

170 FERC ¶ 61,112
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick and Bernard L. McNamee.

California Independent System
Operator Corporation

Docket No. ER19-1950-000

ORDER ON COMPLIANCE

(Issued February 20, 2020)

1. On May 22, 2019, the California Independent System Operator Corporation (CAISO) submitted proposed revisions to its Open Access Transmission Tariff (Tariff) in compliance with the requirements of Order Nos. 845 and 845-A,¹ which amended the Commission's *pro forma* Large Generator Interconnection Agreement (LGIA) and *pro forma* Large Generator Interconnection Procedures (LGIP).² As discussed below, we find that CAISO's filing partially complies with the requirements of Order Nos. 845 and 845-A. Accordingly, we accept CAISO's compliance filing, effective as of the date of this order, and direct CAISO to submit a further compliance filing within 60 days of the date of this order.

I. Background

2. On April 19, 2018, the Commission issued Order No. 845, which revised the Commission's *pro forma* LGIA and the *pro forma* LGIP to improve certainty for interconnection customers, promote more informed interconnection decisions, and

¹ *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 (2018), *errata notice*, 167 FERC ¶ 61,123, *order on reh'g*, Order No. 845-A, 166 FERC ¶ 61,137, *errata notice*, 167 FERC ¶ 61,124, *order on reh'g*, Order No. 845-B, 168 FERC ¶ 61,092 (2019).

² The *pro forma* LGIP and *pro forma* LGIA establish the terms and conditions under which public utilities that own, control, or operate facilities for transmitting energy in interstate commerce must provide interconnection service to large generating facilities. Order No. 845, 163 FERC ¶ 61,043 at P 6.

enhance the interconnection process. The Commission stated that it expects that these reforms will provide interconnection customers better information and more options for obtaining interconnection service, and as a result, there will be fewer overall interconnection requests and fewer interconnection requests failing to reach commercial operation. The Commission also stated that it expects that, as a result of these reforms, transmission providers will be able to focus resources on those interconnection requests most likely to reach commercial operation.³ In Order No. 845-A, the Commission generally upheld the reforms it required in Order No. 845 but granted certain requests for rehearing and clarification.

3. In Order No. 845, the Commission adopted 10 different reforms in three categories to improve the interconnection process. First, in order to improve certainty for interconnection customers, the Commission: (1) removed the limitation that interconnection customers may exercise the option to build the transmission provider's interconnection facilities⁴ and stand alone network upgrades⁵ only in instances when the transmission provider cannot meet the dates proposed by the interconnection customer;⁶ and (2) required that transmission providers establish interconnection dispute resolution procedures that allow a disputing party unilaterally to seek non-binding dispute resolution.⁷

³ *Id.* P 2; Order No. 845-A, 166 FERC ¶ 61,137 at P 1.

⁴ Transmission provider's interconnection facilities are "all facilities and equipment owned, controlled or operated by the Transmission Provider from the Point of Change of Ownership to the Point of Interconnection as identified in Appendix A to the Standard Large Generator Interconnection Agreement, including any modifications, additions or upgrades to such facilities and equipment. Transmission provider's interconnection facilities are sole use facilities and shall not include Distribution Upgrades, Stand Alone Network Upgrades or Network Upgrades." *Pro forma* LGIA art. 1 (Definitions).

⁵ Stand alone network upgrades are "Network Upgrades that an Interconnection Customer may construct without affecting day-to-day operations of the Transmission System during their construction. Both the Transmission Provider and the Interconnection Customer must agree as to what constitutes Stand Alone Network Upgrades and identify them in Appendix A to the Standard Large Generator Interconnection Agreement." *Id.*

⁶ Order No. 845, 163 FERC ¶ 61,043 at P 85.

⁷ *Id.* P 3.

4. Second, to promote more informed interconnection decisions, the Commission: (1) required transmission providers to outline and make public a method for determining contingent facilities;⁸ (2) required transmission providers to list the specific study processes and assumptions for forming the network models used for interconnection studies; (3) revised the definition of “Generating Facility” to explicitly include electric storage resources; and (4) established reporting requirements for aggregate interconnection study performance.⁹

5. Third, the Commission adopted reforms to enhance the interconnection process by (1) allowing interconnection customers to request a level of interconnection service that is lower than their generating facility capacity; (2) requiring transmission providers to allow for provisional interconnection agreements that provide for limited operation of a generating facility prior to completion of the full interconnection process; (3) requiring transmission providers to create a process for interconnection customers to use surplus interconnection service¹⁰ at existing points of interconnection; and (4) requiring transmission providers to set forth a procedure to follow when assessing and, if necessary, studying an interconnection customer’s technology changes without affecting the interconnection customer’s queue position.¹¹

II. CAISO’s Compliance Filing

6. CAISO explains that its generator interconnection process uses a cluster study process that combines both small and large generator interconnection requests instead of maintaining separate generator interconnection study processes based on generator size and instead of using a serial study process. CAISO uses an expedited independent study process for requests that are electrically independent of other requests in CAISO’s

⁸ Contingent facilities are “those unbuilt Interconnection Facilities and Network Upgrades upon which the Interconnection Request’s costs, timing, and study findings are dependent, and if delayed or not built, could cause a need for Re-Studies of the Interconnection Request or a reassessment of the Interconnection Facilities and/or Network Upgrades and/or costs and timing.” *Pro Forma* LGIP § 1 (Definitions).

⁹ Order No. 845, 163 FERC ¶ 61,043 at P 4.

¹⁰ Order No. 845 added a definition for “Surplus Interconnection Service” to section 1 of the *pro forma* LGIP and article 1 of the *pro forma* LGIA, defining the term as “any unused portion of Interconnection Service established in a Large Generator Interconnection Agreement, such that if Surplus Interconnection Service is utilized the Interconnection Service limit at the Point of Interconnection would remain the same.” *Id.* P 459.

¹¹ *Id.* P 5.

generator interconnection queue, and a fast-track process that evaluates facilities that are five MW or smaller.¹² In addition, CAISO has harmonized its generator interconnection study process with its transmission planning process, which enables interconnection studies to account for new transmission capacity created by transmission projects. CAISO also uses interconnection cost caps to provide developers with cost certainty throughout the interconnection study process.¹³

7. CAISO indicates that for most of the Order No. 845 reforms, it proposes to adopt the *pro forma* Tariff provisions with minor variations to accommodate CAISO's existing terms and procedures. Specifically, CAISO proposes revisions to Tariff Appendices A, U, Y, DD, and EE.¹⁴ CAISO indicates that in some instances, its provisions differ from the *pro forma* language in a manner that is consistent with or superior to the *pro forma* language and consistent with CAISO's specific Commission-approved framework and Tariff definitions. CAISO also notes that it posted its proposed Tariff revisions for stakeholder review and comment twice and held a public web/teleconference to review them. CAISO requests that the Commission grant an effective date when it approves the proposed Tariff revisions.¹⁵

III. Notice and Responsive Pleadings

8. Notice of CAISO's compliance filing was published in the *Federal Register*, 84 Fed. Reg. 24,770 (2019), with interventions and protests due on or before June 12, 2019. On June 7, 2019, the Commission extended the comment period until and including June 26, 2019.¹⁶ Timely motions to intervene were filed by E.ON Climate &

¹² *Cal. Indep. Sys. Operator Corp.*, 133 FERC ¶ 61,223, at n17 (2010). *See also* CAISO's Appendix DD, §§ 4 and 5.

¹³ CAISO May 22, 2019 Compliance Filing at 2-3 (Filing).

¹⁴ Appendix A is CAISO's Tariff Master Definitions Supplement. Appendix U is CAISO's Standard LGIP. Appendix Y is CAISO's Generator Interconnection Procedures (GIP) for Interconnection Requests. Appendix DD is the Generator Interconnection and Deliverability Allocation Procedures (GIDAP). Appendix U and Y have been superseded by appendix DD although some customers remain under those older procedures. Appendix EE is CAISO's LGIA for Interconnection Requests Under the GIDAP.

¹⁵ Filing at 3-4, 23.

¹⁶ Notice Granting Extension of Time, Docket Nos. ER19-1949-000, ER19-1950-000, ER19-1951-000, ER19-1952-000, ER19-1954-000, ER19-1958-000, and ER19-1960-000 (June 7, 2019).

Renewables North America, LLC, Renewable Energy Systems Americas, Inc., Enel Green Power North America, Inc., American Wind Energy Association, EDF Renewables, Inc., Electric Power Supply Association, EDP Renewables North American LLC, Modesto Irrigation District, Energy Storage Association, NRG Power Marketing LLC, Southern California Edison Company, and Calpine Corporation.

IV. Discussion

A. Procedural Matters

9. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2019), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

B. Substantive Matters

10. As discussed below, we find that CAISO's filing partially complies with the requirements of Order Nos. 845 and 845-A. Accordingly, we accept CAISO's compliance filing, effective as of the date of this order, and direct CAISO to submit a further compliance filing within 60 days of the date of this order.

1. Proposed Variations

11. As discussed further below, CAISO has requested certain variations from the Commission's requirements in Order Nos. 845 and 845-A. The Commission explained in Order No. 845 that such variations would be reviewed under the same standard allowed by Order No. 2003. In Order No. 2003, the Commission permitted Regional Transmission Organizations/Independent System Operators (RTOs/ISOs) to seek "independent entity variations" for pricing and non-pricing provisions, and that RTOs/ISOs "shall have greater flexibility to customize [their] interconnection procedures and agreement to fit regional needs."¹⁷ The Commission stated that this approach recognizes that an RTO/ISO is less likely to act in an unduly discriminatory manner than a transmission provider that is a market participant.¹⁸ The Commission has granted independent entity variations from rulemakings where an RTO/ISO demonstrates that the

¹⁷ *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103, at P 826 (2003), *order on reh'g*, Order No. 2003-A, 106 FERC ¶ 61,220, *order on reh'g*, Order No. 2003-B, 109 FERC ¶ 61,287 (2004), *order on reh'g*, Order No. 2003-C, 111 FERC ¶ 61,401 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), *cert. denied*, 552 U.S. 1230 (2008).

¹⁸ Order No. 2003, 104 FERC ¶ 61,103 at P 827.

proposed variation: (1) is just and reasonable, and not unduly discriminatory or preferential; and (2) accomplishes the purposes of the final rule. It is not a sufficient justification to state that a variation conforms to current RTO/ISO practices or to the RTO's/ISO's tariff definitions and terminology.¹⁹ Even if the transmission provider is an RTO/ISO, it must still justify its variations in light of the Commission's *pro forma* LGIP and/or *pro forma* LGIA.²⁰ We will evaluate CAISO's proposed variations from the requirements of Order Nos. 845 and 845-A accordingly.

2. Interconnection Customer's Option to Build

12. In Order No. 845, the Commission revised articles 5.1, 5.1.3, and 5.1.4 of the *pro forma* LGIA to allow interconnection customers to unilaterally exercise the option to build for stand alone network upgrades and the transmission provider's interconnection facilities, regardless of whether the transmission provider can complete construction of such facilities by the interconnection customer's proposed in-service date, initial synchronization date, or commercial operation date.²¹ Prior to Order No. 845, this option to build was available to an interconnection customer only if the transmission provider did not agree to the interconnection customer's preferred construction timeline.²² The Commission stated in Order No. 845 that this reform of the option to build will "benefit the interconnection process by providing interconnection customers more control and certainty during the design and construction phases of the interconnection process."²³

13. In Order No. 845-A, the Commission granted rehearing and clarification of certain aspects of the revised option to build. Specifically, the Commission revised the definition of stand alone network upgrade in the *pro forma* LGIP and *pro forma* LGIA to: (1) state that, when there is a disagreement, the transmission provider must provide the interconnection customer a written technical explanation outlining why the transmission provider does not consider a specific network upgrade to be a stand alone network

¹⁹ See, e.g., *ISO New England, Inc.*, 164 FERC ¶ 61,222, at P 9 (2018) (citing Order No. 2003, 104 FERC ¶ 61,103 at PP 26, 827; *Midcontinent Indep. Sys. Operator, Inc.*, 154 FERC ¶ 61,247, at P 20 (2016); *California Indep. Sys. Operator Corp.*, 140 FERC ¶ 61,070, at P 44 (2012)).

²⁰ See *PJM Interconnection, L.L.C.*, 108 FERC ¶ 61,025, at P 16 (2004), *order on reh'g*, 110 FERC ¶ 61,099 (2005).

²¹ Order No. 845, 163 FERC ¶ 61,043 at PP 85-87.

²² Order No. 2003, 104 FERC ¶ 61,103 at P 353; *see also pro forma* LGIP § 5.1.3.

²³ Order No. 845, 163 FERC ¶ 61,043 at P 85.

upgrade;²⁴ and (2) clarify that the option to build does not apply to stand alone network upgrades on affected systems.²⁵ The Commission also made revisions to article 5.2 of the *pro forma* LGIA to allow transmission providers to recover oversight costs related to the interconnection customer's option to build.²⁶ In addition, the Commission clarified that the revised option to build provisions apply to all public utility transmission providers, including those that reimburse the interconnection customer for network upgrades.²⁷

a. CAISO's Compliance Filing

14. CAISO asserts that although it has existing tariff provisions that already comply with Order No. 845's requirements regarding the option to build, CAISO proposes to revise its Tariff to adopt the *pro forma* option to build language, with some minor variations, because doing so promotes transparency and clarity, and ensures that interconnection customers may continue to exercise these rights in CAISO.²⁸ Specifically, CAISO revised the definition of stand alone network upgrades in Appendices A and EE. CAISO also revised Appendix EE articles 5.1, 5.1.3, 5.1.4, and 5.2 (13).

b. Commission Determination

15. We find that CAISO's proposed Tariff revisions comply with the requirements of Order Nos. 845 and 845-A, with one minor exception, as discussed below. CAISO's proposed Tariff revisions largely adopt the *pro forma* language required by Order Nos. 845 and 845-A and implement the requirements to allow interconnection customers to unilaterally exercise the option to build stand alone network upgrades and the transmission provider's interconnection facilities. CAISO proposes variations to the *pro forma* language that are consistent with those the Commission has found to be just and reasonable for CAISO in the past, such as replacing the term "Transmission Provider" with "CAISO or Participating T[ransmission] O[wner]," as applicable. We find that these modifications are just and reasonable and not unduly discriminatory, and accomplish the purpose of the final rule because they reflect that the transmission owner and transmission provider in CAISO are distinct while allowing interconnection

²⁴ Order No. 845-A, 166 FERC ¶ 61,137 at P 68.

²⁵ *Id.* P 61.

²⁶ *Id.* P 75.

²⁷ *Id.* P 33.

²⁸ Filing at 4.

customers to unilaterally exercise the option to build stand alone network upgrades and the transmission provider's interconnection facilities.²⁹ However, although CAISO has adopted, in Appendix EE, the *pro forma* revisions for LGIA articles 5.1, 5.1.3, 5.1.4, and 5.2, CAISO has omitted from its proposed LGIA article 5.1.4 the word "dates" as set forth in the first sentence of *pro forma* LGIA article 5.1.4, which states in part "[i]f the *dates* designated by the Interconnection Customer are not acceptable to the Transmission Provider." Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing to add the word "dates" to Appendix EE, article 5.1.4.

3. Dispute Resolution

16. In Order No. 845, the Commission revised the *pro forma* LGIP by adding new section 13.5.5, which establishes generator interconnection dispute resolution procedures that allow a disputing party to unilaterally seek non-binding dispute resolution.³⁰ The Commission established these new procedures because dispute resolution was previously unavailable when the parties did not mutually agree to pursue a binding arbitration under section 13.5 of the pre-Order No. 845 *pro forma* LGIP. The Commission further explained that participation in the new non-binding dispute resolution process in *pro forma* LGIP section 13.5.5 does not preclude disputing parties from pursuing binding arbitration after the conclusion of the non-binding dispute resolution process if they seek a binding result.³¹

a. CAISO's Compliance Filing

17. CAISO has revised Appendix DD, section 15.5.5³² to incorporate the Commission's requirement for a unilateral dispute resolution process.³³ However, CAISO's proposed Tariff language deviates from the *pro forma* LGIP to reflect that CAISO has unified its small and large generator interconnection procedures within the same cluster study process through use of a GIDAP instead of using a LGIP.

²⁹ Order No. 2003, 104 FERC ¶ 61,103 at P 75. This substitution appears in many places throughout CAISO's filing. We will not discuss further instances of this substitution as our acceptance applies to each instance in the filing.

³⁰ Order No. 845, 163 FERC ¶ 61,043 at P 133; *see also pro forma* LGIP § 13.5.5.

³¹ Order No. 845, 163 FERC ¶ 61,043 at P 139.

³² As explained above, CAISO's Tariff, appendix DD houses CAISO's GIDAP, the process through which CAISO integrates its transmission planning process and GIP. *See Cal. Indep. Sys. Operator Corp.*, 140 FERC ¶ 61,070, at P 5 (2012).

³³ Filing at 4.

CAISO has also revised the numbering for this section consistent with how CAISO numbers Appendix DD.³⁴

b. Commission Determination

18. We find that CAISO's revised dispute resolution procedures in Appendix DD comply with the requirements of Order Nos. 845 and 845-A. CAISO's proposed Tariff revisions offer non-binding dispute resolution procedures that disputing parties can seek to implement unilaterally, as required by Order No. 845.³⁵ We find that the modifications proposed by CAISO are just and reasonable and not unduly discriminatory, and accomplish the purposes of the final rule because CAISO has incorporated a non-binding dispute resolution process that parties can seek unilaterally.³⁶

4. Identification and Definition of Contingent Facilities

19. In Order No. 845, the Commission added a new definition to section 1 of the *pro forma* LGIP, providing that contingent facilities shall mean those unbuilt interconnection facilities and network upgrades upon which the interconnection request's costs, timing, and study findings are dependent, and if delayed or not built, could cause a need for restudies of the interconnection request or a reassessment of the interconnection facilities and/or network upgrades and/or costs and timing.³⁷ The Commission also added new section 3.8 to the *pro forma* LGIP, which requires transmission providers to include, within section 3.8, a method for identifying the contingent facilities that they will provide to the interconnection customer at the conclusion of the system impact study and include in the interconnection customer's generator interconnection agreement.³⁸ The Commission specified that the method must be sufficiently transparent to determine why a specific contingent facility was identified and how it relates to the interconnection request.³⁹ The Commission stated that this transparency will ensure that the method is

³⁴ CAISO Tariff, app. DD, § 15.5.5.

³⁵ Order No. 845, 163 FERC ¶ 61,043 at PP 123, 132, 139.

³⁶ Order No. 845, 163 FERC ¶ 61,043 at PP 132-135.

³⁷ *Id.* P 218; *see also pro forma* LGIP § 1 (Definitions).

³⁸ Order No. 845, 163 FERC ¶ 61,043 at P 199.

³⁹ *Id.*; *see also pro forma* LGIP § 3.8.

applied on a non-discriminatory basis.⁴⁰ The Commission further required that transmission providers provide, upon the interconnection customer's request, the estimated network upgrade costs and estimated in-service completion date associated with each identified contingent facility when this information is readily available and not commercially sensitive.⁴¹

a. CAISO's Compliance Filing

20. CAISO does not propose to include the *pro forma* definition of contingent facilities or the new *pro forma* LGIP section 3.8 language to comply with the Commission's *pro forma* revisions related to contingent facilities. CAISO contends that the Commission should find that its existing Tariff complies with, or is superior to, the requirements of Order No. 845 in identifying contingent facilities because CAISO's Phase I and Phase II interconnection studies identify all interconnection facilities and network upgrades that may affect the interconnection customer's costs or timing.⁴²

21. CAISO adds that, because it studies interconnection requests in clusters, and because the Phase I and Phase II interconnection studies set the interconnection customer's cost cap, interconnection customers are not subject to restudies late in the interconnection process. Section 14.2.2 of Appendix DD provides that if an earlier-queued interconnection customer withdraws late in the interconnection process, and later-queued interconnection customers depend on its upgrades, the transmission owner assumes the financing responsibility for the network upgrades.⁴³

22. CAISO states that to avoid the transmission owners needing to constantly backstop unforeseen costs, CAISO's interconnection study process always identifies all contingent facilities in the interconnection customer's Phase I and Phase II interconnection studies.⁴⁴ CAISO further states that its Tariff does not limit the

⁴⁰ Order No. 845, 163 FERC ¶ 61,043 at P 200.

⁴¹ *Id.* P 199; *see also pro forma* LGIP § 3.8.

⁴² Filing at 7.

⁴³ *Id.*

⁴⁴ CAISO previously consolidated the three interconnection studies under the LGIP (the interconnection feasibility study, the interconnection system impact study and the interconnection facilities study) into the Phase I interconnection study and the Phase II interconnection study. Specifically, CAISO eliminated the interconnection feasibility study and compensated for its absence by increasing the amount of transmission information and technical data available to prospective project developers, so that the developers could conduct their own preliminary assessments. *See Cal. Indep. Sys.*

identification of network upgrades to those that the interconnection customer alone triggers. CAISO indicates that its interconnection studies also describe those network upgrades triggered by earlier clusters (i.e., precursor network upgrades) or identified in CAISO's transmission planning process.⁴⁵

23. According to CAISO, this feature provides complete transparency for the interconnection customer as to the transmission upgrades that are required by the customer's project to interconnect and obtain deliverability. CAISO indicates that, if a later interconnection request depends on these upgrades for reliability or deliverability, these upgrades will be described in its interconnection customer's study reports as well. CAISO states that, besides identifying all necessary facilities, these studies include cost estimates for each facility, the interconnection customer's current allocated share of those facilities, and its potential share. According to CAISO, these figures comprise the interconnection customer's maximum cost responsibility, which is established based on the lower of its Phase I and Phase II interconnection study report pursuant to Appendix DD, section 10.1.⁴⁶

24. CAISO explains that Appendix DD, section 6.2 states the Phase I interconnection study will consist of: (1) a short circuit analysis, a stability analysis to the extent the CAISO and applicable transmission owner reasonably expect transient or voltage stability concerns; (2) a power flow analysis, including off-peak analysis; and (3) an on-peak deliverability assessment (and off-peak deliverability assessment which will be for informational purposes only) to identify local delivery network upgrades and reliability network upgrades, and providing a cost estimate of area delivery network upgrades⁴⁷ for each interconnection request within the cluster.⁴⁸

25. Similarly, CAISO states that Appendix DD, section 8.1.1 states that the Phase II interconnection study will: (1) update the Phase I interconnection studies to account for the withdrawal of interconnection requests from the current queue cluster; (2) identify final local delivery, area delivery, and reliability network upgrades with final cost estimates needed in order to achieve commercial operation status for the generating

Operator Corp., 124 FERC ¶ 61,292, at PP 65, 67, 84-93 (2008).

⁴⁵ Filing at 6.

⁴⁶ *Id.*

⁴⁷ Pursuant to CAISO Tariff, appendix A, an "Area Delivery Network Upgrade" is "A transmission upgrade or addition identified by the CAISO to relieve an Area Deliverability Constraint."

⁴⁸ Filing at 5.

facilities in the cluster; (3) identify, for each interconnection request, the participating transmission owner's interconnection facilities for the final point of interconnection and provide a +/-20% cost estimate; and (4) coordinate in-service timing requirements.⁴⁹

26. In addition, CAISO states that Appendix DD, section 6.2 also requires the Phase I and Phase II interconnection studies to describe which engineering analyses were performed and why each identified facility is required.⁵⁰

b. Commission Determination

27. We find that CAISO's existing Tariff partially complies with the requirements of Order Nos. 845 and 845-A regarding contingent facilities. CAISO's proposal accounts for its two-step interconnection study process, which the Commission has previously found just and reasonable.⁵¹ CAISO's proposal to identify contingent facilities in its existing Phase I and Phase II interconnection studies, as opposed to at the conclusion of the system impact study, accomplishes the purposes of Order Nos. 845 and 845-A inasmuch as CAISO proposes to identify contingent facilities at the earliest opportunity it has the results, which is at the conclusion of its first study, the Phase I interconnection study. By contrast, the *pro forma* requires the contingent facilities to be identified at the conclusion of the system impact study, the second study. We also find that CAISO's use of cost caps accomplishes the purpose of Order No. 845, with respect to reliability network upgrades and local delivery network upgrades, by providing the interconnection customer with transparency and cost certainty inasmuch as the cost caps establish an interconnection customer's maximum cost responsibility and eliminate the possibility of restudies or cost shifts.⁵² We therefore accept CAISO's request for an independent entity variation to allow CAISO to identify contingent facilities at the conclusion of both the Phase I and Phase II interconnection studies and use of cost caps with respect to reliability network upgrades and local delivery network upgrades, as described above.

28. CAISO states that network upgrades are subject to cost caps and costs above these caps must be financed by the transmission owner.⁵³ The Tariff indicates that the cost

⁴⁹ *Id.* at 5-6.

⁵⁰ *Id.* at 6.

⁵¹ *Cal. Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,292 at PP 84-93.

⁵² Order No. 845, 163 FERC ¶ 61,043 at PP 192, 199.

⁵³ Filing at 5.

caps for network upgrades apply to reliability network upgrades and local delivery network upgrades where a maximum cost responsibility is identified in the Phase I study.⁵⁴ However, CAISO provides no support for the notion that area delivery network upgrades are cost capped and that costs above these caps must be financed by the transmission owner. Therefore, we cannot grant an independent entity variation with regard to CAISO's approach for area delivery network upgrades. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing explaining which Tariff provisions CAISO relies on to support the assertion that area delivery network upgrades are cost capped.

29. Further, CAISO's Appendix DD, section 6.3.2 lacks the requisite transparency required by Order Nos. 845 and 845-A because it does not detail the specific technical screens or analyses and the specific thresholds or criteria that CAISO will use as part of its method to identify contingent facilities that may impact an interconnection customer's assigned area delivery network upgrades.⁵⁵ Without this information, an interconnection customer will not understand how CAISO will evaluate potential contingent facilities to determine their relationship to an individual interconnection request.⁵⁶ Further, including provisions regarding specific thresholds or criteria will ensure CAISO's technical screens or analyses will be applied to interconnection requests on a consistent, not unduly discriminatory or preferential basis. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that includes, in Appendix DD, section 6.3.2, the method it will use to determine contingent facilities that may affect the costs or timing associated with an interconnection customer's assigned area delivery network upgrades, including the technical screens or analyses it proposes to use to identify these facilities. We also require that CAISO include in, Appendix DD, section 6.3.2, the specific thresholds or criteria it will use in its technical screens or analysis to achieve the level of transparency required by Order No. 845.

30. In addition, Order No. 845 directs transmission providers to provide, upon the interconnection customer's request, information on contingent facilities' estimated costs and in-service completion time when this information is readily available and not

⁵⁴ CAISO Tariff, app. DD, §§ 6.2(v), 6.3.2.1.1, 10.1(a).

⁵⁵ The Commission declined to implement a standard threshold or criteria, such as a specific distribution factor threshold, because different thresholds may be more appropriate for different queue types and geographical footprints. Order No. 845, 163 FERC ¶ 61,043 at P 220.

⁵⁶ *See pro forma* LGIP § 3.8 ("The method shall be sufficiently transparent to determine why a specific Contingent Facility was identified").

commercially sensitive.⁵⁷ CAISO's Tariff, however, does not expressly require CAISO to make this information available. Rather, it merely states that "[u]pon request, the CAISO shall provide the Interconnection Customer all supporting documentation, workpapers and relevant pre-Interconnection Request and post-Interconnection Request power flow, short circuit and stability databases for the Phase I Interconnection Study, subject to confidentiality arrangements,"⁵⁸ and that, among its Phase II interconnection study purposes are provisions for revised cost estimates and coordination of "in-service timing requirements based on operational studies in order to facilitate achievement of the Commercial Operation Dates of the Generating Facilities."⁵⁹ We find that although CAISO's Tariff contains elements of the Commission's directives on contingent facilities, it does not meet the level of specificity required by Order No. 845.⁶⁰ Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that adds the language from *pro forma* LGIP section 3.8 to CAISO's Tariff to make clear that CAISO shall also provide, upon request of the interconnection customer, the estimated interconnection facility and/or network upgrade costs and estimated in-service completion time of each identified contingent facility when this information is readily available and not commercially sensitive.

31. Moreover, CAISO does not propose to include in its Tariff the *pro forma* definition of contingent facilities or the new *pro forma* LGIP section 3.8, which uses that defined term. CAISO has not provided a justification for not adopting these revisions. We find that defining the term "Contingent Facilities" would provide certainty about the scope of the potential facilities as required by Order No. 845. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that incorporates in its Tariff both the definition of contingent facilities and section 3.8 of the *pro forma* LGIP, as directed by Order Nos. 845 and 845-A, or provides justification for not adopting these revisions.

5. Transparency Regarding Study Models and Assumptions

32. In Order No. 845, the Commission revised section 2.3 of the *pro forma* LGIP to require transmission providers to maintain network models and underlying assumptions on either an Open Access Same-Time Information System (OASIS) site or a password-protected website. If the transmission provider posts this information on a password-

⁵⁷ Order No. 845, 163 FERC ¶ 61,043 at PP 192, 199.

⁵⁸ CAISO Tariff, app. DD, § 6.6. This same language is found in CAISO Tariff, appendix DD, section 8.5 for Phase II interconnection study.

⁵⁹ CAISO Tariff, app. DD, § 8.1.1.

⁶⁰ Order No. 845, 163 FERC ¶ 61,043 at P 199.

protected website, a link to the information must be provided on its OASIS site. Revised *pro forma* LGIP section 2.3 also requires that “network models and underlying assumptions reasonably represent those used during the most recent interconnection study and be representative of current system conditions.” In addition, the Commission revised *pro forma* LGIP section 2.3 to allow transmission providers to require interconnection customers, OASIS site users, and password-protected website users to sign a confidentiality agreement before the release of commercially sensitive information or critical energy infrastructure information (CEII).⁶¹

33. In Order No. 845-A, the Commission reiterated that neither the Commission’s CEII regulations nor Order No. 845 precludes a transmission provider from taking necessary steps to protect information within its custody or control to ensure the safety and security of the electric grid.⁶² The Commission also clarified that, to the extent any party would like to use the Commission’s CEII regulations as a model for evaluating entities that request network model information and assumptions (prior to signing a non-disclosure agreement), it may do so.⁶³ The Commission further clarified that the phrase “current system conditions” does not require transmission providers to maintain network models that reflect current real-time operating conditions of the transmission provider’s system. Instead, the network model information should reflect the system conditions currently used in interconnection studies.⁶⁴

a. CAISO’s Compliance Filing

34. CAISO proposes revisions to Tariff Appendix DD to comply with the requirements of Order Nos. 845 and 845-A related to the transparency of study models and assumptions. CAISO explains that Appendix DD, section 2.3 already requires it to maintain interconnection base case data on a password-protected website. Additionally, according to CAISO, its existing practices already comply with Order No. 845’s requirement to maintain all interconnection study assumptions. Nevertheless, CAISO states that it proposes revisions to Appendix DD, section 2.3 to adopt the Commission’s *pro forma* language to make this requirement even more transparent. CAISO states that consistent with the clarification granted in Order No. 845-A, it has modified the term “current system conditions” to “system conditions in the near-term planning horizon” to

⁶¹ Order No. 845, 163 FERC ¶ 61,043 at P 236; *see also pro forma* LGIP, § 2.3.

⁶² Order No. 845-A, 166 FERC ¶ 61,137 at P 84 (citing Order No. 845, 163 FERC ¶ 61,043 at P 241).

⁶³ *Id.* P 85 (citing 18 C.F.R. § 388.113(g)(5)(i) (2019)).

⁶⁴ *Id.* P 88.

accurately describe the assumptions CAISO uses for interconnection studies, consistent with North American Electric Reliability Corporation planning standards.⁶⁵

b. Commission Determination

35. We find that the revised study model provisions that CAISO proposes partially comply with the requirements of Order Nos. 845 and 845-A. While CAISO has revised Appendix DD, section 2.3 to incorporate some of the language from *pro forma* LGIP, section 2.3, CAISO has not adopted the language from *pro forma* LGIP, section 2.3 stating that a transmission provider must maintain the required information “on either its OASIS site or a password-protected website” and that “[i]f Transmission Provider posts this information on a password-protected website, a link to the information must be provided on Transmission Provider’s OASIS site.”⁶⁶ CAISO has made no representation as to whether it has provided a link for its password-protected website on its OASIS site, and has not explained why it would require an independent entity variation to omit these references. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that either adds the language from *pro forma* LGIP, section 2.3 requiring CAISO to maintain the required information on OASIS or if CAISO chooses to maintain the required information on a password-protected site, provide a link on OASIS to that site, or support an independent entity variation to omit this language from CAISO’s Tariff.

6. Definition of Generating Facility

36. In Order No. 845, the Commission revised the definition of “Generating Facility” to include electric storage resources and to allow electric storage resources to interconnect pursuant to the Commission-jurisdictional large generator interconnection processes. Specifically, the Commission revised the definition of “Generating Facility” in the *pro forma* LGIP and *pro forma* LGIA as:

Generating Facility shall mean Interconnection Customer’s device for the production *and/or storage for later injection* of electricity identified in the Interconnection Request, but shall not include the interconnection customer’s Interconnection Facilities.⁶⁷

⁶⁵ Filing at 8-9.

⁶⁶ Order No. 845, 163 FERC ¶ 61,043 at P 238.

⁶⁷ Order No. 845, 163 FERC ¶ 61,043 at P 275 (additions italicized); *see also pro forma* LGIP § 1 (Definitions).

The Commission found that this definitional change will reduce a potential barrier to large electric storage resources with a generating facility capacity above 20 MW that wish to interconnect pursuant to the terms in the *pro forma* LGIP and *pro forma* LGIA.⁶⁸

a. CAISO's Compliance Filing

37. CAISO states that its existing Tariff definition of “Generating Facility” in Appendices A and EE already includes the “and/or storage for later injection” language the Commission added to the *pro forma* definition of “Generating Facility” in Order Nos. 845 and 845-A. Therefore, CAISO contends that its existing Tariff complies with Order No. 845.⁶⁹

b. Commission Determination

38. We find that CAISO’s existing Tariff definition of “Generating Facility” in Appendices A and EE⁷⁰ already includes the language proposed in Order Nos. 845 and 845-A. Therefore, we find that CAISO complies with the requirements of Order Nos. 845 and 845-A with respect to the revised definition of “Generating Facility.”

7. Interconnection Study Deadlines

39. In Order No. 845, the Commission modified the *pro forma* LGIP to add sections 3.5.2 and 3.5.3, which require transmission providers to calculate and maintain on their OASIS sites or public websites summary statistics related to the timing of the transmission provider’s processing of interconnection studies, including the number of interconnection requests withdrawn and interconnection studies completed and delayed, the proportion of studies completed within tariff timeframes, and the average time to complete a study, and to update those statistics on a quarterly basis.⁷¹ The Commission also revised the *pro forma* LGIP to add section 3.5.4 to require transmission providers to file informational reports with the Commission if a transmission provider exceeds its interconnection study deadlines for more than 25% of any study type for two consecutive

⁶⁸ Order No. 845, 163 FERC ¶ 61,043 at P 275.

⁶⁹ Filing at 9.

⁷⁰ See CAISO Tariff, app. A (defining Generating Facility as “An Interconnection Customer’s Generating Unit(s) used for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer’s Facilities.”); *Id.* app. EE, art. 1 (same).

⁷¹ Order No. 845, 163 FERC ¶ 61,043 at P 305; see also *pro forma* LGIP §§ 3.5.2 and 3.5.3.

calendar quarters.⁷² In adopting these reporting requirements, the Commission found that the reporting requirements strike a reasonable balance between providing increased transparency and information to interconnection customers and not unduly burdening transmission providers.⁷³ In Order No. 845-A, the Commission revised *pro forma* LGIP section 3.5.3 to clarify that the data reporting and retention requirements begin in the first calendar quarter of 2020.⁷⁴

a. CAISO's Compliance Filing

40. CAISO proposes to add new subsections to Appendix DD, section 3.6 to include the *pro forma* LGIP language adopted by Order Nos. 845 and 845-A related to interconnection study deadlines, including to replace the bracketed placeholder with deadlines that are consistent with the study deadlines in the Tariff. CAISO states that it has modified the *pro forma* LGIP language to incorporate the terminology of its Tariff, such as Phase I and Phase II interconnection studies rather than interconnection feasibility study, and system impact study. Similarly, because CAISO has a two-step study process, rather than the three-step process in the *pro forma* LGIP, CAISO's proposed language has one fewer subsection. Additionally, in its transmittal, CAISO indicates that it will publish all required data on its public website where CAISO maintains its generator interconnection queue and other public interconnection data.⁷⁵ CAISO also renumbered the sections to maintain consistency with its existing Tariff.

b. Commission Determination

41. We find that CAISO's compliance filing partially complies with the study deadline requirements adopted by Order Nos. 845 and 845-A. We find that CAISO's variation from the *pro forma* language to reflect its unique two-step study process, which the Commission has previously found just and reasonable,⁷⁶ is just and reasonable and not unduly discriminatory, and accomplishes the purposes of Order Nos. 845 and 845-A by requiring CAISO to report study statistics for the studies it actually performs. In

⁷² Order No. 845, 163 FERC ¶ 61,043 at P 305; *see also pro forma* LGIP § 3.5.4.

⁷³ *Id.* P 307.

⁷⁴ Order No. 845-A, 166 FERC ¶ 61,137 at P 107.

⁷⁵ CAISO states that the published data will be accessible without any password, registration, or agreement, and is available at: <http://www.caiso.com/planning/Pages/GeneratorInterconnection/Default.aspx>. Filing at 9-10.

⁷⁶ *Cal. Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,292 at PP 84-93.

addition, CAISO provided study deadlines that align with the timelines already in its Tariff. Therefore, we find CAISO's independent entity variations to reflect its study deadlines in its Tariff are just and reasonable and not unduly discriminatory, and accomplish the purposes of Order Nos. 845 and 845-A by providing study statistics based on study deadlines established in its Tariff.⁷⁷

42. However, CAISO has failed to include in its Tariff the language from *pro forma* LGIP sections 3.5.2, 3.5.3 and 3.5.4(ii) stating that, if the transmission provider posts the required information on its website, a link to the information must be provided on transmission provider's OASIS site. Instead, CAISO includes language in Appendix DD, sections 3.6.1-3.6.3 stating only that it will post the required information on the CAISO website without also stating that it will include a link on OASIS to the information on its website. Because CAISO has provided no justification for its variations from the *pro forma* language regarding the OASIS posting/link requirement, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing to support an independent entity variation for these variations or include the *pro forma* LGIP language regarding the requirement to post study metrics or a link to a website with study metrics on OASIS from *pro forma* LGIP sections 3.5.2, 3.5.3 and 3.5.4(ii) in CAISO's Appendix DD, sections 3.6.1, 3.6.2 and 3.6.3, as discussed above.

43. In addition, CAISO has revised and omitted language in its Tariff from *pro forma* LGIP sections 3.5.2, 3.5.3, and 3.5.4 that it has not explained. Specifically, CAISO included in Appendix DD, section 3.6.1 a revised version of the *pro forma* LGIP section 3.5.2 language by replacing the term "maintain" with "publish" with no explanation. Also, CAISO omitted the word "end" in the last sentence of Appendix DD section 3.6.3(i), without explanation. Specifically, *pro forma* LGIP section 3.5.4(i) states in part that "The report must be filed at the Commission within 45 days of the end of the calendar quarter" whereas CAISO's proposed language in Appendix DD, section 3.6.3(i) states in part that "The CAISO will file the report with FERC within forty-five (45) days of the quarter." Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that explains each variation or includes in Appendix DD, section 3.6.1, 3.6.2, and 3.6.3, the *pro forma* LGIP section 3.5.2, 3.5.3 and 3.5.4 language.

8. Requesting Interconnection Service below Generating Facility Capacity

44. In Order No. 845, the Commission modified sections 3.1, 6.3, 7.3, 8.2, and Appendix 1 of the *pro forma* LGIP to allow interconnection customers to request interconnection service that is lower than the proposed generating facility's

⁷⁷ Order No. 845, 163 FERC ¶ 61,043 at PP 305-311.

capacity,⁷⁸ recognizing the need for proper control technologies and flexibility for transmission providers to propose penalties to ensure that the generating facility does not inject energy above the requested level of service.⁷⁹

45. The Commission required, in revised *pro forma* LGIP section 3.1, that transmission providers have a process in place to consider requests for interconnection service below the full generating facility capacity. The Commission stipulated that such requests should be studied at the level of interconnection service requested for purposes of determining interconnection facilities, network upgrades, and associated costs, but that such requests may be subject to other studies at the full generating facility capacity to ensure safety and reliability of the system.⁸⁰ In addition, *pro forma* LGIP revised section 3.1 states that the interconnection customer is responsible for all study costs and interconnection facility and/or network upgrade costs required for safety and reliability. The Commission also required in revised *pro forma* LGIP section 3.1 that any necessary control technologies and/or protection systems be memorialized in the LGIA.

46. The Commission required, in revised *pro forma* LGIP sections 6.3, 7.3, and 8.2, that the feasibility, system impact, and facilities studies be performed at the level of interconnection service that the interconnection customer requests, unless the transmission provider is otherwise required to study the full generating facility capacity due to safety and reliability concerns. The Commission stated that, if the transmission provider determines that additional network upgrades are necessary based on these studies, it must specify which additional network upgrade costs are based on which studies and provide a detailed explanation of why the additional network upgrades are necessary.⁸¹

⁷⁸ The term generating facility capacity is defined as “the net capacity of the Generating Facility and the aggregate net capacity of the Generating Facility where it includes multiple energy production devices.” *Pro forma* LGIA art. 1 (Definitions).

⁷⁹ Order No. 845, 163 FERC ¶ 61,043 at P 367; *see also pro forma* LGIP §§ 3.1, 6.3, 7.3 and 8.2, and *pro forma* LGIP app. 1.

⁸⁰ Order No. 845, 163 FERC ¶ 61,043 at PP 383-84.

⁸¹ *Id.* P 384. The Commission clarified that, if the transmission provider determines, based on good utility practice and related engineering considerations and after accounting for the proposed control technology, that studies at the full generating facility capacity are necessary to ensure safety and reliability of the transmission system when an interconnection customer requests interconnection service that is lower than full generating facility capacity, then it must provide a detailed explanation for such a determination in writing to the interconnection customer.

47. Finally, the Commission revised sections 4.4.1 and 4.4.2 of the *pro forma* LGIP to allow an interconnection customer to reduce the size of its interconnection request either prior to returning to the transmission provider an executed system impact study agreement or an executed facilities study agreement.⁸²

a. CAISO's Compliance Filing

48. CAISO explains that it already allows interconnection customers to request interconnection service capacity lower than generating facility capacity if the interconnection customer installs proper control technologies to ensure that the generator output never exceeds the interconnection service capacity at the point of interconnection. According to CAISO, interconnection customers can make such requests through their interconnection requests or through a modification request. Notwithstanding that, CAISO proposes to revise Appendix A to include a new defined term and Appendix DD, sections 3.1, 6.2, 6.7.2.2, 7.5, and 8.1, and Appendix 1 to Appendix DD of its Tariff to adopt the Commission's *pro forma* language explaining that doing so promotes transparency and clarity and ensures that interconnection customers may continue to exercise these rights in CAISO.⁸³

49. However, CAISO states that, based on stakeholder feedback, it has revised the Commission's *pro forma* language in a manner consistent with, or superior to, the Commission's *pro forma* language. First, CAISO proposes to include, in Appendix A to its Tariff, a new defined term, "Interconnection Service Capacity," defined as "the approved maximum instantaneous Power output at the Point of Interconnection for the Interconnection Customer, as set forth in its Interconnection Studies." CAISO proposes to substitute the new term "Interconnection Service Capacity," in Appendix D, sections 3.1, 6.2, 6.7.2.2, 7.5, and 8.1, and Appendix 1 to Appendix DD of its Tariff where the *pro forma* version uses "Interconnection Service." For example, *pro forma* LGIP section 3.1 states "Transmission Provider shall have a process in place to consider requests for Interconnection Service below Generating Facility Capacity." CAISO proposes to substitute "Interconnection Service Capacity" where "Interconnection Service" is used in this instance. CAISO believes this revision promotes clarity.⁸⁴

⁸² *Id.* P 406; *see also pro forma* LGIP §§ 4.4.1 and 4.4.2.

⁸³ Filing at 10.

⁸⁴ Filing at 11. CAISO proposes to define "Interconnection Service Capacity" as "The approved maximum instantaneous Power output at the Point of Interconnection for the Interconnection Customer, as set forth in the Interconnection Studies."

50. Second, CAISO states that its stakeholders requested that it omit from its Tariff Appendix DD, section 3.1 the language from *pro forma* LGIP, section 3.1 regarding additional studies and upgrades.⁸⁵ Specifically, CAISO proposes to omit the sentence in section 3.1 of the *pro forma* LGIP, which states, “If after the additional studies are complete, Transmission Provider determines that additional Network Upgrades are necessary, then Transmission Provider must: (1) specify which additional Network Upgrade costs are based on which studies; and (2) provide a detailed explanation of why the additional Network Upgrades are necessary.”⁸⁶ CAISO indicates that it studies interconnection service capacity and generating facility capacity simultaneously through its existing study processes,⁸⁷ including when those values are different, making the “additional studies” language superfluous and that including this *pro forma* language regarding such additional studies in its Tariff would be misleading.

51. Third, CAISO explains that, while Order No. 845 contemplated an iterative process for identifying upgrades and control equipment needed for interconnections with lower interconnection service capacity than generating facility capacity, because CAISO identifies all potential upgrades as early as its Phase I interconnection study, it has consolidated the Commission’s language from *pro forma* LGIP sections 6.3, 7.3, and 8.2 into the two study provisions of its Tariff.⁸⁸ According to CAISO, this allows its Tariff to accurately reflect when and how it will identify any upgrades or control equipment needed, and include the costs for these facilities in the interconnection customers’ cost caps. CAISO contends that these changes do not result in any substantive difference from Order No. 845’s policy or intent.⁸⁹

52. Fourth, CAISO proposes language in Appendix DD, section 3.1 regarding potential penalties. Specifically, CAISO proposes to replace language from *pro forma* LGIP section 3.1 that states “The necessary control technologies and protection systems shall be established in Appendix C of the executed, or requested to be filed unexecuted, LGIA” with “The necessary control technologies and protection systems as well as any penalties for exceeding the level of Interconnection Service Capacity established in the

⁸⁵ Filing at 11.

⁸⁶ *Pro forma* LGIP § 3.1.

⁸⁷ Filing at 11. CAISO Tariff, app. DD, §§ 6.2 and 8.1.

⁸⁸ CAISO references CAISO’s Appendix DD, sections 6.2 and 8.1, which incorporate *pro forma* LGIP sections 6.3, 7.3 and 8.2.

⁸⁹ Filing at 11.

executed, or requested to be filed unexecuted, GIA shall be established in Appendix C of that executed, or requested to be filed unexecuted, GIA.”

53. Finally, CAISO states that, consistent with Order Nos. 2003 and 845, and pursuant to Appendix DD, section 6.7.2.2(a) of its Tariff,⁹⁰ interconnection customers can already reduce their generating facility capacity or interconnection service capacity between their Phase I and Phase II interconnection studies. CAISO explains that it offers an additional opportunity for interconnection customers to reduce their capacity after their interconnection studies, known as the downsizing process, as set forth in Appendix DD, section 7.5. According to CAISO, interconnection customers use this process typically if they secure a power purchase agreement for less capacity than they initially requested and want to right-size their project to the power purchase agreement. These requests require restudy through CAISO’s annual reassessment to avoid overbuilding the generator and its network upgrades, which are done annually as opposed to being done throughout the year. Currently, Appendix DD, section 7.5.1 states that interconnection customers seeking to reduce the megawatt generating capacities of their generating facilities must submit downsizing requests. CAISO proposes to revise this language to clarify that only interconnection customers seeking to reduce their interconnection service capacity after other modification options have been exhausted must submit a downsizing request. According to CAISO, an interconnection customer whose interconnection service capacity is lower than its full generating facility capacity could alter its generating facility capacity to a value still exceeding its interconnection service capacity by submitting a modification request at any time. CAISO adds that requests for interconnection service below full generating facility capacity have become common as more interconnection customers propose to build hybrid resources, including both conventional generation and storage, where circumstances dictate that only one type of generation would be in use at a time.⁹¹

⁹⁰ CAISO proposes to revise appendix DD, section 6.7.2.2(a) which discusses modifications, to incorporate the language from *pro forma* LGIP sections 4.4.1 and 4.4.2 that allows for requests of interconnection service below generating facility capacity. Specifically, CAISO’s revisions allow for the decrease to occur between its only two studies, the Phase I and Phase II studies, whereas the *pro forma* language allows it to occur between the three *pro forma* studies.

⁹¹ CAISO provides the following example: an interconnection customer could propose to construct a 100 MW solar photovoltaic (PV) facility with a 100 MW battery. Although theoretically such a facility could deliver 200 MW to the grid instantaneously, the interconnection customer does not contemplate doing so, and instead will use the battery principally when the solar PV facility is not running. To avoid constructing network upgrades for a 200 MW facility, the interconnection customer specifies that

b. Commission Determination

54. We find that CAISO's proposed revisions to allow an interconnection customer to request interconnection service below its full generating facility capacity partially comply with the requirements of Order Nos. 845 and 845-A. In particular, we find that CAISO's proposed revisions comply with the Commission's requirement that transmission providers have a process to consider requests for interconnection service below the generating facility capacity and the requirements associated with that process. However, CAISO has proposed some revisions that it has not justified, and we therefore direct CAISO to make a further compliance filing, as discussed below.

55. We find that CAISO's proposed new term "Interconnection Service Capacity," and substitution of this new term, in its Tariff where the *pro forma* version uses "Interconnection Service" adds clarity to the CAISO tariff and therefore is just and reasonable and not unduly discriminatory, and accomplishes the purposes of Order Nos. 845 and 845-A.⁹² We also find that CAISO's proposed revisions to Appendix DD, sections 6.2 and 8.1, which incorporate the substance of *pro forma* LGIP, sections 6.3, 7.3 and 8.2, are just and reasonable and not unduly discriminatory, and accomplish the purposes of Order Nos. 845 and 845-A, noting that CAISO has adopted an interconnection process that requires only two studies. Similarly, CAISO's modifications to Appendix DD, section 6.7.2.2, which incorporate the language from *pro forma* LGIP sections 4.4.1 and 4.4.2, are just and reasonable and not unduly discriminatory, and accomplish the purposes of Order Nos. 845 and 845-A because CAISO's revisions allow for the decrease in the level of interconnection service to occur between its only two studies, the Phase I and Phase II studies, whereas the *pro forma* language allows it to occur between the three *pro forma* studies.

56. However, CAISO's proposed language in Appendix DD, section 3.1 is a variation from the *pro forma* LGIP and incorporates language regarding potential penalties for exceeding the level of interconnection service capacity. In Order No. 845, the Commission explicitly declined to adopt provisions requiring transmission providers to establish penalties for over-generation. The Commission stated that "we decline to generically adopt into the *pro forma* LGIP any additional financial penalties for exceeding the limitations for interconnection service established in the interconnection agreements. However, if a transmission provider can justify a need for additional penalties, it may propose such penalties in a section 205 filing."⁹³ We find that CAISO's

it will limit its peak output to 100 MW. Although these numbers are simplified for this example, these types of requests are common in CAISO. Filing at 11-12.

⁹² Order No. 845, 163 FERC ¶ 61,043 at PP 369-374.

⁹³ *Id.* at P 416.

proposed penalty language is beyond the scope of this proceeding, but, consistent with Order No. 845, CAISO may propose penalty language in a separate section 205 filing. Therefore, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that removes the penalty language from Appendix DD, section 3.1.

57. Finally, we note that, in the process of filing revisions to Appendix DD, section 7, CAISO appears to have filed section 8 twice in eTariff, once where it belongs and once where section 7 belongs. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing to include section 7 in Appendix DD and to remove the unnecessary duplicate section 8.

9. Provisional Interconnection Service

58. In Order No. 845, the Commission required transmission providers to allow all interconnection customers to request provisional interconnection service.⁹⁴ The Commission explained that interconnection customers may seek provisional interconnection service when available studies or additional studies, as necessary, indicate that there is a level of interconnection service that can occur to accommodate an interconnection request without the construction of any additional interconnection facilities and/or network upgrades, and the interconnection customer wishes to make use of that level of interconnection service while the facilities required for its full interconnection request are completed.⁹⁵ To implement this service, the Commission revised the *pro forma* LGIP and *pro forma* LGIA to add a definition for “Provisional Interconnection Service”⁹⁶ and for a “Provisional Large Generator Interconnection Agreement.”⁹⁷

59. In addition, the Commission added *pro forma* LGIA article 5.9.2, which details the terms for provisional interconnection service.⁹⁸ The Commission also explained that transmission providers have the discretion to determine the frequency for updating provisional interconnection studies to account for changes to the transmission system to reassess system capacity available for provisional interconnection service, and included

⁹⁴ *Id.* at P 438.

⁹⁵ *Id.* P 441.

⁹⁶ *Pro forma* LGIP § 1 (Definitions); *pro forma* LGIA art. 1 (Definitions).

⁹⁷ *Id.* The Commission declined, however, to adopt a separate *pro forma* provisional large generator interconnection agreement. Order No. 845, 163 FERC ¶ 61,043 at P 444.

⁹⁸ *Id.* P 438; *see also pro forma* LGIP § 5.9.2.

bracketed tariff language to be completed by the transmission provider, to specify the frequency at which they perform such studies in their *pro forma* LGIA.⁹⁹ The Commission stated that interconnection customers are responsible for the costs for performing these provisional interconnection studies.¹⁰⁰

a. CAISO's Compliance Filing

60. CAISO contends that its existing Tariff complies with the requirements of Order Nos. 845 and 845-A regarding provisional interconnection service; therefore, CAISO proposes no revisions to its existing Tariff. Instead, CAISO explains that it currently offers five mechanisms for interconnection customers to use to interconnect reliably and operate before all identified network upgrades are completed, and four of those mechanisms require no additional study.¹⁰¹

61. First, CAISO states that it allows interconnection customers to request a limited operation study and states that limited operation mirrors provisional interconnection service. CAISO highlights Appendix DD, section 14.2.4.1, which states in part that:

The participating transmission owner and/or the CAISO, as applicable, will, upon the request and at the expense of the interconnection customer, perform operating studies on a timely basis to determine the extent to which the generating unit and the interconnection customer's interconnection facilities may operate prior to the completion of the participating transmission owner's interconnection facilities or network upgrades consistent with applicable laws and regulations, applicable reliability standards, and good utility practice. The participating transmission owner and the CAISO will permit the interconnection customer to operate the generating unit and the interconnection customer's interconnection facilities in accordance with the results of such studies.¹⁰²

CAISO states that requesting a limited operation study requires a \$10,000 deposit and takes 45 days to conduct, and that many interconnection customers have used the limited

⁹⁹ Order No. 845, 163 FERC ¶ 61,043 at P 448.

¹⁰⁰ *Id.*

¹⁰¹ Filing at 13.

¹⁰² CAISO Tariff, app. DD, § 14.2.4.1.

operation study process successfully. CAISO believes this provision alone is sufficient to comply with Order No. 845; however, CAISO also avers that four additional mechanisms demonstrate that its existing Tariff is consistent with or superior to Order No. 845's *pro forma* provisions.¹⁰³

62. CAISO states that it has a second mechanism where, even without the limited operation study in section 14.2.4.1 of Appendix DD, CAISO allows all interconnection customers to interconnect once their reliability network upgrades are constructed, even if their delivery network upgrades are not. According to CAISO, the generating facility can interconnect and participate in CAISO's markets as it awaits the completion of delivery network upgrades that will allow the facility to sell resource adequacy capacity in California. CAISO indicates that interconnection customers need not invoke any Tariff provision to take advantage of this mechanism, and the interconnection agreement milestones will simply have an in-service date/commercial operation date after the completion of reliability network upgrades and before the completion of all delivery network upgrades.¹⁰⁴

63. CAISO states that its third mechanism allows interconnection customers to structure their construction and interconnection agreement milestones to achieve commercial operation in two or more successive phases. For example, an interconnection customer may submit an interconnection request to construct 50 MW of PV solar. Once studies are complete, it could structure its interconnection agreement to reflect that 25 MW would be constructed and achieve commercial operation in commercial operation year one, 15 MW in year two, and the final 10 MW in year three. CAISO explains that this is known as a phased generating facility and indicates that interconnection customers can structure phasing around power purchase agreement obligations, completing network upgrades, financing, or any other reason. CAISO adds that phased generating facilities are very common in CAISO.¹⁰⁵

¹⁰³ Filing at 13-14.

¹⁰⁴ *Id.* at 14. Under CAISO's Tariff, interconnection customers must select their deliverability status for their project. To be eligible to provide resource adequacy capacity, an interconnection customer must select either full capacity deliverability status or partial capacity deliverability status, and will then be responsible for its share of any delivery network upgrades needed to interconnect the project. Those interconnection customers selecting the "energy only" option are not eligible to be a resource adequacy resource, but are also not responsible for the cost of delivery network upgrades. *See Cal. Indep. Sys. Operator Corp.*, 166 FERC ¶ 61,113, at P 27 (2019).

¹⁰⁵ Filing at 14 (citing CAISO Tariff, app. DD, §§ 6.7.4 and 14.3.2.1; app. EE, § 11.4.1.2). We believe CAISO meant to refer to appendix DD, section 14.3.2.2,

64. CAISO states that its fourth mechanism, pursuant to the business practice manual for generator management's commercial operation for markets provisions, allows some or all of a contemplated generating facility to be tested and synchronized to the grid and bid into CAISO's markets before achieving its planned commercial operation date. According to CAISO, this allows generating facilities to participate in markets once all or a portion of their generating units have been synchronized and tested before their commercial operation date.¹⁰⁶

65. CAISO's fifth mechanism allows interconnection customers to request engineering and procurement agreements before they have executed interconnection agreements. These agreements inform and authorize the transmission owner to begin engineering and procurement of long lead-time items to meet the interconnection customer's commercial operation date. CAISO states that the transmission owner can thus work toward the interconnection, even before the interconnection agreement has been executed.¹⁰⁷

66. CAISO contends that these five options effectively allow interconnection customers to interconnect reliably and operate before all identified network upgrades are completed. CAISO asserts that the Commission should therefore find that CAISO complies with Order No. 845, and that no Tariff revisions are required on this issue.¹⁰⁸

b. Commission Determination

67. We find that CAISO's existing Tariff provisions do not comply with the requirements of Order Nos. 845 and 845-A. As an initial matter, CAISO's limited operation study tariff provisions in Appendix DD, section 14.2.4.1 are consistent with the definition of provisional interconnection service required by Order Nos. 845 and 845-A. However, we find that CAISO's limited operation study is inconsistent with Order Nos. 845 and 845-A because it limits a customer's ability to have a limited operation study only when "the Participating T[ransmission] O[wner]'s Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the Commercial

which addresses phased facilities, rather than section 14.3.2.1, which addresses non-phased generating facilities.

¹⁰⁶ *Id.* at 14-15 (citing CAISO Business Practice Manual for Generator Management, § 7, <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator%20Management>).

¹⁰⁷ *Id.* at 15 (citing CAISO Tariff, app. DD, § 12).

¹⁰⁸ *Id.*

Operation Date of the Generating Unit.”¹⁰⁹ Order Nos. 845 and 845-A do not place restrictions on when an interconnection customer may request provisional interconnection service. Thus, with this restriction, CAISO’s existing limited operation study mechanism fails to accomplish the purpose of Order Nos. 845 and 845-A. Additionally, we find that CAISO’s limited operation study provisions do not include language outlining the frequency at which CAISO will update provisional interconnection studies, as required by the rule. In particular, *pro forma* LGIA article 5.9.2 included a bracketed placeholder to be replaced with language specifying the frequency with which the transmission provider will study and update the maximum output of the generating facility subject to a provisional LGIA.

68. With respect to CAISO’s additional existing mechanisms to request provisional interconnection service, we find that these mechanisms similarly restrict when an interconnection customer can request provisional interconnection service in a manner that is inconsistent with Order No. 845. The second mechanism allowing interconnection customers to interconnect upon construction of their reliability network upgrades does not accommodate an interconnection request without the construction of additional interconnection facilities and/or network upgrades.¹¹⁰ The third mechanism allowing phased generating facilities requires customers to execute an LGIA, and thus would not allow interconnection prior to execution of the standard LGIA. This mechanism also does not accommodate an interconnection request without the construction of additional interconnection facilities and/or network upgrades.¹¹¹ The fourth mechanism regarding commercial operation of markets is a business practice and is not in the Tariff. CAISO’s fifth mechanism—an engineering and procurement agreement—does not comply with Order No. 845 because such an agreement does not permit a customer to provide service prior to full interconnection.¹¹² Therefore, we find that these mechanisms are insufficient to satisfy the requirements for provisional interconnection service.

¹⁰⁹ CAISO’s App. DD, § 14.2.4.1. CAISO’s business practice manual for generator management also appears to limit the customer’s request time to “no earlier than five months prior to the Generating Facility’s Initial Synchronization” when reliability upgrades are not expected to be in service prior to the commercial operation date. CAISO Business Practice Manual for Generator Management, section 8, <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator%20Management>.

¹¹⁰ Order No. 845, 163 FERC ¶ 61,043 at P 441.

¹¹¹ *Id.*

¹¹² CAISO Tariff, app. DD, § 12.

69. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a compliance filing that revises its Tariff to allow interconnection customers to seek provisional interconnection service when available studies or additional studies indicate that there is a level of interconnection service that can occur to accommodate an interconnection request without the construction of any additional interconnection facilities and/or network upgrades. CAISO could, for example, eliminate the restriction that limits a customer's ability to have a limited operation study to only when "the Participating T[ransmission] O[wner]'s Interconnection Facilities or Network Upgrades are not reasonably expected to be completed prior to the Commercial Operation Date of the Generating Unit."¹¹³ Alternatively, CAISO may file Tariff revisions that adopt the *pro forma* LGIP and LGIA language provided in Order Nos. 845 and 845-A. We also direct CAISO to file, within 60 days of the date of this order, a further compliance filing that revises its LGIA to state the frequency at which CAISO will update provisional interconnection studies.

10. Surplus Interconnection Service

70. In Order No. 845, the Commission adopted *pro forma* LGIP sections 1, 3.3, and 3.3.1 and *pro forma* LGIA article 1 to establish surplus interconnection service, which the Commission defined as any unneeded portion of interconnection service established in an LGIA such that if the surplus interconnection service is utilized the total amount of interconnection service at the point of interconnection would remain the same.¹¹⁴ Surplus interconnection service enables a new interconnection customer to utilize the unused portion of an existing interconnection customer's interconnection service within specific parameters.¹¹⁵ The Commission required transmission providers to revise their tariffs to include the new definition of surplus interconnection service in their *pro forma* LGIP and *pro forma* LGIA, and provide in the *pro forma* LGIP an expedited interconnection process outside of the interconnection queue for surplus interconnection service.¹¹⁶ That expedited process must allow affiliates of the existing interconnection customer to use

¹¹³ The elimination of this restriction will have the effect of allowing an interconnection customer to request provisional interconnection service at any point during the interconnection study process; therefore, in its compliance Tariff revisions, CAISO should explain how the interconnection customer and CAISO will effectuate provisional interconnection service prior to the execution of an LGIA (e.g., by executing a provisional large generator interconnection agreement).

¹¹⁴ Order No. 845, 163 FERC ¶ 61,043 at P 467; *see also pro forma* LGIP § 1; *pro forma* LGIA art. 1 (Definitions).

¹¹⁵ *Id.* P 467; Order No. 845-A, 166 FERC ¶ 61,137 at P 119.

¹¹⁶ *Id.* P 467; *see also pro forma* LGIP §§ 3.3 and 3.3.1.

surplus interconnection service for another interconnecting generating facility and allow for the transfer of surplus interconnection service that the existing interconnection customer or one of its affiliates does not intend to use.¹¹⁷ The transmission provider must perform reactive power, short circuit/fault duty, and stability analyses studies as well as steady-state (thermal/voltage) analyses as necessary to ensure evaluation of all required reliability conditions to provide surplus interconnection service and ensure the reliable use of surplus interconnection service.¹¹⁸ The original interconnection customer must be able to stipulate the amount of surplus interconnection service that is available, designate when that service is available, and describe any other conditions under which surplus interconnection service at the point of interconnection may be used.¹¹⁹ When the original interconnection customer, the surplus interconnection service customer, and the transmission provider enter into agreements for surplus interconnection service, the transmission provider must file those agreements with the Commission because any surplus interconnection service agreement will be an agreement under the transmission provider's open access transmission tariff.¹²⁰

a. CAISO's Compliance Filing

71. CAISO proposes to include the *pro forma* definition of "Surplus Interconnection Service," with a variation only to refer to "Interconnection Service Capacity," instead of "Interconnection Service." According to CAISO, this accurately refers to a value instead of a service.¹²¹

72. In addition, CAISO proposes to add new language to Appendix DD to address surplus interconnection service, and also proposes to use two existing expedited study processes to accommodate the transfer of surplus interconnection service.¹²² For surplus interconnection service requests that would not otherwise require a new interconnection

¹¹⁷ *Id.* P 483; *see also pro forma* LGIP § 3.3.

¹¹⁸ *Id.* PP 455 and 467.

¹¹⁹ *Id.* P 481.

¹²⁰ *Id.* P 499.

¹²¹ Filing at 15.

¹²² *Id.* at 15, 16 and 22 (citing app. DD, § 3.4; app. U, § 3.3.4; app. Y, § 3.11). CAISO includes references in its older generator interconnection procedures – app. U and Y of CAISO's Tariff – so that interconnection customers that are still under those procedures but not online can avail themselves of surplus interconnection service and permissible technological advancements. *Id.* at 16 n.70.

request (because they do not increase interconnection service capacity or substantially alter electrical characteristics thus affecting reliability),¹²³ the original interconnection customer can request to transfer surplus interconnection service through a material modification assessment request.¹²⁴ For all other surplus interconnection service requests, the surplus assignee must submit an interconnection request for a behind-the-meter capacity expansion under the independent study process.¹²⁵ The behind-the-meter capacity expansion study process is an existing expedited process for installing additional generating capacity to existing generating facilities, as long as the additional generating capacity is electrically independent of interconnection requests in an existing queue cluster and earlier-queued independent study process interconnection requests.¹²⁶ CAISO states that, consistent with Order No. 845, behind-the-meter capacity expansion studies consist of a short-circuit test, transient stability test, and reactive support test.¹²⁷ CAISO proposes to require the surplus interconnection service assignee to execute its own interconnection agreement, and that its generating units have separate meters

¹²³ *Id.* at 16 (citing CAISO Tariff, § 25.1).

¹²⁴ *Id.* (citing CAISO Tariff, app. DD, § 3.4). If CAISO and the transmission owner determine that a modification involving surplus interconnection service does not affect the costs or timing of later-queued interconnection requests, then the modification is non-material, and the interconnection request would continue through the study process with that modification. If CAISO and the transmission owner determine that the modification affects the costs or the timing of later-queued interconnection requests, then the modification is deemed to be a material modification and the interconnection customer would have to submit a new interconnection request if it chooses to pursue that material modification.

¹²⁵ Filing at 16 (citing CAISO Tariff, app. DD, §§ 3.5 and 4.2).

¹²⁶ Pursuant to CAISO Tariff, appendix DD, sections 4.1.1, 4.1.2, 4.1.3, and 4.2.1.2, CAISO's independent study process studies interconnection requests that meet certain criteria. For a request to transfer surplus interconnection service to be studied under the independent study process, the interconnection customer must demonstrate: (1) that inclusion of the interconnection request in the queue cluster study process will not accommodate the desired commercial operation date of the facility; (2) site exclusivity; and (3) that the generating facility is electrically independent of interconnection requests in an existing queue cluster, and electrically independent of any other generating facility that is currently being studied under an earlier-queued independent study process interconnection request.

¹²⁷ Filing at 16 (citing CAISO Tariff, app. DD, §§ 4.2.2, 4.2.3, and 4.2.4). That study also determines whether any control equipment is necessary to limit the total output to the amount originally studied.

and resource identification characters from the original interconnection customer's generating units.¹²⁸

73. CAISO indicates that its current Tariff states that new generating units constructed through a behind-the-meter capacity expansion must be energy-only, meaning that the generating unit's capacity is ineligible to provide resource adequacy capacity in California because it may not be able to deliver its output to load during peak conditions. CAISO proposes to revise its Tariff so new generating units constructed to transfer surplus interconnection service can receive deliverability, which indicates a resource is eligible to provide resource adequacy capacity, from the original interconnection customer as well, to the extent the original interconnection customer agrees. The transferred amount of deliverability may not exceed surplus interconnection service, nor can the transfer result in an increase in deliverability of the aggregate generating facility (including the expansion) that pre-existed the transfer. Because the new unit can only take allocated deliverability from the existing generating unit, no further study or construction is required to ensure that the generating unit can deliver its output during peak conditions.¹²⁹

74. CAISO explains that, although Order No. 845 defines surplus interconnection service as only available up to the level that can be accommodated without requiring the construction of new network upgrades, CAISO's existing behind-the-meter capacity expansion process goes further and allows for constructing new reliability network upgrades. CAISO states that to ensure that constructing new reliability network upgrades effected through surplus transfers does not result in queue jumping, CAISO proposes to limit all potential reimbursement for upgrades to the original interconnection customer's constructed generating facility capacity only. CAISO contends that this limit ensures that transmission owners and ratepayers only incur costs for prudent network upgrades. According to CAISO, this limit incentivizes interconnection customers to avoid siting projects in locations where the costs of reliability network upgrades would be inappropriately high.¹³⁰ CAISO and its stakeholders believe that CAISO should continue to allow this option for surplus interconnection service because providing surplus interconnection service without the ability to build some new reliability network upgrades would achieve little, as it is difficult to add generating capacity without affecting the electrical characteristics such that no new facilities would be required.

¹²⁸ *Id.* (citing CAISO Tariff, app. DD, § 3.4, app. EE, art. 19.1).

¹²⁹ *Id.* at 16-17 (citing CAISO Tariff, app. DD, §§ 3.4 and 4.2.1.4(ii)(1)). We note that section 4.2.1.4(ii)(1) does not exist in appendix DD and believe that CAISO meant to cite section 4.2.1.2(ii)(1), which addresses deliverability status.

¹³⁰ Filing at 17-18 (citing CAISO Tariff, app. DD, §§ 3.4 and 14.3.2).

75. CAISO states that its existing Tariff provides that transmission owners will only reimburse the costs for reliability network upgrades up to \$60,000 per MW of generating capacity.¹³¹ CAISO explains that, for surplus interconnection service transfers, applying this cap would mean that, if the original interconnection customer built a 100 MW generating facility, the reimbursement cap for reliability network upgrades would be \$6 million. If the original interconnection customer spent \$5.5 million on the original reliability network upgrades, CAISO states, the surplus assignee would only be eligible to receive \$500,000 for any additional reliability network upgrades, regardless of the assignee's generating capacity. According to CAISO, this effectively caps reimbursement to what the original interconnection request was and CAISO notes that, since the inception of the \$60,000 per MW cap in 2012, no interconnection customer has proceeded to operation unless its reliability network upgrades were under the cap.¹³²

76. CAISO also proposes to apply its existing rules on retaining deliverability capacity to surplus interconnection service. Surplus interconnection service customers will lose their allocated level of deliverability (but not interconnection service capacity) if they retire or are incapable of operating at their allocated deliverability level over a three-year period, unless they can demonstrate that they are actively engaged in constructing replacement generation.¹³³ CAISO adds that long-term outages are not uncommon in CAISO because many older generating units temporarily cease operations while deciding whether to permanently retire or repower.¹³⁴

77. CAISO indicates that, although Order No. 845 contemplated that surplus interconnection service would cease within one year of the original interconnection customer's retirement, CAISO proposes to apply its current rules for deliverability to the assignee: if the original interconnection customer notifies CAISO that its generating facility is permanently retiring, the surplus interconnection service assignee will be converted to energy-only when the original generating facility retires. Likewise, if the original interconnection customer's generating facility cannot operate for three years without actively reconstructing, CAISO proposes to convert the surplus interconnection

¹³¹ As explained above, subsequent to CAISO submitting this filing, it filed Tariff revisions in Docket No. ER19-2679-000, which, among other things, added an escalation factor to the cost cap for reliability network upgrades. Specifically, CAISO proposed an annual cost escalation factor linking the cost cap to an index to allow for annual adjustments. CAISO's filing was accepted by delegated letter order on October 18, 2019.

¹³² Filing at 18.

¹³³ CAISO Tariff, § 40.4.6.1; Business Practice Manual for Reliability Requirements § 6.1.3.4.

¹³⁴ *Id.* (citing CAISO Tariff, § 40.4.6.1).

service assignee to energy-only as well. CAISO adds that, at any point, the assignee may seek its own deliverability allocation under CAISO's existing procedures for online, energy-only generating units to receive available deliverability. If the assignee receives its own deliverability allocation, it will exist completely independent of the original interconnection customer and will not be converted to energy-only due to the retirement or inoperability of the original interconnection customer. CAISO contends that this proposal is consistent with, or superior to, the provisions of Order No. 845 in that it allows the assignee to exist after the retirement of original generating facility, thus saving ratepayers from new facilities. CAISO asserts that its proposal does not result in queue jumping, because the assignee would still have to acquire its own deliverability allocation in competition with queued customers.¹³⁵

78. CAISO also proposes that the assignee of surplus interconnection service may continue to operate and retain its own interconnection service capacity even after the retirement of the original interconnection customer. CAISO contends that prohibiting the assignee to operate altogether merely because the original interconnection customer has retired would result in an unnecessary waste of useful generating facilities and network upgrades. CAISO does not believe that taking over new or repowered facilities at existing sites results in queue jumping. According to CAISO, every developer has the opportunity to purchase surplus interconnection service. CAISO adds that similar transfers are permissible and occur frequently today, explaining that when a generating unit is no longer operating at its full capacity or intends to retire, the generator can assign all of its rights and obligations under its interconnection agreement to another developer. The developer then uses the behind-the-meter capacity expansion process, the repowering process, or a new interconnection request to replace or expand the original generating unit. The result is a new generating facility that can save CAISO ratepayers considerably by using existing network upgrades and interconnection facilities, thus avoiding the construction of new ones. According to CAISO, the only effective difference between the status quo and implementing surplus interconnection service is that interconnection customers can be more transparent about their plans for assignment, new facilities, and retirement.¹³⁶

79. CAISO states that its proposal complies with Order No. 845 as it achieves the stated purpose of the reform to enable the efficient use of any surplus interconnection service that may exist. CAISO claims that, to the extent that its proposal differs from the Commission's *pro forma* revisions, CAISO's proposal offers interconnection customers

¹³⁵ *Id.* at 18-19 (citing CAISO Tariff, app. DD, §§ 3.4 and 8.9.2).

¹³⁶ *Id.* at 19.

even more flexibility to use available capacity efficiently and avoid unneeded ratepayer expense, and thus is consistent with, or superior to, the provisions of Order No. 845.¹³⁷

b. Commission Determination

80. We find CAISO's proposed surplus interconnection service provisions partially comply with the requirements of Order Nos. 845 and 845-A. CAISO's surplus interconnection service provisions are appropriate independent entity variations because, for the reasons discussed below, they allow CAISO to accomplish the purposes of Order Nos. 845 and 845-A, with one exception.¹³⁸

81. Specifically, we find that CAISO's proposal to allow interconnection customers to use the material modification Tariff provisions as an expedited process to secure surplus interconnection service is just and reasonable and not unduly discriminatory, and accomplishes the purposes of Order Nos. 845 and 845-A. Under the proposal, a surplus interconnection service request that is evaluated and deemed not to be a material modification may receive interconnection service without a new queue position.¹³⁹ Because the request may not increase the interconnection service capacity or affect the costs or timing of queued interconnection requests, we find that this process will not result in queue jumping.

82. We also find that CAISO's proposal to allow for the provision of surplus interconnection service through the behind-the-meter expansion process under the independent study process is just and reasonable and not unduly discriminatory, and accomplishes the purposes of Order Nos. 845 and 845-A. The independent study process is an expedited interconnection process outside of the queue cluster study process and ensures that new interconnection requests under this process do not negatively impact projects in queue cluster studies or other higher queued projects because the provision requires the interconnection customer requesting service through the independent study process to demonstrate electrical independence.¹⁴⁰ Further, the reliability network upgrades allowed under the behind-the-meter expansion process may not adversely affect other higher queued customers. We find that this process protects other customers in the interconnection queue and ensures that interconnection customers can make use of any existing surplus interconnection service. We also note that CAISO's proposal provides a method for the interconnection customer to secure surplus interconnection service in

¹³⁷ *Id.* at 19-20.

¹³⁸ *See* Order No. 845, 163 FERC ¶ 61,043 at P 467.

¹³⁹ CAISO Tariff, § 25.1.1 and app. DD § 6.7.2.

¹⁴⁰ CAISO Tariff, app. DD, § 4.2.

conjunction with construction of new reliability network upgrades – an additional option that is not available under Order Nos. 845 and 845-A.

83. In addition, we find that CAISO's proposal to allow the assignee of surplus interconnection service to continue to operate and retain its own interconnection service capacity even after the retirement of the original interconnection customer to be reasonable because it allows a surplus interconnection customer to continue using existing network upgrades and interconnection facilities.

84. However, we find that CAISO failed to include Tariff revisions that explicitly require the transmission provider, original interconnection customer, and surplus interconnection service customer to file a surplus interconnection service agreement with the Commission that includes the terms and conditions of surplus interconnection service.¹⁴¹ Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that includes language in its Tariff to explicitly require the transmission provider, original interconnection customer, and surplus interconnection service customer to file a surplus interconnection service agreement with the Commission that includes the terms and conditions of surplus interconnection service.

11. Material Modifications and Incorporation of Advanced Technologies

85. In Order No. 845, the Commission modified section 4.4.2(c) of the *pro forma* LGIP to allow an interconnection customer to incorporate certain technological advancements to its interconnection request, prior to the execution of the interconnection facilities study agreement,¹⁴² without risking the loss of its queue position. The Commission required transmission providers to develop and include in their LGIPs a definition of permissible technological advancements that will create a category of technological changes that, by definition, do not constitute a material modification and, therefore, will not result in the loss of queue position. In addition, the Commission modified section 4.4.6 of the *pro forma* LGIP to require transmission providers to insert a technological change procedure that includes the requisite information and process that

¹⁴¹ Order No. 845, 163 FERC ¶ 61,043 at P 499.

¹⁴² While the Commission clarified that interconnection customers may submit a technological advancement request up until execution of the facilities study agreement, the Commission stated that it will permit transmission providers to propose rules limiting the submission of technological advancement requests to a single point in the study process (prior to the execution of a facilities study agreement), to the extent the transmission provider believes it appropriate. Order No. 845, 163 FERC ¶ 61,043 at P 536.

the transmission provider will follow to assess whether an interconnection customer's proposed technological advancement is a material modification.¹⁴³

86. The Commission required that the technological change procedure specify what technological advancements can be incorporated at various stages of the interconnection process and clearly identify which requirements apply to the interconnection customer and which apply to the transmission provider.¹⁴⁴ Additionally, the technological change procedure must state that, if the interconnection customer seeks to incorporate technological advancements into its proposed generating facility, it should submit a technological advancement request, and the procedure must specify the information that the interconnection customer must submit as part of that request.¹⁴⁵

87. The Commission also required that the technological change procedure specify the conditions under which a study will or will not be necessary to determine whether a proposed technological advancement is a material modification.¹⁴⁶ The Commission explained that the technological change procedure must also state that, if a study is necessary to evaluate whether a particular technological advancement is a material modification, the transmission provider shall clearly indicate to the interconnection customer the types of information and/or study inputs that the interconnection customer must provide to the transmission provider, including, for example, study scenarios, modeling data, and any other assumptions.¹⁴⁷ In addition, the Commission required that the technological change procedure explain how the transmission provider will evaluate the technological advancement request to determine whether it is a material modification.

88. Further, the Commission required that the technological change procedure outline a time frame of no more than 30 days after the interconnection customer submits a formal technological advancement request for the transmission provider to perform and complete any necessary additional studies.¹⁴⁸ The Commission also found that, if the transmission provider determines that additional studies are necessary to evaluate whether a technological advancement is a material modification, the interconnection

¹⁴³ *Id.*; see also *pro forma* LGIP § 4.4.6.

¹⁴⁴ Order No. 845, 163 FERC ¶ 61,043 at P 519.

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*; Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

¹⁴⁷ Order No. 845, 163 FERC ¶ 61,043 at P 521.

¹⁴⁸ *Id.* P 535.

customer must tender a deposit, and the transmission provider must specify the amount of the deposit in the transmission provider's technological change procedure.¹⁴⁹ In addition, the Commission explained that, if the transmission provider cannot accommodate a proposed technological advancement without triggering the material modification provision of the *pro forma* LGIP, the transmission provider must provide an explanation to the interconnection customer regarding why the technological advancement is a material modification.¹⁵⁰

89. In Order No. 845-A, the Commission clarified that: (1) when studies are necessary, the interconnection customer's technological change request must demonstrate that the proposed incorporation of the technological change will result in electrical performance that is equal to or better than the electrical performance expected prior to the technological change and will not cause any reliability concerns; (2) if the interconnection customer cannot demonstrate in its technological change request that the proposed technological change would result in equal or better electrical performance, the change will be assessed pursuant to the existing material modification provisions in the *pro forma* LGIP; (3) information regarding electrical performance submitted by the interconnection customer is an input into the technological change study, and this factor alone is not determinative of whether a proposed technological change is a material modification; and (4) the determination of whether a proposed technological change (that the transmission provider does not otherwise include in its definition of permissible technological advancements) is a material modification should include an analysis of whether the proposed technological change materially impacts the timing and costs of lower-queued interconnection customers.¹⁵¹

¹⁴⁹ *Id.* P 534. The Commission set the default deposit amount to \$10,000 but stated that a transmission provider may propose a reasonable alternative deposit amount in its compliance filing and include a justification supporting this alternative amount. *Id.*

¹⁵⁰ *Id.* P 522.

¹⁵¹ Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

a. **CAISO's Compliance Filing**

90. CAISO proposes to define permissible technological advancements as:

Changes to generating facilities that do not require a material modification assessment, new interconnection request, re-study, or other substantial evaluation because they have little or no potential to substantially change generating unit electrical characteristics or affect other interconnection customers or affected systems.¹⁵²

91. CAISO explains that it also proposes to include a new provision stating that interconnection customers may request permissible technological advancements, which may include removing equipment; aligning the commercial operation date with an executed power purchase agreement; adding less than five MW of energy storage once without increasing the net output at the point of interconnection; and other changes that meet the definition of a permissible technological advancement.¹⁵³ CAISO indicates that it intends for the list of permissible technological advancements to grow as more interconnection customers find modifications that meet its definition. CAISO adds that to ensure that interconnection customers know all modifications that constitute permissible technological advancements, CAISO proposes to include a Tariff requirement that it will update its business practice manual to list any additional permissible technological advancements approved but not specifically enumerated in the Tariff.¹⁵⁴

92. CAISO also proposes that the interconnection customer's written request to evaluate technological advancements must include the technical data required to assess the request and a non-refundable fee of \$2,500. CAISO explains that it selected this figure based on its analysis of the study costs of the most straightforward modification requests. CAISO proposes a flat fee instead of a deposit to avoid the need to track time and expenses, thereby increasing the speed and ease to process such requests for interconnection customers.¹⁵⁵

¹⁵² Filing at 20; *see* proposed CAISO Tariff, app. A (definition of permissible technological advancement).

¹⁵³ Filing at 20; *see* proposed CAISO Tariff, app. DD, § 6.7.2.4; app. U, § 4.4.11; app. Y, § 6.9.2.6.

¹⁵⁴ Filing at 20.

¹⁵⁵ *Id.* at 21.

93. In addition, CAISO proposes that within 30 days of the interconnection customer's completed request, CAISO, in consultation with the relevant transmission owner, will notify the interconnection customer whether the request constitutes an approved permissible technological advancement, or why the interconnection customer must submit a material modification assessment request and \$10,000 assessment deposit. CAISO also proposes to revise its Tariff to include permissible technological advancements among the list of modifications an interconnection customer can propose to its interconnection request without being subject to a material modification request and that are automatically allowed within 10 business days of the Phase I interconnection study results meeting.¹⁵⁶

94. CAISO contends that the Commission should find that CAISO's proposal complies with or is superior to the provisions of Order No. 845. According to CAISO, it has established a process that is much simpler, faster, and cheaper than material modification requests that will benefit interconnection customers. CAISO explains that it has included the specific permissible technological advancements it currently is aware of and placed a requirement in its Tariff that CAISO update its business practice manual so interconnection customers can see further permissible technological advancements as they are proposed and approved.¹⁵⁷

b. Commission Determination

95. We find that the proposed provisions to incorporate a definition of a permissible technological change and associated procedures, as proposed by CAISO in its Appendix DD, partially comply with the requirements of Order Nos. 845 and 845-A. We find that CAISO's proposed definition of a permissible technological advancement meets the Commission's requirement to provide a category of technological change that does not constitute a material modification.

96. Order No. 845 requires that the procedure specify the information that the interconnection customer must submit in a technological change request.¹⁵⁸ We find that CAISO's Tariff revision providing that a written request to evaluate a technological advancement should include the "technical data required to assess the request" lacks sufficient detail. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that revises Appendix DD, section 6.7.2.4 to explain

¹⁵⁶ *Id.* (citing proposed CAISO Tariff, app. DD, § 6.7.2.2).

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at P 519.

what type of technical data an interconnection customer should submit as part of its written request.

97. Order No. 845 also requires that the technological change procedure explain how the transmission provider will evaluate the technological advancement request to determine whether it is a material modification.¹⁵⁹ CAISO's proposed revisions do not explain how it will evaluate the technological advancement request to determine whether it is a material modification. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing to provide a more detailed explanation of the studies that CAISO will conduct to determine whether the technological advancement request will result in a material modification.

98. Additionally, CAISO proposes a flat fee of \$2,500 to assess a technological change request, and that within 30 days of receipt, CAISO, in consultation with the transmission owner, will notify the interconnection customer whether the request constitutes an approved permissible technological advancement, or why the interconnection customer must submit a material modification assessment request and \$10,000 assessment deposit. However, Order No. 845 provides that the determination of whether a change is a material modification must be made within 30 days of the initial request.¹⁶⁰ We find that CAISO's proposal in this regard does not accomplish the purpose of Order Nos. 845 and 845-A. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a further compliance filing that revises its proposed technological change procedure to provide that the CAISO will determine whether or not a technological advancement is a material modification within 30 calendar days of receipt of the initial request.

99. Further, CAISO states that it selected this \$2,500 fee based on its analysis of the study costs of the most straightforward modification requests. It is not clear whether the work or costs for a technological assessment are duplicated in the subsequent modification assessment. Accordingly, we direct CAISO to file, within 60 days of the date of this order, a compliance filing further justifying the flat fee approach.

¹⁵⁹ *Id.* P 521.

¹⁶⁰ Order No. 845, 163 FERC ¶ 61,043 at P 535; Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

The Commission orders:

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

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

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.