

170 FERC ¶ 61,111
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Arizona Public Service Company

Docket No. ER19-1939-000

ORDER ON COMPLIANCE

(Issued February 20, 2020)

1. On May 22, 2019, Arizona Public Service Company (APS) 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 APS's filing partially complies with the requirements of Order Nos. 845 and 845-A. Accordingly, we accept APS's compliance filing, effective May 22, 2019, and direct APS 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 enhance the interconnection process. The Commission stated that it expects that these reforms will provide interconnection customers better information and more options

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.

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 ten 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. APS’s Compliance Filing

6. APS states that it has incorporated the Commission’s *pro forma* LGIP and *pro forma* LGIA reforms in Attachment O of its Tariff, as required by Order Nos. 845 and 845-A. APS states that it adopts without modification the following *pro forma* LGIP and *pro forma* LGIA reforms: interconnection customer’s option to build, dispute

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 art. 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.

resolution, definition of contingent facilities, transparency regarding study models and assumptions, definition of a generating facility, requesting interconnection service below generating facility capacity, and provisional interconnection service.¹²

7. APS proposes Tariff revisions in instances where the Commission requires modification to the *pro forma* LGIP and *pro forma* LGIA and afforded transmission providers the discretion to develop their own tariff language. Specifically, APS proposes Tariff revisions for the following reforms: identification of contingent facilities, interconnection study deadlines, surplus interconnection service, and material modifications and incorporation of advanced technologies. APS also proposes minor modifications that it asserts are consistent with or superior to the changes adopted in Order Nos. 845 and 845-A and should be permitted.¹³

8. APS requests that the proposed Tariff revisions become effective on May 22, 2019.¹⁴

III. Notice and Responsive Pleadings

9. Notice of APS'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. Avangrid Renewables, LLC (Avangrid) filed a timely motion to intervene.

IV. Discussion

A. Procedural Matters

10. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2019), the timely, unopposed motion to intervene serves to make Avangrid a party to this proceeding.

¹² APS OATT, Att. O (6.0.0), LGIP §§ 1 (Definitions), 2.3 (Base Case Data), 3.1 (General), 13.5.5 (Non-binding dispute resolution procedures); LGIA arts. 1 (Definitions), 5.1.3 (Option to Build); 5.9.2 (Provisional Interconnection Service).

¹³ APS Compliance Filing, Transmittal at 2, 10-12; APS OATT, att. O (6.0.0), LGIP §§ 3.3 (Utilization of Surplus Interconnection Service), 3.8 (Identification of Contingent Facilities), 4.4.6 (Technological Change Procedure).

¹⁴ APS Compliance Filing, Transmittal at 13.

B. Substantive Matters

11. As discussed below, we find that APS's filing partially complies with the requirements of Order Nos. 845 and 845-A. Accordingly, we accept APS's compliance filing, effective May 22, 2019, and direct APS to submit a further compliance filing within 60 days of the date of this order.

1. Proposed Variations

12. As discussed further below, APS has proposed 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. 2003.¹⁵ In Order No. 2003, when adopting the *pro forma* LGIA and LGIP, the Commission permitted transmission providers to seek variations from the *pro forma* LGIP and/or *pro forma* LGIA if they were "consistent with or superior to" the terms of the *pro forma* LGIP and *pro forma* LGIA.¹⁶ A transmission provider seeking a "consistent with or superior to" variation must demonstrate why its proposal is consistent with or superior to the *pro forma* LGIP and/or *pro forma* LGIA.¹⁷ The Commission also permitted transmission providers to justify a variation to the *pro forma* LGIA or LGIP based on regional reliability requirements and required transmission providers submitting such regional reliability variations to the Commission for approval to identify the proposed variations and explain why such variations are necessary.¹⁸ We will evaluate APS's proposed variations from the requirements of Order Nos. 845 and 845-A accordingly.

¹⁵ Order No. 845, 163 FERC ¶ 61,043 at P 43.

¹⁶ *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 104 FERC ¶ 61,103, at P 26 (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).

¹⁷ *See, e.g., Nev. Power Co.*, 167 FERC ¶ 61,086, at P 3 (2019).

¹⁸ Order No. 2003, 104 FERC ¶ 61,103 at P 826; Order No. 2003-A, 106 FERC ¶ 61,220 at P 45.

2. Interconnection Customer's Option to Build

13. 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.¹⁹ 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.²⁰ 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."²¹

14. 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 upgrade;²² and (2) clarify that the option to build does not apply to stand alone network upgrades on affected systems.²³ 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.²⁴ 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.²⁵

¹⁹ Order No. 845, 163 FERC ¶ 61,043 at PP 85-87.

²⁰ Order No. 2003, 104 FERC ¶ 61,103 at P 353; *see also pro forma* LGIP § 5.1.3.

²¹ Order No. 845, 163 FERC ¶ 61,043 at P 85.

²² Order No. 845-A, 166 FERC ¶ 61,137 at P 68.

²³ *Id.* P 61.

²⁴ *Id.* P 75.

²⁵ *Id.* P 33.

a. APS's Compliance Filing

15. APS proposes revisions to its *pro forma* LGIP revising section 1 (Definitions) to incorporate the *pro forma* LGIP revisions adopted by Order Nos. 845 and 845-A without modification.²⁶ APS also proposes revisions to its *pro forma* LGIA to amend articles 5.1, 5.1.3, 5.1.4, and 5.2 to incorporate the *pro forma* LGIA revisions adopted by Order Nos. 845 and 845-A without modification.²⁷

16. APS proposes additional changes to article 5.13 of its *pro forma* LGIA to add a reference to stand alone network upgrades, which it states expands its obligations to assist interconnection customers with land and land rights procurement efforts.²⁸ Specifically, APS revised article 5.13 as follows:

Lands of Other Property Owners. If any part of Transmission Provider or Transmission Owner's Interconnection Facilities, Stand Alone Network Upgrades, and/or Network Upgrades ~~is~~ to be installed on property owned by persons other than ~~Interconnection Customer or~~ Transmission Provider or Transmission Owner, Transmission Provider or Transmission Owner shall at Interconnection Customer's expense use efforts, similar in nature and extent to those that it typically undertakes on its own behalf or on behalf of its Affiliates, including use of its eminent domain authority, and to the extent consistent with state law, to procure from such persons any rights of use, licenses, rights of way and easements that are necessary to construct, operate, maintain, test, inspect, replace or remove Transmission Provider or Transmission Owner's Interconnection Facilities, Stand Alone Network Upgrades, and/or Network Upgrades upon such property.

APS states that the additional modification will support the implementation of the option to build reform and maintain consistency amongst all of the upgrade and facility types identified in the *pro forma* LGIA. APS also states where an interconnection customer chooses the option to build for stand alone network upgrades, article 5.2(9) of the *pro forma* LGIA provides for the transfer of ownership "unless the parties otherwise agree," which are the same obligations as are applicable to the transmission provider's

²⁶ APS OATT, att. O (6.0.0), LGIP § 1 (Definitions), LGIA art. 1 (Definitions).

²⁷ APS OATT, att. O (6.0.0), LGIA arts. 5.1 (Options), 5.1.3 (Option to Build), 5.1.4 (Negotiated Option), 5.2 (General Conditions Applicable to Option to Build).

²⁸ APS OATT, att. O (6.0.0), LGIA art. 5.13 (Lands of Other Property Owners).

interconnection facilities. APS states that only the transmission provider's interconnection facilities are subject to article 5.13 of the *pro forma* LGIA. APS states that its modification is consistent with or superior to the current *pro forma* LGIA because it will enhance generator interconnection service that is proposed in Order Nos. 845 and 845-A.²⁹

b. Commission Determination

17. We find that APS's proposed revisions regarding the option to build comply with the requirements of Order Nos. 845 and 845-A because APS adopts the Commission's *pro forma* LGIP and *pro forma* LGIA revisions without modification except to article 5.13 of its *pro forma* LGIA. We find that the modifications to article 5.13 of APS's *pro forma* LGIA, which expand its obligation to facilitate interconnection customer's land and land rights procurement related to stand alone network upgrades, will allow all upgrade types and land procurement efforts to be treated similarly under APS's Tariff. Furthermore, we agree with APS that its proposed modifications will enhance generator interconnection service. Therefore, we find this modification is consistent with or superior to the *pro forma* LGIA.

3. Dispute Resolution

18. 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

²⁹ APS Compliance Filing, Transmittal at 9-10.

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.

a. APS's Compliance Filing

19. APS propose revisions to its LGIP that adopt the dispute resolution language required by Order Nos. 845 and 845-A without modification.³²

b. Commission Determination

20. We find that APS's proposed LGIP revisions regarding dispute resolution comply with the requirements of Order Nos. 845 and 845-A because APS adopts the Commission's *pro forma* revisions without modification.

4. Identification and Definition of Contingent Facilities

21. In Order No. 845, the Commission added 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.³³ 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.³⁴ 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.³⁵ The Commission stated that this transparency will ensure that the method is applied on a non-discriminatory basis.³⁶ The Commission further required that transmission providers provide, upon the interconnection customer's request, the

³² APS OATT, att. O (6.0.0), LGIP § 13.5.5 (Non-binding dispute resolution procedures).

³³ Order No. 845, 163 FERC ¶ 61,043 at P 218; *see also pro forma* LGIP § 1 (Definitions).

³⁴ Order No. 845, 163 FERC ¶ 61,043 at P 199.

³⁵ *Id.*; *see also pro forma* LGIP § 3.8.

³⁶ Order No. 845, 163 FERC ¶ 61,043 at P 200.

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.³⁷

a. APS's Compliance Filing

22. APS adopts the Commission's *pro forma* LGIP definition of contingent facilities. APS also proposes revisions to its LGIP section 3.8 that require a method for identifying contingent facilities by identifying those facilities for which a generation shift factor with an absolute value of five percent or greater is identified. Specifically, if the interconnection system impact study identifies a generation shift factor associated with the interconnection customer's generating facility for any unbuilt interconnection facility or network upgrade that is five percent or greater, then the transmission provider will identify an unbuilt interconnection facility or network upgrade as a potential contingent facility and may conduct additional studies to determine if there could be an impact to the interconnection request if such facility is not constructed and placed into service in a timely fashion.³⁸

23. Proposed section 3.8 states that additional studies will evaluate whether the failure to construct and place into service the potential contingent facility in a timely fashion: (1) would adversely impact the ability of the generating facility to be placed into service; and (2) would require additional system upgrades to support the interconnection request. If additional studies identify these impacts to the interconnection request, then APS will identify such potential contingent facility as a contingent facility. At the conclusion of the interconnection system impact study, APS will provide the interconnection customer with a list of all contingent facilities identified. This list will also be included in the interconnection customer's LGIA.³⁹

b. Commission Determination

24. We find that the revised provisions that identify and describe APS's method for determining contingent facilities, as APS proposes in its LGIP, partially comply with the requirements of Order Nos. 845 and 845-A. We find that APS complies with the requirements of Order Nos 845 and 845-A because APS has adopted the definition of contingent facilities and the language regarding the need for the transmission provider to

³⁷ *Id.* P 199; *see also pro forma* LGIP § 3.8.

³⁸ APS Compliance Filing, Transmittal at 7; APS OATT, att. O, LGIP § 3.8 (Identification of Contingent Facilities), app. 2 (Interconnection System Impact Study Agreement), Recitals § 5.

³⁹ APS OATT, att. O (6.0.0), LGIP § 3.8.

include in LGIP section 3.8 a method for identification of contingent facilities without modification. Further, APS's proposed Tariff revisions comply with the requirements related to providing estimated network upgrade costs and estimated in-service completion dates associated with contingent facilities to the interconnection customer.

25. However, as specified in Order No. 845, transmission providers must include, in section 3.8 of their LGIPs, a method for determining contingent facilities.⁴⁰ The Commission required that this method provide sufficient transparency to determine why a specific contingent facility was identified and how it relates to the interconnection request.⁴¹ The Commission also required that a transmission provider's method to identify contingent facilities be transparent enough to ensure that it will be applied on a non-discriminatory basis.⁴² APS's proposed Tariff revisions lack the requisite transparency required by Order Nos. 845 and 845-A because the proposed Tariff revisions do not detail the specific technical screens or analyses and the specific thresholds or criteria that APS will use as part of its method to identify contingent facilities. Without this information, an interconnection customer will not understand how APS will evaluate potential contingent facilities to determine their relationship to an individual interconnection request.⁴³ Further, including provisions regarding specific thresholds or criteria in APS's LGIP will ensure APS's technical screens or analyses will be applied to interconnection requests on a consistent, not unduly discriminatory or preferential basis.

26. We therefore direct APS to describe in section 3.8 of its LGIP the specific technical screens and/or analyses that it will employ to determine which facilities are contingent facilities. Further, we also direct APS to describe the specific triggering thresholds or criteria, including the quantitative triggers, that are applied to identify a facility as a contingent facility. In Order No. 845, 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.⁴⁴ However, if, for instance, a transmission provider chooses to use a distribution factor analysis as a technical screen for determining how a new generating facility impacts the surrounding electrically-relevant facilities, its tariff must specify the

⁴⁰ Order No. 845, 163 FERC ¶ 61,043 at P 199.

⁴¹ *Id.* P 200.

⁴² *Id.*

⁴³ *See pro forma* LGIP § 3.8 ("The method shall be sufficiently transparent to determine why a specific Contingent Facility was identified.").

⁴⁴ Order No. 845, 163 FERC ¶ 61,043 at P 220.

triggering percentage impact that causes a facility to be considered contingent. Similarly, if a transmission provider relies on the system impact study to identify which facilities the new generating facility will impact, it must specify in its tariff which power system performance attributes (voltages, power flows, etc.) violated a specific threshold of a facility⁴⁵ such that the transmission provider would conclude that the facility is contingent for the new generating facility. A transmission provider may use multiple screens or analyses as part of its method, but it must include a corresponding, specific triggering threshold or criterion to indicate how it will apply each screen or analysis.

27. Because APS has not provided the specificity outlined above and thus does not fully comply with the contingent facility requirements of Order Nos. 845 and 845-A, we direct APS to submit a further compliance filing, within 60 days of the date of this order, which adds in section 3.8 of APS's LGIP (1) the method APS will use to determine contingent facilities, including technical screens or analyses it proposes to use to identify these facilities, and (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, as discussed above.

5. Transparency Regarding Study Models and Assumptions

28. 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-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.”⁴⁶ 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).⁴⁷

⁴⁵ For example, a range for facility per unit voltage may constitute a specific triggering threshold, beyond which the transmission provider will identify the facility as contingent.

⁴⁶ Order No. 845, 163 FERC ¶ 61,043 at P 236.

⁴⁷ *Id.*; see also *pro forma* LGIP § 2.3.

29. 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.⁴⁸ 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.⁴⁹ 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.⁵⁰

a. APS's Compliance Filing

30. APS proposes revisions to its LGIP to add a new section 2.3 that incorporates the language adopted by Order Nos. 845 and 845-A without modification.⁵¹ In addition, APS proposes revisions to section 2.3 of its LGIP to conform its existing language to the *pro forma* LGIP.⁵²

b. Commission Determination

31. We find that APS's proposed LGIP revisions regarding study models and assumptions comply with the requirements of Order Nos. 845 and 845-A because APS adopts the *pro forma* LGIP provisions without modification. We also find that APS's proposed revisions to section 2.3 to conform its existing language to the *pro forma* LGIP complies with the requirements of Order Nos. 845 and 845-A.

6. Definition of Generating Facility

32. 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

⁴⁸ Order No. 845-A, 166 FERC ¶ 61,137 at P 84 (citing Order No. 845, 163 FERC ¶ 61,043 at P 241).

⁴⁹ *Id.* P 85 (citing 18 C.F.R. § 388.113(g)(5)(i) (2019)).

⁵⁰ *Id.* P 88.

⁵¹ APS OATT, att. O (6.0.0), LGIP § 2.3 (Base Case Data).

⁵² APS Compliance Filing, Transmittal at 7-8.

processes. Specifically, the Commission revised the definition of “Generating Facility” in the *pro forma* LGIP and *pro forma* LGIA as follows:

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.⁵³

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.⁵⁴

a. APS’s Compliance Filing

33. APS proposes revisions to section 1 of its LGIP and its *pro forma* LGIA to incorporate the definition of “Generating Facility” adopted by Order Nos. 845 and 845-A without modification.⁵⁵

b. Commission Determination

34. We find that APS’s revisions regarding the definition of a “Generating Facility” comply with the requirements of Order Nos. 845 and 845-A because APS adopts the Commission’s *pro forma* LGIP and *pro forma* LGIA provisions without modification.

7. Interconnection Study Deadlines

35. 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 and to update those statistics on a quarterly basis.⁵⁶ In these sections, the Commission included bracketed Tariff language to be completed by the transmission provider in accordance with the

⁵³ Order No. 845, 163 FERC ¶ 61,043 at P 275 (additions italicized); *see also pro forma* LGIP § 1 (Definitions).

⁵⁴ Order No. 845, 163 FERC ¶ 61,043 at P 275.

⁵⁵ APS OATT, att. O (6.0.0), LGIP § 1 (Definitions), LGIA art. 1 (Definitions).

⁵⁶ Order No. 845, 163 FERC ¶ 61,043 at P 305; *see also pro forma* LGIP §§ 3.5.2, 3.5.3.

timelines established for the various studies in their LGIPs.⁵⁷ 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 percent of any study type for two consecutive calendar quarters.⁵⁸ 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.⁵⁹ 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 2020.⁶⁰

a. APS's Compliance Filing

36. APS proposes Tariff revisions to LGIP sections 3.5.3 and 3.5.4 to incorporate the language adopted by Order Nos. 845 and 845-A without modification. In addition, APS proposes Tariff revisions to LGIP section 3.5.2.1 with a system impact study completion deadline of 90 calendar days, and to LGIP section 3.5.2.2 with a facilities study completion deadline of 90 calendar days. APS states that it proposes to omit the *pro forma* language proposed in LGIP subsection 3.5.2.1 addressing feasibility study metrics as inapplicable because APS does not perform feasibility studies and thus the subsections of the proposed section 3.5.2.1 of the *pro forma* LGIP (sections 3.5.2.1(A) through (E)) are inapplicable to APS's currently, approved interconnection processes.⁶¹ APS states that it has adjusted the overall subsection numbering within section 3.5.2 to reflect this omission and has otherwise fully incorporated the proposed section 3.5.2 into its LGIP.

b. Commission Determination

37. We find that the revised provisions that address APS's study deadline statistics and informational reporting requirements, as proposed in APS's LGIP, comply with the requirements of Order Nos. 845 and 845-A because APS has included *pro forma* LGIP

⁵⁷ Order No. 845, 163 FERC ¶ 61,043 at P 305; *see also pro forma* LGIP §§ 3.5.2, 3.5.3.

⁵⁸ Order No. 845, 163 FERC ¶ 61,043 at P 305; *see also pro forma* LGIP § 3.5.4.

⁵⁹ Order No. 845, 163 FERC ¶ 61,043 at P 307.

⁶⁰ Order No. 845-A, 166 FERC ¶ 61,137 at P 107.

⁶¹ APS Compliance Filing, Transmittal at 10 (citing *Ariz. Pub. Serv. Co.*, 137 FERC ¶ 61,099, at P 19 (2011) (accepting APS's elimination of the feasibility study as consistent with or superior to the *pro forma* LGIP)).

sections 3.5.3 and 3.5.4 without modification. Additionally, APS proposes Tariff revisions to replace the bracketed placeholders with timelines that align with the timelines already in its Tariff. We also find that, with exception of the *pro forma* language proposed in LGIP subsection 3.5.2.1, APS has fully incorporated the *pro forma* section 3.5.2 into its LGIP. Because the Commission previously approved the elimination of feasibility study obligations from APS's Tariff in 2011, APS's proposal to omit revisions related to feasibility studies in section 3.5.2.1 of the LGIP is consistent with or superior to the requirements of Order Nos. 845 and 845-A because APS does not perform feasibility studies under its Tariff.⁶² However, we find that APS failed to update the title for new section 3.5.2 in the Table of Contents to read "Requirement to Post Interconnection Study Metrics." Accordingly, we direct APS to file, within 60 days of the date of this order, a further compliance filing that incorporates the *pro forma* revisions to the title of section 3.5.2 in the Table of Contents.

8. Requesting Interconnection Service below Generating Facility Capacity

38. 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 capacity,⁶³ 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.⁶⁴

39. The Commission required, in *pro forma* LGIP revised section 3.1, that transmission providers have a process in place to consider requests for interconnection service below the 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

⁶² Additionally, consistent with APS's omission of section 3.5.2.1 of the *pro forma* LGIP, APS's LGIP does not include *pro forma* LGIP sections 6.1 (Interconnection Feasibility Study Agreement), 6.3 (Interconnection Feasibility Study Procedures), and section 4.0 to Appendix 2 because those sections address Interconnection Feasibility Studies that do not apply to APS.

⁶³ 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).

⁶⁴ Order No. 845, 163 FERC ¶ 61,043 at P 367; *see also pro forma* LGIP §§ 3.1, 6.3, 7.3, 8.2; *pro forma* LGIP app. 1.

ensure safety and reliability of the system.⁶⁵ 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 *pro forma* LGIP revised section 3.1 that any necessary control technologies and/or protection systems be memorialized in the LGIA.

40. The Commission required, in *pro forma* LGIP revised 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.⁶⁶

41. 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.⁶⁷

a. APS's Compliance Filing

42. APS proposes revisions to its LGIP that adopt the Commission's proposed reforms to *pro forma* LGIP sections 3.1, 7.3, and 8.2 and Appendix 1 to incorporate the language set forth in Order Nos. 845 and 845-A without modification.⁶⁸ APS states that, because feasibility study obligations have been eliminated from its *pro forma* LGIP, it proposes to

⁶⁵ Order No. 845, 163 FERC ¶ 61,043 at PP 383-84.

⁶⁶ *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. *Id.*

⁶⁷ *Id.* P 406; *see also pro forma* LGIP §§ 4.4.1, 4.4.2.

⁶⁸ APS OATT, att. O (6.0.0), LGIP §§ 3.1 (General), 7.3 (Scope of Interconnection System Impact Study), 8.2 (Scope of Interconnection Facilities Study).

omit section 6.3 in its LGIP.⁶⁹ However, APS's proposed Tariff revisions to section 3.1 do not fully incorporate the *pro forma* LGIP language adopted by Order No. 845.⁷⁰ Order No. 845 adopted the following language as the second sentence of the final paragraph in *pro forma* LGIP section 3.1:

These requests for Interconnection Service shall be studied at the level of Interconnection Service requested for purposes of Interconnection Facilities, Network Upgrades, *and associated costs*, but may be subject to other studies at the full Generating Facility Capacity to ensure safety and reliability of the system, with the study costs borne by the Interconnection Customer.⁷¹

43. Further, APS proposes to adopt *pro forma* LGIP sections 4.4.1 and 4.4.2 with some minor additions and revisions to ensure consistency and/or clarity. First, APS states that the *pro forma* LGIP language in section 4.4.2 includes the unit of measure (MW) in clause (a)(1), but the *pro forma* LGIP language for clause (a)(1) contained in section 4.4.1 does not. APS proposes to revise section 4.4.1(a)(1) to include the same unit of measure (MW) as is included in section 4.4.2(a)(1) to clarify the unit of measure. Specifically, the *pro forma* LGIP section 4.4.1(a)(1) states “a decrease in plant size or” and section 4.4.2(a)(1) states “a decrease in plant size (MW).” APS proposes to change sections 4.4.1(a)(1) and 4.4.2(a)(1) to state “a decrease in Generating Facility Capacity or” to make the sections consistent.⁷²

44. Second, APS states that the *pro forma* LGIP language at clause (a) of section 4.4.1 states that the interconnection customer can request a “decrease of up to 60 percent.” APS further states that the same clause in *pro forma* LGIP section 4.4.2 provides that any request to decrease must be an “additional 15 percent decrease.” APS proposes to revise section 4.4.2 clause (a) to allow the same level of flexibility as is allowed in section 4.4.1(a) of the *pro forma* LGIP. Specifically, in LGIP section 4.4.2, clause (a), APS proposes to revise the phrase “additional 15 percent decrease” to “additional decrease of

⁶⁹ See *supra* n.61.

⁷⁰ See Order No. 845-A, 166 FERC ¶ 61,137 at P 117.

⁷¹ Order No. 845, 163 FERC ¶ 61,043 at P 347; see also *id.* P 367. The italics indicate language adopted by Order No. 845 that APS's Tariff revisions failed to include. We recognize, however, that the *pro forma* LGIP that was available on the Commission's website failed to include that language.

⁷² APS Compliance Filing, Transmittal at 10-12; APS OATT, att. O (6.0.0), LGIP §§ 4.4.1, 4.4.2.

up to 15 percent.” APS asserts that its proposed change in section 4.4.2(a) will achieve consistency with the language in section 4.4.1(a) and has the effect of providing interconnection customers the greatest amount of flexibility under sections 4.4.1 and 4.4.2.⁷³

45. To effectuate the requirements of section 3.1 of the *pro forma* Tariff as contemplated in Order No. 845, APS proposes to revise Appendix C of the LGIA to include two new sections that are intended to address the requirement to capture control technologies and protection systems as well as any potential penalties for exceeding the level of interconnection service. APS proposes to add a section titled “Control Technologies and Protection Systems.” APS explains that this addition creates a specific section within Appendix C under which APS and the interconnection customer will establish and document the control technologies and protection systems necessary to ensure the safety and reliability of the transmission system where interconnection service is below the generating facility capacity.⁷⁴

46. To address the potential for an interconnection customer to exceed the level of interconnection service as contemplated in Order Nos. 845 and 845-A, APS proposes to add a section titled “Actions and Obligations When Output is Exceeding the Interconnection Service Level” to Appendix C of the LGIA. APS proposes to add the language as follows:

If the Generating Facility is exceeding its contracted Level of Interconnection Service, APS will contact the Generator Operator and/or Generating Facility’s Balancing Authority and issue an Operating Instruction to return the output to the contracted Level of Interconnection Service. If the Generator Operator and/or Generating Facility’s Balancing Authority has not begun to reduce the Generating Facility’s output to the contracted Level of Interconnection Service within the time period specified in the Operating Instruction, APS can take action up to and including disconnection of the Generating Facility from the Transmission System at the Point of Interconnection.

⁷³ APS Compliance Filing, Transmittal at 11.

⁷⁴ *Id.* at 3; APS OATT, att. O (6.0.0), LGIA app. C (Interconnection Details).

APS explains that this section establishes the actions and obligations of both the transmission provider and the interconnection customer when the amount of power that is flowing onto the transmission system from a generating facility exceeds the amount of interconnection service for which the generating facility is contracted.⁷⁵

47. APS states that it is proposing to establish this process to strictly enforce the interconnection service level by defining those actions and obligations that would be applicable to all parties when an interconnection customer is exceeding its interconnection service level. APS asserts that this process is consistent with article 9.7.2 of the *pro forma* LGIA, which allows the transmission provider to take actions up to and including the interruption of service to protect its ability to maintain a secure, reliable transmission system.⁷⁶

b. Commission Determination

48. We find that APS's proposed LGIP revisions that 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 because APS proposes to include applicable *pro forma* LGIP sections, some with revisions. We find that the revisions proposed by APS in sections 4.4.1 and 4.4.2 regarding the unit of measure the interconnection customer's flexibility to determine the total percentage decrease prior to the interconnection facility study to be consistent with or superior to the provisions of Order Nos. 845 and 845-A because they provide clarity and consistency for interconnection customers. Similarly, we find that APS's revision to add a section titled Control Technologies and Protection Systems to Appendix C of its *pro forma* LGIA provides additional clarity for interconnection customers, and therefore, is consistent with or superior to the provisions of Order Nos. 845 and 845-A. Additionally, we agree with APS that its revision to Appendix C of the APS *pro forma* LGIA to add a section titled Actions and Obligations When Output is Exceeding the Interconnection Service Level is consistent with article 9.7.2 of the Commission's *pro forma* LGIA, which allows the transmission provider to take actions up to and including the interruption of service to protect its ability to maintain a secure, reliable transmission system. Therefore, we find this additional section to be consistent with or superior to the provisions of Order Nos. 845 and 845-A.

⁷⁵ APS OATT, att. O (6.0.0), LGIA app. C (Interconnection Details).

⁷⁶ APS Compliance Filing, Transmittal at 3-4.

49. However, as discussed above, APS's revisions to section 3.1 of its LGIP omit some of the *pro forma* LGIP language required by Order No. 845.⁷⁷ Accordingly, we direct APS to file, within 60 days of the date of this order, a further compliance filing that incorporates the *pro forma* revisions to section 3.1 of its LGIP, as required by Order No. 845.

9. Provisional Interconnection Service

50. In Order No. 845, the Commission required transmission providers to allow all interconnection customers to request provisional interconnection service.⁷⁸ 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.⁷⁹ To implement this service, the Commission revised the *pro forma* LGIP and *pro forma* LGIA to add a definition for "Provisional Interconnection Service"⁸⁰ and for a "Provisional Large Generator Interconnection Agreement."⁸¹

51. In addition, the Commission added *pro forma* LGIA article 5.9.2, which details the terms for provisional interconnection service.⁸² 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 bracketed tariff language to be completed by the transmission provider, to specify the

⁷⁷ Order No. 845, 163 FERC ¶ 61,043 at PP 347, 367, app. B.

⁷⁸ *Id.* P 438.

⁷⁹ *Id.* P 441.

⁸⁰ *Pro forma* LGIP § 1 (Definitions); *pro forma* LGIA art. 1 (Definitions).

⁸¹ *Pro forma* LGIP § 1 (Definitions); *pro forma* LGIA art. 1 (Definitions). 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.

⁸² *Id.* P 438; *see also pro forma* LGIP § 5.9.2.

frequency at which they perform such studies in their *pro forma* LGIA.⁸³ The Commission stated that interconnection customers are responsible for the costs for performing these provisional interconnection studies.⁸⁴

a. APS's Compliance Filing

52. APS proposes revisions to adopt the Commission's *pro forma* definitions related to provisional interconnection service and the *pro forma* language in LGIA article 5.9.2 without modification. APS proposes to fill in the bracketed placeholder in article 5.9.2 to state that it will study and update the maximum permissible output of the generating facility subject to a provisional LGIA every time: (1) an interconnection system impact study is completed for an interconnection request with a point of interconnection that is electrically proximate to the point of interconnection for the existing provisional interconnection service; or (2) a reliability study is completed for a portion of the transmission system that is electrically proximate to the point of interconnection of the existing provisional interconnection service.

b. Commission Determination

53. We find that APS's proposed LGIP and *pro forma* LGIA revisions regarding provisional interconnection service comply with the requirements of Order Nos. 845 and 845-A because APS proposes to adopt the Commission's *pro forma* LGIP and *pro forma* LGIA provisions without modification except to fill in the bracketed section in *pro forma* LGIA article 5.9.2 to state that it will study and update the maximum permissible output of the generating facility subject to a provisional LGIA in two scenarios. Specifically, APS will study and update the maximum permissible output of a generating facility subject to a provisional LGIA every time: (1) an interconnection system impact study is completed for an interconnection request with a point of interconnection that is electrically proximate to the point of interconnection for the existing provisional interconnection service; or (2) a reliability study is completed for a portion of the transmission system that is electrically proximate to the point of interconnection of the existing provisional interconnection service.

10. Surplus Interconnection Service

54. 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

⁸³ Order No. 845, 163 FERC ¶ 61,043 at P 448.

⁸⁴ *Id.*

interconnection service at the point of interconnection would remain the same.⁸⁵ Surplus interconnection service enables a new interconnection customer to utilize the unused portion of an existing interconnection customer's interconnection service within specific parameters.⁸⁶ 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.⁸⁷ That expedited process must allow affiliates of the existing interconnection customer to use 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.⁸⁸ 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.⁸⁹ 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.⁹⁰ When the original interconnection customer, the surplus interconnection service customer, and the transmission provider enter into agreements for surplus interconnection service, they must be filed by the transmission provider with the Commission, because any surplus interconnection service agreement will be an agreement under the transmission provider's open access transmission tariff.⁹¹

⁸⁵ *Id.* at P 467; *see also pro forma* LGIP § 1; *pro forma* LGIA art. 1 (Definitions).

⁸⁶ Order No. 845, 163 FERC ¶ 61,043 at P 467; Order No. 845-A, 166 FERC ¶ 61,137 at P 119.

⁸⁷ Order No. 845, 163 FERC ¶ 61,043 at P 467; *see also pro forma* LGIP §§ 3.3, 3.3.1.

⁸⁸ Order No. 845, 163 FERC ¶ 61,043 at P 483; *see also pro forma* LGIP § 3.3.

⁸⁹ Order No. 845, 163 FERC ¶ 61,043 at PP 455, 467.

⁹⁰ *Id.* P 481.

⁹¹ *Id.* P 499.

a. APS's Compliance Filing

55. APS proposes revisions to add sections 1, 3.3 and 3.3.1 to its LGIP, and article 1 to its *pro forma* LGIA, to comply with the Commission's directives in Order Nos. 845 and 845-A. APS adopts the Commission's *pro forma* LGIP and *pro forma* LGIA revisions for surplus interconnection service as required by Order Nos. 845 and 845-A with one modification. APS proposes to append the following language to the end of section 3.3.1 to its LGIP:

All notifications and requests for Surplus Interconnection Service shall be submitted in accordance with the Transmission Provider's Business Practice, posted on its OASIS, and shall be processed outside of the interconnection queue. In order to deem a request for Surplus Interconnection Service valid and complete, a deposit of \$25,000 must be received by the Transmission Provider. After a request for Surplus Interconnection Service has been deemed valid and complete by the Transmission Provider, the Transmission Provider will notify the Interconnection Customer and schedule the Scoping Meeting within five (5) Business Days.

56. APS proposes that, within five business days following the scoping meeting, the interconnection customer shall include in the attachment to the interconnection system impact study agreement its requested point(s) of interconnection. APS proposes to provide the interconnection customer the interconnection system impact study agreement within five business days following its receipt of the point(s) of interconnection. APS proposes that the interconnection system impact study agreement shall specify that interconnection customer is responsible for the actual cost of the interconnection system impact study.⁹²

57. APS proposes that the interconnection customer shall execute the interconnection system study agreement and return it to APS no later than 30 calendar days after its receipt. APS will evaluate the original interconnection system impact study to determine its suitability for use in the evaluation of the request for surplus interconnection service. The surplus interconnection service system impact study will consist of reactive power, short circuit/fault duty, stability analyses, and any other studies deemed appropriate by APS.⁹³

⁹² APS OATT, att. O (6.0.0), LGIP § 3.3.2.1.

⁹³ *Id.* §§ 3.3.2.2-3.3.2.3.

58. APS proposes to use reasonable efforts to complete the interconnection system impact study within 90 calendar days after receipt of the interconnection system impact study agreement or notification to proceed, study payment, and technical data. APS proposes to notify interconnection customer as to the schedule status of the interconnection system impact study at the request of the interconnection customer or at any time APS determines that it will not meet the required time frame for completing the interconnection system impact study. In case of the latter, APS proposes to notify the interconnection customer and provide an estimated completion date with an explanation of why additional time is necessary. APS proposes to meet with the interconnection customer to discuss the results of the interconnection system impact study within 10 business days of providing an interconnection system impact study report to the interconnection customer.⁹⁴

59. APS proposes to tender, within 30 calendar days after delivery of the interconnection system impact study report, a draft surplus interconnection service agreement to the original interconnection customer and the surplus interconnection customer to be executed and returned within 30 calendar days. APS and the interconnection customers shall negotiate any disputed provisions of the appendices to the draft surplus interconnection service agreement for up to 60 days after tender of the draft surplus interconnection service agreement. APS proposes that, if any interconnection customer determines that negotiations are at an impasse, it may request termination of the negotiations and request submission of the unexecuted surplus interconnection service agreement to the Commission or to initiate dispute resolution procedures. Within 60 calendar days of tender of the draft surplus interconnection service agreement, if the interconnection customer has not executed the surplus interconnection service agreement, or initiated dispute resolution procedures, it shall be deemed to have withdrawn its interconnection request. APS shall provide the interconnection customers a final surplus interconnection service agreement within 15 business days after the completion of the negotiation process.⁹⁵

60. APS proposes to file the surplus interconnection service agreement with the Commission, together with its explanation of any matters as to which interconnection customer(s) and transmission provider disagree and support for the costs that transmission provider proposes to charge to interconnection customer(s) under the surplus interconnection service agreement. An unexecuted surplus interconnection service agreement should contain the terms and conditions deemed appropriate by transmission provider for the interconnection request. APS proposes that, if the parties

⁹⁴ *Id.* §§ 3.3.2.4, 3.3.2.5.

⁹⁵ *Id.* §§ 3.3.3.1, 3.3.3.2.

agree to proceed with design, procurement, and construction of facilities under the agreed-upon terms of the unexecuted surplus interconnection service agreement, they may proceed pending any Commission action.⁹⁶

b. Commission Determination

61. We find that APS's proposed Tariff revisions regarding surplus interconnection service comply with the requirements of Order Nos. 845 and 845-A because APS adopts the *pro forma* definition of surplus interconnection service and *pro forma* provisions in LGIP section 3.3 without modification. We also find that APS's proposed process for evaluating surplus interconnection service complies with the requirements of Order Nos. 845 and 845-A. Additionally, as required by Order Nos. 845 and 845-A, APS's proposed process requires that the transmission provider, original interconnection customer, and surplus interconnection service customer 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

62. 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,⁹⁷ 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.⁹⁸ In addition, the Commission

⁹⁶ *Id.* § 3.3.3.3.

⁹⁷ 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.

⁹⁸ *Id.* P 518.

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 the transmission provider will follow to assess whether an interconnection customer's proposed technological advancement is a material modification.⁹⁹

63. 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.¹⁰⁰ 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.¹⁰¹

64. 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.¹⁰² 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.¹⁰³ 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.¹⁰⁴

65. 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

⁹⁹ *Id.*; see also *pro forma* LGIP § 4.4.6.

¹⁰⁰ Order No. 845, 163 FERC ¶ 61,043 at P 519.

¹⁰¹ *Id.*

¹⁰² *Id.*; Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

¹⁰³ Order No. 845, 163 FERC ¶ 61,043 at P 521.

¹⁰⁴ *Id.* P 521

any necessary additional studies.¹⁰⁵ The Commission also found that, if the transmission provider determines that additional studies are needed to evaluate whether a technological advancement is a material modification, the interconnection customer must tender a deposit, and the transmission provider must specify the amount of the deposit in the transmission provider's technological change procedure.¹⁰⁶ 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.

66. 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 to 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.¹⁰⁷

¹⁰⁵ *Id.* P 535.

¹⁰⁶ *Id.* P 534. The Commission set the default deposit amount at \$10,000 but stated that a transmission provider may propose a reasonable alternative deposit amount in its compliance filing and include justification supporting this alternative amount. *Id.*

¹⁰⁷ Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

a. **APS's Compliance Filing**

67. APS proposes revisions to section 1 of its LGIP to incorporate the following definition of permissible technological advancement:

Permissible Technological Advancement shall mean a change to the Generating Facilities of the Interconnection Customer's Interconnection Request that: (1) results in the inclusion of technologies that achieve cost and/or grid performance efficiencies; (2) results in electrical performance equal to or better than the electrical performance expected prior to the technology change; (3) would not trigger a Material Modification, as defined in the *pro forma* LGIP; and (4) would not cause any reliability concerns relative to short circuit capability limits, steady-state thermal and voltage limits, or dynamic system stability and response. Permissible technological advancements may include advancements to turbines, inverters, plant supervisory controls, or other technological advancements that may enhance a generating facility's ability to provide ancillary services, but do not include changes in generation technology or fuel type (including the energy source behind an inverter).

68. APS proposes revisions to sections 4.4.2(b) and (c) of its LGIP that adopt the Commission's *pro forma* language with one modification. APS proposes to move the sentence "provided, however, the incremental costs associated with those modifications are the responsibility of the requesting Interconnection Customer" to be a stand-alone sentence following section 4.4.2(c). APS explains that, as a result of the revisions to the *pro forma* LGIP section 4.4.2, the interconnection customer's responsibility for incremental costs appeared to be narrowed and not applicable to permissible technological advancement requests. APS states that its proposed modification ensures that cost responsibility remains clear, unambiguous, properly scoped, and applicable to all modifications that the interconnection customer wishes to make pursuant to section 4.4.2.¹⁰⁸

69. APS proposes to add section 4.4.6 of its LGIP to set forth a technological change procedure. APS proposes to allow an interconnection customer to submit a request for a technological advancement to its generating facility at any time prior to the return of the executed interconnection system impact study agreement or the executed interconnection facility study agreement. APS proposes that the interconnection customer shall complete

¹⁰⁸ APS Compliance Filing, Transmittal at 12-13.

and provide a revised Appendix 1 to the LGIP interconnection request for a large generating facility with revised technical data, including modeling data, for the technology change.¹⁰⁹

70. APS proposes that it will review the technology advancement request from the interconnection customer to determine if it necessitates the performance of additional analyses and/or studies (i.e., short circuit increases, steady-state thermal and/or voltage limits, or dynamic system stability and response) per section 4.4.3 of the LGIP. Specifically, if the technology change requested has no effect on electrical parameters or performance, the interconnection customer may proceed without the need for additional studies. However, if APS determines that additional studies are necessary, APS shall notify the interconnection customer, and the customer. The interconnection customer shall pay a deposit in the amount up to \$10,000, depending on earlier deposit amounts.¹¹⁰

71. APS proposes that additional studies performed to evaluate the technology change requested shall determine if the technology change requested results in electrical performance that is equal to or better than the electrical performance expected prior to the technology advancement request or if the technology change is deemed a material modification. APS proposes to notify the interconnection customer and provide an explanation if it determines that the requested technology change results in a material modification. APS further proposes that, if the requested technology change is not deemed a material modification, then it will include a preliminary indication of the cost and the length of time that would be necessary to evaluate and address any issues or required enhancements or upgrades identified in the additional analyses. APS proposes to use reasonable efforts to deliver the completed additional studies within 30 calendar days after the receipt of deposit.¹¹¹

72. APS proposes that if the requested technology change does not meet the definition of a permissible technological advancement, the change request will be deemed a material modification and the interconnection customer may either proceed with the previously provided data, or submit a new application, which will receive a new queue position.¹¹²

¹⁰⁹ APS OATT, att. O (6.0.0), LGIP § 4.4.6 (Technological Change Procedure).

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.*

b. Commission Determination

73. We find that APS's proposed LGIP revisions to incorporate a definition of a permissible technological advancement and technological change procedure partially comply with the requirements of Order Nos. 845 and 845-A. Specifically, we find that APS'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.

74. We accept APS's modification to sections 4.4.2(b) and (c) that the interconnection customer should bear financial responsibility for any necessary additional studies that may need to be performed to determine whether a technological advancement is a material modification.¹¹³ We agree with APS that proposed modification to these sections provides clarity and consistency for the requesting interconnection customer. Therefore, we find this modification is consistent with or superior to the *pro forma* LGIP.

75. 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.¹¹⁴ APS's proposed LGIP revisions do not explain how it will evaluate the technological advancement request to determine whether it is a material modification. Accordingly, we direct APS to file, within 60 days of the date of this order, a further compliance filing revising its LGIP to provide a more detailed explanation of the studies that APS will conduct to determine whether the technological advancement request will result in a material modification.

76. With regard to the deadline for completion of a technological advancement request, 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.¹¹⁵ However, APS's proposed revisions to LGIP section 4.4.6.2 provide that APS will use "Reasonable Efforts" to complete the assessment of a technological change request within 30 days of receipt of the deposit.¹¹⁶ Order No. 845 establishes a 30-day requirement to determine whether the proposed technological change is a material modification and does not allow for the use of "Reasonable Efforts" to achieve this timeline.¹¹⁷ Accordingly, we direct

¹¹³ Order No. 845, 163 FERC ¶ 61,043 at P 534.

¹¹⁴ *Id.* P 521.

¹¹⁵ *Id.* P 535; Order No. 845-A, 166 FERC ¶ 61,137 at P 155.

¹¹⁶ APS OATT, att. O (6.0.0), LGIP § 4.4.6.2.

¹¹⁷ Order No. 845, 163 FERC ¶ 61,043 at P 535.

APS to file, within 60 days of the date of this order, a further compliance filing that revises its proposed technological change procedure to: (1) remove the “Reasonable Efforts” language; and (2) provide that APS will determine whether or not a technological advancement is a material modification within 30 calendar days of receipt of the initial request.

12. Other Issues Raised by APS

a. Addition of Definition for “Interconnection Service Level” or “Level of Interconnection Service”

77. APS proposes to add a defined term (Interconnection Service Level or Level of Interconnection Service) to section 1 of the LGIP. APS proposes to define the term as follows:

Interconnection Service Level or Level of Interconnection Service shall mean the maximum amount of electrical output (MW) requested by the Interconnection Customer to be injected at the Point of Interconnection.

78. APS explains that the current *pro forma* LGIP uses the term “Level of Interconnection Service” in section 3.2, and Order Nos. 845 and 845-A added the same term to sections 3.1 and 7.3 of the *pro forma* LGIP, but added the term “Interconnection Service Level” to sections 4.4.1 and 4.4.2 of the *pro forma* LGIP, which reference back to section 3.1 of the *pro forma* LGIP. APS asserts that the use of different terms could create confusion and the addition of the defined term will ensure clarity.¹¹⁸

b. Administrative Revisions

79. APS proposes additional minor administrative revisions to its Tariff “to maximize consistency and clarity.”¹¹⁹ Specifically, APS proposes to: (1) revise LGIP section 3.4.1 to correct its use of “Inter connection” to “Interconnection” in the title; (2) in the LGIP and LGIA, where applicable, add “Interconnection” in front of “System Impact Study” and “Facilities Study(ies)” for consistency; (3) correct formatting problems in Appendix 1 of the LGIP; and (4) create a specific section in Appendix C for “Interconnection Details.”

¹¹⁸ APS Compliance Filing, Transmittal at 12.

¹¹⁹ *Id.* at 13.

APS asserts that these revisions are consistent with language that has already been approved by the Commission and are consistent with and superior to the current *pro forma* LGIP.¹²⁰

c. Commission Determination

80. We find that the proposed revisions and modifications LGIP section 1 to add a defined term for “Interconnection Service Level or Level of Interconnection Service” and to make certain administrative revisions, as proposed by APS in its LGIP and *pro forma* LGIA are consistent with or superior to the requirements of Order Nos. 845 and 845-A because they will bring additional clarity to APS’s LGIP and *pro forma* LGIA.

The Commission orders:

(A) APS’s compliance filing is hereby accepted, effective May 22, 2019, subject to a further compliance filing, as discussed in the body of this order.

(B) APS is hereby directed to submit a 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)

Kimberly D. Bose,
Secretary.

¹²⁰ *Id.*