2222 any decision by CAISO to deny wholesale market access to a distributed energy resource must be supported by a showing that the resource presents significant risks to the reliable and safe operation of the distribution system; such a showing should alleviate transparency concerns. As to CAISO's criteria, we find that Order No. 2222 recognizes that there are sufficient differences among regions to warrant flexibility in determining specific standardized criteria, and CAISO's lack of ability to identify and review distribution utility reliability criteria supports adopting CAISO's proposed reliability criteria.⁴⁰⁹ Based on the record, we believe that CAISO does not have the expertise and jurisdiction to set distribution utility safety and reliability criteria. Nonetheless, we encourage CAISO to coordinate with stakeholders to develop guidance documents that list criteria or Distributed Energy Resource operating parameters.⁴¹⁰

⁴⁰⁶ See *supra* P 111.

⁴⁰⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 292.

⁴⁰⁸ CAISO, CAISO eTariff, § 4.17.4, Identification of Distributed Energy Resources (1.0.0).

⁴⁰⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 296.

⁴¹⁰ Such parameters may include: generator emissions compliance documentation; ramp rates, upper and lower Operating Limits; voltage and frequency ride-throughs; power factors; control modes; nameplate ratings; identification of the distribution system feeder and feeder segment; distribution line voltage class; the specific circuit and bus to

208. Although we find that CAISO lacks the expertise and authority to dictate the specific distribution utility review criteria, we find that CAISO does not address the scope of such criteria, as clarified in Order No. 2222-A. The Commission clarified in Order No. 2222-A that the potential impacts on distribution system reliability specifically refer 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.⁴¹¹ We find that, to demonstrate compliance with this requirement, CAISO must propose in its tariff that the scope of distribution utility review is limited to any incremental impacts that the utility has not previously considered. Section 4.17.4 of CAISO's Tariff sets forth the distribution utility review process, but contains no provision that limits the scope of the utility's review as the Commission required. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises its Tariff to clarify that the scope of the distribution utility review of distribution system reliability impacts is limited 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, which, as CAISO suggests, may require that Utility Distribution Companies evaluate the impact on reliability when the Distributed Energy Resources participating in a Distributed Energy Resource Aggregation respond to a CAISO dispatch at other times not considered in the interconnection studies and in aggregate.⁴¹²

209. Third, we find that CAISO's proposed distribution utility review process partially complies with the information sharing requirements of Order No. 2222. We find that CAISO's proposal partially complies with the requirement to share specific information regarding a distributed energy resource that is provided by a distribution utility to an

which the Distributed Energy Resource connects; any operational limitations identified for the circuit or feeder (e.g., time-of-day restrictions) identified by the distribution utility; any operational limitations identified for the Distributed Energy Resource (e.g., charge time for a storage device) identified by the Distributed Energy Resource Owner/Operator; the real-time monitoring and telemetry infrastructure available on the applicable distribution system and circuit(s); Distributed Energy Resource metering and telemetry infrastructure; applicable distribution utility tariff requirements; and the wholesale market services the Distributed Energy Resource proposes to provide. *See, e.g.,* N.Y. Indep. Sys. Operator, Inc., Data Request Response, Docket No. ER21-2460-001, at 43 (filed Nov. 19, 2021).

⁴¹¹ Order No. 2222-A, 174 FERC ¶ 61,197 at P 79 (citing Order No. 2222, 172 FERC ¶ 61,247 at P 297).

⁴¹² Data Request Response at 24.

RTO/ISO as part of the distribution utility review process with the distributed energy resource aggregator.⁴¹³ CAISO states that if a Utility Distribution Company raises concerns based on the capability or reliability criteria, CAISO will provide the Distributed Energy Resource Provider with the Utility Distribution Company's written comments.⁴¹⁴ However, Order No. 2222-A's requirement to share information provided by the distribution utility with the distributed energy resource aggregator is not limited to circumstances in which a distribution utility raises concerns. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that requires CAISO to share with the Distributed Energy Resource Provider any information regarding a Distributed Energy Resource that is provided by a distribution utility to CAISO as part of the distribution utility review process.

210. Furthermore, Order No. 2222 requires that each RTO/ISO must share with distribution utilities any necessary information and data collected about the individual distributed energy resources participating in a distributed energy resource aggregation.⁴¹⁵ We note that section 4.17.4 of CAISO's Tariff merely states that 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).⁴¹⁶ However, section 4.17.4 does not clearly reflect that CAISO must share any necessary information and data with the Utility Distribution Company. Accordingly, we also direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that revises section 4.17.4 to state that CAISO will share with distribution utilities any necessary information and data collected about the individual Distributed Energy Resources participating in a Distributed Energy Resource Aggregation.

211. Lastly, we find that CAISO's proposal does not comply with the requirement of Order No. 2222 that each RTO/ISO must revise its tariff to incorporate dispute resolution provisions as part of its proposed distribution utility review process.⁴¹⁷ CAISO proposes that any unresolved concerns in the distribution utility review process be undertaken with the applicable governmental authority for the Utility Distribution Company or Metered

⁴¹³ Order No. 2222-A, 174 FERC ¶ 61,197 at P 75.

⁴¹⁴ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

⁴¹⁵ Order No. 2222, 172 FERC ¶ 61,247 at P 292.

⁴¹⁶ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

⁴¹⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 299.

Subsystem and “shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism.”⁴¹⁸ We find that CAISO’s proposed language prohibiting the use of its dispute resolution procedures is inconsistent with this requirement because it does not provide a formal mechanism for interested parties to attempt to resolve any issues related to the distribution utility review process with CAISO, where appropriate, as required by Order No. 2222.⁴¹⁹

212. While we do not expect CAISO to resolve issues that are beyond its authority, some disputes may fall within CAISO’s authority. For example, Order No. 2222-A noted specifically that there could be disputes about information sharing during distribution utility review that could be appropriately resolved using RTO/ISO dispute resolution procedures.⁴²⁰ CAISO has not demonstrated how its proposal prohibiting the use of its dispute resolution procedures would appropriately address disputes not related to double counting or interconnection, such as timing of review and the transparency of the process. Further, we disagree with CAISO’s argument that the length of its dispute resolution procedures should be a reason for prohibiting use of those procedures when they are appropriate. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that addresses how CAISO will resolve disputes that are within its authority and subject to its Tariff.

213. Additionally, we note that depending on how CAISO chooses to respond to the directive to either: (1) revise its Distributed Energy Resource Aggregation model to allow a homogeneous aggregation of Distributed Curtailment Resources to participate such that CAISO’s Tariff contains an Order No. 2222-compliant set of market rules applicable to homogeneous demand response aggregations; or (2) demonstrate that its existing demand response models are compliant with Order No. 2222 and revise these models as necessary to comply with Order No. 2222,⁴²¹ CAISO may need to further revise the Utility Distribution Company review provisions in Tariff section 4.13.2 (Applicable Requirements for RDRRs, PDRs and DRPs) or that may be located elsewhere in the Tariff.

⁴¹⁸ CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0).

⁴¹⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 299.

⁴²⁰ Order No. 2222-A, 174 FERC ¶ 61,197 at P 75.

⁴²¹ *See supra* P 50.

c. Ongoing Operational Coordination

214. 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:

(1) establish a process for ongoing coordination, including operational coordination, that addresses data flows and communication among itself, the distributed energy resource aggregator, and the distribution utility; and (2) require the distributed energy resource 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.⁴²² In addition, 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.⁴²³ To account for different regional approaches and to provide flexibility, the Commission did not prescribe specific protocols or processes for the RTOs/ISOs to adopt as part of the operational coordination requirements but rather allowed each RTO/ISO to develop an approach to ongoing operational coordination.⁴²⁴

215. In Order No. 2222, the Commission also required each RTO/ISO to revise its tariff to apply any existing resource non-performance penalties to a distributed energy resource aggregation when the aggregation does not perform because a distribution utility overrides the RTO's/ISO's dispatch.⁴²⁵ In addition, the Commission declined to establish a generic requirement for RTOs/ISOs with respect to liability provisions, stating that it was not persuaded that all distribution providers face similar liability concerns, and that these concerns should be addressed through standardized liability provisions in RTO/ISO tariffs.⁴²⁶

i. Filing

216. CAISO states that it already complies with the requirements of Order No. 2222 regarding ongoing operational coordination.⁴²⁷ CAISO explains that it requires

⁴²² Order No. 2222, 172 FERC ¶ 61,247 at P 310.

⁴²³ *Id.*

⁴²⁴ *Id.* P 311.

⁴²⁵ *Id.* P 312.

⁴²⁶ *Id.* P 313.

⁴²⁷ Transmittal at 25.

Distributed Energy Resource Aggregations to use a Scheduling Coordinator for all bidding, scheduling, and dispatch. According to CAISO, the Scheduling Coordinator communicates between CAISO and the resource to ensure ongoing operational coordination.

217. To comply with the requirement of Order No. 2222 that a distributed energy resource aggregator report any changes to its offered quantity and related distribution factors that result from distribution line faults or outages, CAISO explains that Scheduling Coordinators for Utility Distribution Companies can submit planned and forced outages, allowing the Utility Distribution Company to pre-empt or override CAISO dispatch.⁴²⁸ For example, CAISO states that it has worked with Utility Distribution Companies in recent years to coordinate highly dynamic public safety power shutoffs to avoid wildfire risk during inclement conditions. According to CAISO, outage data is public on both CAISO's Open Access Same-time Information System (OASIS) and its public website for outages.

218. CAISO further states that section 4.17.2(f) of the Tariff requires CAISO to "coordinate with the applicable Utility Distribution Company to avoid conflicting operational directives, which may include but is not limited to sharing Dispatch Instructions."⁴²⁹ CAISO states that section 4.17.6 of the Tariff also specifically requires Distributed Energy Resource Aggregations to respond to dispatch instructions, including market awards and exceptional dispatches. In addition, CAISO states, Distributed Energy Resource Providers are required to operate "consistent with limitations or operating orders established by the Utility Distribution Company," and to "submit Outages to the CAISO as necessary to reflect any distribution constraints impacting Distributed Energy Resources that comprise a Distributed Energy Resource Aggregation under its control."⁴³⁰

219. CAISO addresses the non-performance penalty requirement of Order No. 2222 by citing section 11.6.5 of the Tariff, which provides that CAISO will assess a Distributed Energy Resource Provider with uninstructed imbalance energy whenever the Distributed

⁴²⁸ *Id.*

⁴²⁹ *Id.* (quoting CAISO, CAISO eTariff, § 4.17.2 (Responsibilities of Distributed Energy Resource Providers) (0.0.0), § 4.17.2(f)).

⁴³⁰ *Id.* at 25-26 (quoting CAISO, CAISO eTariff, § 4.17.6 (Operating Requirements) (0.0.0)).

Energy Resource Aggregation does not follow a dispatch instruction (for any reason, including Utility Distribution Company override).⁴³¹

ii. Data Request Response

220. In its Data Request, Commission staff asked CAISO to explain which 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.⁴³² In response, CAISO explains that its outage rules are set forth in section 9 of its Tariff. According to CAISO, its outage coordination protocols and processes already enable Utility Distribution Companies to override CAISO dispatch due to reliability or safety concerns in two ways. First, CAISO states, Utility Distribution Companies can declare an outage on the relevant portion of the grid, and CAISO's optimization will recognize which Distributed Energy Resources or Distributed Energy Resource Aggregations were affected. Second, CAISO states, Utility Distribution Companies can notify the Scheduling Coordinator for the Distributed Energy Resource Aggregation of the outage, and the Distributed Energy Resource Aggregation would ignore its CAISO dispatch. In this case, CAISO continues, the Scheduling Coordinator for the Distributed Energy Resource Aggregation would submit a "transmission-induced outage" to CAISO's outage management system either before or after the override based upon how much time the Utility Distribution Company provides the Distributed Energy Resource Aggregation. CAISO states that, although this class of outages is called "transmission-induced," the business practice manual for outages expressly notes that it includes distribution equipment for Distributed Energy Resources.⁴³³ CAISO also notes that, in either case, its operators would coordinate with the Scheduling Coordinator for the Distributed Energy Resource Aggregation consistent with CAISO operating procedure 3220, Generation Outages.⁴³⁴

221. Commission staff also asked CAISO to explain how these coordination protocols and processes will be transparent and when a Distributed Energy Resource Provider will

⁴³¹ *Id.* at 26 (citing CAISO, CAISO eTariff, § 11.6.5 (Settlement of Distributed Energy Resource Aggregations) (2.0.0)).

⁴³² Data Request at 20.

⁴³³ Data Request Response at 26 (citing CAISO Business Practice Manual, Outage Management, § 3.4).

⁴³⁴ *Id.* (citing CAISO Operating Procedure 3220: Generation Outages, § 3.6).

be informed of Utility Distribution Company overrides and by whom.⁴³⁵ In response, CAISO states that its coordination protocols in the business practice manual for outage management and CAISO Operating Procedure 3220 provide detail on how Scheduling Coordinators report and see outages in CAISO's outage management system, which also publishes results on the CAISO website, OASIS, and network model.⁴³⁶ CAISO adds that for immediate outages with little notice before the dispatch interval, CAISO operators also coordinate in real-time with the affected generator/Distributed Energy Resource Aggregation Scheduling Coordinator.

iii. Commission Determination

222. We find that CAISO's proposal partially complies with the ongoing operational coordination requirements of Order No. 2222. First, we find that CAISO's proposal complies with the requirement to require the distributed energy resource 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.⁴³⁷ Consistent with this requirement, CAISO states that Scheduling Coordinators in CAISO should update the distribution factors if they become infeasible or otherwise inaccurate for the Distributed Energy Resource Aggregation.⁴³⁸ Scheduling Coordinators can update distribution factors with each bid based on which Distributed Energy Resources within the aggregation will respond to dispatch; however, the master file distribution factors are a default if the Scheduling Coordinator does not submit them as a bid component. Also consistent with this requirement, Scheduling Coordinators must report any outage consistent with sections 9 and 30 of the Tariff.

223. In addition, we find that CAISO's proposal complies with the requirement to revise its Tariff to include coordination protocols and processes for the operating day that allow distribution utilities to override CAISO 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.⁴³⁹ As CAISO explains, pursuant to section 9 of the Tariff, CAISO's outage coordination protocols and processes enable Utility Distribution Companies to override CAISO dispatch due to reliability or safety concerns

⁴³⁵ Data Request at 20.

⁴³⁶ Data Request Response at 27.

⁴³⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 310.

⁴³⁸ Data Request Response at 14.

⁴³⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 310.

in two ways.⁴⁴⁰ First, Utility Distribution Companies can declare an outage on the relevant portion of the grid, and CAISO will recognize which Distributed Energy Resources or Distributed Energy Resource Aggregations were affected. Second, Utility Distribution Companies can notify the Scheduling Coordinator for the Distributed Energy Resource Aggregation, and the Distributed Energy Resource Aggregation would ignore its CAISO dispatch. We find that the protocols and processes set forth in CAISO's Tariff are non-discriminatory and transparent and address Utility Distribution Company reliability and safety concerns, consistent with Order No. 2222.

224. We also find that CAISO's proposal complies with the requirement to revise its tariff to apply existing resource non-performance penalties to a distributed energy resource aggregation when the aggregation does not perform because a distribution utility overrides RTO/ISO dispatch.⁴⁴¹ Specifically, section 11.6.5 of the Tariff states that CAISO will assess a Distributed Energy Resource Provider with uninstructed imbalance energy whenever the Distributed Energy Resource Aggregation does not follow a dispatch instruction. CAISO's proposal ensures that Distributed Energy Resource Aggregations are subject to non-performance penalties similar to other resources participating in its markets, consistent with Order No. 2222.

225. However, we find that CAISO's proposal only partially complies with the requirement to revise its Tariff to establish a process for ongoing coordination, including operational coordination, that addresses data flows and communication among itself, the distributed energy resource aggregator, and the distribution utility.⁴⁴² CAISO's proposal requires a Distributed Energy Resource Aggregation to use a Scheduling Coordinator for all bidding, scheduling, and dispatch, and CAISO explains that the Scheduling Coordinator communicates between CAISO and the Distributed Energy Resources within the aggregation to ensure ongoing operational coordination.⁴⁴³ As such, we find that CAISO establishes a process for ongoing operational coordination between the Scheduling Coordinator, acting on behalf of the Distributed Energy Resource Aggregator, and CAISO, consistent with Order No. 2222. In addition, we find that CAISO's proposal establishes a process for ongoing operational coordination between itself and the Utility Distribution Company. In its transmittal, CAISO states that the existing Tariff requires

⁴⁴⁰ CAISO, CAISO eTariff, § 9.1 (Coordination and Approval for Outages) (1.0.0); see Data Request Response at 26-27 (citing CAISO Business Practice Manual for Outage Management, § 2.4; CAISO Operating Procedure 3220: Generation Outages).

⁴⁴¹ Order No. 2222, 172 FERC ¶ 61,247 at P 312.

⁴⁴² *Id.* P 310.

⁴⁴³ See Transmittal at 25; CAISO, CAISO eTariff, § 4.17.1 (Relationship with Distributed Energy Resource Providers) (0.0.0).

Distributed Energy Resource Aggregations to use a Scheduling Coordinator for bidding, scheduling, and dispatch.⁴⁴⁴ CAISO therefore asserts that the Scheduling Coordinator communicates between CAISO and the resource to ensure ongoing operational coordination, generally citing the bidding rules of the Tariff, and more specifically the Scheduling Coordinator Agreement.⁴⁴⁵

226. While CAISO's proposal and its Tariff sufficiently address ongoing coordination between: (1) CAISO and the Distributed Energy Resource Provider; and (2) CAISO and the Utility Distribution Company,⁴⁴⁶ as discussed above, CAISO does not sufficiently address ongoing coordination, including operational coordination, that addresses data flows and communication between the Distributed Energy Resource Provider and the Utility Distribution Company.⁴⁴⁷ CAISO states that the Tariff requires the Distributed Energy Resource Provider to operate within the limitations or operating orders established by the Utility Distribution Company.⁴⁴⁸ However, CAISO does not explain the process for communicating these limitations or operating orders, nor does it explain whether there are processes in place to ensure operational coordination or data flows between the Distributed Energy Resource Provider and the Utility Distribution Company. Further, it is unclear whether CAISO's reference to Utility Distribution Companies' limitations or operating orders only include planned or forced outages, or a broader range of Utility Distribution Companies' potential actions such as limiting injections into the grid for a particular time. Accordingly, we direct CAISO to file, within 60 days of the date of issuance of this order, a further compliance filing that specifies the process of ongoing operational coordination that addresses data flows and communication between the Distributed Energy Resource Provider and the Utility Distribution Company.

d. Role of Relevant Electric Retail Regulatory Authorities

227. 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 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

⁴⁴⁴ *Id.*

⁴⁴⁵ Transmittal at 25; CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (29.0.0); *id.* app. B.1 (Scheduling Coordinator Agreement) (2.0.0).

⁴⁴⁶ Transmittal at 25; CAISO, CAISO eTariff, § 30.5.2 (Supply Bids) (29.0.0); *id.* app. B.1 (Scheduling Coordinator Agreement) (2.0.0).

⁴⁴⁷ Order No. 2222, 172 FERC ¶ 61,247 at P 310.

⁴⁴⁸ Transmittal at 25-26.

incorporate voluntary RERRA involvement in coordinating the participation of aggregated distributed energy resources in RTO/ISO markets.⁴⁴⁹ The Commission noted that possible roles and responsibilities of RERRAs 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.⁴⁵⁰ The Commission required that any such role for RERRAs in coordinating the participation of distributed energy resource aggregations in RTO/ISO markets be included in the RTO/ISO tariffs and developed in consultation with the RERRAs.⁴⁵¹

228. Further, the Commission stated that, to the extent that metering and telemetry data comes from or flows through distribution utilities, the Commission required that 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.⁴⁵²

229. In Order No. 2222-A, the Commission explained that, consistent with the goals of Order No. 2222, the Commission will evaluate on compliance whether an RTO's/ISO's proposal delineates a role for RERRAs that would result in unjust and unreasonable limits on the participation of distributed energy resource aggregators in wholesale markets.⁴⁵³

⁴⁴⁹ Order No. 2222, 172 FERC ¶ 61,247 at P 322.

⁴⁵⁰ Order No. 2222, 172 FERC ¶ 61,247 at P 324. The Commission also noted that the roles delineated in CAISO's Distributed Energy Resource Provider tariff provisions may provide an example of how RERRAs could be involved in coordinating the participation of distributed energy resource aggregations in RTO/ISO markets. *Id.* P 323.

⁴⁵¹ *Id.* P 324.

⁴⁵² *Id.*

⁴⁵³ Order No. 2222-A, 174 FERC ¶ 61,197 at P 83 (citing Order No. 2222, 172 FERC ¶ 61,247 at PP 130, 279).

i. Filing

230. CAISO states that its existing Tariff complies with the requirements of Order No. 2222.⁴⁵⁴ CAISO explains that section 4.17.2(b) of its Tariff requires each Distributed Energy Resource Provider to comply with any applicable Local Regulatory Authority requirements. CAISO also states that section 4.17.4 of its Tariff allows distribution utilities to raise concerns regarding individual Distributed Energy Resources' non-compliance with Local Regulatory Authority requirements, and it requires resolution of disputes regarding distribution utility concerns by the appropriate authority.

ii. Data Request Response

231. In its Data Request, Commission staff asked CAISO to explain whether, and, if so, more specifically how, CAISO allows for voluntary relevant electric retail regulatory authority involvement in coordinating the participation of Distributed Energy Resource Aggregations in CAISO's markets, and how CAISO's existing Tariff addresses this compliance directive.⁴⁵⁵ In response, CAISO asserts that its existing Tariff meets this 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.⁴⁵⁶ CAISO asserts that it actively coordinates with its Local Regulatory Authorities on Distributed Energy Resource and Distributed Energy Resource Aggregation participation.⁴⁵⁷ According to CAISO, Local Regulatory Authority tariffs and rules primarily set the interconnection, metering, telemetry, safety, reliability, and participation rules for the Distributed Energy Resources most likely to participate in Distributed Energy Resource Aggregations. In addition, CAISO notes that the Commission previously found that "[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."⁴⁵⁸ According to CAISO, the Commission agreed with CAISO's approach in its ruling.

⁴⁵⁴ Transmittal at 27.

⁴⁵⁵ Data Request at 21.

⁴⁵⁶ Data Request Response at 27-28.

⁴⁵⁷ *Id.* at 28.

⁴⁵⁸ *Id.* (citing *Cal. Indep. Sys. Operator Corp.*, 155 FERC ¶ 61,229, at P 56 (2016)).

232. CAISO also states that Order No. 2222 itself broadly cites CAISO's Distributed Energy Resource 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 [Distributed Energy Resource] 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."⁴⁵⁹

233. Commission staff also asked CAISO to 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 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.⁴⁶⁰ In response, CAISO states that 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.⁴⁶¹

234. CAISO also states that its Tariff requires Distributed Energy Resource Aggregations to certify compliance with Local Regulatory Authority requirements for wholesale participation, and for Distributed Energy Resource Aggregations as Scheduling Coordinator Metered Entities to comply with Local Regulatory Authority metering requirements.⁴⁶² According to CAISO, the Local Regulatory Authority has a significant and robust role in coordinating with CAISO for Distributed Energy Resource Aggregation participation.

⁴⁵⁹ *Id.* (citing Order No. 2222, 172 FERC ¶ 61,247 at P 323).

⁴⁶⁰ Data Request at 21.

⁴⁶¹ Data Request Response at 29 (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)).

⁴⁶² *Id.* (citing CAISO, CAISO eTariff, § 4.17.2 (Responsibilities of Distributed Energy Resource Providers) (0.0.0); *id.* § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0); *id.* § 10.3.9 (Certification of Meters) (1.0.0)).

iii. Commission Determination

235. We find that CAISO's proposal complies with the Order No. 2222 requirements regarding the role of RERRAs. More specifically, we find that CAISO's proposal, which requires the Distributed Energy Resource Provider to comply with Local Regulatory Authority requirements, establishes a role for RERRAs and therefore complies with the requirement to specify how each RTO/ISO will accommodate and incorporate voluntary RERRA involvement in coordinating the participation of aggregated distributed energy resources in RTO/ISO markets.⁴⁶³

236. As CAISO explains, existing section 4.17.2(b) of its Tariff requires each Distributed Energy Resource Provider to comply with any appropriate Local Regulatory Authority requirements, as well as ensure that Distributed Energy Resources that comprise a Distributed Energy Resource Aggregation under its control comply with any applicable Local Regulatory Authority requirements.⁴⁶⁴ In addition, Tariff section 4.17.4 allows Utility Distribution Companies to raise concerns regarding non-compliance with Local Regulatory Authority requirements, and it requires resolution of Utility Distribution Company issues by the applicable authority.⁴⁶⁵ Recognizing that Local Regulatory Authorities have authority over matters within their jurisdiction related to coordinating the participation of Distributed Energy Resource Aggregations in CAISO's markets that are reflected in their rules and regulations, we find that requiring Distributed Energy Resource Aggregations to comply with Local Regulatory Authority rules and regulations as the means for voluntary participation in coordination is sufficient for compliance with the requirement of Order No. 2222. We note that the Commission in Order No. 2222 expressly cited the CAISO Tariff as an example of how RERRAs could be involved in coordinating the participation of distributed energy resource aggregations in RTO/ISO markets.⁴⁶⁶

7. Effective Date

237. In Order No. 2222, the Commission required each RTO/ISO to propose a reasonable implementation date, together with adequate support explaining how the

⁴⁶³ Order No. 2222, 172 FERC ¶ 61,247 at P 322.

⁴⁶⁴ See Transmittal at 27 (citing CAISO, CAISO eTariff, § 4.17.2 (Responsibilities of Distributed Energy Resource Providers) (0.0.0), § 4.17.2(b)); Data Request Response at 28.

⁴⁶⁵ *Id.* (citing CAISO, CAISO eTariff, § 4.17.4 (Identification of Distributed Energy Resources) (1.0.0)); *see supra* P 204.

⁴⁶⁶ Order No. 2222, 172 FERC ¶ 61,247 at P 323.

proposal is appropriately tailored for its region and implements Order No. 2222 in a timely manner.⁴⁶⁷ The Commission stated that it will establish on compliance the effective date for each RTO's/ISO's compliance filing.

a. Filing

238. CAISO requests an effective date no later than November 1, 2022 for the proposed Tariff sections that pertain to heterogeneous Distributed Energy Resource Aggregations, which include proposed sections 4.17.7,⁴⁶⁸ 11.6.5.1,⁴⁶⁹ and 30.5.2.6⁴⁷⁰ of the Tariff.⁴⁷¹ CAISO explains that the software enhancements required to enable heterogeneous Distributed Energy Resource Aggregations are substantial, and CAISO plans to implement them as part of its 2022 fall software release, but CAISO has not established the precise date. CAISO requests authority to provide the Commission notice of the actual effective date of the Tariff revisions within five business days of their implementation.

239. For all other proposed Tariff revisions, CAISO requests an effective date contemporaneous with the Commission's approval of those Tariff revisions.⁴⁷² CAISO explains that, in any case, its existing Distributed Energy Resource Aggregation Tariff provisions are effective today and will remain in effect as CAISO complies with Order No. 2222.

b. Commission Determination

240. We find that CAISO's proposed implementation timeline complies with the effective date requirements of Order No. 2222.⁴⁷³ CAISO proposes a reasonable

⁴⁶⁷ *Id.* P 361.

⁴⁶⁸ CAISO, CAISO eTariff, § 4.17.7 (Heterogeneous Distributed Energy Resource Aggregations) (0.0.0).

⁴⁶⁹ *Id.* § 11.6.5 (Settlement of Distributed Energy Resource Aggregations) (2.0.0), § 11.6.5.1 (Settlement of Heterogeneous Distributed Energy Resource Aggregations).

⁴⁷⁰ *Id.* § 30.5.2 (Supply Bids) (29.0.0), § 30.5.2.6 (Supply Bids for Distributed Energy Resource Aggregations).

⁴⁷¹ Transmittal at 29 & n.170.

⁴⁷² *Id.* at 29.

⁴⁷³ *See* Order No. 2222, 172 FERC ¶ 61,247 at P 361.

implementation date of no later than November 1, 2022 for its proposed Tariff sections pertaining to heterogeneous Distributed Energy Resource Aggregations.⁴⁷⁴ We find that CAISO has provided adequate support for its proposal, explaining that implementation of these provisions requires substantial software enhancements, which CAISO plans to implement as part of its 2022 fall software release. We further find that CAISO's proposal to make all other proposed Tariff revisions effective contemporaneously with the issuance of this order implements the requirements of Order No. 2222 in a timely manner. Accordingly, we direct CAISO to notify the Commission of the actual effective date of the revisions to Tariff sections 4.17.7, 11.6.5.1, and 30.5.2.6 within five business days of their implementation, as CAISO proposes to do.

The Commission orders:

(A) CAISO's compliance filing is hereby accepted, effective as of the dates requested, subject to a further compliance filing, as discussed in the body of this order.

(B) CAISO is hereby directed to notify the Commission of the actual effective date of the revisions to Tariff sections 4.17.7, 11.6.5.1, and 30.5.2.6 within five business days of their implementation, in an eTariff submittal using Type of Filing Code 150 – Report.

(C) CAISO is hereby directed to submit a further compliance filing, within 60 days of the date of issuance of this order, as discussed in the body of this order.

By the Commission. Commissioner Danly is concurring with a separate statement attached.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.

⁴⁷⁴ These provisions include proposed sections 4.17.7, 11.6.5.1, and 30.5.2.6 of the Tariff.

Appendix A

Tariff Records Filed

California Independent System Operator Corporation

FERC FPA Electric Tariff

CAISO Tariffs

Docket No. ER21-2455-000

Effective June 16, 2022

[4.17.4, Identification of Distributed Energy Resources \(1.0.0\)](#)

[4.17.5, Characteristics of Distributed Energy Resource Aggregations \(1.0.0\)](#)

[Appendix B.21, Distributed Energy Resource Provider Agreement \(1.0.0\)](#)

Effective no later than November 1, 2022 (to be determined)

[4.17.7, Heterogeneous Distributed Energy Resource Aggregations \(0.0.0\)](#)

[11.6.5, Settlement of Distributed Energy Resource Aggregations \(2.0.0\)](#)

[30.5.2, Supply Bids \(29.0.0\)](#)

[-, Distributed Curtailment Resource \(0.0.0\)](#)

[-, Distributed Energy Resource \(1.0.0\)](#)

Docket No. ER21-2455-001

Effective June 16, 2022

[4.17.3, Requirements for Distributed Energy Resource Aggregations \(1.0.0\)](#)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation

Docket Nos. ER21-2455-000
ER21-2455-001

(Issued June 17, 2022)

DANLY, Commissioner, *concurring*:

1. I concur with this order on the compliance filing¹ submitted by the California Independent System Operator Corporation (CAISO) pursuant to Order No. 2222.² I dissented from Order No. 2222 because I disagreed that the Commission should exercise jurisdiction over the participation of Distributed Energy Resources in markets administered by Regional Transmission Organizations or Independent System Operators (collectively, RTOs).³ My concern was that the Commission should not be in the business of micro-managing RTO activities that mostly affect the distribution system which is primarily within the jurisdiction of the states.

2. CAISO made a good faith effort to comply with Order No. 2222. While I continue to disagree with Order No. 2222 itself, I agree that CAISO failed to fully comply with its scores of dictates. I do not envy CAISO the compliance task we imposed upon it, which CAISO had to take on in addition to trying to navigate an ongoing reliability crisis.⁴ One hundred percent compliance probably is impossible in a first, or perhaps even second, attempt. We shall see.

3. This underscores my original concern about the Commission's intrusive interference into the administration of RTO markets and distribution-level systems. Order No. 2222 not only took over many state powers but also—as confirmed today—permits RTOs extremely limited discretion to do anything other than step in line with the

¹ *Cal. Indep. Sys. Operator Corp.*, 179 FERC ¶ 61,197 (2022).

² *Participation of Distributed Energy Res. Aggregations in Mkts. Operated by Reg'l Transmission Orgs. & Indep. Sys. Operators*, Order No. 2222, 172 FERC ¶ 61,247 (2020), *order on reh'g*, Order No. 2222-A, 174 FERC ¶ 61,197, *order on reh'g*, Order No. 2222-B, 175 FERC ¶ 61,227 (2021).

³ *See* Order No. 2222, 172 FERC ¶ 61,247 (Danly, Comm'r, dissenting); Order No. 2222-A, 174 FERC ¶ 61,197 (Danly, Comm'r, dissenting).

⁴ *See, e.g., Cal. Indep. Sys. Operator Corp.*, 179 FERC ¶ 61,127 (2022) (Danly, Comm'r, concurring) (discussing reliability concerns in CAISO as of May 20, 2022).

Commission's directives for how every little thing should work. Parties should keep that in mind when responding to the Commission's other sweeping rulemakings which are currently pending.⁵

For these reasons, I respectfully concur.

James P. Danly
Commissioner

⁵ See *Improvements to Generator Interconnection Procedures & Agreements*, 179 FERC ¶ 61,194 (2022); *Bldg. for the Future Through Elec. Reg'l Transmission Planning & Cost Allocation & Generator Interconnection*, 179 FERC ¶ 61,028 (2022).