



March 2, 2020

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

**Re: California Independent System Operator Corporation  
Docket No. ER20-\_\_\_\_-000**

**FERC Electric Tariff No. 7, Transmission Control Agreement**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits for filing and acceptance changes to the Transmission Control Agreement (“TCA”) among the CAISO and the current participating transmission owners to add a new participating transmission owner: DesertLink, LLC (“DesertLink”).<sup>1</sup> The CAISO also proposes to amend the application procedures for new participating transmission owners under the TCA consistent with the representations made in its most recent amendment to the TCA, which the Commission recently accepted for filing.<sup>2</sup> This filing also includes several ministerial changes to the appendices and signature pages of some participating transmission owners.

The CAISO requests that the Commission accept all of the proposed TCA changes effective as of April 30, 2020 and respectfully requests waiver of the Commission’s 60-day notice requirement<sup>3</sup> in order to accommodate this effective date. Good cause exists for this waiver because April 30 is the anticipated date for the DesertLink facilities to be energized and concurrently placed under CAISO operational control.<sup>4</sup> Moreover, no entity should be prejudiced by

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<sup>1</sup> The CAISO submits this filing pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

<sup>2</sup> *Cal. Indep. Sys. Operator Corp.*, 170 FERC ¶ 61,155 (2020).

<sup>3</sup> Specifically, the CAISO requests waiver of the Commission’s 60-day notice requirement set forth in Section 35.3 of the Commission’s regulations, 18 C.F.R. § 35.3, pursuant to Section 35.11 of the Commission’s regulations, 18 C.F.R. § 35.11.

<sup>4</sup> The CAISO had planned to make this filing on February 28, 2020, but an administrative issue caused the filing to be delayed past the Commission’s 5:00 pm filing deadline, making the next possible filing date March 2, 2020.

permitting a two day reduction in the notice period, as none of the parties to the TCA object to the changes proposed herein. However, it is possible that the DesertLink facilities will be energized on a later date. Accordingly, the CAISO requests that the Commission direct the CAISO to submit a compliance filing to revise the effective date of the proposed changes to reflect the new facility energization date in the event that the DesertLink facilities are energized on a date later than April 30.

## **I. Background**

### **A. The DesertLink Facilities**

The DesertLink project facilities consist of a 500 kV transmission line between the Southern California Edison Company (“SCE”) majority-owned Eldorado 500 kV substation and the NV Energy-owned Harry Allen 500 kV substation and associated facilities, including series compensation equipment located at the NV Energy-owned Crystal substation, all located in Clark County, Nevada. (“Project”). The Project is the fourth facility to be placed under CAISO operational control following the CAISO’s competitive solicitation process, and is the second approved project sponsor to become a new participating transmission owner.<sup>5</sup> DesertLink was selected as the approved project sponsor following a competitive solicitation process administered by the CAISO in 2014 based on transmission needs identified in the 2013-2014 transmission planning process. Accordingly, DesertLink executed the CAISO’s *pro forma* Approved Project Sponsor Agreement (“APSA”) on January 11, 2017.<sup>6</sup> The APSA sets forth the rights and obligations associated with the Project that arise prior to the effective date of the TCA changes proposed in this filing, and requires DesertLink to build the Project to the CAISO’s defined specifications and then turn it over for CAISO operational control. The APSA for DesertLink also specifies a cost cap for the Project and a cap on the annual operation and maintenance costs for the first five years of the Project.

### **B. The TCA**

The TCA is the agreement among the CAISO and participating transmission owners that establishes the terms and conditions pursuant to which transmission owners place certain transmission facilities and entitlements under the CAISO’s operational control, thereby becoming participating transmission owners. The TCA describes how the CAISO and each participating transmission

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<sup>5</sup> The CAISO has had three other competitive solicitation projects placed under its operational control prior to this, the Miguel Reactive Support and the Sycamore-Penasquitos projects, both built by San Diego Gas & Electric Company, and the Suncrest MVAR SVC substation built by Horizon West Transmission, LLC (“HZWT”). HZWT was the first approved project sponsor to become a new participating transmission owner.

<sup>6</sup> The *pro forma* APSA is set forth in appendix X to the CAISO tariff.

owner will discharge its respective duties and responsibilities with respect to the operation of those facilities and entitlements.

The initial TCA was filed as part of the comprehensive "Phase II" filings submitted by the trustee on behalf of the CAISO on March 31, 1997. Refinements to the TCA were made as a result of a stakeholder process, and a revised TCA was submitted on August 15, 1997, in compliance with the Commission's order in *Pacific Gas and Electric Company*, 80 FERC ¶ 61,128 (1997). In its order dated October 30, 1997, the Commission granted interim and conditional authorization to the CAISO to commence operations and required certain modifications to the TCA.<sup>7</sup> The CAISO filed the second revised TCA on February 20, 1998. By order dated March 30, 1998, the Commission conditionally accepted the TCA for filing to become effective on the CAISO operations date (March 31, 1998) and required further modifications to be made in a compliance filing within 60 days of the CAISO operations date.<sup>8</sup>

Since the CAISO operations date, additional amendments to the TCA have been made at various times to add new participating transmission owners and for other purposes. The most recent amendment to the TCA was filed in Docket No. ER20-692-000 and accepted by Commission order dated February 27, 2020.<sup>9</sup>

## II. Proposed TCA Changes

As explained in more detail below, the changes to add DesertLink as a new participating transmission owner are reflected in the TCA table of contents, section 4.4.10, signature pages, and appendix A for DesertLink. This filing also includes changes to TCA appendix A to reflect updates to entitlements by Pacific Gas and Electric Company ("PG&E"), SCE, the City of Vernon ("Vernon"), Startrans IO, L.L.C. ("Startrans") and GridLiance West LLC ("GLW"). In addition, PG&E and SCE have taken this opportunity to make updates to their encumbrances in their versions of TCA appendix B. SCE, Vernon, Data Path 15, LLC, Trans Bay Cable LLC ("TBC"), Startrans, GLW, and HZWT have similarly taken this opportunity to update their signature pages.

The CAISO also proposes to make changes to sections 2.1.2 and 4.1.1 of the TCA concerning the application procedures for new participating transmission owners. These proposed changes would exempt new participating transmission owners chosen as approved project sponsors through the competitive solicitation process from the new participating transmission owner application process set

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<sup>7</sup> *Pac. Gas & Elec. Co., et al.*, 81 FERC ¶ 61,122 (1997).

<sup>8</sup> *Cal. Indep. Sys. Operator Corp.*, 82 FERC ¶ 61,325, at 62,276-79 (1998). The CAISO submitted the required compliance filing on June 1, 1998.

<sup>9</sup> *Cal. Indep. Sys. Operator Corp.*, 170 FERC ¶ 61,155.

forth in section 4.3.1 of the CAISO tariff. The existing TCA provisions do not currently account for the process undertaken by new participating transmission owners that have been accepted through the competitive solicitation process. Without amendment, the provisions in sections 2.1.2 and 4.1.1 could otherwise be viewed as potentially conflicting with the exemption from the TCA application process provided in section 4.3.1.1 of the CAISO tariff.

The parties to the TCA either have agreed to the proposed changes to sections 2.1.2 and 4.1.1 of the TCA or raised no comments or objections, and the CAISO submits signature pages for all of the existing participating transmission owners.<sup>10</sup>

#### **A. Changes to Add DesertLink to the TCA**

The changes proposed in this filing to include DesertLink as a participating transmission owner include updates to the TCA table of contents, section 4.4.10, a signature page, and an appendix A to identify DesertLink's transmission facilities and entitlements. The transmission facilities will be under CAISO operational control and included in the CAISO transmission register upon energization of the Project.

Proposed new TCA section 4.4.10 addresses concerns about the possibility that DesertLink might recover all or a portion of its transmission revenue requirement for its high voltage transmission assets and then subsequently seek to withdraw those interests from CAISO operational control and operate them as non-Commission-jurisdictional transmission rights. These provisions are modeled on existing TCA sections 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8 and 4.4.9, which were incorporated into the TCA to address similar concerns relating to TBC, Startrans, Citizens Sunrise Transmission LLC, GLW, Citizens Sycamore-Penasquitos Transmission LLC, and HZWT when they proposed to become TCA parties. The proposed provisions of section 4.4.10 specify essentially the same rights and obligations for DesertLink as apply to those other current TCA parties. The provisions recognize the benefit conferred on DesertLink through its transmission revenue requirement and require that successors in interest become participating transmission owners under the TCA. For these reasons, the Commission should accept section 4.4.10 just as it

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<sup>10</sup> Section 26.11 of the TCA states that it can be amended, *inter alia*, by "mutual agreement of the Parties, subject to approval by FERC." For amendments to the generally applicable provisions of the TCA, the CAISO has implemented this "mutual agreement" standard by obtaining and filing signature pages from all current parties to the TCA. For amendments to party-specific provisions of the TCA, the CAISO believes this standard to be satisfied by obtaining and filing signature pages only from the impacted parties and the CAISO, with verbal acknowledgement of consent or non-objection from other current TCA parties. The CAISO is continuing to follow this practice with respect to this filing.

previously accepted similar sections for other current TCA parties as described above.<sup>11</sup>

### **B. Changes for Consistency with the Approved Project Sponsor Agreement and the CAISO Tariff**

The CAISO proposes to amend sections 2.1.2 and 4.1.1 of the TCA, which concern the application procedures for new participating transmission owners. These provisions do not currently account for the process undertaken by new participating transmission owners that have been accepted through the competitive solicitation process. Amendment is necessary because the provisions in sections 2.1.2 and 4.1.1 could otherwise be viewed as potentially conflicting with the exemption from the TCA application process provided in section 4.3.1.1 of the CAISO tariff. That tariff section states in relevant part that “[n]either the written declaration of intent nor the application requirement applies to Approved Project Sponsors”. An approved project sponsor does not need to submit a written declaration or an application to the CAISO to become a participating transmission owner because the competitive solicitation process and the *pro forma* APSA restate the policy set forth in section 4.3.1 of the CAISO tariff. Thus, new participating transmission owners that have gone through the competitive solicitation process and executed an APSA should not also be required to go through the application process as provided in sections 2.1.2 and 4.1.1 of the TCA. Such a requirement would be duplicative of and potentially inconsistent with section 4.3.1.1 of the CAISO tariff, would subject approved project sponsors to additional and unnecessary procedures, and would cause potential confusion and delay in the process of approved project sponsors becoming a new participating transmission owner.

In this case, the CAISO approved the Project through the competitive solicitation process and required DesertLink to execute an APSA in order to build the Project. The associated provisions of the CAISO tariff and the APSA require DesertLink to place under CAISO operational control its transmission lines and associated facilities that the CAISO directed DesertLink to build in accordance with the transmission planning process. DesertLink has effectively completed all of the applicable procedural requirements set forth in section 4.3.1 of the CAISO tariff. Therefore, there is no reason to require DesertLink, or any future approved project sponsor participating transmission owner, to separately fulfill the process set forth in sections 2.1.2 and 4.1.1 of the TCA as a condition to becoming a participating transmission owner.

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<sup>11</sup> See, e.g., *Cal. Indep. Sys. Operator Corp.*, 139 FERC ¶ 61,198, at PP 5, 17 (2012); *Cal. Indep. Sys. Operator Corp.*, 164 FERC ¶ 61,148, at PP 4, 8.

**C. Other Changes to Appendices A and B to the TCA**

Pursuant to a request from PG&E, the CAISO proposes changes to PG&E's appendix A and appendix B to the TCA to clarify the operation of the Midway-Wheeler Ridge 230 kV transmission line.

SCE requested the CAISO make the following changes to SCE's appendix A: (1) update the termination date and the capacity of the Victorville-Lugo Interconnection Agreement; (2) remove the Mutual Assistance Transmission Agreement due to SCE's withdrawal from that agreement; (3) clarify the termination date of the Amended and Restated Eldorado Co-Tenancy and Operation Agreement; (4) remove terminated service agreement no. 321; (5) remove the terminated District-Edison 1987 Service and Interchange Agreement; (6) remove the terminated Mead Interconnection Agreement; and (7) remove the terminated Agreement for Mitigation of Major Loop Flow.

Vernon requested that its appendix A be updated to reflect changes made in an amendment to the TCA that the Commission accepted in 2008 following Vernon's sale of some of its entitlements to Startrans.<sup>12</sup>

GLW requested updates to its appendix A to: (1) reflect the ownership of GLW's assets at interconnections it shares with a former participating transmission owner, Valley Electric Association; (2) describe the addition of the Sloan Canyon Switch Station; and (3) update the description of the renegotiated Mead Substation agreement.

The CAISO also proposes to make updates that SCE requested to its appendix B to: (1) remove the terminated 1995 San Juan Unit 3 Firm Transmission Service Agreement; (2) remove the terminated District-Edison 1987 Service and Interchange Agreement; (3) update the service agreement number and termination of the renegotiated Amended and Restated Eldorado System Co-Tenancy and Operating Agreement; (4) remove the terminated Amended and Restated Agreement for Additional NPC Connection to Mohave Project; (5) remove the terminated Hoover Firm Transmission Service Agreement; (6) remove the terminated Sylmar Firm Transmission Service Agreement; (7) remove the Hoover Firm Transmission Service Agreements (service agreement nos. 372 and 361); (8) add the Amended and Restated Eldorado System Co-Tenancy and Operating Agreement to reflect the rights of the co-owners; (9) update the termination date of the Hoover Firm Transmission Service Agreement (service agreement no. 309); (10) remove the terminated Firm Transmission Service Agreement; (11) reflect the removal of SCE from the Mutual Assistance Transmission Agreement; (12) remove the terminated Sylmar

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<sup>12</sup> See *Cal. Indep. Sys. Operator Corp.*, 124 FERC ¶ 61,004 (2008).

Firm Transmission Service Agreement; and (13) remove the Pasadena Firm Transmission Service Agreements (service agreement nos. 374 and 363).

### **III. Effective Date**

The CAISO requests that the Commission accept all of the proposed changes to the TCA contained in this filing effective as of April 30, 2020. The CAISO respectfully requests waiver of the Commission's 60-day notice requirement<sup>13</sup> in order to accommodate this effective date. Good cause exists for this waiver because April 30 is the anticipated date for the DesertLink facilities to be energized and concurrently placed under CAISO operational control. The actual effective date of the proposed changes to include DesertLink, as a new participating transmission owner, including DesertLink's appendix A, should coincide with the Project energization date. Moreover, no entity should be prejudiced by permitting a two day reduction in the notice period, as none of the parties to the TCA object to the changes proposed herein.

Although April 30 is the anticipated energization date of the Project, it is possible that the facilities could be energized on a later date. Accordingly, the CAISO instead respectfully requests that the Commission direct the CAISO to submit a compliance filing to revise the effective date of the TCA changes necessary to add DesertLink as a new participating transmission owner in the event that the Project energization date occurs on a date later than April 30.<sup>14</sup>

### **IV. Attachments**

In addition to this transmittal letter, the following documents support the instant filing:

Attachment A	Proposed clean version of the TCA
Attachment B	Red-lined document showing proposed changes to the TCA

### **V. Service**

Copies of this filing, including all attachments, have been served upon the Public Utilities Commission of the State of California, the California Energy Commission, the participating transmission owners, the approved project sponsors, including DesertLink, and all parties with effective Scheduling

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<sup>13</sup> See 18 C.F.R. § 35.11.

<sup>14</sup> The CAISO would make the changes related to the APSA, the CAISO tariff, and appendices A and B for PG&E, SCE, Vernon, and GLW effective on April 30, 2020 in any event, assuming the Commission accepts the proposed changes effective on that date.

Coordinator Agreements under the CAISO tariff. In addition, the CAISO has posted the filing and all attachments on the CAISO website.

## **VI. Correspondence**

The CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

Roger E. Collanton  
General Counsel

John C. Anders\*  
Assistant General Counsel –  
Legal

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\* Individuals designated for  
service pursuant to Rule  
203(b)(3), 18 C.F.R. §  
385.203(b)(3)



**VII. Conclusion**

For the reasons set forth above, the CAISO respectfully requests that the Commission accept this filing and permit the proposed TCA changes to be effective as requested herein.

Respectfully submitted,

/s/ John C. Anders  
John C. Anders

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**Attachment A – Clean Tariff**  
**Tariff Revisions to Transmission Control Agreement**  
**California Independent System Operator Corporation**  
**February 28, 2020**

AMENDED AND RESTATED TRANSMISSION CONTROL  
AGREEMENT

Among  
The California Independent System Operator Corporation  
and  
Transmission Owners

## TABLE OF CONTENTS

### Section

1. DEFINITIONS .....	
2. PARTICIPATION IN THIS AGREEMENT .....	
3. EFFECTIVE DATE, TERM AND WITHDRAWAL.....	
4. TRANSFER OF OPERATIONAL CONTROL.....	
5. INDEPENDENT SYSTEM OPERATOR.....	
6. PARTICIPATING TRANSMISSION OWNERS .....	
7. SYSTEM OPERATION AND MAINTENANCE.....	
8. CRITICAL PROTECTIVE SYSTEMS THAT SUPPORT CAISO CONTROLLED GRID OPERATIONS .....	
9. SYSTEM EMERGENCIES.....	
10. CAISO CONTROLLED GRID ACCESS AND INTERCONNECTION.....	
11. EXPANSION OF TRANSMISSION FACILITIES .....	
12. USE AND ADMINISTRATION OF THE CAISO CONTROLLED GRID .....	
13. EXISTING AGREEMENTS .....	
14. MAINTENANCE STANDARDS.....	
15. DISPUTE RESOLUTION .....	
16. BILLING AND PAYMENT.....	
17. RECORDS AND INFORMATION SHARING .....	
18. GRANTING RIGHTS-OF-ACCESS TO FACILITIES.....	
19. [INTENTIONALLY LEFT BLANK].....	
20. TRAINING .....	
21. OTHER SUPPORT SYSTEMS REQUIREMENTS .....	
22. LIABILITY.....	
23. UNCONTROLLABLE FORCES .....	

24. ASSIGNMENTS AND CONVEYANCES .....	
25. CAISO ENFORCEMENT .....	
26. MISCELLANEOUS.....	
27. SIGNATURE PAGE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION.....	
28. SIGNATURE PAGE PACIFIC GAS AND ELECTRIC COMPANY .....	
29. SIGNATURE PAGE SAN DIEGO GAS & ELECTRIC COMPANY .....	
30. SIGNATURE PAGE SOUTHERN CALIFORNIA EDISON COMPANY .....	
31. SIGNATURE PAGE CITY OF VERNON.....	
32. SIGNATURE PAGE CITY OF ANAHEIM.....	
33. SIGNATURE PAGE CITY OF AZUSA .....	
34. SIGNATURE PAGE CITY OF BANNING.....	
35. SIGNATURE PAGE CITY OF RIVERSIDE .....	
36. SIGNATURE PAGE OF DATC PATH 15, LLC.....	
37. SIGNATURE PAGE OF WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA REGION.....	
38. SIGNATURE PAGE OF CITY OF PASADENA.....	
39. SIGNATURE PAGE OF TRANS BAY CABLE LLC.....	
40. SIGNATURE PAGE OF STARTRANS IO, L.L.C. ....	
41. SIGNATURE PAGE OF CITIZENS SUNRISE TRANSMISSION LLC .....	
42. SIGNATURE PAGE OF CITY OF COLTON .....	
43. SIGNATURE PAGE OF VALLEY ELECTRIC ASSOCIATION, INC.....	
44. SIGNATURE PAGE OF GRIDLIANCE WEST LLC	
45. SIGNATURE PAGE OF CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC	
46. SIGNATURE PAGE HORIZON WEST TRANSMISSION, LLC	

47. SIGNATURE PAGE OF DESERTLINK, LLC

## APPENDICES A – FACILITIES AND ENTITLEMENTS

PG&E Appendix A and Supplement

Edison Appendix A and Supplement

SDG&E Appendix A and Supplement

Vernon Appendix A

Anaheim Appendix A

Azusa Appendix A

Banning Appendix A

Riverside Appendix A

DATC Path 15, LLC Appendix A

Western Area Power Administration, Sierra Nevada Region Appendix A

Pasadena Appendix A

Trans Bay Cable LLC Appendix A

Startrans IO, L.L.C. Appendix A

Citizens Sunrise Transmission LLC Appendix A

Colton Appendix A

Valley Electric Association, Inc. Appendix A

GridLiance West LLC Appendix A

Citizens Sycamore-Penasquitos Transmission LLC Appendix A

Horizon West Transmission, LLC Appendix A

DesertLink, LLC Appendix A

## APPENDICES B - ENCUMBRANCES

PG&E Appendix B

Edison Appendix B

SDG&E Appendix B

Citizens Sunrise Transmission LLC Appendix B

Citizens Sycamore-Penasquitos Transmission LLC Appendix B

## APPENDIX C - CAISO MAINTENANCE STANDARDS

## APPENDIX D - MASTER DEFINITIONS SUPPLEMENT

## APPENDICES E - NUCLEAR PROTOCOLS

Diablo Canyon Appendix E

SONGS Appendix E

**AMENDED AND RESTATED TRANSMISSION CONTROL AGREEMENT**  
**Among**  
**The California Independent System Operator Corporation**  
**and**  
**Transmission Owners**

The Parties to this amended and restated Transmission Control Agreement (“Agreement”) originally effective as of March 31, 1998, are

(1) The California Independent System Operator Corporation, a California nonprofit public benefit corporation (“CAISO”), which expression includes its permitted successors); and

(2) Entities owning or holding Entitlements to transmission lines and associated facilities who subscribe to this Agreement (“Transmission Owners” or “TOs”, which expression includes their permitted successors and assigns).

This Agreement is made with reference to the following facts:

(i) The Legislature of the State of California enacted Assembly Bill 1890 (“AB 1890”) that addressed the restructuring of the California electric industry in order to increase competition in the provision of electricity.

(ii) AB 1890 provides the means for transforming the regulatory framework of California's electric industry in ways to meet the objectives of the law.

(iii) In order to create a new market structure, AB 1890 establishes an independent system operator with centralized control of a state-wide transmission grid charged with ensuring the efficient use and reliable operation of the transmission system.

(iv) AB 1890 states that it is the intention of the California Legislature that California transmission owners commit control of their transmission facilities to the



CAISO with the assurances provided in the law that the financial interests of such TOs will be protected.

(v) Each TO: (1) owns, operates, and maintains transmission lines and associated facilities; and/or (2) has Entitlements to use certain transmission lines and associated facilities, with responsibilities attached thereto.

(vi) Each TO, upon satisfying the criteria for becoming a Participating TO under Section 2.2 of this Agreement, will transfer to the CAISO Operational Control of certain transmission lines and associated facilities and/or Entitlements, which are to be incorporated by the CAISO into the CAISO Controlled Grid for the purpose of allowing them to be controlled as part of an integrated Balancing Authority Area.

(vii) Each Participating TO will continue to own and maintain its transmission lines and associated facilities, if any, and will retain its Entitlements, if any, and associated responsibilities.

(viii) The CAISO intends to provide to each Participating TO access to the CAISO Controlled Grid while exercising its Operational Control for the benefit of all Market Participants by providing non-discriminatory transmission access, Congestion Management, grid security, and Balancing Authority Area services.

(ix) Pacific Gas and Electric Company ("PG&E"), San Diego Gas & Electric Company ("SDG&E"), and Southern California Edison Company ("Edison") (each a Participating TO) are entering into this agreement transferring Operational Control of their transmission facilities in reliance upon California Public Utilities Code Sections 367, 368, 375, 376, and 379 enacted as part of AB 1890 which contain assurances and schedules with respect to recovery of transition costs.

(x) The Parties desire to enter into this Agreement in order to establish the terms and conditions under which TOs will become Participating TOs and how the CAISO and each Participating TO will discharge their respective duties and responsibilities.

In consideration of the above and the covenants and mutual agreements set forth herein, and intending to be legally bound, the Parties agree as follows:

## **1. DEFINITIONS**

Capitalized terms in this Agreement have the meaning set out in the Master Definitions Supplement set out in Appendix D. No subsequent amendment to the Master Definitions Supplement shall affect the interpretation of this Agreement unless made pursuant to Section 26.11.

## **2. PARTICIPATION IN THIS AGREEMENT**

### **2.1. Transmission Owners:**

#### **2.1.1 Original Participating TOs.**

The following entities are subscribing to this Agreement as of the date hereof for the purpose of applying to become Participating TOs in accordance with Section 2.2:

- i. Pacific Gas and Electric Company;
- ii. San Diego Gas & Electric Company; and
- iii. Southern California Edison Company.

#### **2.1.2 Right to Become a Party.**

After this Agreement takes effect, any other owner of or holder of Entitlements to transmission lines and facilities connected to the CAISO Controlled Grid may apply to the CAISO under Section 2.2 to become a Participating TO and become a Party to this

Agreement, except Approved Project Sponsors need not do so. In accordance with Section 4.3.1 of the CAISO Tariff neither the written declaration nor the application requirement applies to Approved Project Sponsors.

## **2.2. Applications for Participating TO Status; Eligibility Criteria.**

**2.2.1 Application Procedures.** All applications under this Section 2.2 shall be made in accordance with the procedures adopted by the CAISO from time to time and shall be accompanied by:

- (i) a description of the transmission lines and associated facilities that the applicant intends to place under the CAISO's Operational Control;
- (ii) in relation to any such transmission lines and associated facilities that the applicant does not own, a copy of each document setting out the applicant's Entitlements to such lines and facilities;
- (iii) a statement of any Encumbrances to which any of the transmission lines and associated facilities to be placed under the CAISO's Operational Control are subject, together with any documents creating such Encumbrances and any dispatch protocols to give effect to them, as the CAISO may require;
- (iv) a statement that the applicant intends to place under the CAISO's Operational Control all of the transmission lines and associated facilities referred to in Section 4.1 that it owns or, subject to the treatment of Existing Contracts under Section 16 of the CAISO Tariff, to which it has Entitlements and its reasons for believing that certain lines and facilities do not form part of the applicant's transmission network pursuant to Sections 4.1.1.i and 4.1.1.ii;
- (v) a statement of any Local Reliability Criteria to be included as part of

the Applicable Reliability Criteria;

(vi) a description of the applicant's current maintenance practices;

(vii) a list of any temporary waivers that the applicant wishes the CAISO to grant under Section 5.1.6 and the period for which it requires them;

(viii) a copy of the applicant's proposed TO Tariff, if any, must be filed;

(ix) address and contact names to which notices under this Agreement may be sent pursuant to Section 26.1;

(x) any other information that the CAISO may reasonably require in order to evaluate the applicant's ability to comply with its obligations as a Participating TO; and

(xi) details of the applicant's intent to establish a settlement account.

**2.2.2 Notice of Application.** The CAISO shall require the applicant to deliver to each existing Participating TO a copy of each application under this Section 2.2 and each amendment, together with all supporting documentation, and to provide the public with reasonable details of its application and each amendment through the CAISO Website. The CAISO shall not grant an application for Participating TO status until it has given each other Party and the public sixty (60) days to comment on the original application and thirty (30) days to comment on each amendment.

**2.2.3 Determination of Eligibility.** Subject to Section 2.2.4, the CAISO shall permit a Party who has submitted an application under this Section 2.2 to become a Participating TO if, after considering all comments received from other Parties and third parties, the CAISO determines that:

i. the applicant's transmission lines and associated facilities, including

Entitlements, that are to be placed under the CAISO's Operational Control can be incorporated into the CAISO Controlled Grid without any material adverse impact on its reliability;

ii. incorporating such transmission lines and associated facilities and Entitlements into the CAISO Controlled Grid will not put the CAISO in breach of Applicable Reliability Criteria and its obligations as a member of WECC;

iii. objections by the CAISO under Section 4.1.3 shall have been withdrawn or determined by the CAISO Governing Board to be invalid;

iv. all applicable regulatory approvals of the applicant's TO Tariff have been obtained, which approvals shall specify that the effective date of the TO Tariff is the date that the CAISO assumes Operational Control of the applicant's transmission lines and associated facilities and Entitlements; and

v. the applicant is capable of performing its obligations under this Agreement.

Objections under Section 4.1.3 relating solely to a portion of a TO's facilities or Entitlements shall not prevent the TO from becoming a Participating TO while the objections are being resolved.

**2.2.4 Challenges to Eligibility.** The CAISO shall permit a Party to become a Participating TO pending the outcome of CAISO ADR Procedures challenging whether or not the applicant satisfies the criteria set out in Section 2.2.3 if the CAISO determines that the applicant satisfies those criteria unless otherwise ordered by FERC.

**2.2.5 Becoming a Participating TO.** A Party whose application under

this Section 2.2 has been accepted shall become a Participating TO with effect from the date when its TO Tariff takes effect and the CAISO assumes Operational Control of its transmission lines and associated facilities and Entitlements, either as a result of acceptance by FERC or by action of a Local Regulatory Authority, whichever is appropriate. The TO Tariff of each Participating TO shall be posted on the CAISO Website.

**2.2.6 Procedures and Charges.** The CAISO shall adopt fair and non-discriminatory procedures for processing applications under this Section 2.2. The CAISO shall publish its procedures for processing applications under this Section 2.2 on the CAISO Website and shall furnish a copy of such procedures to FERC. If the burden of processing applications under this Section 2.2 becomes significant, in the CAISO's judgment, the CAISO may establish an application fee. Applicants shall pay any application fee established by the CAISO as filed with and accepted by FERC for processing their applications. Nothing herein waives the right of any Party to object to or challenge the amount of the application fee established by the CAISO.

### **2.3. Tax Exempt Debt.**

**2.3.1 Municipal Tax Exempt TOs.** In the event a Municipal Tax Exempt TO executes this Agreement in reliance upon this Section 2.3, it shall provide written notice thereof to the CAISO. Notwithstanding any other provision to the contrary herein, except for this Section 2.3, no other provisions of this Agreement shall become effective with respect to a Municipal Tax Exempt TO until such Municipal Tax Exempt TO's nationally recognized bond counsel renders an opinion, generally of the type regarded as unqualified in the bond market, that participation in the CAISO Controlled Grid in

accordance with this Agreement will not adversely affect the tax-exempt status of any Municipal Tax Exempt Debt issued by, or for the benefit of, the Municipal Tax Exempt TO. A Municipal Tax Exempt TO shall promptly seek, in good faith, to obtain such unqualified opinion from its bond counsel at the earliest opportunity. Upon receipt of such unqualified opinion, a Municipal Tax Exempt TO shall provide a copy of the opinion to the CAISO and all other provisions of this Agreement shall become effective with respect to such Municipal Tax Exempt TO as of the date thereof. If the Municipal Tax Exempt TO is unable to provide to the CAISO such unqualified opinion within one year of the execution of this Agreement by the Municipal Tax Exempt TO, without further act, deed, or notice this Agreement shall be deemed to be void *ab initio* with respect to such Municipal Tax Exempt TO.

**2.3.2 Acceptable Encumbrances.** A Transmission Owner that has issued Local Furnishing Bonds may become a Participating TO under Section 2.2 even though covenants or restrictions applicable to the Transmission Owner's Local Furnishing Bonds require the CAISO's Operational Control to be exercised subject to Encumbrances, provided that such Encumbrances do not materially impair the CAISO's ability to meet its obligations under the CAISO Tariff or the Transmission Owner's ability to comply with the TO Tariff.

**2.3.3 Savings Clause.** Nothing in this Agreement shall compel any Participating TO or Municipal Tax Exempt TO which has issued Tax Exempt Debt to violate restrictions applicable to transmission facilities financed with Tax Exempt Debt or contractual restrictions and covenants regarding use of transmission facilities.

### **3. EFFECTIVE DATE, TERM AND WITHDRAWAL**

### **3.1. Effective Date.**

This Agreement was originally effective as of March 31, 1998 and is amended and restated as of the date accepted for filing and made effective by FERC.

### **3.2. Term.**

This Agreement shall remain in full force and effect until terminated: (1) by operation of law or (2) the withdrawal of all Participating TOs pursuant to Section 3.3 or Section 4.4.1.

### **3.3. Withdrawal.**

**3.3.1 Notice.** Subject to Section 3.3.3, any Participating TO may withdraw from this Agreement on two years' prior written notice to the other Parties. In addition, Western Area Power Administration ("Western") may be required to withdraw as a Participating TO pursuant to Section 26.14.1.

**3.3.2 Sale.** Subject to Section 3.3.3, any Participating TO may withdraw from this Agreement if that Participating TO sells or otherwise disposes of all of the transmission facilities and Entitlements that the Participating TO placed under the CAISO's Operational Control, subject to the requirements of Section 4.4.

**3.3.3 Conditions of Withdrawal.** Any withdrawal from this Agreement pursuant to Section 3.3.1 or Section 3.3.2 shall be contingent upon the withdrawing party obtaining any necessary regulatory approvals for such withdrawal. The withdrawing Participating TO shall make a good faith effort to ensure that its withdrawal does not unduly impair the CAISO's ability to meet its Operational Control responsibilities as to the facilities remaining within the CAISO Controlled Grid.

**3.3.4 Publication of Withdrawal Notices.** The CAISO shall inform the



public through the CAISO Website of all notices received under this Section 3.3.

### **3.4 Withdrawal Due to Adverse Tax Action.**

**3.4.1 Right to Withdraw Due To Adverse Tax Action.** Subject to Sections 3.4.2 through 3.4.4, in the event an Adverse Tax Action Determination identifies an Impending Adverse Tax Action or an Actual Adverse Tax Action, a Tax Exempt Participating TO may exercise its right to Withdraw for Tax Reasons. The right to Withdraw for Tax Reasons, in accordance with the provisions of this Section 3.4, shall not be subject to any approval by the CAISO, the FERC, or any other Party.

#### **3.4.2 Adverse Tax Action Determination.**

**3.4.2.1** A Tax Exempt Participating TO shall provide to all other Parties written notice of an Adverse Tax Action Determination and a copy of the Tax Exempt Participating TO's (or its joint action agency's) nationally recognized bond counsel's opinion or an IRS determination supporting such Adverse Tax Action Determination. Such written notice shall be provided promptly under the circumstances, but in no event more than 15 Business Days from the date of receipt of such documents.

**3.4.2.2** The Adverse Tax Action Determination shall include (i) the actual or projected date of the Actual Adverse Tax Action and (ii) a description of the transmission lines, associated facilities, or Entitlements that were financed in whole or in part with proceeds of the Tax Exempt Debt that is the subject of such Adverse Tax Action Determination. A Tax Exempt Participating TO shall promptly notify all other Parties in writing in the event the actual or projected date of the Actual Adverse Tax Action changes. The Tax Exempt Participating TO's determination of the actual or

projected date of the Actual Adverse Tax Action shall be binding upon all Parties.

3.4.2.3 Any transmission lines, associated facilities, or Entitlements of the Tax Exempt Participating TO not identified in both the Adverse Tax Action Determination and the written notice of Withdrawal for Tax Reasons shall remain under the CAISO's Operational Control.

**3.4.3 Withdrawal Due to Impending Adverse Tax Action.** A Tax Exempt Participating TO may Withdraw for Tax Reasons prior to an Actual Adverse Tax Action if such Tax Exempt Participating TO provides prior written notice of its Withdrawal for Tax Reasons to all other Parties as required in Sections 3.4.3(i) through 3.4.3(iv).

i. In the event the date of the Adverse Tax Action Determination is seven months or more from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least six months in advance of the projected date of the Actual Adverse Tax Action.

ii. In the event the date of the Adverse Tax Action Determination is less than seven months but more than two months from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least 30 days in advance of the projected date of the Actual Adverse Tax Action.

iii. In the event the date of the Adverse Tax Action Determination is between two months and one month from the projected date of the Actual Adverse Tax

Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least 15 days in advance of the projected date of the Actual Adverse Tax Action.

iv. In the event the date of the Adverse Tax Action Determination is less than one month from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO shall have up to 15 days following the date of the Adverse Tax Action Determination to exercise its right to Withdraw for Tax Reasons, and if so exercised shall provide no later than one day thereafter written notice of its Withdrawal for Tax Reasons to all other Parties.

v. With respect to Sections 3.4.3(i) through 3.4.3(iii), upon receipt by the CAISO of a notice to Withdraw for Tax Reasons, the CAISO shall promptly begin working with the applicable Tax Exempt Participating TO to relinquish the CAISO's Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO, provided that such Operational Control must be relinquished by the CAISO no later than five days prior to the projected date of the Actual Adverse Tax Action. With respect to Section 3.4.3(iv), (1) if the notice of Withdrawal for Tax Reasons is received by the CAISO at least six days prior to the projected date of the Actual Adverse Tax Action, Operational Control over the affected transmission lines, associated facilities, or Entitlements must be relinquished by the CAISO to such Tax Exempt Participating TO no later than five days prior to the projected date of the Actual Adverse Tax Action, or (2) if the notice of Withdrawal for Tax Reasons is received by the CAISO any time after six days prior to the projected

date of the Actual Adverse Tax Action, the CAISO shall on the next day relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO.

**3.4.4 Withdrawal Due to Actual Adverse Tax Action.** In addition to the foregoing, upon the occurrence of an Actual Adverse Tax Action, the affected Tax Exempt Participating TO may immediately Withdraw for Tax Reasons. The Tax Exempt Participating TO shall have up to 15 days from the date of the Adverse Tax Action Determination with respect to an Actual Adverse Tax Action to exercise its right to Withdraw for Tax Reasons. If the Tax Exempt Participating TO determines to exercise its right to Withdraw for Tax Reasons, upon receipt of the notice of Withdrawal for Tax Reasons, the CAISO shall immediately relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO.

**3.4.5 Alternate Date To Relinquish Operational Control.** Notwithstanding anything to the contrary in this Section 3.4, the CAISO and a Tax Exempt Participating TO who has provided a notice of Withdrawal for Tax Reasons may mutually agree in writing to an alternate date that the CAISO shall relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO. If the CAISO or a Tax Exempt Participating TO who has provided a notice of Withdrawal for Tax Reasons desires an alternate date from the date provided in Sections 3.4.3(i) through 3.4.3(v)(1) for the CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO, such Party

promptly shall give written notice to the other, and each agrees to negotiate in good faith, for a reasonable period of time, to determine whether or not they can reach mutual agreement for such an alternate date; provided, however, such good faith negotiations are not required to be conducted during the five days preceding the date provided in Sections 3.4.3(i) through 3.4.3(v)(1) for the CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements.

**3.4.6 Procedures to Relinquish Operational Control.** The CAISO shall implement a procedure jointly developed by all Parties to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements as provided in this Section 3.4.

**3.4.7 Right to Rescind Notice of Withdrawal for Tax Reasons.** At any time up to two days prior to the CAISO's relinquishment to the Tax Exempt Participating TO of Operational Control over the affected transmission lines, associated facilities, or Entitlements, a Tax Exempt Participating TO may rescind its notice of Withdrawal for Tax Reasons by providing written notice thereof to all other Parties, and such notice shall be effective upon receipt by the CAISO.

**3.4.8 Amendment of Agreement.** Following the relinquishment by the CAISO of Operational Control of any affected transmission lines, associated facilities, or Entitlements in accordance with this Section 3.4, the CAISO promptly shall prepare the necessary changes to this Agreement and to the CAISO Tariff (if any), make a filing with FERC pursuant to Section 205 of the FPA, and take whatever other regulatory action, if any, that is required to properly reflect the Withdrawal for Tax Reasons.

**3.4.9 Provision of Information by CAISO.** To assist Tax Exempt

Participating TOs in identifying at the earliest opportunity Impending Adverse Tax Actions or Actual Adverse Tax Actions, the CAISO promptly shall provide to Participating TOs any non-confidential information regarding any CAISO plans, actions, or operating protocols that the CAISO believes might adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO.

3.4.10 **Publication of Notices.** The CAISO shall inform the public through the CAISO Website of all notices received under this Section 3.4.

#### **4. TRANSFER OF OPERATIONAL CONTROL**

##### **4.1. TO Facilities and Rights Provided to the CAISO.**

4.1.1 **CAISO Controlled Grid.** Subject to Section 4.1.2 and the treatment of Existing Contracts under Section 16 of the CAISO Tariff and subject to the applicable interconnection, integration, exchange, operating, joint ownership, and joint participation agreements, each Participating TO shall place under the CAISO's Operational Control the transmission lines and associated facilities forming part of the transmission network that it owns or to which it has Entitlements, except that Western shall only be required to place under the CAISO's Operational Control the transmission lines and associated facilities that it owns or to which it has Entitlements as set forth in Appendix A (Western). The Original Participating TOs identified in Section 2.1.1 shall be deemed to have placed such transmission lines and associated facilities and Entitlements under the CAISO's Operational Control as of the date the CPUC or its delegate declares to be the start date for direct access pursuant to CPUC Decisions 97-12-131 and 98-01-053. An applicant to become a Participating TO shall provide the

CAISO notice of the transmission lines and associated facilities that it owns or to which it has Entitlements in its application pursuant to Section 2. An Approved Project Sponsor that is becoming a Participating TO shall place under the CAISO's Operational Control such transmission lines and associated facilities that the CAISO directed the Approved Project Sponsor to build in accordance with the transmission planning process. An existing Participating TO shall provide the CAISO notice of any new transmission lines, associated facilities, or Entitlements that it proposes to make part of its transmission network and to turn over to the CAISO's Operational Control either (i) through the transmission planning process established pursuant to Sections 24 and 25 of the CAISO Tariff or (ii) by written notice pursuant to this Agreement. Any transmission lines or associated facilities or Entitlements that the CAISO determines not to be necessary to fulfill the CAISO's responsibilities under the CAISO Tariff in accordance with Section 4.1.3 of this Agreement shall not be treated as part of a Participating TO's network for the purposes of this Section 4.1. The CAISO shall provide an applicant to become a Participating TO notice of its determination not to accept a transmission line, associated facility, or Entitlement as part of a Participating TO's network for the purposes of this Section 4.1 in conjunction with its acceptance or rejection of that application. The CAISO shall provide an existing Participating TO notice of its determination whether or not to accept a transmission line, associated facility, or Entitlement as part of a Participating TO's network for the purposes of this Section 4.1 either (i) as part of the transmission planning process established pursuant to Sections 24 and 25 of the CAISO Tariff or (ii) by written notice in response to a written notice provided by the Participating TO. The CAISO shall recognize the rights

and obligations of Participating TOs that are owners of or holders of Entitlements to jointly-owned facilities which are placed under the CAISO's Operational Control by one or more but not all of the joint owners or rights holders. The CAISO shall, in exercise of Operational Control transferred to it, ensure that the operating obligations, as specified by the Participating TO pursuant to Section 6.4.2 of this Agreement, for the contracts referenced in Appendix B are performed. Any other terms of such contracts shall not be the responsibility of the CAISO. The following transmission lines and associated facilities, and Entitlements thereto, are also deemed not to form part of a Participating TO's transmission network:

- i. directly assignable radial lines and associated facilities

interconnecting generation (other than those facilities which may be identified from time to time interconnecting CAISO Controlled Grid Critical Protective Systems or Generating Units of Generators contracted to provide Black Start or Voltage Support) and

- ii. lines and associated facilities classified as "local distribution"

facilities in accordance with FERC's applicable technical and functional test and other facilities excluded consistent with FERC established criteria for determining facilities subject to CAISO Operational Control.

#### **4.1.2 Transfer of Facilities by Local Furnishing Participating TOs.**

This Section 4.1.2 is applicable only to the enlargement of transmission capacity by Local Furnishing Participating TOs. The CAISO shall not require a Local Furnishing Participating TO to enlarge its transmission capacity except pursuant to an order under Section 211 of the FPA directing the Local Furnishing Participating TO to enlarge its



transmission capacity as necessary to provide transmission service as determined pursuant to Section 24.16 of the CAISO Tariff. If an application under Section 211 of the FPA is filed by an eligible entity (or the CAISO acting as its agent), the Local Furnishing Participating TO shall thereafter, within 10 days of receiving a copy of the Section 211 application, waive its right to a request for service under Section 213(a) of the FPA and to the issuance of a proposed order under Section 212(c) of the FPA. Upon receipt of a final order from FERC under Section 211 of the FPA that is no longer subject to rehearing or appeal, such Local Furnishing Participating TO shall enlarge its transmission capacity to comply with that FERC order and shall transfer to the CAISO Operational Control over its expanded transmission facilities in accordance with this Section 4.

**4.1.3 Refusal of Facilities.** The CAISO may refuse to exercise Operational Control over certain of an applicant's or a Participating TO's transmission lines, associated facilities, or Entitlements over which the CAISO does not currently exercise Operational Control if it determines that any one or more of the following conditions exist and it provides notice of its refusal in accordance with Section 4.1.1:

- i. The transmission lines, associated facilities, or Entitlements do not meet or do not permit the CAISO to meet the Applicable Reliability Criteria and the applicant or Participating TO fails to give the CAISO a written undertaking to take all good faith actions necessary to ensure that those transmission lines, facilities, or Entitlements, as the case may be, meet the Applicable Reliability Criteria within a reasonable period from the date of the applicant's application under Section 2.2 or the Participating TO's notice to the CAISO of its intent to turn over Operational Control as

determined by the CAISO.

ii. The transmission lines, associated facilities, or Entitlements are subject to Encumbrances that unduly impair the CAISO's ability to exercise its Operational Control over them in accordance with the CAISO Tariff and the applicant or Participating TO fails to give the CAISO a written undertaking to negotiate in good faith to the extent permitted by the applicable contract the removal of the Encumbrances identified by the CAISO which preclude it from using unused capacity on the relevant transmission lines. If the applicant or Participating TO provides such written undertaking but is unable to negotiate the removal of such Encumbrances to the extent required by the CAISO, the ADR Procedures shall be used to resolve any disputes between the CAISO and the applicant or Participating TO. For this purpose, Non-Participating TOs may utilize CAISO ADR Procedures on a voluntary basis.

iii. The transmission lines, associated facilities, and Entitlements are located in a Balancing Authority Area outside of California, are operated under the direction of another Balancing Authority Area or independent system operator, and cannot be integrated into the CAISO Controlled Grid due to technical considerations.

If the CAISO refuses to accept any of an applicant's transmission lines, associated facilities, or Entitlements, then that applicant shall have the right to notify the CAISO within a reasonable period from being notified of such refusal that it will not proceed with its application under Section 2.2.

**4.1.4 Facilities Initially Placed Under the CAISO's Operational Control.** The transmission lines, associated facilities, and Entitlements which each Participating TO places under the CAISO's Operational Control on the date that this

Agreement takes effect with respect to it shall be identified in Appendix A.

4.1.5 **Warranties.** Each Participating TO warrants that as of the date on which it becomes a Participating TO pursuant to Section 2.2.5:

i. the transmission lines and associated facilities that it is placing under the CAISO's Operational Control and the Entitlements that it is making available for the CAISO's use are correctly identified in Appendix A (as amended in accordance with this Agreement); that the Participating TO has all of the necessary rights and authority to place such transmission lines and associated facilities under the CAISO's Operational Control subject to the terms and conditions of all agreements governing the use of such transmission lines and associated facilities; and that the Participating TO has the necessary rights and authority to transfer the use of such Entitlements to the CAISO subject to the terms and conditions of all agreements governing the use of such Entitlements;

ii. the transmission lines and associated facilities and Entitlements that it is placing under the CAISO's Operational Control are not subject to any Encumbrances except as disclosed in Appendix B (as amended in accordance with this Agreement);

iii. the transmission lines and associated facilities that it is placing under the CAISO's Operational Control meet the Applicable Reliability Criteria for the relevant Participating TO except as disclosed in writing to the CAISO. As to the Local Reliability Criteria component of the Applicable Reliability Criteria, each Participating TO has provided the CAISO with such information required to identify such Participating TO's Local Reliability Criteria.

## **4.2. The CAISO Register.**

### **4.2.1 Register of Facilities Subject to CAISO Operational Control.**

The CAISO shall maintain a register (the “CAISO Register”) of all transmission lines, associated facilities, and Entitlements that are for the time being subject to the CAISO’s Operational Control. The CAISO Register shall also indicate those facilities over which the CAISO has asserted temporary control pursuant to Section 4.5.2 and whether or not the CAISO has commenced proceedings under Section 203 of the FPA in relation to them.

**4.2.2 Contents.** The CAISO Register shall disclose in relation to each transmission line and associated facility subject to the CAISO’s Operational Control:

- i. the identity of the Participating TO responsible for its operation and maintenance and its owner(s) (if other than the Participating TO);
- ii. the date on which the CAISO assumed Operational Control over it and, in the case of transmission lines and associated facilities over which it has asserted temporary Operational Control, the date on which it relinquished Operational Control over it;
- iii. the date of any change in the identity of the Participating TO responsible for its operation and maintenance or in the identity of its owner; and
- iv. its applicable ratings.

**4.2.3 Updates.** In order to keep the CAISO Register current, each Participating TO shall submit a CAISO Register change for each addition or removal of a transmission line or associated facility or Entitlement from the CAISO’s Operational Control or any change in a transmission line or associated facility’s ownership, rating, or

the identity of the responsible Participating TO. The CAISO shall review each CAISO Register change for accuracy and to assure that all requirements of this Agreement have been met. If the CAISO determines that a submitted CAISO Register change is accurate and meets all the requirements of this Agreement, the CAISO will modify the CAISO Register to incorporate such change by the end of the next Business Day. The CAISO may determine that a CAISO Register change cannot be implemented due to (a) lack of clarity or necessary information, or (b) conflict between the revised rating and applicable contractual, regulatory, or legal requirements, including operating considerations, or other conflict with the terms of this Agreement. In such event, the CAISO promptly will communicate to the Participating TO the reason that the CAISO cannot implement the CAISO Register change and will work with the Participating TO in an attempt to resolve promptly the concerns leading to the CAISO's refusal to implement a CAISO Register change. The CAISO consent required with respect to a sale, assignment, release, transfer, or other disposition of transmission lines, associated facilities, or Entitlements as provided in Section 4.4 hereof shall not be withheld by the CAISO as a result of a CAISO determination that a CAISO Register change cannot be implemented pursuant to this Section 4.2.3.

**4.2.4 Publication.** The CAISO shall make the CAISO Register information for a given Participating TO available to that same Participating TO on a secure CAISO-maintained portion of the CAISO Website. The CAISO will provide a copy of the CAISO Register information to other entities that can demonstrate a legitimate need for the information in accordance with screening procedures posted on the CAISO Website and filed with FERC.

**4.2.5 Duty to Maintain Records.** The CAISO shall maintain the CAISO Register in a form that conveniently shows the entities responsible for operating, maintaining, and controlling the transmission lines and associated facilities forming part of the CAISO Controlled Grid at any time and the periods during which they were so responsible.

**4.3. Rights and Responsibilities of Participating TOs.**

Each Participating TO shall retain its benefits of ownership and its rights and responsibilities in relation to the transmission lines and associated facilities and Entitlements placed under the CAISO's Operational Control except as otherwise provided in this Agreement. Participating TOs shall be responsible for operating and maintaining those lines and facilities in accordance with this Agreement, the Applicable Reliability Criteria, the Operating Procedures, and other criteria, CAISO Protocols, procedures, and directions of the CAISO issued or given in accordance with this Agreement. Rights and responsibilities that have not been transferred to the CAISO as operating obligations under Section 4.1.1 of this Agreement remain with the Participating TO. This Agreement shall have no effect on the remedies for breach or non-performance available to parties to existing interconnection, integration, exchange, operating, joint ownership, and joint participation agreements. Notwithstanding the foregoing or any other provision in this Agreement, the Parties recognize that a Participating TO under this Agreement may have entered into a Reliability Standards Agreement ("RSA"), or similar agreement, with the CAISO that allocates responsibility and delegates tasks for compliance with NERC or WECC Reliability Standard requirements, or how those requirements will be implemented. In the event that the

CAISO and a Participating TO have a dispute regarding a Participating TO's satisfaction of or compliance with any obligations or responsibilities under this Agreement, and either Party asserts that it has executed an RSA or similar agreement with the other Party that sets forth inconsistent or conflicting obligations or responsibilities, then the CAISO and that Participating TO shall engage in good faith negotiations to resolve the alleged inconsistent or conflicting obligations or responsibilities.

#### **4.4. Sale or Disposal of Transmission Facilities or Entitlements.**

##### **4.4.1 Sale or Disposition.**

4.4.1.1 No Participating TO shall sell or otherwise dispose of any lines or associated facilities forming part of the CAISO Controlled Grid without the CAISO's prior written consent, which consent shall not be unreasonably withheld.

4.4.1.2 As a condition to the sale or other disposition of any lines or associated facilities forming part of the CAISO Controlled Grid to an entity that is not a Participating TO, the Participating TO shall require the transferee to assume in writing all of the Participating TO's obligations under this Agreement (but without necessarily requiring it to become a Participating TO for the purposes of the CAISO Tariff or a TO Tariff).

4.4.1.3 Any subsequent sale or other disposition by a transferee referred to in Section 4.4.1.2 shall be subject to this Section 4.4.1.

4.4.1.4 A transferee referred to in Section 4.4.1.2 that does not become a Participating TO shall have the same rights and responsibilities regarding withdrawal that a Participating TO has under Sections 3.3.1 and 3.3.3.

4.4.2 **Entitlements.** No Participating TO shall sell, assign, release, or

transfer any Entitlements that have been placed under the CAISO's Operational Control without the CAISO's prior written consent, which consent shall not be unreasonably withheld, provided that such written consent is not required for such release or transfer to another Participating TO who is not in any material respect in breach of its obligations under this Agreement and who has not given notice of its intention to withdraw from this Agreement.

**4.4.3 Encumbrances.** No Participating TO shall create any new Encumbrance or (except as permitted by Section 16 of the CAISO Tariff) extend the term of an existing Encumbrance over any lines or associated facilities or Entitlements forming part of its transmission network (as determined in accordance with Section 4.1.1) without the CAISO's prior written consent. The CAISO shall give its consent to the creation or extension of an Encumbrance within thirty (30) days after receiving a written request for its consent disclosing in reasonable detail the nature of and reasons for the proposed change unless the CAISO reasonably determines that the change is inconsistent with the Participating TO's obligations under the CAISO Tariff or the TO Tariff or that the change may materially impair the CAISO's ability to exercise Operational Control over the relevant lines or facilities or Entitlements or may reduce the reliability of the CAISO Controlled Grid. Exercise of rights under an Existing Contract shall not be deemed to create a new Encumbrance for the purposes of this Section 4.4.3.

**4.4.4 Trans Bay Cable**

4.4.4.1 In addition to the foregoing, the CAISO, Trans Bay Cable LLC ("Trans Bay Cable"), and the Participating TOs acknowledge and agree that,



following the CAISO's approval of Trans Bay Cable's application for Participating TO status and upon the effective date of Trans Bay Cable's TO Tariff as approved by FERC, Trans Bay Cable shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements through Trans Bay Cable's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in Docket No. ER05-985, to the extent that the transmission assets and associated facilities used to provide the Entitlements, as well as the Entitlements themselves, are placed under CAISO Operational Control.

4.4.4.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Trans Bay Cable will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of any of its Entitlements in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.4.3 If Trans Bay Cable should seek to transfer, sell, or dispose of its Entitlements or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Trans Bay Cable shall require as a condition of such transfer, sale, or disposition that the transferee of any of its Entitlement(s): (a) assume in writing Trans Bay Cable's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.4, e.g., the obligation to recover the just and reasonable costs of developing,

financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements, as set forth in Section 4.4.4.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Trans Bay Cable under this Agreement. For the avoidance of doubt, the transfer of any of Trans Bay Cable Entitlements cannot take place unless and until the holder of any such Entitlements has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.4.4 For the avoidance of doubt, the Parties hereby also confirm that the Operating Memorandum dated May 16, 2005, between Trans Bay Cable, the City of Pittsburg, California, and Pittsburg Power Company and filed by Trans Bay Cable in Docket No. ER05-985, including the option agreement contained therein, does not address or pertain to any transfer, disposition, sale, or purchase of any of Trans Bay Cable's Entitlements.

4.4.4.5 Nothing in this Section 4.4.4 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals therefrom, the established or proposed Transmission Revenue Requirement of Trans Bay Cable or any subsequent holder of any of the Entitlements.

4.4.4.6 Notwithstanding the foregoing subsections of Section 4.4.4, this Section 4.4.4 shall become null and void in the event of and upon the first to occur of: (a) Trans Bay Cable receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments

under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Trans Bay Cable from the CAISO, or (b) Trans Bay Cable receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Trans Bay Cable from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, *provided* such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Trans Bay Cable, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Trans Bay Cable's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Trans Bay Cable and the CAISO.

4.4.4.7           Should this Section 4.4.4 become null and void under Section 4.4.4.6, then Trans Bay Cable, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### 4.4.5 **Startrans IO**

4.4.5.1           In addition to the foregoing, the CAISO, Startrans IO, L.L.C. ("Startrans IO"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Startrans IO's application for Participating TO status and upon the effective date of Startrans IO's TO Tariff as approved by FERC, Startrans IO shall be

entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has transmission rights and Entitlements through Startrans IO's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in Docket No. ER08-413, to the extent that the transmission assets and associated facilities used to provide the transmission rights and Entitlements, as well as the transmission rights and Entitlements themselves, are placed under CAISO Operational Control.

4.4.5.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Startrans IO will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of any of its transmission rights and Entitlements in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.5.3 If Startrans IO should seek to transfer, sell, or dispose of its transmission rights and Entitlements or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Startrans IO shall require as a condition of such transfer, sale, or disposition that the transferee of any of its transmission rights and Entitlement(s): (a) assume in writing Startrans IO's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.5, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in

which it has transmission rights and Entitlements, as set forth in Section 4.4.5.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Startrans IO under this Agreement. For the avoidance of doubt, the transfer of any of Startrans IO's transmission rights and Entitlements cannot take place unless and until the holder of any such transmission rights and Entitlements has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.5.4 Nothing in this Section 4.4.5 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals therefrom, the established or proposed Transmission Revenue Requirement of Startrans IO or any subsequent holder of any of the transmission rights and Entitlements.

4.4.5.5 Notwithstanding the foregoing subsections of Section 4.4.5, this Section 4.4.5 shall become null and void in the event of and upon the first to occur of: (a) Startrans IO receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Startrans IO from the CAISO, or (b) Startrans IO receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of

the total amount due and owing to Startrans IO from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, *provided* such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Startrans IO, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Startrans IO's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Startrans IO and the CAISO.

4.4.5.6 Should this Section 4.4.5 become null and void under Section 4.4.5.5, then Startrans IO, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.6 Citizens Sunrise Transmission LLC**

4.4.6.1 In addition to the foregoing, the CAISO, Citizens Sunrise Transmission LLC ("Citizens Sunrise Transmission"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Citizens Sunrise Transmission's application for Participating TO status and upon the effective date of Citizens Sunrise Transmission's TO Tariff as approved by FERC, Citizens Sunrise Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has an Entitlement through Citizens Sunrise Transmission's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in

Docket No. EL10-3-000, to the extent that the transmission assets and associated facilities used to provide the Entitlement, as well as the Entitlement itself, are placed under CAISO Operational Control, all pursuant to the Development and Coordination Agreement of May 9, 2009 (“DCA”) between San Diego Gas & Electric Company and Citizens Energy Corporation (“Citizens Energy”) and the Transfer Capability Lease to be executed in accordance therewith.

4.4.6.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Citizens Sunrise Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its Entitlement in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement or (ii) the withdrawal of San Diego Gas & Electric Company (the provider of Citizens Sunrise Transmission’s Entitlement) from this Agreement in compliance with this Agreement.

4.4.6.3 If Citizens Sunrise Transmission should seek to transfer, sell, or dispose of its Entitlement or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Citizens Sunrise Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its Entitlement: (a) assume in writing Citizens Sunrise Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.6, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in

which it has its Entitlements, as set forth in Section 4.4.6.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Citizens Sunrise Transmission under this Agreement. For the avoidance of doubt, the transfer of Citizens Sunrise Transmission's Entitlement cannot take place unless and until the holder of such Entitlement has, in conjunction with the transfer, become a Participating TO in the CAISO. Notwithstanding the foregoing, this Section 4.4.6.3 shall not apply to any transfer, sale, or disposition of all or any part of Citizens Sunrise Transmission's Entitlement to San Diego Gas & Electric Company (in which case such Entitlement would continue to be subject to this Agreement as an Entitlement of San Diego Gas & Electric Company).

4.4.6.4 Nothing in this Section 4.4.6 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Citizens Sunrise Transmission or any subsequent holder of any of the Entitlement.

4.4.6.5 Notwithstanding the foregoing subsections of Section 4.4.6, this Section 4.4.6 shall become null and void in the event of and upon the first to occur of: (a) Citizens Sunrise Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Citizens Sunrise Transmission from the CAISO, or



(b) Citizens Sunrise Transmission receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Citizens Sunrise Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Citizens Sunrise Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Citizens Sunrise Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Citizens Sunrise Transmission and the CAISO.

4.4.6.6 Should this Section 4.4.6 become null and void under Section 4.4.6.5, then Citizens Sunrise Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.7 GridLiance West LLC**

4.4.7.1 In addition to the foregoing, the CAISO, GridLiance West LLC ("GridLiance West"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of GridLiance West's application for Participating TO status and upon the effective date of GridLiance West's TO Tariff as approved by FERC, GridLiance West shall be entitled and obligated to recover the just and

reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements through GridLiance West's Transmission Revenue Requirement as established from time to time by FERC to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.7.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, GridLiance West will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.7.3 If GridLiance West should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, GridLiance West shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission assets and associated facilities: (a) assume in writing GridLiance West's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.7, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has its transmission assets and associated facilities, as set forth in Section 4.4.7.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and

(c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by GridLiance West under this Agreement. For the avoidance of doubt, the transfer of GridLiance West's transmission assets and associated facilities cannot take place unless and until the holder of such transmission assets and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.7.4 Nothing in this Section 4.4.7 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of GridLiance West or any subsequent holder of any of the transmission assets and associated facilities.

4.4.7.5 Notwithstanding the foregoing subsections of Section 4.4.7, this Section 4.4.6 shall become null and void in the event of and upon the first to occur of: (a) GridLiance West receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to GridLiance West from the CAISO, or (b) GridLiance West receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to GridLiance West from the CAISO for the twelve (12) month period ending prior to the month or months in which such

underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to GridLiance West, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) GridLiance West's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between GridLiance West and the CAISO.

4.4.7.6 Should this Section 4.4.7 become null and void under Section 4.4.6.5, then GridLiance West, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.8 Citizens Sycamore-Penasquitos Transmission LLC**

4.4.8.1 In addition to the foregoing, the CAISO, Citizens Sycamore-Penasquitos Transmission LLC ("Citizens Sycamore-Penasquitos Transmission"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Citizens Sycamore-Penasquitos Transmission's application for Participating TO status and upon the effective date of Citizens Sycamore-Penasquitos Transmission's TO Tariff as approved by FERC, Citizens Sycamore-Penasquitos Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has an Entitlement through Citizens Sycamore-Penasquitos Transmission's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles Citizens Sycamore-Penasquitos Transmission has requested FERC approval of in Docket No. EL18-29, to

the extent that the transmission assets and associated facilities used to provide the Entitlement, as well as the Entitlement itself, are placed under CAISO Operational Control, all pursuant to the Development, Coordination, and Option Agreement of November 9, 2017 (“DCOA”) between San Diego Gas & Electric Company and Citizens Energy Corporation (“Citizens Energy”) and the Transfer Capability Lease to be executed in accordance therewith.

4.4.8.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Citizens Sycamore-Penasquitos Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its Entitlement in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement or (ii) the withdrawal of San Diego Gas & Electric Company (the provider of Citizens Sycamore-Penasquitos Transmission’s Entitlement) from this Agreement in compliance with this Agreement.

4.4.8.3 If Citizens Sycamore-Penasquitos Transmission should seek to transfer, sell, or dispose of its Entitlement or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Citizens Sycamore-Penasquitos Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its Entitlement: (a) assume in writing Citizens Sycamore-Penasquitos Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.8, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated

facilities forming part of the network in which it has its Entitlements, as set forth in Section 4.4.8.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Citizens Sycamore-Penasquitos Transmission under this Agreement. For the avoidance of doubt, the transfer of Citizens Sycamore-Penasquitos Transmission's Entitlement cannot take place unless and until the holder of such Entitlement has, in conjunction with the transfer, become a Participating TO in the CAISO. Notwithstanding the foregoing, this Section 4.4.8.3 shall not apply to any transfer, sale, or disposition of all or any part of Citizens Sycamore-Penasquitos Transmission's Entitlement to San Diego Gas & Electric Company (in which case such Entitlement would continue to be subject to this Agreement as an Entitlement of San Diego Gas & Electric Company).

4.4.8.4 Nothing in this Section 4.4.8 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Citizens Sycamore-Penasquitos Transmission or any subsequent holder of any of the Entitlement.

4.4.8.5 Notwithstanding the foregoing subsections of Section 4.4.8, this Section 4.4.8 shall become null and void in the event of and upon the first to occur of: (a) Citizens Sycamore-Penasquitos Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with

each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Citizens Sycamore-Penasquitos Transmission from the CAISO, or (b) Citizens Sycamore-Penasquitos Transmission receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Citizens Sycamore-Penasquitos Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Citizens Sycamore-Penasquitos Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Citizens Sycamore-Penasquitos Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Citizens Sycamore-Penasquitos Transmission and the CAISO.

4.4.8.6 Should this Section 4.4.8 become null and void under Section 4.4.8.5, then Citizens Sycamore-Penasquitos Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.9 Horizon West Transmission, LLC**

4.4.9.1 In addition to the foregoing, the CAISO, Horizon West

Transmission, LLC (“Horizon West Transmission”), and the Participating TOs acknowledge and agree that, upon the effective date of Horizon West Transmission’s TO Tariff as approved by FERC, Horizon West Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network through Horizon West Transmission’s Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles Horizon West Transmission has requested FERC approval of in Docket No. ER15-2239, to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.9.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Horizon West Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.9.3 If Horizon West Transmission should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Horizon West Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission rights and associated facilities: (a) assume in writing Horizon West Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section



4.4.9, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network, as set forth in Section 4.4.9.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Horizon West Transmission under this Agreement. For the avoidance of doubt, the transfer of Horizon West Transmission's transmission assets and associated facilities cannot take place unless and until the holder of such transmission rights and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.9.4 Nothing in this Section 4.4.9 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Horizon West Transmission or any subsequent holder of any of the transmission rights and associated facilities.

4.4.9.5 Notwithstanding the foregoing subsections of Section 4.4.9, this Section 4.4.9 shall become null and void in the event of and upon the first to occur of: (a) Horizon West Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Horizon West Transmission from the CAISO, or (b) Horizon West Transmission receives either an underpayment, pursuant to Section

11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Horizon West Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Horizon West Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Horizon West Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Horizon West Transmission and the CAISO.

4.4.9.6           Should this Section 4.4.9 become null and void under Section 4.4.9.5, then Horizon West Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### 4.4.10 **DesertLink, LLC**

4.4.10.1           In addition to the foregoing, the CAISO, DesertLink, LLC ("DesertLink"), and the Participating TOs acknowledge and agree that DesertLink is entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network through DesertLink's Transmission Revenue Requirement

as established from time to time by FERC, including the specific rate principles and TO Tariff approved by FERC in Docket Nos. ER17-135 and ER19-2531, to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.10.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, DesertLink will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.10.3 If DesertLink should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, DesertLink shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission rights and associated facilities: (a) assume in writing DesertLink's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.10, *e.g.*, the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network, as set forth in Section 4.4.10.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by DesertLink under this Agreement. For the

avoidance of doubt, the transfer of DesertLink's transmission assets and associated facilities cannot take place unless and until the holder of such transmission rights and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.10.4 Nothing in this Section 4.4.10 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of DesertLink or any subsequent holder of any of the transmission rights and associated facilities.

4.4.10.5 Notwithstanding the foregoing subsections of Section 4.4.10, this Section 4.4.10 shall become null and void in the event of and upon the first to occur of: (a) DesertLink receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to DesertLink from the CAISO, or (b) DesertLink receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to DesertLink from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge

revenue disbursement to DesertLink, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) DesertLink's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between DesertLink and the CAISO.

4.4.10.6 Should this Section 4.4.10 become null and void under Section 4.4.10.5, then DesertLink, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.5. Procedure for Designating CAISO Controlled Grid Facilities.**

4.5.1 **Additional Facilities.** If the CAISO determines that it requires Operational Control over additional transmission lines and associated facilities not then constituting part of the CAISO Controlled Grid in order to fulfill its responsibilities in relation to the CAISO Controlled Grid then the CAISO shall apply to FERC pursuant to Section 203 of the Federal Power Act, and shall make all other regulatory filings necessary to obtain approval for such change of control and shall serve a copy of all such applications on the affected Participating TO and the owner of such lines and facilities (if other than the Participating TO). In the event that a Party invokes the dispute resolution provisions identified in Section 15 with respect to the transfer of Operational Control over a facility, such facility shall not be transferred while the dispute resolution process is pending except pursuant to Section 4.5.2.

4.5.2 **Temporary Operational Control.** The CAISO may exercise

temporary Operational Control over any transmission lines or associated facilities of a Participating TO (including lines and facilities to which the Participating TO has sufficient Entitlement to permit the CAISO to exercise Operational Control over them) that do not then form part of the CAISO Controlled Grid:

- i. in order to prevent or remedy an imminent System Emergency;
- ii. on reasonable notice, for a period not exceeding ninety (90) days,

in order to determine whether exercising Operational Control over the relevant lines and facilities will assist the CAISO to meet Applicable Reliability Criteria or to fulfill its Balancing Authority Area responsibilities under the CAISO Tariff; or

- iii. subject to any contrary order of FERC, pending the resolution of the procedures referenced in Section 4.5.1.

**4.5.3 Return of Control of Facilities.** Control of facilities over which the CAISO has assumed temporary Operational Control will be returned to the appropriate Participating TO when the conditions set forth in Section 4.5.2 no longer require the CAISO to assume such temporary control.

**4.5.4 Transmission Expansion Projects.** Any transmission expansion projects carried out pursuant to Section 24 of the CAISO Tariff shall be subject to the CAISO's Operational Control from the date that it goes into service or after such period as the CAISO deems to be reasonably necessary for the CAISO to integrate the project into the CAISO Controlled Grid.

**4.6. [INTENTIONALLY LEFT BLANK]**

**4.7. Termination of CAISO's Operational Control.**

**4.7.1 Release from CAISO's Operational Control.** Subject to Section 4.7.2, the CAISO may relinquish its Operational Control over any transmission lines and associated facilities constituting part of the CAISO Controlled Grid if, after consulting the Participating TOs owning or having Entitlements to them, the CAISO determines that it no longer requires to exercise Operational Control over them in order to meet its Balancing Authority Area responsibilities and they constitute:

i. directly assignable radial lines and associated facilities interconnecting Generation (other than lines and facilities interconnecting CAISO Controlled Grid Critical Protective Systems or Generators contracted to provide Black Start or Voltage Support);

ii. lines and associated facilities which, by reason of changes in the configuration of the CAISO Controlled Grid, should be classified as "local distribution" facilities in accordance with FERC's applicable technical and functional test, or should otherwise be excluded from the facilities subject to CAISO Operational Control consistent with FERC established criteria; or

iii. lines and associated facilities which are to be retired from service in accordance with Good Utility Practice.

**4.7.2 Procedures.** Before relinquishing Operational Control over any transmission lines or associated facilities pursuant to section 4.7.1, the CAISO shall inform the public through the CAISO Website of its intention to do so and of the basis for its determination pursuant to Section 4.7.1. The CAISO shall give interested parties not less than 45 days within which to submit written objections to the proposed removal of such lines or facilities from the CAISO's Operational Control. If the CAISO cannot

resolve any timely objections to the satisfaction of the objecting parties and the Participating TOs owning or having Entitlements to the lines and facilities, such parties, Participating TOs, or the CAISO may refer any disputes for resolution pursuant to the CAISO ADR Procedures in Section 13 of the CAISO Tariff. Alternatively, the CAISO may apply to FERC for its approval of the CAISO's proposal.

4.7.3 **Duty to Update CAISO Register.** The CAISO shall promptly record any change in Operational Control pursuant to this Section 4.7 in the CAISO Register in accordance with Section 4.2.3.

## 5. INDEPENDENT SYSTEM OPERATOR

5.1. Balancing Authority.

5.1.1 **CAISO as Balancing Authority.** The CAISO shall be the designated Balancing Authority for the CAISO Controlled Grid.

5.1.2 **Operational Control.** The CAISO shall exercise Operational Control over the CAISO Controlled Grid for the purpose of:

- i. providing a framework for the efficient transmission of electricity across the CAISO Controlled Grid in accordance with the CAISO Tariff;
- ii. securing compliance with all Applicable Reliability Criteria;
- iii. scheduling transactions for Market Participants to provide open and non-discriminatory access to the CAISO Controlled Grid in accordance with the CAISO Tariff;
- iv. relieving Congestion; and
- v. to the extent provided in this Agreement, assisting Market Participants to comply with other operating criteria, contractual obligations, and legal



requirements binding on them.

**5.1.3 Duty of Care.** The CAISO shall have the exclusive right and responsibility to exercise Operational Control over the CAISO Controlled Grid, subject to and in accordance with Applicable Reliability Criteria and the operating criteria established by the NRC operating licenses for nuclear generating units as provided in Appendix E pursuant to Section 6.4.2. The CAISO shall take proper care to ensure the safety of personnel and the general public. It shall act in accordance with Good Utility Practice, applicable law, Existing Contracts, the CAISO Tariff, and the Operating Procedures. The CAISO shall not direct a Participating TO to take any action which would require a Participating TO to operate its transmission facilities in excess of their applicable rating as established or modified from time to time by the Participating TO pursuant to Section 6.4 except in a System Emergency where such a direction is consistent with Applicable Reliability Criteria.

**5.1.4 Operating Procedures.** The CAISO shall, in consultation with the Participating TOs and other Market Participants, promulgate Operating Procedures governing its exercise of Operational Control over the CAISO Controlled Grid in accordance with this Agreement. The CAISO shall provide copies of the Operating Procedures and all amendments, revisions, and updates to the Participating TOs and shall make them available to the public through the CAISO Website.

**5.1.5 Applicable Reliability Criteria.** The CAISO shall, in consultation with Participating TOs and other Market Participants, develop and promulgate Applicable Reliability Criteria for the CAISO Controlled Grid, which shall be in compliance with the reliability standards promulgated by NERC and WECC, Local

Reliability Criteria, and NRC grid criteria related to operating licenses for nuclear generating units. The CAISO shall provide copies of the Applicable Reliability Criteria and all amendments, revisions, and updates to the Participating TOs and shall make them available to the public through the CAISO Website.

5.1.6 **Waivers.** The CAISO may grant to any Participating TO whose transmission facilities do not meet the Applicable Reliability Criteria when it becomes a Party to this Agreement such waivers from the Applicable Reliability Criteria as the Participating TO reasonably requires to prevent it from being in breach of this Agreement while it brings its transmission facilities into full compliance. Such waivers shall be effective for such period as the CAISO shall determine. A Participating TO who has been granted a waiver made under this Section 5.1.6 shall bring its transmission facilities into compliance with the Applicable Reliability Criteria before the expiration of the relevant waivers and in any event as soon as reasonably practical.

5.1.7 **Operational Protocols.** In exercising Operational Control over the CAISO Controlled Grid, the CAISO shall comply with the operational protocols to be provided in accordance with Section 6.4.2, as they may be amended from time to time to take account of the removal and relaxation of any Encumbrances to which the CAISO Controlled Grid is subject. Participating TOs whose transmission lines and associated facilities or Entitlements are subject to Encumbrances shall make all reasonable efforts to remove or relax those Encumbrances in order to permit the operational protocols to be amended in such manner as the CAISO may reasonably require, to the extent permitted by Existing Contracts and applicable interconnection, integration, exchange, operating, joint ownership, and joint participation agreements.

**5.1.8 System Emergencies.** In the event of a System Emergency, the CAISO shall have the authority and responsibility to take all actions necessary and shall direct the restoration of the CAISO Controlled Grid to service following any interruption associated with a System Emergency. The CAISO shall also have the authority and responsibility, consistent with Section 4 and Section 9, to act to prevent System Emergencies. Actions and directions by the CAISO pursuant to this Section 5.1.8 shall be consistent with Section 5.1.3, Duty of Care.

**5.1.9 Reporting Criteria.** The CAISO shall comply with the reporting requirements of the WECC, NERC, NRC and regulatory bodies having jurisdiction over it. Participating TOs shall provide the CAISO with information that the CAISO may require to meet this obligation.

## **5.2. Monitoring.**

**5.2.1 System Requirements.** The CAISO shall establish reasonable metering, monitoring, and data collection standards and requirements for the CAISO Controlled Grid, consistent with WECC and NERC standards.

**5.2.2 System Conditions.** The CAISO shall monitor and observe real time system conditions throughout the CAISO Controlled Grid, as well as key facilities in other areas of the WECC region.

**5.2.3 Energy Management System.** The CAISO shall install a computerized Energy Management System (EMS) to monitor transmission facilities in the CAISO Controlled Grid. A Participating TO may at its own expense and for its own internal management purposes install a read only EMS workstation that will provide the Participating TO with the same displays the CAISO uses to monitor the Participating

TO's transmission facilities.

5.2.4 **Data.** Unless otherwise mutually agreed, the CAISO shall obtain real time monitoring data for the facilities listed in the CAISO Register from the Participating TOs through transfers to the CAISO of data available from the Energy Management Systems (EMS) of the Participating TOs.

**5.3. [INTENTIONALLY LEFT BLANK]**

**5.4. Public Information.**

5.4.1 **CAISO Website.** The CAISO shall develop a public information board on the CAISO Website for the CAISO Controlled Grid in accordance with the provisions in Section 6 of the CAISO Tariff.

5.4.2 **Access to CAISO Information.** The CAISO shall permit the general public to inspect and copy other information in its possession, other than information to be kept confidential under Section 26.3, provided that the costs of providing documents for inspection, including any copying costs, shall be borne by the requester.

**5.5. Costs**

The CAISO shall not implement any reliability requirements, operating requirements, or performance standards that would impose increased costs on a Participating TO without giving due consideration to whether the benefits of such requirements or standards are sufficient to justify such increased costs. In any proceeding concerning the cost recovery by a Participating TO of capital and operation and maintenance costs incurred to comply with CAISO-imposed reliability requirements, operating requirements, or performance standards, the CAISO shall, at the request of

the Participating TO, provide specific information regarding the nature of, and need for, the CAISO-imposed requirements or standards to enable the Participating TO to use this information in support of cost recovery through rates and tariffs.

## **6. PARTICIPATING TRANSMISSION OWNERS**

### **6.1. Physical Operation of Facilities.**

**6.1.1 Operation.** Each Participating TO shall have the exclusive right and responsibility to operate and maintain its transmission facilities and associated switch gear and auxiliary equipment (including facilities that it operates under Entitlements).

**6.1.2 CAISO Operating Orders.** Each Participating TO shall operate its transmission facilities in compliance with the CAISO Tariff, CAISO Protocols, the Operating Procedures (including emergency procedures in the event of communications failure), and the CAISO's operating orders unless the health or safety of personnel or the general public would be endangered. Proper implementation of a CAISO operating order by a Participating TO shall be deemed prudent. In the event a CAISO order would risk damage to facilities, and if time permits, a Participating TO shall inform the CAISO of any such risk and seek confirmation of the relevant CAISO order.

**6.1.3 Duty of Care.** In operating and maintaining its transmission facilities, each Participating TO shall take proper care to ensure the safety of personnel and the general public. It shall act in accordance with Good Utility Practice, applicable law, the CAISO Tariff, CAISO Protocols, the Operating Procedures, and the Applicable Reliability Criteria.

**6.1.4 Outages.** Each Participating TO shall obtain approval from the

CAISO pursuant to the CAISO Tariff before taking out of service and returning to service any facility identified pursuant to Section 4.2.1 in the CAISO Register, except in cases involving immediate hazard to the safety of personnel or the general public or imminent damage to facilities or in the case of a Forced Outage. The Participating TO shall promptly notify the CAISO of such situations.

**6.1.5 Return to Service.** After a System Emergency or Forced Outage, the Participating TO shall restore to service the transmission facilities under the CAISO's Operational Control as soon as possible and in the priority order determined by the CAISO. The CAISO's Operating Procedures shall give priority to restoring offsite power to nuclear generating units, in accordance with criteria specified by the Participating TOs under the design basis and licensing requirements of the NRC licenses applicable to such nuclear units and any other Regulatory Must-Run Generation whose operation is critical for the protection of wildlife and the environment.

**6.1.6 Written Report.** Within a reasonable time, the Participating TO shall provide the CAISO with a written report, consistent with Section 17, describing the circumstances and the reasons for any Forced Outage, including outages under Section 6.1.4.

## **6.2. Transmission Service.**

**6.2.1 Compliance with Tariffs.** Participating TOs shall allow access to their transmission facilities (including any that are not for the time being under the CAISO's Operational Control) only on the terms of the CAISO Tariff and the TO Tariff.

**6.2.2 Release of Scheduling Rights.** When required by the CAISO, a Participating TO shall release all of its scheduling rights over the transmission lines and

associated facilities and Entitlements that are part of the CAISO Controlled Grid to the extent such rights are established through Existing Contracts among or between Participating TOs, as provided in the CAISO Tariff.

### **6.3. Other Responsibilities.**

Each Participating TO shall inspect, maintain, repair, replace, and maintain the rating and technical performance of its facilities under the CAISO's Operational Control in accordance with the Applicable Reliability Criteria (subject to any waivers granted pursuant to Section 5.1.6) and the performance standards established under Section 14.

### **6.4. Technical Information and Protocols.**

**6.4.1 Information to be Provided.** Each Participating TO shall provide to the CAISO prior to the effective date of its becoming a Party to this Agreement, and in a format acceptable to the CAISO:

- i. Technical specifications for any facilities under the CAISO's Operational Control, as the CAISO may require;
- ii. The applicable ratings of all transmission lines and associated facilities listed in Appendix A; and
- iii. A copy of each document creating an Entitlement or Encumbrance.

The Participating TO shall promptly notify the CAISO in writing or mutually acceptable electronic format of any subsequent changes in such technical specifications, ratings, Entitlements, or Encumbrances.

**6.4.2 Protocols for Encumbered Facilities.** A Party that is placing a transmission line or associated facility (including an Entitlement) that is subject

to an Encumbrance under the Operational Control of the CAISO shall develop protocols for its operation which shall: (1) reflect the rights the Party has in such facility, and (2) give effect to any Encumbrance on such facility. Such protocols shall be delivered to the CAISO for review not less than ninety (90) days prior to the date on which the CAISO is expected to assume Operational Control of any such facility. The CAISO shall review each protocol and shall cooperate with the relevant Party to assure that operations pursuant to the protocol are feasible and that the protocol is consistent with the applicable rights and Encumbrances. To the extent such protocol is required to be filed at FERC, the relevant Transmission Owner shall file such protocol not less than sixty (60) days prior to the date on which the CAISO is expected to assume Operational Control of the relevant facility. Protocols to implement the operating criteria established by the NRC operating licenses for nuclear generating units are provided in Appendix E.

#### **6.5. EMS/SCADA System.**

Each Participating TO shall operate and maintain its EMS/SCADA systems and shall allow the CAISO access to the Participating TO's data from such systems relating to the facilities under the CAISO's Operational Control. The CAISO, at its own cost, may, if it considers it necessary for the purpose of carrying out its responsibilities under this Agreement, acquire, install, and maintain additional monitoring equipment on any Participating TO's property.

#### **6.6. Single Point Of Contact.**

Each Participating TO shall provide the CAISO with an appropriate single point of contact for the coordination of operations under this Agreement.

### **7. SYSTEM OPERATION AND MAINTENANCE**



### **7.1. Scheduled Maintenance.**

The Parties shall forecast and coordinate Maintenance Outage plans in accordance with Section 9 of the CAISO Tariff.

### **7.2. Exercise of Contractual Rights.**

In order to facilitate Maintenance Outage coordination of the CAISO Controlled Grid by the CAISO, each Participating TO shall, to the extent that the Participating TO has contractual rights to do so: (1) coordinate Maintenance Outages with non-Participating Generators; and (2) exercise its contractual rights to require maintenance by non-Participating Generators in each case in such manner as the CAISO approves or requests. The requirements of this Section 7.2 shall not apply to any non-Participating Generator with a rated capability of less than 50 MW.

### **7.3. Unscheduled Maintenance.**

**7.3.1 Notification.** A Participating TO shall notify the CAISO of any faults on the CAISO Controlled Grid or any actual or anticipated Forced Outages as soon as it becomes aware of them, in accordance with Section 9.3.10 of the CAISO Tariff.

**7.3.2 Returns to Service.** The Participating TO shall take all steps necessary, consistent with Good Utility Practice and in accordance with the CAISO Tariff and CAISO Protocols, to prevent Forced Outages and to return to operation, as soon as possible, any facility under the CAISO's Operational Control that is the subject of a Forced Outage.

## **8. CRITICAL PROTECTIVE SYSTEMS THAT SUPPORT CAISO CONTROLLED GRID OPERATIONS**

### **8.1. Remedial Action Schemes, Underfrequency Load Shedding, Under Voltage Load Shedding.**

Each Participating TO shall coordinate its Critical Protective Systems with the CAISO, other Transmission Owners, and Generators to ensure that its Remedial Action Schemes (“RAS”), Underfrequency Load Shedding (“UFLS”), and Under Voltage Load Shedding (“UVLS”) schemes function on a coordinated and complementary basis in accordance with WECC and NERC planning, reliability, and protection policies and standards. Participating TOs that are parties to contracts affecting RAS, UFLS, and UVLS schemes shall make reasonable efforts to amend those contracts in order to permit the RAS, UFLS, and UVLS schemes to be operated in accordance with WECC and NERC planning, reliability, and protection policies and standards and the CAISO Tariff.

Each Participating TO, in conjunction with the CAISO, shall identify, describe, and provide to the CAISO the functionality of all RAS for electric systems operating at 200 kV nominal voltage or higher and any other lower voltage lines that the CAISO and Participating TO determine to be critical to the reliability of the CAISO Controlled Grid. Each Participating TO shall provide to the CAISO a description of the functionality of UFLS and UVLS schemes that protect the security and reliability of transmission facilities on the CAISO Controlled Grid.

Each Participating TO shall maintain the design, functionality, and settings of its existing RAS, UFLS, and UVLS schemes. New or existing schemes that are functionally modified must be in accordance with WECC and NERC planning, reliability, and protection policies and standards. Each Participating TO shall notify the CAISO in

advance of all RAS, UFLS, and UVLS schemes functionality and setting changes that affect transmission facilities on the CAISO Controlled Grid. Each Participating TO shall not disable or take clearances on RAS or UVLS schemes without the approval of the CAISO through the Maintenance Outage and Forced Outage coordination process in accordance with the CAISO Tariff. Clearances on UFLS may be taken without approval depending upon the armed load disabled as agreed to between the Participating TO and CAISO and incorporated in the Operating Procedures.

The requirements of this Section 8.1 shall apply only to the transmission facilities that are part of the CAISO Controlled Grid.

## **8.2. Protective Relay Systems.**

Each Participating TO shall provide to the CAISO protective relay system functional information necessary to perform system planning and operating analysis, and to operate transmission facilities on the CAISO Controlled Grid in compliance with WECC and NERC planning, reliability, and protection policies and standards.

The requirements of this Section 8.2 shall apply only to the transmission facilities that are part of the CAISO Controlled Grid.

## **9. SYSTEM EMERGENCIES**

### **9.1. CAISO Management of Emergencies.**

The CAISO shall manage a System Emergency pursuant to the provisions of Section 7.7 of the CAISO Tariff. The CAISO may carry out unannounced tests of System Emergency procedures pursuant to the CAISO Tariff.

### **9.2. Management of Emergencies by Participating TOs.**

#### **9.2.1 CAISO Orders.** In the event of a System Emergency, the

Participating TOs shall comply with all directions from the CAISO regarding the management and alleviation of the System Emergency unless such compliance would impair the health or safety of personnel or the general public.

9.2.2 **Communication.** During a System Emergency, the CAISO and Participating TOs shall communicate through their respective control centers, in accordance with the Operating Procedures.

**9.3. System Emergency Reports: TO Obligations.**

9.3.1 **Records.** Pursuant to Section 17, each Participating TO shall maintain appropriate records pertaining to a System Emergency.

9.3.2 **Review.** Each Participating TO shall cooperate with the CAISO in the preparation of an Outage review pursuant to Sections 7.7.13 and 9.3.10.6 of the CAISO Tariff and Section 17 of this Agreement.

**9.4. Sanctions.**

In the event of a major Outage that affects at least 10 percent of the customers of an entity providing local distribution service, the CAISO may order a Participating TO to pay appropriate sanctions, as filed with and approved by FERC in accordance with Section 12.3, if the CAISO finds that the operation and maintenance practices of the Participating TO, with respect to its transmission lines and associated facilities that it has placed under the CAISO's Operational Control, prolonged the response time or were responsible for the Outage.

**10. CAISO CONTROLLED GRID ACCESS AND INTERCONNECTION**

**10.1. CAISO Controlled Grid Access and Services.**

**10.1.1 Access.** The CAISO shall respond to requests from the Participating TOs and other Market Participants for access to the CAISO Controlled Grid. All Participating TOs who have Eligible Customers connected to their transmission or distribution facilities that do not form part of the CAISO Controlled Grid shall ensure open and non-discriminatory access to those facilities for those Eligible Customers through the implementation of an open access tariff, provided that a Participating TO shall only be required to ensure open access to those facilities for End-Use Customers to the extent it is required by applicable law to do so or pursuant to a voluntary offer to do so.

## **10.2. Interconnection.**

**10.2.1 Obligation to Interconnect.** The Parties shall be obligated to allow interconnection to the CAISO Controlled Grid in a non-discriminatory manner, subject to the conditions specified in this Section 10 and the applicable legal requirements.

**10.2.2 Standards.** All interconnections to the CAISO Controlled Grid shall be designed and built in accordance with Good Utility Practice, all Applicable Reliability Criteria, and applicable statutes and regulations.

**10.2.3 System Upgrades.** The treatment of system upgrades associated with requests for interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. A Participating TO shall be entitled to require an entity requesting interconnection of a transmission facility or load to the CAISO Controlled Grid to pay for all necessary system reliability upgrades on its side of the interconnection and on the CAISO Controlled Grid, as well as for all

required studies, inspection, and testing, to the extent permitted by FERC policy. The entity requesting such an interconnection shall be required to execute an interconnection agreement in accordance with the CAISO Tariff and the TO Tariff as applicable, provided that the terms of the CAISO Tariff shall govern to the extent there is any inconsistency between the CAISO Tariff and the TO Tariff, and must comply with all of their provisions, including provisions related to creditworthiness and payment for interconnection studies.

10.2.4 A Local Furnishing Participating TO shall not be obligated to construct or expand interconnection facilities or system upgrades unless and until the conditions stated in Section 4.1.2 hereof have been satisfied.

### **10.3. Interconnections Responsibilities.**

10.3.1 **Applicability.** The provisions of this Section 10.3 shall apply only to those facilities and Entitlements over which a Participating TO has legal authority to effectuate proposed interconnections to the CAISO Controlled Grid. Where a Participating TO does not have the legal authority to compel interconnection, the Participating TO's obligations with respect to interconnections shall be as set forth in its FERC approved TO Tariff which shall contain an obligation for the Participating TO, at a minimum, to submit or assist in the submission of expansion and/or interconnection requests from third parties to the appropriate bodies of a project pursuant to the individual project agreements to the full extent allowed by such agreements and the applicable laws and regulations.

10.3.2 **Technical Standards.** Each Participating TO shall develop technical standards for the design, construction, inspection, and testing applicable to

proposed interconnections of transmission facilities or load to that part of the CAISO Controlled Grid facilities owned by the Participating TO or to which that Participating TO has Entitlements. Such standards shall be consistent with Applicable Reliability Criteria and shall be developed in consultation with the CAISO. The Participating TO shall periodically review and revise its criteria to ensure compliance with Applicable Reliability Criteria. Technical standards for the design, construction, inspection, and testing applicable to proposed interconnections of generating facilities to the CAISO Controlled Grid shall be developed in accordance with the provisions of the CAISO Tariff.

**10.3.3 Review of Participating TO Technical Standards.** Participating TOs shall provide the CAISO with copies of their technical standards for interconnection developed pursuant to Section 10.3.2 of this Agreement and all amendments so that the CAISO can satisfy itself as to their compliance with the Applicable Reliability Criteria. The CAISO shall develop consistent interconnection standards across the CAISO Controlled Grid, to the extent possible given the circumstances of each Participating TO, in consultation with Participating TOs. Any differences in interconnection standards shall be addressed through negotiations and dispute resolution proceedings, as set forth in the CAISO Tariff, between the CAISO and the Participating TO.

**10.3.4 Notice.** A list of the interconnection standards and procedures developed by each Participating TO pursuant to Section 10.3.2, including any revisions, shall be made available to the public through the CAISO Website. In addition, the posting will provide information on how to obtain the interconnection standards and procedures. The Participating TO shall provide these standards to any party, upon request.

**10.3.5 Interconnection.** Requests for interconnection of generating facilities to the CAISO Controlled Grid shall be processed in accordance with the provisions of the CAISO Tariff. Each Participating TO and the CAISO shall process requests for interconnection of transmission facilities or load to the CAISO Controlled Grid in accordance with the CAISO Tariff and the TO Tariff as applicable, provided that the terms of the CAISO Tariff shall govern to the extent there is any inconsistency between the CAISO Tariff and the TO Tariff. Any differences in the procedures for interconnection contained in the CAISO Tariff and the TO Tariff shall be addressed through negotiations and dispute resolution procedures, as set forth in the CAISO Tariff, between the CAISO and the Participating TO.

**10.3.6 Acceptance of Interconnection Facilities.** Acceptance of interconnection facilities related to interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. With regard to interconnection facilities related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the Participating TO shall perform all necessary site inspections, review all relevant equipment tests, and ensure that all necessary agreements have been fully executed prior to accepting interconnection facilities for operation.

**10.3.7 Collection of Payments.** Payments related to interconnection of generating facilities to the CAISO Controlled Grid shall be processed in accordance with the provisions of the CAISO Tariff. With regard to payments related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the Participating TO shall collect all payments owed under any interconnection study agreement or other



agreement entered into pursuant to this Section 10.3 or the provisions of the CAISO Tariff and its TO Tariff as applicable relating to such interconnection.

**10.3.8 On-Site Inspections.** On-site inspections related to interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. With regard to on-site inspections related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the CAISO may at its own expense accompany a Participating TO during on-site inspections and tests of such interconnections or, by pre-arrangement, may itself inspect such interconnections or perform its own additional inspections and tests.

#### **10.4 Joint Responsibilities.**

The Parties shall process requests for interconnection of generating facilities to the CAISO Controlled Grid in accordance with the provisions of the CAISO Tariff. The Parties shall share with the CAISO relevant information about requests for interconnection of transmission facilities or load to the CAISO Controlled Grid and coordinate their activities to ensure that all such interconnection requests are processed in a timely, non-discriminatory fashion and that all such interconnections meet the operational and reliability criteria applicable to the CAISO Controlled Grid. Subject to Section 26.3 of this Agreement, the CAISO shall pass on such information to any Parties who require it to carry out their responsibilities under this Agreement.

#### **10.5 Interconnection Responsibilities of Western.**

Notwithstanding any other provision of this Section 10, the responsibilities of Western to allow interconnection to its Path 15 Upgrade facilities and Entitlements set forth in Appendix A (Western) shall be as set forth in Western's General Requirements

for Interconnection as those requirements are set forth in Western's TO Tariff or in Western's "Open Access Transmission Tariff" ("OATT"), as applicable. Western shall be subject to the provisions of this Section 10 to the extent they are not inconsistent with the provisions of Western's TO Tariff or OATT, as applicable. Execution of this Agreement shall not constitute agreement of any Party that Western is in compliance with FERC's regulations governing interconnections.

## **11. EXPANSION OF TRANSMISSION FACILITIES**

The provisions of Sections 24 and 25 of the CAISO Tariff will apply to any expansion or reinforcement of the CAISO Controlled Grid affecting the transmission facilities of the Participating TOs placed under the Operational Control of the CAISO.

## **12. USE AND ADMINISTRATION OF THE CAISO CONTROLLED GRID**

### **12.1. Use of the CAISO Controlled Grid.**

Except as provided in Section 13, use of the CAISO Controlled Grid by the Participating TOs and other Market Participants shall be in accordance with the rates, terms, and conditions established in the CAISO Tariff and the Participating TO's TO Tariff. Pursuant to Section 2 of the CAISO Tariff, transmission service shall be provided only to direct access and wholesale customers eligible under state and federal law.

### **12.2. Administration.**

Each Participating TO transfers authority to the CAISO to administer the terms and conditions for access to the CAISO Controlled Grid and to collect, among other things, Congestion Management revenues, and Wheeling-Through and Wheeling-Out revenues.

### **12.3. Incentives and Penalty Revenues.**

The CAISO, in consultation with the Participating TOs, shall develop standards and a mechanism for paying to and collecting from Participating TOs incentives and penalties that may be assessed by the CAISO. Such standards and mechanism shall be filed with FERC and shall become effective upon acceptance by FERC.

## **13. EXISTING AGREEMENTS**

The provisions of Section 16 of the CAISO Tariff will apply to the treatment of transmission facilities of a Participating TO under the Operational Control of the CAISO which are subject to transmission service rights under Existing Contracts. In addition, the CAISO will honor the operating obligations as specified by the Participating TO, pursuant to Section 6.4.2 of this Agreement, including any provision of interconnection, integration, exchange, operating, joint ownership, and joint participation agreements, when operating the CAISO Controlled Grid.

## **14. MAINTENANCE STANDARDS**

### **14.1. CAISO Determination of Standards.**

The CAISO has adopted and shall maintain, in consultation with the Participating TOs through the Transmission Maintenance Coordination Committee, and in accordance with the requirements of this Agreement, the standards for the maintenance, inspection, repair, and replacement of transmission facilities under its Operational Control in accordance with Appendix C. These standards, as set forth in Appendix C, are and shall be performance-based or prescriptive or both, and provide for high quality, safe, and reliable service and shall take into account costs, local geography and weather, the Applicable Reliability Criteria, national electric industry

practice, sound engineering judgment, and experience.

## **14.2. Availability.**

**14.2.1 Availability Measure.** The CAISO performance-based standards shall be based on the availability measures described in Appendix C of this Agreement.

**14.2.2 Excluded Events.** Scheduled Approved Maintenance Outages and certain Forced Outages will be excluded pursuant to Appendix C of this Agreement from the calculation of the availability measure.

**14.2.3 Availability Measure Target.** The CAISO and each Participating TO shall jointly develop for the Participating TOs an availability measure target, which may be defined by a range. The target will be based on prior Participating TO performance and developed in accordance with Appendix C of this Agreement.

**14.2.4 Calculation of Availability Measure.** The availability measure shall be calculated annually by the Participating TO and reported to the CAISO for evaluation of the Participating TO's compliance with the availability measure target. This calculation will be determined in accordance with Appendix C of this Agreement.

**14.2.5 Compliance with Availability Measure Target.** The CAISO and the Participating TO may track the availability measure on a more frequent basis (e.g., quarterly, monthly), but the annual calculation shall be the sole basis for determining the Participating TO's compliance with its availability measure target.

**14.2.6 Public Record.** The Participating TO's annual availability measure calculation with its summary data shall be made available to the public.

## **14.3. Revisions.**

The CAISO and Participating TOs shall periodically review Appendix C, through

the Transmission Maintenance Coordination Committee process, and in accordance with the provisions of Appendix C and this Agreement shall modify Appendix C as necessary.

#### **14.4. Incentives and Penalties.**

The CAISO may, subject to regulatory approval, and as set forth in Appendix C, develop programs which reward or impose sanctions on Participating TOs by reference to their availability measure and the extent to which the availability performance imposes demonstrable costs or results in demonstrable benefits to Market Participants.

### **15. DISPUTE RESOLUTION**

In the event any dispute regarding the terms and conditions of this Agreement is not settled, the Parties shall follow the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff. The specific references in this Agreement to alternative dispute resolution procedures shall not be interpreted to limit the Parties' rights and obligations to invoke dispute resolution procedures pursuant to this Section 15.

### **16. BILLING AND PAYMENT**

#### **16.1 Application of CAISO Tariff**

The CAISO and Participating TOs shall comply with the billing and payment provisions set forth in Section 11 of the CAISO Tariff.

#### **16.2 Refund Obligation**

Each Participating TO, whether or not it is subject to the rate jurisdiction of the FERC under Section 205 and Section 206 of the Federal Power Act, shall make all refunds, adjustments to its Transmission Revenue Requirement, and adjustments to its TO Tariff and do all other things required of a Participating TO to implement any FERC

order related to the CAISO Tariff, including any FERC order that requires the CAISO to make payment adjustments or pay refunds to, or receive prior period overpayments from, any Participating TO. All such refunds and adjustments shall be made, and all other actions taken, in accordance with the CAISO Tariff, unless the applicable FERC order requires otherwise. If, following the conditional acceptance or acceptance subject to refund of a Participating TO's Transmission Revenue Requirement, FERC issues a final order that reduces that filed Transmission Revenue Requirement, such that the CAISO must make payment adjustments or pay refunds to, or receive prior period overpayments from, any Participating TO in excess of the Transmission Revenue Requirement approved in the final order, the CAISO may invoice settlement adjustment(s) to the Participating TO in the amounts to be adjusted or refunded pursuant to the final order.

## **17. RECORDS AND INFORMATION SHARING**

### **17.1. Records Relevant to Operation of CAISO Controlled Grid.**

The CAISO shall keep such records as may be necessary for the efficient operation of the CAISO Controlled Grid and shall make appropriate records available to a Participating TO, upon request. The CAISO shall maintain for not less than five (5) years: (1) a record of its operating orders and (2) a record of the contents of, and changes to, the CAISO Register.

### **17.2. Participating TO Records and Information Sharing.**

**17.2.1 Existing Maintenance Standards.** Each Participating TO shall provide to the CAISO, as set forth in Appendix C hereto: (1) the Participating TO's standards for inspection, maintenance, repair, and replacement of its facilities under the

CAISO's Operational Control; and (2) information, notices, or reports regarding the Participating TO's compliance with the inspection, maintenance, repair, and replacement standards set forth in Appendix C hereto.

**17.2.2 Other Records.** Each Participating TO shall provide to the CAISO and maintain current data, records, and drawings describing the physical and electrical properties of the facilities under the CAISO's Operational Control, which records shall be shared with the CAISO under reasonable guidelines and procedures to be specified by the CAISO.

**17.2.3 Required Reports.** Pursuant to this Agreement and the provisions of the CAISO Tariff, each Participating TO shall provide to the CAISO timely information, notices, or reports regarding matters of mutual concern, including:

- i. System Emergencies, Forced Outages, and other incidents affecting the CAISO Controlled Grid;
- ii. Maintenance Outage requests, including yearly forecasts required by Section 9.3.6 of the CAISO Tariff; and
- iii. System planning studies, including studies prepared in connection with interconnections to the CAISO Controlled Grid or any transmission facility enhancement or expansion affecting the CAISO Controlled Grid.

**17.2.4 Other Reports.** The CAISO may, in accordance with the provisions of this Agreement and Appendices hereto, upon reasonable notice to the Participating TO, request that the Participating TO provide the CAISO with such information or reports as are necessary for the operation of the CAISO Controlled Grid. The Participating TO shall make all such information or reports available to the CAISO

in the manner and time prescribed by this Agreement or Appendices hereto or, if no specific requirements are so prescribed, within a reasonable time and in a form to be specified by the CAISO.

**17.2.5 Other Market Participant Information.** At the request of the CAISO, a Participating TO shall provide the CAISO with non-confidential information obtained by the Participating TO from other Market Participants pursuant to contracts between the Participating TO and such other Market Participants. Such requests shall be limited to information that is reasonably necessary for the operation of the CAISO Controlled Grid.

### **17.3. CAISO System Studies and Operating Procedures.**

**17.3.1 System Studies and Grid Stability Analyses.** The CAISO, in coordination with Participating TOs, shall perform system operating studies or grid stability analyses to evaluate forecasted changes in grid conditions that could affect its ability to ensure compliance with the Applicable Reliability Criteria. The results and reports from such studies shall be exchanged between the CAISO and the Participating TOs. Study results and conclusions shall generally be assessed annually, and shall be updated as necessary, based on changing grid and local area conditions.

**17.3.2 Grid Conditions Affecting Regulations, Permits and Licenses.** The CAISO shall promulgate and maintain Operating Procedures to ensure that impaired or potentially degraded grid conditions are assessed and immediately communicated to the Participating TOs for operability determinations required by applicable regulations, permits, or licenses, such as NRC operating licenses for nuclear generating units.



#### **17.4. Significant Incident.**

**17.4.1 Risk of Significant Incident.** Any Party shall timely notify all other Parties if it becomes aware of the risk of significant incident, including extreme temperatures, storms, floods, fires, earthquakes, earth slides, sabotage, civil unrest, equipment outage limitations, etc., that affect the CAISO Controlled Grid. The Parties shall provide information that the reporting Party reasonably deems appropriate and necessary for the other Parties to prepare for the occurrence, in accordance with Good Utility Practice.

**17.4.2 Occurrence of Significant Incident.** Any Party shall timely notify all other Parties if it becomes aware that a significant incident affecting the CAISO Controlled Grid has occurred. Subsequent to notification, each Party shall make available to the CAISO all relevant data related to the occurrence of the significant incident. Such data shall be sufficient to accommodate any reporting or analysis necessary for the Parties to meet their obligations under this Agreement.

#### **17.5. Review of Information and Record-Related Policies.**

The CAISO shall periodically review the requirements of this Section 17 and shall, consistent with reliability and regulatory needs, other provisions of this Agreement, and Appendices hereto, seek to standardize reasonable record keeping, reporting, and information sharing requirements.

### **18. GRANTING RIGHTS-OF-ACCESS TO FACILITIES**

#### **18.1. Equipment Installation.**

In order to meet its obligations under this Agreement, a Party that owns, rents, or leases equipment (the equipment owner) may require installation of such equipment on

property owned by another Party (the property owner), provided that the property is being used for an electric utility purpose and that the property owner shall not be required to do so if it would thereby be prevented from performing its own obligations or exercising its rights under this Agreement.

**18.1.1 Free Access.** The property owner shall grant to the equipment owner free of charge reasonable installation rights and rights of access to accommodate equipment inspection, repair, upgrading, or removal for the purposes of this Agreement, subject to the property owner's reasonable safety, operational, and future expansion needs.

**18.1.2 Notice.** The equipment owner (whether CAISO or Participating TO) shall provide reasonable notice to the property owner when requesting access for site assessment, coordinating equipment installation, or other relevant purposes.

**18.1.3 Removal of Installed Equipment.** Following reasonable notice, the equipment owner shall be required, at its own expense, to remove or relocate equipment, at the request of the property owner, provided that the equipment owner shall not be required to do so if it would thereby be prevented from performing its obligations or exercising its rights under this Agreement.

**18.1.4 Costs.** The equipment owner shall repair at its own expense any property damage it causes in exercising its rights and shall reimburse the property owner for any other costs that it is required to incur to accommodate the equipment owner's exercise of its rights under this Section 18.1.

## **18.2. Rights to Assets.**

The Parties shall not interfere with each other's assets, without prior agreement.

## **18.3. Inspection of Facilities.**

In order to meet their respective obligations under this Agreement, any Party may view or inspect facilities owned by another Party. Provided that reasonable notice is given, a Party shall not unreasonably deny access to relevant facilities for viewing or inspection by the requesting Party.

**19. [INTENTIONALLY LEFT BLANK]**

**20. TRAINING**

**20.1. Staffing and Training to Meet Obligations.**

Each Party shall make its own arrangements for the engagement of all staff and labor necessary to perform its obligations hereunder and for their payment. Each Party shall employ (or cause to be employed) only persons who are appropriately qualified, skilled, and experienced in their respective trades or occupations. CAISO employees and contractors shall abide by the CAISO Code of Conduct contained in the CAISO Bylaws and approved by FERC.

**20.2. Technical Training.**

The CAISO and the Participating TOs shall respond to reasonable requests for support and provide relevant technical training to each other's employees to support the safe, reliable, and efficient operation of the CAISO Controlled Grid and to comply with any NERC or WECC operator certification or training requirements. Examples of such technical training include, but are not limited to: (1) the theory or operation of new or modified equipment (e.g., control systems, Remedial Action Schemes, protective relays); (2) computer and applicator programs; and (3) CAISO (or Participating TO) requirements. The Parties shall enter into agreements regarding the timing, term, locations, and cost allocation for the training.

## **21. OTHER SUPPORT SYSTEMS REQUIREMENTS**

### **21.1. Related Systems.**

The Parties shall each own, maintain, and operate equipment, other than those facilities described in the CAISO Register, which is necessary to meet their specific obligations under this Agreement.

### **21.2. Lease or Rental of Equipment by the CAISO.**

Under certain circumstances, it may be prudent for the CAISO to lease or rent equipment owned by a Participating TO, (e.g., EMS/SCADA, metering, telemetry, and communications systems), instead of installing its own equipment. In such case, the CAISO and the Participating TO shall mutually determine whether the CAISO shall lease or rent the Participating TO's equipment. The CAISO and the Participating TO shall enter into a written agreement specifying all the terms and conditions governing the lease or rental, including its term, equipment specifications, maintenance, availability, liability, interference mitigation, and payment terms.

## **22. LIABILITY**

### **22.1. Liability for Damages.**

Except as provided for in Section 13.3.14 of the CAISO Tariff and subject to Section 22.4, no Party to this Agreement shall be liable to any other Party for any losses, damages, claims, liability, costs, or expenses (including legal expenses) arising from the performance or non-performance of its obligations under this Agreement except to the extent that its grossly negligent performance of this Agreement (including intentional breach) results directly in physical damage to property owned, operated by,

or under the operational control of any of the other Parties or in the death or injury of any person.

#### **22.2. Exclusion of Certain Types of Loss.**

No Party shall be liable to any other party under any circumstances whatsoever for any consequential or indirect financial loss (including but not limited to loss of profit, loss of earnings or revenue, loss of use, loss of contract, or loss of goodwill) resulting from physical damage to property for which a Party may be liable under Section 22.1.

#### **22.3. CAISO's Insurance.**

The CAISO shall maintain insurance policies covering part or all of its liability under this Agreement with such insurance companies and containing such policy limits and deductible amounts as shall be determined by the CAISO Governing Board from time to time. The CAISO shall provide all Participating TOs with details of all insurance policies maintained by it pursuant to this Section 22 and shall have them named as additional insureds to the extent of their insurable interest.

#### **22.4. Participating TOs Indemnity.**

Each Participating TO shall indemnify the CAISO and hold it harmless against all losses, damages, claims, liability, costs, or expenses (including legal expenses) arising from third party claims due to any act or omission of that Participating TO except to the extent that they result from intentional wrongdoing or gross negligence on the part of the CAISO or of its officers, directors, or employees. The CAISO shall give written notice of any third party claims against which it is entitled to be indemnified under this Section to the Participating TOs concerned promptly after becoming aware of them. The Participating TOs who have acknowledged their obligation to provide a full indemnity

shall be entitled to control any litigation in relation to such third party claims (including settlement and other negotiations) and the CAISO shall, subject to its right to be indemnified against any resulting costs, cooperate fully with the Participating TOs in defense of such claims.

## **23. UNCONTROLLABLE FORCES**

### **23.1. Occurrences of Uncontrollable Forces.**

No Party will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to the occurrence of an Uncontrollable Force.

### **23.2. Obligations in the Event of an Uncontrollable Force.**

In the event of the occurrence of an Uncontrollable Force, which prevents a Party from performing any of its obligations under this Agreement, such Party shall:

(1) immediately notify the other Parties of such Uncontrollable Force with such notice to be confirmed in writing as soon as reasonably practicable; (2) not be entitled to suspend performance of its obligations under this Agreement to any greater extent or for any longer duration than is required by the Uncontrollable Force; (3) use its best efforts to mitigate the effects of such Uncontrollable Force, remedy its inability to perform, and resume full performance of its obligations hereunder; (4) keep the other Parties apprised of such efforts on a continual basis; and (5) provide written notice of the resumption of performance hereunder. Notwithstanding any of the foregoing, the settlement of any strike, lockout, or labor dispute constituting an Uncontrollable Force shall be within the sole discretion of the Party to this Agreement involved in such strike, lockout, or labor dispute and the requirement that a Party must use its best efforts to remedy the cause of the Uncontrollable Force and/or mitigate its effects and resume full

performance hereunder shall not apply to strikes, lockouts, or labor disputes.

## **24. ASSIGNMENTS AND CONVEYANCES**

No Party may assign its rights or transfer its obligations under this Agreement except, in the case of a Participating TO, pursuant to Section 4.4.1.

## **25. CAISO ENFORCEMENT**

In addition to its other rights and remedies under this Agreement, the CAISO may if it sees fit initiate regulatory proceedings seeking the imposition of sanctions against any Participating TO who commits a material breach of its obligations under this Agreement.

## **26. MISCELLANEOUS**

### **26.1. Notices.**

Any notice, demand, or request in accordance with this Agreement, unless otherwise provided in this Agreement, shall be in writing and shall be deemed properly served, given, or made: (1) upon delivery if delivered in person; (2) five (5) days after deposit in the mail, if sent by first class United States mail, postage prepaid; (3) upon receipt of confirmation by return electronic facsimile if sent by facsimile; (4) upon receipt of confirmation by return e-mail if sent by e-mail, or (5) upon delivery if delivered by prepaid commercial courier service. Each Party shall provide to the CAISO a designation of the persons specified to receive notice on its behalf pursuant to this Agreement, and the CAISO shall post a list of these contacts for notices on the CAISO Website. Any Party may at any time, by notice to the CAISO, change the designation or address of the person specified to receive notice on its behalf, and the CAISO shall make this change in the list of contacts for notices posted on the CAISO Website. Any

notice of a routine character in connection with service under this Agreement or in connection with the operation of facilities shall be given in such a manner as the Parties may determine from time to time, unless otherwise provided in this Agreement.

### **26.2. Non-Waiver.**

Any waiver at any time by any Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay short of the statutory period of limitations in asserting or enforcing any right shall not constitute or be deemed a waiver.

### **26.3. Confidentiality.**

26.3.1 **CAISO.** The CAISO shall maintain the confidentiality of all of the documents, materials, data, or information ("Data") provided to it by any other Party that reflects or contains: (a) Data treated as confidential or commercially sensitive under the confidentiality provisions of Section 20 of the CAISO Tariff; (b) Critical Energy Infrastructure Information, as defined in Section 388.113(c)(1) of the FERC's regulations; (c) technical information and materials that constitute valuable, confidential, and proprietary information, know-how, and trade secrets belonging to a Party, including, but not limited to, information relating to drawings, maps, reports, specifications, and records and/or software, data, computer models, and related documentation; or (d) Data that was previously public information but that was removed from public access in accordance with FERC's policy statement issued on October 11, 2001 in Docket No. PL02-1-000 in response to the September 11, 2001 terrorist attacks.



In order to be subject to the confidentiality protections of this Section 26.3, Data provided by a Party to the CAISO after January 1, 2005 which is to be accorded confidential treatment, as set forth above, shall be marked as "Confidential Data." Such a marking requirement, however, shall not be applicable to the Data provided by a Party to the CAISO prior to January 1, 2005 so long as the Data qualifies for confidential treatment hereunder. Notwithstanding the foregoing, the CAISO shall not keep confidential: (1) information that is explicitly subject to data exchange through the CAISO Website pursuant to Section 6 of the CAISO Tariff; (2) information that the CAISO or the Party providing the information is required to disclose pursuant to this Agreement, the CAISO Tariff, or applicable regulatory requirements (provided that the CAISO shall comply with any applicable limits on such disclosure); or (3) the information becomes available to the public on a non-confidential basis (other than as a result of the CAISO's breach of this Agreement).

**26.3.2 Other Parties.** No Party shall have a right hereunder to receive from the CAISO or to review any documents, data, or other information of another Party to the extent such documents, data, or information are required to be kept confidential in accordance with Section 26.3.1 above, provided, however, that a Party may receive and review any composite documents, data, and other information that may be developed based upon such confidential documents, data, or information, if the composite document does not disclose any individual Party's confidential data or information.

**26.3.3 Disclosure.** Notwithstanding anything in this Section 26.3 to the contrary, if the CAISO is required by applicable laws or regulations, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required

to be maintained in confidence pursuant to this Section 26.3, the CAISO may disclose such information; provided, however, that as soon as the CAISO learns of the disclosure requirement and prior to making such disclosure, the CAISO shall notify the affected Party or Parties of the requirement and the terms thereof. The affected Party or Parties may, at their sole discretion and own costs, direct any challenge to or defense against the disclosure requirement and the CAISO shall cooperate with such affected Party or Parties to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. The CAISO shall cooperate with the affected Parties to obtain proprietary or confidential treatment of confidential information by the person to whom such information is disclosed prior to any such disclosure.

#### **26.4. Third Party Beneficiaries.**

The Parties do not intend to create rights in, or to grant remedies to, any third party as a beneficiary of this Agreement or of any duty, covenant, obligation, or undertaking established hereunder.

#### **26.5. Relationship of the Parties.**

The covenants, obligations, rights, and liabilities of the Parties under this Agreement are intended to be several and not joint or collective, and nothing contained herein shall ever be construed to create an association, joint venture, trust, or partnership, or to impose a trust or partnership covenant, obligation, or liability on, or with regard to, any of the Parties. Each Party shall be individually responsible for its own covenants, obligations, and liabilities under this Agreement. No Party or group of Parties shall be under the control of or shall be deemed to control any other Party or Parties. No Party shall be the agent of or have the right or power to bind any other

Party without its written consent, except as expressly provided for in this Agreement.

**26.6. Titles.**

The captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

**26.7. Severability.**

If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.

**26.8. Preservation of Obligations.**

Upon termination of this Agreement, all unsatisfied obligations of each Party shall be preserved until satisfied.

**26.9. Governing Law.**

This Agreement shall be interpreted, governed by, and construed under the laws of the State of California, without regard to the principles of conflict of laws thereof, or

the laws of the United States, as applicable, as if executed and to be performed wholly within the State of California.

**26.10. Construction of Agreement.**

Ambiguities or uncertainties in the wording of this Agreement shall not be construed for or against any Party, but shall be construed in a manner that most accurately reflects the purpose of this Agreement and the nature of the rights and obligations of the Parties with respect to the matter being construed.

**26.11. Amendment.**

This Agreement may be modified: (1) by mutual agreement of the Parties, subject to approval by FERC; (2) through the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff; or (3) upon issuance of an order by FERC.

**26.12. Appendices Incorporated.**

The several appendices to this Agreement, as may be revised from time to time, are attached to this Agreement and are incorporated by reference as if herein fully set forth.

**26.13. Counterparts.**

This Agreement may be executed in one or more counterparts, which may be executed at different times. Each counterpart, which shall include applicable individual Appendices A, B, C, D, and E, shall constitute an original, but all such counterparts together shall constitute one and the same instrument.

**26.14 Consistency with Federal Laws and Regulations**

26.14.1 **No Violation of Law.** Nothing in this Agreement shall compel any Party to: (1) violate any federal statute or regulation; or (2) in the case of a

federal agency, to exceed its statutory authority, as defined by any applicable federal statute, or regulation or order lawfully promulgated thereunder. No Party shall incur any liability by failing to comply with a provision of this Agreement that is inapplicable to it by reason of being inconsistent with any federal statute, or regulation or order lawfully promulgated thereunder; provided, however, that such Party shall use its best efforts to comply with this Agreement to the extent that applicable federal laws, and regulations and orders lawfully promulgated thereunder, permit it to do so.

If Western issues or revises any federal regulation or order with the intent or effect of limiting, impairing, or excusing any obligation of Western under this Agreement, then unless Western's action was expressly directed by Congress, any Party, by giving thirty days' advance written notice to the other Parties, may require Western to withdraw from this Agreement, notwithstanding any other notice period in Section 3.3.1. If such notice is given, the CAISO and Western promptly shall meet to develop arrangements needed to comply with Western's obligation under Section 3.3.3 concerning non-impairment of CAISO Operational Control responsibilities.

26.14.2        **Federal Entity Indemnity.** No provision of this Agreement shall require any Participating TO to give an indemnity to Western or for Western to give an indemnity to any Participating TO. If any provision of this Agreement requiring Western to give an indemnity to the CAISO or the CAISO to impose a sanction on Western is unenforceable against a federal entity, the affected Party shall submit to the Secretary of Energy or other appropriate Departmental Secretary a report of any circumstances that would, but for this provision, have rendered a federal entity liable to indemnify any person or incur a sanction and may request the Secretary of Energy or

other appropriate Departmental Secretary to take such steps as are necessary to give effect to any provisions of this Agreement that are not enforceable against the federal entity.

26.14.3        **Recovery for Unenforceable Indemnity.** To the extent that a Party suffers any loss as a result of being unable to enforce any indemnity as a result of such enforcement being in violation of Section 26.14.2, it shall be entitled to seek recovery of such loss through its TO Tariff or through the CAISO Tariff, as applicable.

**27. SIGNATURE PAGE**

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**California Independent System Operator** Corporation has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of September, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendix E

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**250 Outcropping Way  
Folsom, California 95630**

DocuSigned by:  
by: *Eric Schmitt*  
0971A84CB55B4B8...

**Eric Schmitt**  
Vice President, Operations

**28. SIGNATURE PAGE**

**PACIFIC GAS AND ELECTRIC COMPANY**

**Pacific Gas and Electric Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10th day of September, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendix A (PG&E)

Appendix B (PG&E)

Appendix C

Appendix D

Appendix E (Diablo Canyon)

Appendix F

**PACIFIC GAS AND ELECTRIC COMPANY**  
**77 Beale Street**  
**San Francisco, California 94105**

by:  8DBC5B6F6C35482...

**Michael Lewis**  
**Senior Vice President, Electric Operations**



**29. SIGNATURE PAGE**

**SAN DIEGO GAS & ELECTRIC COMPANY**

**San Diego Gas & Electric Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 20<sup>TH</sup> day of DECEMBER, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

**SAN DIEGO GAS & ELECTRIC COMPANY**  
8330 Century Park Court  
San Diego, California 92123

by: 

**John Jenkins**  
Vice President - Electric System Operations  
San Diego Gas & Electric

Approved as to Legal Form 

**30. SIGNATURE PAGE**

**SOUTHERN CALIFORNIA EDISON COMPANY**

**Southern California Edison Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 31st day of March, 2014 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Edison)

Appendix B (Edison)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

**SOUTHERN CALIFORNIA EDISON COMPANY**  
**2244 Walnut Grove Avenue**  
**Rosemead, California 91770**

by:  \_\_\_\_\_

**Erik Takayesu**  
**Vice President, Transmission, Substation & Operations**

**31. SIGNATURE PAGE**

**CITY OF VERNON**

**CITY OF VERNON** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 19<sup>th</sup> day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Vernon)

Appendix B (Vernon)

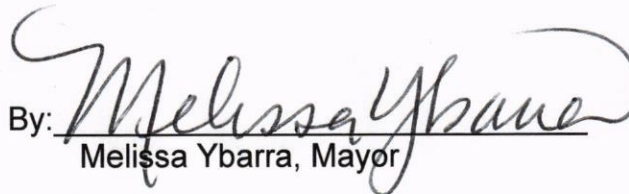
Appendix C

Appendix D

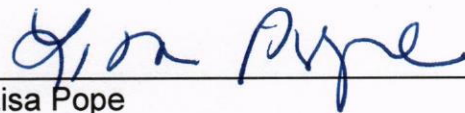
Appendix E

Appendix F

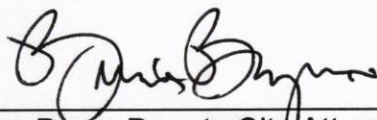
**CITY OF VERNON**

By:   
Melissa Ybarra, Mayor

ATTEST:

  
\_\_\_\_\_  
Lisa Pope  
City Clerk

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Brian Byun, Deputy City Attorney

**32. SIGNATURE PAGE**

**CITY OF ANAHEIM**

**CITY OF ANAHEIM** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 11<sup>th</sup> day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Anaheim)

Appendix B (Anaheim)

Appendix C

Appendix D

Appendix F

**CITY OF ANAHEIM**

By: \_\_\_\_\_

  
Dukku Lee  
Public Utilities General Manager

ATTEST:



Theresa Bass, City Clerk

APPROVED AS TO FORM:  
ANAHEIM CITY ATTORNEY'S OFFICE



Alison M. Kott  
Assistant City Attorney

**33. SIGNATURE PAGE**

**CITY OF AZUSA**

**CITY OF AZUSA** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of

\_\_\_\_\_, \_\_\_\_\_ and thereby incorporates the following

Appendices in this Agreement:

Appendix A (Azusa)

Appendix B (Azusa)

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF AZUSA**

By: Joseph R. Rocha  
Joseph R. Rocha  
Mayor

**34. SIGNATURE PAGE**

**CITY OF BANNING**

**CITY OF BANNING** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 18th day of December, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Banning)

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF BANNING**

By: 

Doug Schulze  
City Manager

ATTEST:

  
\_\_\_\_\_  
Sonja De La Fuente, Deputy City Clerk  
City of Banning

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Margaret McNaul, Utility FERC Attorney  
Thompson Coburn LLP

**35. SIGNATURE PAGE**

**CITY OF RIVERSIDE**

**CITY OF RIVERSIDE** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 20<sup>th</sup> day of December, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Riverside)

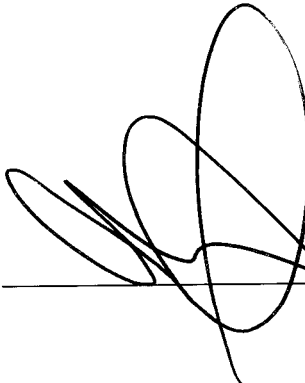
Appendix B (Riverside)

Appendix C

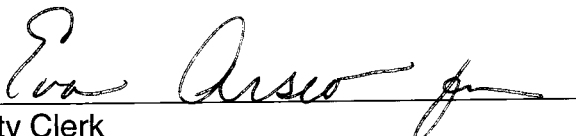
Appendix D

Appendices E


Appendix F

By:  **CITY OF RIVERSIDE**  
3900 Main Street, 4<sup>th</sup> Floor  
Riverside, California 92522  
Al Zelinka, City Manager

ATTEST:

  
City Clerk

APPROVED AS TO FORM:

  
Assistant City Attorney

**36. SIGNATURE PAGE**

**DATC PATH 15, LLC**

**DATC PATH 15, LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 14 day of FEBRUARY, 2020 and thereby incorporates the following Appendices in this Agreement:

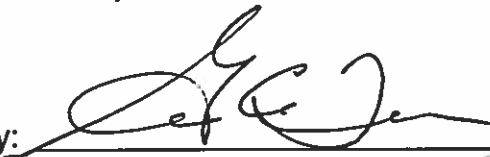
Appendix A (DATC Path 15)

Appendix C

Appendix D

Appendix F

**DATC Path 15, LLC**  
**550 South Caldwell Street**  
**Charlotte, NC 28202**

By:   
\_\_\_\_\_  
George C. Dawe  
President



37. SIGNATURE PAGE

WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA REGION

WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA

REGION has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 12<sup>th</sup> day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Western)

Appendix C

Appendix D

Appendix F

Western Area Power Administration, Sierra Nevada Region  
Sierra Nevada Region  
114 Parkshore Drive  
Folsom, CA 95630-4710

By:



Sonja A. Anderson  
Senior Vice President and  
Sierra Nevada Regional Manager

38. SIGNATURE PAGE

CITY OF PASADENA

CITY OF PASADENA has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 27<sup>th</sup> day of February, 2020, and thereby incorporates the following Appendices in this Agreement:

Appendix A (Pasadena)

Appendix B (Pasadena)

Appendix C

Appendix D

Appendices E

Appendix F

City of Pasadena Water and Power Department  
150 S. Los Robles, Suite 200  
Pasadena, CA 91101

By: G. S. Bawa  
Gurcharan S. Bawa, General Manager Water and Power

APPROVED AS TO FORM:

By: Shirley Barkley 12/10/2019  
Assistant City Attorney

**39. SIGNATURE PAGE**

**TRANS BAY CABLE LLC**

**TRANS BAY CABLE LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 21st day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Trans Bay Cable LLC)

Appendix C

Appendix D

Appendix F

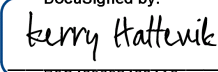
**Trans Bay Cable LLC**

1 Letterman Drive, Suite #C5-100

San Francisco, CA 94129

Tel: (415) 291-2300

Fax: (415) 291-2275

By: 

DocuSigned by:  
B9C4690924664A3...  
Kerry Hattevik  
President  
Trans Bay Cable LLC

**40. SIGNATURE PAGE**

**STARTRANS IO, L.L.C.**

**STARTRANS IO, L.L.C.** ("Startrans IO") has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_\_ day of \_\_\_\_\_, 2008 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Startrans IO)

Appendix C

Appendix D

Appendix F

**STARTRANS IO, L.L.C.**

By: \_\_\_\_\_



E.A. Kratzman  
CEO

41. SIGNATURE PAGE

CITIZENS SUNRISE TRANSMISSION LLC

Citizens Sunrise Transmission LLC has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of December, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

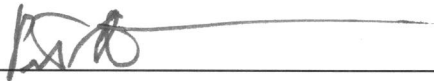
Appendices E

Appendix F

CITIZENS SUNRISE TRANSMISSION LLC

88 Black Falcon Avenue  
Center Lobby, Suite 342  
Boston, Massachusetts 02210

by: \_\_\_\_\_



**Peter F. Smith**  
Chief Executive Officer

**42. SIGNATURE PAGE**

**CITY OF COLTON**

**City of Colton** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of

December, 2019, and thereby incorporates the following

Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF COLTON**

650 N. La Cadena Drive  
Colton, CA 92324

by: \_\_\_\_\_



**David X. Kolk**  
Electric Utility Director

43. SIGNATURE PAGE

VALLEY ELECTRIC ASSOCIATION, INC

Valley Electric Association, Inc. has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of December, 2019, and thereby incorporates the following

Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**VALLEY ELECTRIC ASSOCIATION, INC.**  
P.O. Box 237  
Pahrump, NV 89041

By: \_\_\_\_\_

Steve Morrison  
Chief Financial Officer

**44. SIGNATURE PAGE**

**GRIDLIANCE WEST LLC**

**GridLiance West LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 18<sup>th</sup> day of February, 2020, and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

**GRIDLIANCE WEST LLC**  
201 E John Carpenter Fwy, Suite 900  
Irving, TX 75062

By: \_\_\_\_\_

Justin M. Campbell, IV  
President

K/



45. SIGNATURE PAGE

CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC

Citizens Sycamore-Penasquitos Transmission LLC has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of December, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

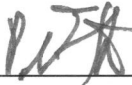
Appendix D

Appendices E

Appendix F

CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC

88 Black Falcon Avenue  
Center Lobby, Suite 342  
Boston, Massachusetts 02210

by: 

**Peter F. Smith**  
Chief Executive Officer

**46. SIGNATURE PAGE**

**HORIZON WEST TRANSMISSION, LLC**

**Horizon West Transmission, LLC** has caused this Transmission Control Agreement executed by its duly authorized representative on this 19<sup>th</sup> day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C


Appendix D

Appendices E

Appendix F

**HORIZON WEST TRANSMISSION, LLC**

700 Universe Blvd.  
Juno Beach, FL 33408

by:  \_\_\_\_\_

**Eric Gleason**  
President of Horizon West Transmission

**47. SIGNATURE PAGE**

**DESERTLINK, LLC**

**DesertLink, LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 13<sup>th</sup> day of February, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (DesertLink)

Appendix C

Appendix D

Appendix F

**DESERTLINK, LLC**

16150 Main Circle Dr., Suite 310  
Chesterfield, Missouri 63017

by:  \_\_\_\_\_

**Mark D. Milburn**  
Vice President

**AMENDED AND RESTATED TRANSMISSION CONTROL AGREEMENT**

**APPENDIX A**

**Facilities and Entitlements**

**(The Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO were submitted by the CAISO on behalf of the Transmission Owners on March 31, 1997– any modifications are attached as follows)**

## **Modification of Appendix A1**

### **Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO**

**(submitted by the CAISO on behalf of Pacific Gas and Electric Company  
Transmission Owner)**

The diagrams of transmission lines and associated facilities placed under the Operational Control of the CAISO submitted by the CAISO on behalf of PG&E on March 31, 1997 are amended as follows.

#### Item 1: Port of Oakland 115 kV Facilities

Operational Control of the transmission facilities, shown on operating diagram, East Bay Region (East Bay Division), Sheet No. 1, serving the Port of Oakland and Davis 115 kV (USN) is not to be transferred to the CAISO. These are special facilities funded by and connected solely to a customer's substation and their operation is not necessary for Operational Control by the CAISO pursuant to the specifications of Section 4.1.1 of the TCA.

As of the date of execution of the TCA, the CAISO and PG&E are discussing further modifications to the diagrams of transmission lines and facilities placed under the control of the CAISO. A new version of the diagrams is to be filed with FERC prior to April 1, 1998. This subsequent version of the diagrams will reflect all modifications (including those described herein).

## APPENDIX A2

### List of Entitlements Being Placed Under CAISO Operational Control

(Includes only those where PG&E is a service rights-holder)

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
1.	PacifiCorp, CAISO	PG&E Original Rate Schedule FERC No. 239	Transmission Exchange Agreement	12/31/2027 or per Section 4.2	Both entitlement and encumbrance. PG&E receives 800 MW north-to-south and 612.5 MW south-to-north transmission service on PacifiCorp's owned share of Malin–Round Mountain No. 2 500 kV line.
2.	SCE, NorthWest ern, NV Energy	WECC Unscheduled Flow Mitigation Plan – PG&E Rate Schedule FERC No. 221	Operation of control facilities to mitigate loop flows	Evergreen, or on notice	No transmission services provided, but classified as an entitlement since loop flow is reduced or an encumbrance if PG&E is asked to cut.
3.	TANC, WAPA, and PacifiCorp	Owners Coordinated Operations Agreement – PG&E Rate Schedule FERC No. 229	Transmission system coordination, curtailment sharing, rights allocation, scheduling	1/1/2043, or on two years' notice, or earlier if other agreements terminate	Both entitlement and encumbrance
4.	CDWR	PG&E Rate Schedule FERC No. 245	Contract for Sale of Interest In and Operation of Midway-Wheeler Ridge	Pursuant to agreement by the Parties	<ul style="list-style-type: none"> <li>• The Midway-Wheeler Ridge 230 kV lines #1 and #2 have a combined rating of 608 MW under normal operating conditions. Of this amount CDWR owns 456 MW and PG&amp;E owns 152 MW. During emergency conditions with only one line available the remaining line is rated 367 MW. Of this amount CDWR owns 275.25 MW and PG&amp;E owns 91.75 MW.</li> <li>• Either Party may transmit power over any unused portion of the other Party's interest in the available line capability.</li> <li>• Section 5.4 Scheduled Outages: PG&amp;E, the operator of the Midway-Wheeler Ridge 230 kV lines, shall give CDWR reasonable advance notice, which shall not be less than 3 days, unless otherwise agreed by the Parties' dispatchers, of any proposed schedule outage and its estimated duration.</li> <li>• Section 5.5 Jeopardy: If at any time continuity of service within PG&amp;E's service territory is being jeopardized by flows of electric power over the Midway-Wheeler Ridge 230 kV lines, as determined by PG&amp;E in its sole judgment, PG&amp;E may request that CDWR curtail flows of electric power over the transmission system for delivery to CDWR's Loads to the extent necessary to eliminate or</li> </ul>

				<p>avoid such jeopardy, and CDWR shall comply with such request; provided, however, that PG&amp;E may only request the curtailment of such flows after it has taken all reasonable efforts to eliminate or avoid such jeopardy by any or all of the following means, as appropriate to the situation, to the extent that such means reduce or eliminate the jeopardy:</p> <ul style="list-style-type: none"> <li>(i) Discontinuing service to customers which are served under an interruptible transmission service schedule;</li> <li>(ii) Starting up, or increasing the loading of, any generating unit, including combustion turbine peaking units, which is available to PG&amp;E;</li> <li>(iii) Purchasing power from other utilities;</li> <li>(iv) Returning to service those generating units and transmission facilities which are out of service at the time of such jeopardy and which can reasonably be returned to service;</li> <li>(v) Obtaining emergency service under agreements with CDWR and other utilities which are in effect at that time; and provided further that until such jeopardy is eliminated or avoided, PG&amp;E shall in no event be entitled to the use of more than 152 MW of the Midway-Wheeler Ridge 230 kV lines without the consent of CDWR.</li> </ul> <p><u>Section 5.3 Connection of PGandE's Loads or Facilities:</u>  PGandE may connect a new load or facility to the Transmission System; provided that PGandE shall not connect a new load or facility to the Transmission System if such connection would cause a hazard to life or property, or jeopardize the operational integrity, safety or reliability of the Transmission System. At least 180 days, or a shorter period if practicable in the Parties' judgment, prior to connecting a new load or facility to the Transmission System, PGandE shall provide DWR written notice of such proposed connection.</p> <p><u>Section 6.3.1</u> Either Party may propose to the other Party Betterments or Extraordinary Work to the Transmission System. Costs of such Betterments or Extraordinary Work shall be shared in proportion to the associated benefits to each Party. The Parties shall determine if any adjustment to their relative ownership interests in the Transmission System should be made as a result of any Betterment. Such determination of benefits and adjustments to ownership interests shall be agreed to prior to commencing work on the Betterments or Extraordinary Work.</p>
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**Supplement To PG&E's Appendix A**

## Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), the transmission system<sup>1</sup> Pacific Gas and Electric Company (PG&E) is placing under the California Independent System Operator's Operational Control will meet the Applicable Reliability Criteria in 1998,<sup>2</sup> except (1) for the transmission facilities comprising Path 15, which do not meet the Western Systems Coordinating Council's (WSCC) Reliability Criteria for Transmission Planning with a simultaneous outage of the Los Banos-Gates and Los Banos-Midway 500 kV lines (for south-to-north power flow exceeding 2500 MW on Path 15),<sup>3</sup> and (2) with respect to potential problems identified in PG&E's annual assessment of its reliability performance in accordance with Applicable Reliability Criteria, performed with participation from the ISO and other stakeholders; as a result of this process, PG&E has been developing solutions to mitigate the identified potential problems and submitting them to the ISO for approval.

Pursuant to Section 4.1.5(i), PG&E does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of PG&E utility service pursuant to AB 1890. However, PG&E can't warrant that these right of way or franchise agreements will provide

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<sup>1</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>2</sup> Based upon PG&E's substation and system load forecasts for study year 1998, historically typical generation dispatch and the Applicable Reliability Criteria, including the current applicable WSCC Reliability Criteria for Transmission Planning issued in March 1997, the PG&E Local Reliability as stated in the 1997 PG&E Transmission Planning Handbook Criteria (submitted to the California ISO Transmission Planning, in writing, on October 20, 1997), and the NERC Reliability Performance Criteria in effect at the time PG&E was assessing its system (as of June 1, 1997). PG&E may not meet the WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high.

<sup>3</sup> The ISO will operate Path 15 so as to maintain system reliability. In accepting this notice from PG&E, the ISO agrees to work with PG&E and the WSCC to achieve a resolution respecting the WSCC long-term path rating limit for Path 15, consistent with WSCC requirements. Pending any revision to the WSCC long-term path rating limit for Path 15, the ISO will continue to operate Path 15 at the existing WSCC long-term path rating limit unless, in the judgment of the ISO:

(a) the operating limit must be reduced on a short-term (e.g., seasonal) basis to maintain system reliability, taking into account factors such as the WSCC guidelines, determination of credible outages and the Operating Capability Study Group (OCSG) study process; or

(b) the operating limit must be reduced on a real-time basis to maintain system reliability.

In determining whether the operating limit of Path 15 must be changed to maintain system reliability, the ISO shall, to the extent possible, work with the WSCC and the PTOs to reach consensus as to any new interim operating limit.



necessary authority for ISO entry or physical use of such rights apart from PG&E's rights pursuant to its physical ownership and operation of transmission facilities.

**APPENDIX A.2: EDISON'S CONTRACT ENTITLEMENTS**

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
1.	City-Edison Pacific Intertie D-C Transmission Facilities Agreement	LADWP	44448	3/31/2041 or sooner by mutual agreement of the parties.	<ul style="list-style-type: none"> <li>Edison owns 50% of the D-C transmission line and Sylmar DC convertor facility.</li> </ul>
2.	Pasadena Interconnection Agreement	Pasadena	484	By Pasadena upon 24 months advance written notice; or by SCE upon default by Pasadena.	<ul style="list-style-type: none"> <li>Goodrich-Gould and Goodrich-Laguna Bell 220 kV transmission lines interconnect Edison's system with Pasadena's system at Pasadena's T.M. Goodrich Substation.</li> <li>Edison maintains and operates T.M. Goodrich 220 kV Substation.</li> </ul>
3.	Victorville-Lugo Interconnection Agreement	LADWP	51	11/20/2059, or sooner by mutual agreement.	<ul style="list-style-type: none"> <li>2400 MW towards Edison, 900 MW towards LADWP. Transfer capability of the interconnection is established through joint technical studies.</li> </ul>
4.	City-Edison Sylmar Interconnection Agreement	LADWP	307	On 5 years advance written notice by either party any time after the termination of the City-Edison Pacific Intertie DC Transmission Facilities Agreement.	<ul style="list-style-type: none"> <li>Pardee Sylmar No. #1&amp;2, Gould-Sylmar and Eagle Rock-Sylmar 220 kV transmission line interconnections at Sylmar including circuit breakers and busses. Lines have been re-configured from arrangement described in contract.</li> <li>Edison owns one of the three regulating transformers at Sylmar.</li> </ul>
5.	City-Edison Owens Valley Interconnection and interchange Agreement	LADWP	50	On 12 months advance written notice by either party.	<ul style="list-style-type: none"> <li>The Control-Haiwee-Inyokern and the Control-Coso-Haiwee-Inyokern 115 kV lines normally operate open at LADWP's Haiwee Substation. At the request of either party and by mutual agreement, LADWP's and Edison's respective systems interconnected at LADWP's Haiwee 115 kV Substation.</li> </ul>
6.	City-Edison 400,000 kVA Interconnection Agreement (Velasco)	LADWP	215	On 3 year advance written notice by either party.	<ul style="list-style-type: none"> <li>Edison's portion of the normally open Laguna Bell-Velasco 230 kV transmission line from Laguna Bell to the point where ownership changes.</li> </ul>

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
7.	Edison-Los Angeles Inyo Interconnection Agreement	LADWP	306	On 5 year advance written notice by either party or by mutual agreement.	<ul style="list-style-type: none"> <li>Inyo 230/115 kV Substation, Inyo Phase Shifter, Control-Inyo 115 kV transmission line and 230 kV tap to LADWP's Owens Gorge-Rinaldi 230 kV transmission line.</li> </ul>
8.	Amended and Restated IID-Edison Mirage 230 kV Interconnection Agreement	IID	314	On one year advance notice but not prior to the termination date of the IID-Edison Transmission Service Agreement for Alternate Resources.	<ul style="list-style-type: none"> <li>Edison's interconnection with IID at Mirage and the point of interconnection on the Devers – Coachella Valley line.</li> </ul>
9.	Navajo Interconnection Principles	USA, APS, SRP, NPC, LADWP, TGE	76	5 years from the effective date of 1973, with the termination date of 5/20/2023.	<ul style="list-style-type: none"> <li>Generation principles for emergency service.</li> </ul>
10.	Edison – Navajo Transmission Agreement	USA, APS, SRP, NPC, LADWP, TGE	264	Effective until 5/21/2023, as of 5/5/2016	<ul style="list-style-type: none"> <li>In the event of a contingency in the Navajo-McCullough or Moenkopi-Eldorado transmission lines, Edison and the Navajo participants provide each other emergency transmission service without a charge. As part of the APS-SCE Expiration Agreement, on 5/6/2016, APS and SCE executed the Assignment and Assumption Agreement which provides for SCE Assigned to Arizona and Arizona to accept such assignment and assuming all Edison's, title and interest in and to the Navajo Transmission Agreement as they relate to the Arizona Transmission System.</li> </ul>

	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
11.	ANPP High Voltage Switchyard Participation Agreement	APS, SRP, PSNM, EPE, SCPPA, LADWP	320	8/20/2031	<ul style="list-style-type: none"> <li>Edison has 20.30% undivided ownership interest as a tenant-in-common in the ANPP High Voltage Switchyard.</li> <li>Edison has rights to transmit through the ANPP High Voltage Switchyard up to its 15.8% share of generation from ANPP, or a substitute equal amount, plus any other generation up to the extent of its transmission rights in the Palo Verde-Devers 500 kV Transmission Line</li> <li>Edison has additional rights to use any unused capacity in the ANPP High Voltage Switchyard, provided that any over subscription shall be subject to proration of the remaining capacity based on switchyard ownership.</li> </ul>
12.	Midway Interconnection Agreement	PG&E	477	Upon one (1) year advance written notice by either party, but not prior to 1/1/2012.	<ul style="list-style-type: none"> <li>Edison's ownership of the Midway Interconnection: <ul style="list-style-type: none"> <li>Midway-Vincent No. 1 500kV line</li> <li>Midway-Vincent No. 2 500 kV line</li> <li>Midway-Whirlwind Substation to M53,T1</li> </ul> </li> </ul> <p>Note: The former Midway-Vincent No.3 500 kV line was looped into SCE's Whirlwind Substation forming the Midway-Whirlwind and Vincent-Whirlwind 500 kV line No.3.</p>
13.	Amended and Restated Eldorado Co-Tenancy and Operating Agreement	NV Energy and LADWP	44424	12/31/2046 unless extended in accordance with Section 25.8 of the Agreement.	<ul style="list-style-type: none"> <li>Eldorado-Mohave 500 kV Line: 530 MW</li> <li>Eldorado-Mead 220 kV Lines No. 1&amp;2: 624 MW</li> <li>Eldorado 500/220 kV No.3 AA and No.4 AA Transformer Banks:669 MW.</li> </ul>
14.	WAPA-Edison Contract for 161-kV Interconnection and Operation, Maintenance and Replacement at Blythe Substation	WAPA	482	Midnight 9/30, 2028 or sooner by 1 year advance written notice by either party.	<ul style="list-style-type: none"> <li>WAPA's Blythe 161 kV Substation, and Edison's Eagle Mountain-Blythe 161 kV transmission line. System to System interconnection agreement.</li> </ul>

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
15.	Edison-Arizona Transmission Agreement	APS	505	On 3 year advance written notice by either Party.	<ul style="list-style-type: none"> <li>This Interconnection Agreement is to connect APS and SCE's respective system through the Eldorado-Moenkopi 500 kV Transmission Line in Colorado River at the Willow Beach.</li> </ul>

## Supplement to Edison Appendix A

### Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), Southern California Edison Company (Edison) is providing notice its transmission system<sup>14</sup> being placed under the California Independent System Operator's (ISO) Operational Control will meet the Applicable Reliability Criteria in 1998,<sup>25</sup> except as noted in its bulk power program and described herein. Edison's transmission system has been developed in accordance with NERC and WSCC's reliability criteria. WSCC's most recent Log of System Performance Recommendations, dated April 15, 1997, does not show any instances where Edison's transmission system does not meet NERC and WSCC reliability criteria, absent approved exemptions.

Pursuant to Section 4.1.5 (i), Edison does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of Edison's utility service pursuant to AB 1890. However, Edison can't warrant that these right of way or franchise agreements will provide necessary authority for ISO entry or physical use of such rights apart from Edison's rights pursuant to its physical ownership and operation of transmission facilities.

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<sup>1</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>2</sup> Edison's most recent assessment is based on Edison's substation and system load forecasts for study year 1998 and criteria in effect as of September 1, 1997. Edison meets WSCC's reliability criteria except for WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high. Assessments of Edison's transmission system using NERC Planning Standards and Guides, released September 16, 1997 will be performed in accordance with the ISO's coordinated transmission planning process as provided for in the ISO Tariff, Section 3.2.2. and under schedules adopted in that process.

## **Modification of Appendix A1**

### **Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO**

**(submitted by the CAISO on behalf of San Diego Gas & Electric Company  
Transmission Owner)**

The diagrams of transmission lines and associated facilities placed under the Operational Control of the CAISO submitted by the CAISO on behalf of SDG&E are amended as follows.

Item 1: Imperial Valley Switchyard 230kV Breakers Nos. 4132 and 5132 shown in the diagram as non-SDG&E facilities should be shown as SDG&E owned. Furthermore, these breakers are being placed under the Operational Control of the CAISO.

## APPENDIX A.2: SDG&E'S CONTRACT ENTITLEMENTS

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
79-017	IID-SDG&E Interconnection and Exchange Agreement	IID	065	June 24, 2051 (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by IID of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, IID and SDG&E to provide each other emergency capacity and energy.
78-007	CFE-SDG&E Interconnection and Exchange Agreement	CFE		12 month notice (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by CFE of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, CFE and SDG&E to provide each other emergency capacity and energy.
81-005	Palo Verde-North Gila Line ANPP High Voltage Switchyard Interconnection Agreement	APS, IID, PNM, SRP, El Paso, SCE, SCPPA	063	July 31, 2031.	The parties are obligated to provide mutual switchyard assistance during emergencies to the extent possible. However, in the event that the capacity of the ANPP Switchyard is insufficient to accommodate all requests, the rights of the ANPP Switchyard Participants shall take precedence in all allocations.
81-050	IID-SDG&E California Transmission System Participation Agreement	IID		June 24, 2051.	SDG&E and IID schedule power and energy over the California Transmission System for their respective accounts at the Yuma (North Gila ) 500 kV Switchyard for delivery to the 500 kV breaker yard of the Imperial Valley in the following percentages of operating capacity: SDG&E -- 85.64%; and IID -- 14.36%.
78-003	APS-SDG&E Arizona Transmission System Participation Agreement	APS		July 31, 2031.	SDG&E, APS, and IID schedule power and energy over the Arizona Transmission System for their respective accounts at the Palo Verde Switchyard for delivery at the Yuma (North Gila) 500 kV Switchyard in the following percentages of operating capacity: APS -- 11%; SDG&E -- 76.22%; IID -- 12.78%.
	The Funding Agreement For The Development Of A Satellite Switchyard	Funding Agreement: Salt River Project	SCE FERC Rate	July 31, 2031.	The Funding Agreement provides that the owners of the North Gila and Kyrene transmission lines will act in good faith to negotiation agreements with respect to the loop in of these lines at the ANPP Satellite



	<p>To The ANPP High Voltage Switchyard Between Participating Interconnectors and Salt River Project Agricultural Improvement and Power District (Funding Agreement) incorporates the Memorandum of Understanding Between Arizona Public Service Company, San Diego Gas &amp; Electric Company, Imperial Irrigation District, and Salt River Project Agricultural Improvement and Power District Incorporated (MOU)</p>	<p>Agricultural Improvement and Power District, Department of Water and Power of the City of Los Angeles, Southern California Edison Company, Duke Energy Maricopa, LLC, Gila Bend Power Partners, LLC, Harquahala Generating Company, LLC, Mesquite Power, LLC, Pinnacle West Energy Corporation, and NRG Mextrans, Inc.</p> <p>MOU: SDG&amp;E, APS, IID, and SRP</p>	<p>Schedule 420</p>		<p>Switchyard (Hassayampa) on terms and conditions satisfactory to the ANPP High Voltage Switchyard Participants consistent with the MOU. Under the MOU, SDG&amp;E retains ownership and control over the facilities associated with the loop-in of the Palo Verde-North Gila line in Hassayampa so as to ensure the unobstructed transfer of capacity and energy through Hassayampa equal to the capability of the existing Palo Verde-North Gila line.</p>
	<p>SDG&amp;E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease</p>	<p>SDG&amp;E, Citizens Sunrise Transmission LLC</p>			<p>SDG&amp;E is solely entitled to decide upon, develop, design, engineer, procure, construct, commission, own, operate, maintain, and finance any upgrades to all or any portion of the Sunrise Powerlink Project ("Sunrise Powerlink") of the Sunrise Powerlink for purposes of increasing the Transfer Capability of all or any portion of the Sunrise Powerlink. SDG&amp;E shall be solely responsible to pay the costs of such upgrades. Citizens agrees that it will not oppose any upgrades proposed by SDG&amp;E. SDG&amp;E shall be solely entitled to determine whether any additional capital investment is needed for replacement or renewal of facilities of the Sunrise Powerlink resulting in no increases in the Transfer Capability of the Sunrise Powerlink, and if so, the timeframe for the same. SDG&amp;E shall be solely entitled to itself undertake or undertake by way of contracts with others to develop, design, engineer, procure, construct, commission, own, operate, maintain, and finance such replacement or renewals of the facilities of the Sunrise Powerlink. SDG&amp;E shall be responsible for all costs of such replacement or renewal. Subject to the CAISO Tariff and rules governing interconnection, as between SDG&amp;E and Citizens, SDG&amp;E will be the</p>

				<p>interconnection agent for the Sunrise Powerlink. In particular, SDG&amp;E will process all requests for interconnection to the Sunrise Powerlink, SDG&amp;E will develop, design, engineer, procure, construct, commission, own, operate, maintain, and arrange funding for such interconnection facilities, including all substations and switchyards connected to the Sunrise Powerlink, and SDG&amp;E will retain all ownership and Transfer Capability interests in such interconnection facilities.</p>
	<p>SDG&amp;E-Citizens Sycamore-Penasquitos Transmission LLC Development and Coordination Agreement/Transfer Capability Lease</p>	<p>SDG&amp;E-Citizens Sycamore-Penasquitos Transmission LLC</p>		<p>SDG&amp;E shall be solely entitled to decide upon, develop, design, engineer, procure, construct, commission, own, operate, maintain and finance any upgrades to all or any portion of the Project after the Commercial Operation Date for purposes of increasing the Transfer Capability of all or any portion of the Project. SDG&amp;E shall be solely responsible to pay the costs of such upgrades. Citizens Sycamore-Penasquitos Transmission agrees that it will not oppose any upgrades sought before any Governmental Authority, System Operator, or Balancing Authority by SDG&amp;E.</p> <p>SDG&amp;E shall be solely entitled to determine whether any additional capital investment is needed for replacement or renewal of facilities of the Project resulting in no increases in the Transfer Capability of the Project, and if so, the timeframe for the same. SDG&amp;E shall be solely entitled to itself undertake or undertake by way of contracts with others to develop, design, engineer, procure, construct, commission, own, operate, maintain and finance such replacement or renewals of the facilities of the Project. SDG&amp;E shall be responsible for all costs of such replacement or renewal.</p> <p>Subject to the CAISO Agreement and rules governing interconnection, as between SDG&amp;E and Citizens Sycamore-Penasquitos Transmission, SDG&amp;E will be the interconnection agent for the Project and on behalf of Citizens Sycamore-Penasquitos Transmission with respect to the Citizens Transfer Capability. In particular, SDG&amp;E will process all requests for interconnection to the Project, SDG&amp;E will develop, design, engineer, procure, construct, commission, own, operate, maintain, and arrange funding for such interconnection facilities, including all substations and switchyards connected to the Project, and SDG&amp;E will retain all ownership and Transfer Capability interests in such interconnection facilities.</p>

## Supplement To SDG&E's Appendix A

### Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), the transmission system<sup>6</sup> of San Diego Gas & Electric Company (SDG&E) is placing under the California Independent System Operator's Operational Control meets the Applicable Reliability Criteria,<sup>7</sup> with the following exceptions: (1) SDG&E has not yet re-assessed its system performance for any reliability criteria added or modified by the new North American Electric Reliability Council (NERC) Planning Standards and Guides, released in September, 1997;<sup>8</sup> (2) SDG&E has also not yet re-assessed its system performance for the revised simultaneous generator outage criteria which was approved by the WSCC Board of Trustees on October 27, 1997.<sup>9</sup>

Pursuant to Section 4.1.5(i), SDG&E does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of SDG&E utility service pursuant to AB 1890. However, SDG&E cannot warrant that these right-of-way or franchise agreements will provide necessary authority for ISO entry or physical use of such rights apart from SDG&E's rights, pursuant to its physical ownership and operation of transmission facilities.

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<sup>6</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>7</sup> Based upon studies with SDG&E's forecast peak 1998 system loads and the Applicable Reliability Criteria, including the WSCC Reliability Criteria for Transmission Planning and WSCC Minimum Operating Reliability Criteria dated March 1997, and the SDG&E Local Reliability Criteria as submitted to the California ISO by letter dated December 15, 1997.

<sup>8</sup> Assessments of SDG&E's transmission system using NERC Planning Standards and Guides, released September 16, 1997 will be performed in accordance with the ISO's coordinated transmission planning process as provided for in the ISO Tariff, Section 3.2.2 and under schedules adopted in that process.

<sup>9</sup> The revised criteria will be cooperatively assessed by SDG&E and the ISO as soon as possible but not later than May 1, 1998. SDG&E also may not meet the WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high.

**APPENDIX A.2: CITY OF VERNON  
TRANSMISSION ENTITLEMENTS**

<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT-TITLE</b>	<b>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Laguna Bell	Vernon, Edison	Bi-Directional	Edison-Vernon Mead FTS	207	(1) See Notes	26 MW
2. Victorville-Lugo Midpoint-Laguna Bell	Vernon, Edison	Bi-Directional	Edison-Vernon Victorville-Lugo Midpoint FTS	1154	(2) See Notes	11 MW
3. Adelanto-Victorville/Lugo Midpoint (3a)	Vernon, Los Angeles	Bi-Directional	Los Angeles-Vernon Adelanto-Victorville/Lugo FTS		(3b) See Notes	81 MW

Summary - Details are in each agreement

## APPENDIX A.2: CITY OF VERNON'S CONTRACT ENTITLEMENTS

### Notes:

- (1) Contract Termination: Upon termination of Vernon's Hoover Power Sales contract with WAPA; or 12/31/2007 based on proper notice from Vernon to Edison.
- (2) Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or 12/31/2007 based on proper notice from Vernon to Edison.
- (3a) DWP No. 10396.
- (3b) Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or four years prior written notice by either party.



**APPENDIX A: CITY OF ANAHEIM  
TRANSMISSION ENTITLEMENTS**

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Termination</b>	<b>Contract Amount</b>
1	IPP-Adelanto Switching Station	Anaheim-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	424 MW (N-S) 247 MW (S-N)
2	Marketplace Substation-Adelanto	Anaheim-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	118 MW
	Marketplace Substation-McCullough	"	"	"		"	159 MW
3	Westwing-Mead 500 kV	Anaheim-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	70 MW
	Marketplace-Mead 500 kV	"	"	"		"	155 MW
	Mead 500 kV-Mead 230 kV	"	"	"		"	110 MW
	Marketplace Substation-McCullough	"	"	"		"	103 MW
4	Adelanto-Victorville/Lugo	Anaheim-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agreement		See Note 1	110 MW
5	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Base Capacity Transmission Service Agreement		See Note 2	238 MW
6	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Additional Capacity Transmission Service Agreement		See Note 3	185 MW
7	IPP-Mona Substation	Anaheim-LADWP	West-East	Northern Transmission System Agreement		See Note 4	235 MW
	Mona Substation-IPP	"	East-West	"		"	257 MW
	IPP-Gonder Substation	"	East-West	"		"	36 MW
	Gonder Substation-IPP	"	West-East	"		"	23 MW

**Notes**

1. Agreement terminates on: (i) removal of Mead-Adelanto Project from Service; or (ii) removal of Los Angeles-SCE interconnection at Victorville/Lugo.
2. Agreement terminates on: (i) June 15, 2027; or (ii) the date Anaheim interconnects at Adelanto Switching Station.
3. Agreement terminates on: (i) June 15, 2027; (ii) the date Anaheim interconnects at Adelanto Switching Station; or (iii) 5-year's notice by LADWP.
4. Agreement terminates on: (i) termination of LADWP's rights to the Northern Transmission System; or (ii) termination of the IPP Additional Capacity Transmission Service Agreement.

**APPENDIX A: CITY OF AZUSA  
CITY OF AZUSA'S TRANSMISSION ENTITLEMENTS**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
1. Mead-Adelanto Project (MAP)	SCPPA, MSR, Vernon	Bi-Directional	<ul style="list-style-type: none"> <li>- MAP Joint Ownership Agreement.</li> <li>- Adelanto Switching Station Interconnection Agreement.</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement.</li> </ul>		As agreed to by the owners and approved by the Project Coordinating Committee.	19 MW



**CITY OF AZUSA'S TRANSMISSION ENTITLEMENTS**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
2. Mead-Phoenix Project (MPP)  a) Westwing-Mead b) Mead Substation c) Mead-Marketplace	SCPPA, MSR, Vernon, SRP, APS	Bi-Directional Bi-Directional Bi-Directional	- MPP Joint Ownership Agreement - Westwing Substation Interconnection Agreement - Mead Interconnection Agreement - Marketplace-McCullough 500 kV Interconnection Agreement.		As agreed to by the owners and approved by the Project Management Committee.	4 MW 0 MW 4 MW
3. Mead - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Hoover FTS	372	(1) See Notes	4 MW
4. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Palo Verde Nuclear Generating Station FTS	373	(2) See Notes	4 MW
5. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Pasadena FTS	374	(3) See Notes	14 MW

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
6. Mead - Rio Hondo	Azusa, Edison	Bi-Directional	Edison-Azusa Sylmar FTS	375	(4) See Notes	8 MW
7. Victorville-Lugo - Adelanto	Azusa, Los Angeles	Bi-Directional	Los Angeles - Azusa Adelanto-Victorville/Lugo FTS	DWP No. 10345	(5) See Notes	19 MW

Summary- details are in each agreement.

**NOTES:**

- (1) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement or termination of Electric Service Contract, provided that the termination of FTS Agreement shall not occur prior to January 1, 2003.
- (2) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement, termination of Azusa's entitlement to PVNGS, or termination of the Arizona Nuclear Power Project Participation, provided that the termination of the FTS Agreement shall not occur prior to January 1, 2003.
- (3) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement or termination of City's ownership in San Juan Unit 3, provided that termination of this Transmission Service Agreement shall not occur prior to January 1, 2003.
- (4) Contract Termination: Same as (3)
- (5) Contract Termination: This agreement shall be terminated upon the earlier of: (i) four years prior written notice by either Party, which notice shall not be given before one year after the Date of Firm Operation; (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the point of interconnection on the Victorville-Lugo transmission line is permanently removed from service; (iv) the in-service date of the Adelanto-Lugo transmission line, as such date is defined pursuant to the agreements relating thereto; (v) a date determined pursuant to Section 4.3 of the agreement; or (vi) a date mutually agreed upon by the Parties.

## APPENDIX A: CITY OF BANNING TRANSMISSION ENTITLEMENTS

	Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Termination
1.	Marketplace Substation-Adelanto	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		Oct 31, 2030
2.	Westwing-Mead-Marketplace 500 kV	Banning-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030
3.	Marketplace-McCullough 500 kV	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030
4.	Adelanto-Victorville/Lugo	Banning-LADWP	To Victorville	Adelanto-Victorville/Lugo Firm Transmission Service Agreement		See Note 1
5.	Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement		See Note 2
6.	Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Sylmar Firm Transmission Service Agreement		See Note 3
7.	Mead 230 kV-Devers 115 kV	Banning-SCE	To Devers	Hoover Firm Transmission Service Agreement		See Note 4

### Notes

1. Agreement terminates on: (i) 4-years written notice by either party; or (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the point of interconnection on the Victorville/Lugo line is permanently removed from service; (iv) the in-service date of the Adelanto-Lugo transmission line, as such date is defined pursuant to the agreements relating thereto.
2. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest in Palo Verde Nuclear Generating Station Unit 2; or (iii) unacceptable FERC modification.
3. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest San Juan Unit 3; or (iii) unacceptable FERC modification.
4. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of the Electric Service Contract between Western and Banning; or (iii) unacceptable FERC modification.

## APPENDIX A: CITY OF RIVERSIDE TRANSMISSION ENTITLEMENTS

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Termination</b>
1.	IPP-Adelanto Switching Station	Riverside-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27
2.	Marketplace Substation-Adelanto	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30
3.	Westwing-Mead-Marketplace 500 kV	Riverside-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30
4.	Marketplace-McCullough 500 kV	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		31-Oct-30 31-Oct-30
5.	Adelanto-Victorville/Lugo	Riverside-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agmt		See Note 1
6.	Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Base Capacity Transmission Service Agreement		See Note 2
7.	Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Additional Capacity Transmission Service Agreement		See Note 3
8.	IPP-Mona Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4
9.	IPP-Gonder Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4
10.	Mead 230 kV-Vista	Riverside-SCE	To Vista	Hoover Firm Transmission Service Agreement		See Note 6
11.	Lugo/Victorville-Vista	Riverside-SCE	To Vista	Intermountain Power Project Firm Transmission Service Agreement		See Note 7
12.	Lugo/Victorville-Vista	Riverside-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agmt.		See Note 8

### Notes

1. Agreement terminates on: (i) removal of Mead-Adelanto Project from Service; or (ii) removal of Los Angeles-SCE interconnection at Victorville/Lugo.
2. Agreement terminates on: (i) June 15, 2027; or (ii) the date Riverside interconnects at Adelanto Switching Station.
3. Agreement terminates on: (i) June 15, 2027; (ii) the date Riverside interconnects at Adelanto Switching Station; or (iii) 5-year's notice by LADWP.
4. Agreement terminates on: (i) termination of LADWP's rights to the Northern Transmission System; or (ii) termination of the IPP Additional Capacity Agreement.
5. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Boulder Canyon Project (Hoover); or (iii) unacceptable FERC modification.
6. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Intermountain Power Project; or (iii) unacceptable FERC modification.
7. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Palo Verde Nuclear Generating Station; or (iii) unacceptable FERC modification.

**Appendix A**  
**DATC Path 15, LLC**  
**Transmission Entitlements**

Path 15 Project Facilities

DATC Path 15, LLC is a participant in the Path 15 Upgrade Project, which will consist of a new, single, 83-mile, 500-kilovolt (kV) transmission line and associated substation facilities extending between the PG&E Los Banos Substation in the California Central Valley (the northern terminus of the Project) and the Gates Substation (the southern terminus of the Project), including modifications at the substations to connect the line as well as reconfigurations to the Gates – Midway 230-kV line and the 115 kV line north of Midway. Voltage support facilities will also be added at the Los Banos and Gates Substations as part of the Project. DATC Path 15, LLC will own Entitlements to certain capacity on the Path 15 Project Facilities.

DATC Path 15, LLC will provide the funding for the development of the Transmission Line and Land acquisition for the Path 15 Upgrade Project (Project), as well as funding for the ongoing operation and maintenance of the transmission line and will, as a result, be granted Entitlements to capacity on the Path 15 Upgrade Project.

Under the terms of the Letter Agreement (LA) approved by the Federal Energy Regulatory Commission and under the provisions of the Construction and Coordination Agreement (CCA) entered into by the Path 15 Upgrade Project participants, each participant will receive an allocation of Entitlement and the associated Transmission System Rights in the Project proportional to each party's contribution to the Project (save for a specified allocation to Western Area Power Administration – Sierra Nevada Region ("WAPA-SNR") that shall be no less than 10% of the Project). The initial allocation of Entitlements to DATC Path 15, LLC is as follows:

Allocation	72%
Capacity	1,080 MW (Based on an estimate of 1,500 MW)

The LA and CCA further provide that a final allocation of Entitlements will be determined based on the ratio of the contribution made by DATC Path 15, LLC to the Project relative to the contributions of other Project participants. Each Path 15 Upgrade Project participant will provide the Coordination Committee and the other Parties with a final accounting of the Project Costs within 180 days after the commencement of the commercial operations to determine the final allocation of Entitlements pursuant to the provisions of the LA and Section 15.4 of the CCA. DATC Path 15, LLC shall also provide a copy of the final accounting to the CAISO. The allocation of Entitlements set forth in this Appendix A is a preliminary estimate of the Entitlements to be granted to DATC Path 15, LLC and will be amended following a final accounting for the Project, if applicable.

**Appendix A**  
**Western Area Power Administration, Sierra Nevada Region**  
**Transmission Rights and Interests**

Path 15 Project Facilities

Western is a participant in the Path 15 Upgrade Project, which will consist of a new, single, 83-mile, 500-kilovolt (kV) transmission line and associated substation facilities extending between the PG&E Los Banos Substation in the California Central Valley (the northern terminus of the Project) and the Gates Substation (the southern terminus of the Project), including modifications at the substations to connect the line as well as reconfigurations to the Gates – Midway 230-kV line and the 115 kV line north of Midway. Voltage support facilities will also be added at the Los Banos and Gates Substations as part of the Project. Western will own the portion of the Path 15 Project Facilities consisting of the 500 kV transmission line between the Los Banos and Gates Substations.

Under the terms of the Letter Agreement (LA) approved by the Federal Energy Regulatory Commission and under the provisions of the Construction and Coordination Agreement (CCA) entered into by the Path 15 Upgrade Project participants, each participant will receive an allocation of “Transmission System Rights” in the Project. Western’s allocation of Transmission System Rights under the LA and CCA is as follows:

Allocation	10%
Capacity	150 MW (Based on an estimate of 1,500 MW)

Western is turning over to CAISO Operational Control all of its rights and interests in both its ownership of the Project facilities and its contract Transmission System Rights.

## APPENDIX A: CITY OF PASADENA TRANSMISSION ENTITLEMENTS

Ref	Point of Receipt-Delivery (see note 2)	Parties	Direction	Contract Title	FERC No.	Contract Termination	Contract Amount
B1.	IPP - Adelanto Switching Station	Pasadena-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	141 MW
B2.	Mead - Marketplace - Adelanto	Pasadena-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	75 MW
B3.a	Westwing – Mead 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	33 MW
B3.b	Mead 500 kV - Marketplace 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	60 MW
B3.c	Mead 500 kV - Mead 230 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	25 MW
B4.	Marketplace 500 - McCullough 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix and Mead-Adelanto Project Transmission Service Contracts		31-Oct-30	135 MW
B5.	Adelanto - Victorville	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
B6.a	IPP - Mona Substation	Pasadena-LADWP - Utah Participants	Bi-directional	IPP Excess Power Sales Sales Agreement		15-Jun-27	104 MW [Note 3]
B6.b	IPP - Gonder Substation	Pasadena-LADWP - Utah Participants	Bi-directional	IPP Excess Power Sales Sales Agreement		15-Jun-27	16 MW [Note 3]
B8.a	Adelanto - Sylmar	Pasadena-LADWP	Bi-directional	IPP Transmission Service Agreement 14443		15-Jun-27	141 MW [Note 2]
B8.b	Adelanto - Sylmar	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW [Note 2]
B9.	Victorville – Sylmar	Pasadena-LADWP	Bi-directional	Victorville-Sylmar Transmission Service Agreement 14444		Note 1	26 MW [Note 1, Note 2]
B10.	Mead –McCullough	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
B11.	McCullough - Victorville	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
C1.	Nevada Oregon Border - Sylmar	Pasadena-LADWP	Bi-directional	Pacific Intertie D-C Transmission Facilities Agreement		14-Apr-41	N-S 72 MW S-N 69 MW [Note 2]
C2.	McCullough – Victorville	Pasadena-LADWP	Bi-directional	McCullough Victorville Line 2 Transmission Agreement 10463		31-May-30	26 MW

### Notes

- 1 This contract is coterminous with the McCullough Victorville Line 2 Transmission Agreement.
- 2 Deliveries to Sylmar point of delivery are at the SCE/CAISO side of the 230kV bus.
- 3 The contract amount is subject to change by the terms of the contract.

**Appendix A**  
**Trans Bay Cable, LLC**  
**Transmission Facilities and Entitlements**

**Trans Bay Cable Project Facilities**

Trans Bay Cable LLC (TBC) will develop, finance and construct a high voltage, direct current transmission line of approximately fifty-five miles in length and associated facilities to establish a direct connection between Pacific Gas and Electric Company's (PG&E's) Pittsburg Substation located at a site adjacent to the City of Pittsburg, California in Contra Costa County to PG&E's Potrero Substation within the City of San Francisco (the Project). The transmission line will consist of an approximately 7,000-ton bundled cable consisting of a transmission cable, a fiber optic communications cable and a metallic return. The underwater portion of the transmission line will be laid by a ship or barge with special equipment in a single trench underneath San Francisco Bay. The remaining length of the transmission line (most likely a few hundred yards at either end of the line) will be buried underground, either through directional drilling or laid in a trench. In addition, the Project will involve the construction of two converter stations near each of the PG&E Substations to convert the alternating current received at the Pittsburg Substation to direct current and then back to alternating current at the Potrero Substation.

In accordance with the TCA and the TO Tariff, TBC will transfer the Project to CAISO Operational Control at the time the Project enters service.



**APPENDIX A: STARTRANS IO, L.L.C.**

**TRANSMISSION ENTITLEMENTS**

<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT-TITLE</b>	<b>FER C</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Adelanto Project (MAP)	SCPPA, LADWP, Startrans IO (Operating Agent-LA)	Bi-Directional	<ul style="list-style-type: none"> <li>- MAP Joint Ownership Agreement</li> <li>- Adelanto Switching Station Interconnection Agreement</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement</li> </ul>		As agreed to by the owners and approved by the Project Coordinating Committee.	81 MW
2. Mead-Phoenix Project (MPP)  a) Westwing-Mead b) Mead Substation c) Mead-Marketplace	SCPPA, LADWP, Startrans IO, SRP, APR (Operating Managers – SRP, Western (DSW))	Bi-Directional Bi-Directional Bi-Directional	<ul style="list-style-type: none"> <li>- MPP Joint Ownership Agreement</li> <li>- Westwing Substation Interconnection Agreement.</li> <li>- Mead Interconnection Agreement</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement</li> </ul>		As agreed to by the owners and approved by the Project Management Committee.	28 MW 47 MW 75 MW

**Appendix A**  
**Citizens Sunrise Transmission LLC**  
**Transmission Entitlement**

San Diego Gas & Electric Company (“SDG&E”) and Citizens Energy Corporation (“Citizens Energy”) have agreed in their Development and Coordination Agreement of May 9, 2009 (“DCA”), as amended December 21, 2011, that Citizens Energy would have an opportunity to obtain an interest in the Sunrise Powerlink Project (“Sunrise Powerlink”), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease 50% of the transfer capability of the 500 kV segment of the Sunrise Powerlink located in Imperial County, California for 30 years (the “Border-East Line”). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option on or before the scheduled date of commercial operation of the Sunrise Powerlink, (2) to pay SDG&E certain associated costs (one half of the actual cost of construction and development of the Border-East Line), and (3) to assume all operating costs related to its interest in the Border-East Line. Citizens Energy is further obligated to turn over operational control of its interest in the Border-East Line to the CAISO. Prior to exercising its option under the DCA, Citizens Energy will finalize its rights set forth in a Transfer Capability Lease as provided for in the DCA and will assign and transfer all of its rights and obligations thereunder, and all of the regulatory approvals it has obtained to date, to Citizens Sunrise Transmission LLC.

**Appendix A-2: Citizens Sunrise Transmission, LLC  
Entitlements**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount	
Imperial Valley Substation*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011	NA	2012	2042	NA	
Suncrest Substation/Sycamore Canyon Substations*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011	NA	2012	2042	NA	
* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation only to the San Diego County/Imperial County Border								

**APPENDIX A: CITY OF COLTON  
TRANSMISSION ENTITLEMENTS**

<b>REF #</b>	<b>POINT-OF-RECEIPT DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT TITLE</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1	Marketplace-Adelanto	Colton-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract	None	See note 1	23 MW
2	Westwing-Mead-Marketplace	Colton-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract	None	See note 2	4 MW
3	Marketplace-McCullough	Colton-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract	None	See note 3	33 MW
				Mead-Phoenix Project Transmission Service Contract			
4	Adelanto-Lugo/Victorville	Colton-LADWP	Bi-directional	Adelanto-Lugo/Victorville Firm Transmission Service Agreement	None	See Note 4	23 MW
5	Devers-Vista	Colton-SCE	To Vista	1995 San Juan Unit 3 Firm Transmission Service Agreement	365	See Note 5	14.043 MW
6	Mead-Vista	Colton-SCE	To Vista	Hoover Firm Transmission Service Agreement	361	See Note 6	3 MW
7	Lugo/Victorville-Vista	Colton-SCE	To Vista	Pasadena Firm Transmission Service Agreement	363	See Note 7	18 MW
8	Lugo/Victorville-Vista	Colton-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement	362	See Note 8	3 MW

**Notes:**

1. Agreement terminates on: (i) October 31, 2030; or (ii) such later date as all bonds used to finance the project have been paid or provisions for their payment have been made.
2. Agreement terminates on: (i) October 31, 2030; or (ii) such later date as all bonds used to finance the project have been paid or provisions for such payment has been made.
3. Agreement terminates concurrent with termination of the agreements referred to in notes 1 and 2 above.
4. Agreement terminates on: (i) four year notice by either party; (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the Lugo-Victorville point of interconnection is permanently removed from service; (iv) the in-service date of a new transmission line interconnecting LADWP's Adelanto Switching Station and SCE's Lugo Substation; or (v) upon 30 days notice if Colton elects to terminate the agreement following a change in the rate for transmission service charged by LADWP.
5. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in San Juan Generating Station Unit 3; or (iii) unacceptable FERC modification.
6. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Electric Service Contract providing for Colton's interest in the Boulder Canyon Project (Hoover); or (iii) unacceptable FERC modification.
7. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in San Juan Generating Station Unit 3; or (iii) unacceptable FERC modification.
8. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in the Palo Verde Nuclear Generating Station; (iii) termination of the Arizona Nuclear Power Project Participation Agreement; or (iv) unacceptable FERC modification.

**Appendix A**  
**Valley Electric Association, Inc.**  
**Transmission Facilities and Entitlements**

Valley Electric Association, Inc. (“Valley Electric”) transferred operational control of its entitlements to the 230 kV and 138kV transmission facilities located in its service area to the CAISO, effective at 0100 hours on January 3, 2013. Valley Electric has agreed to sell its interest in the 230 kV transmission facilities to GridLiance West LLC (“GridLiance West”) and, upon transfer, the 230 kV transmission facilities shall become transmission facilities of GridLiance West that will remain under CAISO operational control.

Valley Electric has an entitlement to transfer capability at the Mead substation (“Mead Rights”) pursuant to an agreement between Valley Electric and the Western Area Power Administration – Desert Southwest Region (Western DSR). In connection with its sale of the 230 kV transmission facilities to GridLiance West, Valley Electric intends to assign its Entitlement to the Mead Rights to GridLiance West. Upon assignment, the Mead Rights shall become an Entitlement of GridLiance West and will remain under CAISO operational control.

In addition, Valley Electric has the exclusive entitlement and obligation to operate, use and maintain the 138 kV transmission facilities and future 138 kV transmission facilities located in its service area, which are owned by its wholly owned subsidiary, Valley Electric Transmission Association, LLC (“VETA”).

<b>POINT-OF-RECEIPT DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT TITLE</b>	<b>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
VETA 138 kV Transmission Facilities	Valley Electric VETA	Exclusive Bi-Directional Use of all VETA Transmission Facilities	Use and Entitlement Agreement, dated September 11, 2012	N/A	Subject to Transmission Control Agreement	All capacity represented in the CAISO network model

**Appendix A  
GridLiance West LLC  
Transmission Facilities Entitlements**

The GridLiance West LLC transmission assets and associated facilities comprise: (1) 230 kV transmission facilities running from an interconnection point at Nevada Power Company’s Northwest Substation 4.35 miles to GridLiance West’s Desert View Switch Station; (2) 38.43 miles of 230 kV transmission line running from Desert View Switch Station to GridLiance’s Innovation Substation; (3) 36.66 miles of 230 kV transmission line running from GridLiance West’s Pahrump Substation to GridLiance West’s Innovation Substation; (4) 72 miles of 230 kV transmission line running from Pahrump Substation to GridLiance West’s Sloan Canyon Switch Station, (5) 13.6 miles of 230 kV transmission lines running from Western-DSR’s Mead Substation to GridLiance West’s Sloan Canyon Switch Station; (6) 3 miles of 230 kV transmission line running from GridLiance West’s Sloan Canyon Switch Station to Southern California Edison’s Eldorado Substation and (7) equipment related to the transmission lines listed above, which includes 230 kV equipment in the Pahrump Substation, Innovation Substation, Sloan Canyon Switch and Desert View Switch Station.

<b>POINT-OF-RECEIPT DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT TITLE</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
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Mead Substation	Western DSR	Bi Directional	Contract No. 18-DSR-12824	September 30, 2048	Each Party shall be entitled to transfer capacity and energy between themselves and other third parties at Mead Substation up to the capability of the Mead Substation 230-kV interconnection facilities, as determined by WAPA
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**Appendix A**  
**Citizens Sycamore-Penasquitos Transmission LLC**  
**Transmission Entitlement**

San Diego Gas & Electric Company (“SDG&E”) and Citizens Energy Corporation (“Citizens Energy”) have agreed in their Development, Coordination, and Option Agreement of November 9, 2017 (“DCOA”), that Citizens Energy would have an opportunity to obtain an interest in the Sycamore to Penasquitos 230 kV Transmission Project (“Sycamore-Penasquitos Project”), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease approximately 12.92% of the transfer capability rights in an underground segment of the Sycamore-Penasquitos Project, located in San Diego County, California, for 30 years (“Underground Segment B”). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option no later than the Target Closing Date, as that term is defined within the DCOA, (2) to pay SDG&E \$27 million in the form of prepaid rent, and (3) to assume all operating costs related to its interest in the Underground Segment B. Citizens Energy is further obligated to turn over operational control of its interest in the Underground Segment B to the CAISO. While Citizens Energy executed the DOCA with SDG&E, Citizens Energy will assign and transfer all of its rights and obligations under the DOCA and all of the regulatory approvals it has obtained to its wholly owned subsidiary, Citizens Sycamore-Penasquitos Transmission LLC.

<b>Appendix A-2: Citizens Sycamore-Penasquitos Transmission, LLC</b>							
<b>Entitlements</b>							
Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Sycamore Canyon Substation*	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017	NA	2018	2048	NA
Peñasquitos Substation *	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017	NA	2018	2048	NA
* Citizens Sycamore-Penasquitos Transmission's interest are limited to the underground segment of the transmission line between the referenced substations.							

**Appendix A**  
**Horizon West Transmission, LLC**  
**Transmission Facilities**

**Horizon West Transmission Project Facilities**

Horizon West Transmission, LLC transmission lines and associated facilities will consist of a +300/-100 MVAR SVC substation including a one mile underground 230 kV transmission line interconnecting to SDG&E's Suncrest Substation 230 kV bus, located in San Diego County.

In accordance with the TCA and the TO Tariff, Horizon West Transmission, LLC. will transfer the transmission lines and associated facilities to CAISO Operational Control at the time the transmission lines and associated facilities enters service.

**Appendix A**  
**DesertLink, LLC**  
**Transmission Facilities**

**DesertLink Transmission Project Facilities**

The DesertLink project facilities consist of a 500 kV transmission line between the SCE majority-owned Eldorado 500 kV substation and NV Energy owned Harry Allen 500 kV substation and associated facilities including series compensation equipment located at the NV Energy owned Crystal substation, all located in Clark County, Nevada.

**TRANSMISSION CONTROL AGREEMENT**

**APPENDIX B**

**Encumbrances**

## **PG&E APPENDIX B**

### List of Encumbrances on Lines, Facilities, and Entitlements Being Placed Under CAISO Operational Control (per TCA Appendix A1 & A2)<sup>10</sup>

(Includes only those where PG&E is a service provider)

Abbreviations Used:	CDWR	= California Department of Water Resources
	SCE	= Southern California Edison Company
	SDG&E	= San Diego Gas & Electric Company
	TANC	= Transmission Agency of Northern California
	WAPA	= Western Area Power Administration

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<sup>10</sup> The treatment of current rights, including scheduling priorities, relating to the listed Encumbrances are set forth in the operating instructions submitted by the PTO in accordance with the CAISO Tariff and the TCA.

<b>Ref. #</b>	<b>Entities</b>	<b>Contract / Rate Schedule #</b>	<b>Nature of Contract</b>	<b>Termination</b>	<b>Comments</b>
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1.	CDWR	PG&E Rate Schedule FERC No. 245	Contract for Sale of Interest In and Operation of Midway-Wheeler Ridge Transmission System	Pursuant to agreement by the parties.	<ul style="list-style-type: none"> <li>• The Midway-Wheeler Ridge 230 kV lines #1 and #2 have a combined rating of 608 MW under normal operating conditions. Of this amount CDWR owns 456 MW and PG&amp;E owns 152 MW. During emergency conditions with only one line available the remaining line is rated 367 MW. Of this amount CDWR owns 275.25 MW and PG&amp;E owns 91.75 MW.</li> <li>• Either Party may transmit power over any unused portion of the other Party's interest in the available line capability.</li> <li>• Section 5.4 Scheduled Outages: PG&amp;E, the operator of the Midway-Wheeler Ridge 230 kV lines, shall give CDWR reasonable advance notice, which shall not be less than 3 days, unless otherwise agreed by the Parties' dispatchers, of any proposed schedule outage and its estimated duration.</li> <li>• Section 5.5 Jeopardy: If at any time continuity of service within PG&amp;E's service territory is being jeopardized by flows of electric power over the Midway-Wheeler Ridge 230 kV lines, as determined by PG&amp;E in its sole judgment, PG&amp;E may request that CDWR curtail flows of electric power over the transmission system for delivery to CDWR's Loads to the extent necessary to eliminate or avoid such jeopardy, and CDWR shall comply with such request; provided, however, that PG&amp;E may only request the curtailment of such flows after it has taken all reasonable efforts to eliminate or avoid such jeopardy by any or all of the following means, as appropriate to the situation, to the extent that such means reduce or eliminate the jeopardy: <ul style="list-style-type: none"> <li>(vi) Discontinuing service to customers which are served under an interruptible transmission service schedule;</li> <li>(vii) Starting up, or increasing the loading of, any generating unit, including combustion turbine peaking units, which is available to PG&amp;E;</li> <li>(viii) Purchasing power from other utilities;</li> <li>(ix) Returning to service those generating units and transmission facilities which are out of service at the time of such jeopardy and which can reasonably be returned to service;</li> <li>(x) Obtaining emergency service under agreements with CDWR and other utilities which are in effect at that time; and provided further that until such jeopardy is eliminated or avoided, PG&amp;E shall in no event be entitled to the use of more than 152 MW of the Midway-Wheeler Ridge 230 kV lines without the consent of CDWR.</li> </ul> </li> </ul> <p><u>Section 5.3 Connection of PGandE's Loads or Facilities:</u>  PGandE may connect a new load or facility to the Transmission System; provided that PGandE shall not connect a new load or facility to the</p>
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Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
					<p>Transmission System if such connection would cause a hazard to life or property, or jeopardize the operational integrity, safety or reliability of the Transmission System. At least 180 days, or a shorter period if practicable in the Parties' judgment, prior to connecting a new load or facility to the Transmission System, PGandE shall provide DWR written notice of such proposed connection.</p> <p><u>Section 6.3.1</u> Either Party may propose to the other Party Betterments or Extraordinary Work to the Transmission System. Costs of such Betterments or Extraordinary Work shall be shared in proportion to the associated benefits to each Party. The Parties shall determine if any adjustment to their relative ownership interests in the Transmission System should be made as a result of any Betterment. Such determination of benefits and adjustments to ownership interests shall be agreed to prior to commencing work on the Betterments or Extraordinary Work.</p>



2.	NCPA, CSC, CDWR	Castle Rock- Lakeville CoTenancy Agreement – PG&E Rate Schedule FERC No. 139	Transmission facilities maintenance	Evergreen, or 1 year notice after 1/1/2015	
3.	Path 15 Operating Instructio ns		Implements curtailment priorities consistent with various Existing Transmission Contracts.	Upon request by PG&E, subject to FERC acceptance.	See Exhibit B-1 to this Appendix B to the TCA
4.	Puget Sound Power & Light	Capacity and Energy Exchange – PG&E Rate Schedule FERC No. 140	Power exchanges	Terminates on 5 years' advance notice.	

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
5.	Santa Clara (City of)	Mokelumne Settlement and Grizzly Development Agreement – PG&E Rate Schedule FERC No. 248	Transmission, power sales	1/1/2034	
6.	SCE, NorthWestern, NV Energy	WECC Unscheduled Flow Mitigation Plan – PG&E Rate Schedule FERC No. 221	Operation of control facilities to mitigate loop flows	Evergreen, or on notice	No transmission services provided, but classified as an entitlement since loop flow is reduced or an encumbrance if PG&E is asked to cut.
7.	TANC, WAPA, and PacifiCorp	Owners Coordinated Operations Agreement – PG&E Rate Schedule FERC No. 229	Transmission system coordination, curtailment sharing, rights allocation, scheduling.	1/1/2043, or on two years' notice, or earlier if other agreements terminate	Both entitlement and encumbrance

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
8.	TANC and other COTP Participants	COTP Interconnection Rate Schedule – PG&E Rate Schedule FERC No. 144	Interconnection	Upon termination of COTP	
9.	TANC	Midway Transmission Service / South of Tesla Principles – PGE& Rate Schedule FERC No. 143	Transmission, curtailment priority mitigation,* replacement power	Same as the COTP Interim Participation Agreement, subject to exception	

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\* Includes use of PG&E's DC Intertie or PDCI for pre-specified mitigation of curtailments over Path 15.

Ref.#	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
10.	WAPA	New Melones – Contract No. 8-07-20-P0004 – PG&E Rate Schedule FERC No. 60	Transmission	6/1/2032	Per WAPA, commercial operation date for New Melones was 6/1/82
11.	PacifiCorp , CAISO	PG&E Rate Schedule FERC No. 239	Transmission Exchange Agreement	12/31/2027 or per Section 4.2	Through an exchange, (1) PG&E provides PacifiCorp 800 MW of transmission capacity north to south and 612 MW south to north on PG&E's portion of the 500-kV No. 2 Line between the Round Mountain substation and Indian Spring and (2) PacifiCorp provides PG&E 800 MW of transmission capacity north to south and 612 MW south to north on PacifiCorp's portion of the 500-kV No. 2 Line between Indian Spring and the Malin substation.

**Lien Mortgage**

The lien of the First and Refunding Mortgage dated December 1, 1920 between PG&E and BNY Western Trust Company, as trustee, as amended and supplemented and in effect of the date hereof (the "PG&E Mortgage"). The transfer of Operational Control to the CAISO pursuant to this Agreement shall in no event be deemed to be a lien or charge on the PG&E Property which would be prior to the lien of the PG&E Mortgage; however, no consent of the trustee under the PG&E Mortgage is require to consummate the transfer of Operational Control to the CAISO pursuant to this Agreement.

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**EXHIBIT B-1  
(TO PG&E APPENDIX B)**

**Path 15 Curtailment Instructions  
For Existing Encumbrances Across the Path 15 Interface**

**Purpose and Objective**

Path 15 Curtailment Instructions provide direction to the CAISO regarding the management of Congestion on Path 15 and are submitted to the CAISO, as part of the Transmission Rights and Transmission Curtailment (TRTC) Instructions, by PG&E as the Responsible PTO for the Existing Transmission Contract (ETC) rights on the path.

These instructions are to be administered and adhered to by the CAISO except when the CAISO determines that system reliability requires that other steps be taken. The CAISO is solely responsible for continued system reliability and must unilaterally take all steps necessary to preserve the system in times of emergency.

## TCA APPENDIX B: EDISON’S CONTRACT ENCUMBRANCES

**Notes:**

The following is an additional encumbrance that does not fit into the format for existing contract encumbrances. The additional encumbrance is:

- The lien of the Trust Indenture dated as of October 1, 1923, between Edison and Harris Trust and Savings Bank and Pacific-Southwest Trust & Savings Bank (D. G. Donovan, successor trustee), as trustees (“the Edison Indenture”). The transfer of Operational Control to the CAISO pursuant to this Agreement (i) does not require any consent from the trustees under the Edison Indenture, (ii) shall not be deemed to create any lien or charge on the Edison Transmission Assets that would be prior to the lien of the Edison Indenture, and (iii) shall not otherwise impair the lien of the Edison Indenture.
- The treatment of current rights, including scheduling priorities, relating to the listed Encumbrances are set forth in the operating instructions submitted by the PTO in accordance with the CAISO Tariff and the TCA.

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
1.	Eldorado / Mohave - Lugo	LADWP	Bi-dir.	Lugo-Victorville - Interconnection Agreement	51	Shall remain in effect for 40 years after its Effective Date or sooner by mutual agreement. Expected Termination is 11/20/2059	Edison is required to provide capacity to LADWP equal to the product of LA’s Capacity Share and the deemed capacity of the transmission system consisting of Lugo-Mohave-Eldorado, Mohave-, Eldorado-Lugo, - McCullough, McCullough-Victorville lines, and Victorville-500 kV transmission lines.

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
2.	Moenkopi - Eldorado	USA, APS, SRP, NPC, LADWP, TGE	Bi-dir.	Edison - Navajo Transmission Agreement	264	This Agreement will remain in effect til 5/21/2023.	In the event of a contingency in the Navajo-McCullough or Eldorado-Moenkopi transmission lines, Edison and the Navajo participants provide each other emergency service transmission rights without a charge.
3.	Eldorado-Mohave –	LADWP, and NV Energy	to Eldorado	Amended and Restated Eldorado System Co-Tenancy and Operating Agreement;	424. 13.7	12/31/2046 unless extended pursuant to Section 25.8 of the Agreement.	Capacity Entitlement. For curtailments are: LADWP-716 MW; NV Energy 334 MW. SCE 530 MW.
4.	Eldorado - Mead	LADWP and NV Energy	to Eldorado	Amended and Restated Eldorado System Co-Tenancy and Operating Agreement;	424.13.7	12/31/2046 unless extended pursuant to Section 25.8 of the Agreement.	If Eldorado-Mead lines are curtailed, line capacity is allocated pro rata in proportion to the following Capacity Entitlements: NV Energy 301 MW; LADWP 215 MW; SCE 624 MW.

	<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIR.</b>	<b>CONTRACT TITLE</b>	<b>FERC No.</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
5.	Eldorado 500.220 KV Transformers	LADWP and NV Energy	To Eldorado	Amended and Restated Eldorado System Co-Tenancy and Operating Agreement	424.13.7	12/31/2046 unless extended pursuant to Section 25.8 of the Agreement	Capacity Entitlement. For curtailments are: LADWP-159 MW, NV Energy 222 NW, SCE 669
6.	Mead - Riverside	Riverside	E-W	Hoover Firm Transmission Service Agreement	390	Earliest effective date of: written agreement of the Parties; 180 days notice by Riverside; or termination of the Electric Service Contract between Western (WAPA) and City. Expected Termination Date is 9/30/2067	30 MW
7.	Mead - Laguna Bell	Vernon	Bi-dir	Mead Firm Transmission Service Agreement	207	Earlier of: effective date of written agreement to terminate; or termination of Vernon's allocation to capacity and energy from Hoover Power Plant without a successor allocation of capacity and energy; or the date which is eight (8) months following advance written notice by Vernon to Edison, or if Edison agrees, on lesser notice.	26 MW



	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
8.	Devers-Palo Verde -	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date on which Colorado River-Palo Verde 500 kV line is permanently removed from service, or (2) upon 12 months prior written notice by LADWP (which may be extended by Edison for an additional period not to exceed 24 months).	368 MW
9.	Sylmar - Devers	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date when Colorado River-Palo Verde 500 kV line is permanently removed from service, or (2) upon 12 months' prior written notice by LADWP made within 12 months of full commercial operation of the Green Path North Project and prior to 1/1/2025.	368 MW

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
10	Lugo- . Victorville - Vista	Riverside	To Vista	Intermountain Power Project Firm Transmission Service Agreement	391	180 day notice by Riverside or IPP Participation termination	156 MW
11	Lugo- . Victorville Rio Hondo	Azusa	To Rio Hondo	PVNGS Firm Transmission Service Agreement	373	Earliest of: Azusa's 1-year notice given after 1/1/02, termination of PVNGS entitlement, or termination of PVNGS participation.	4 MW
12	Lugo . Victorville - CAISO Grid Take Out Point serving Banning	Banning	To Banning	PVNGS Firm Transmission Service Agreement	379	Earliest of: Banning's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	3 MW
13	Lugo . Victorville - Vista	Colton	To Vista	PVNGS Firm Transmission Service Agreement	362	Earliest of: Colton's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	3 MW

	<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIR.</b>	<b>CONTRACT TITLE</b>	<b>FERC No.</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
14	Lugo . Victorville - Vista	Riverside	To Vista	PVNGS Firm Transmission Service Agreement	392	Earliest of: Riverside's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	12 MW
15	Lugo . Victorville - Laguna Bell	Vernon	Bi-directional	Lugo-Victorville- Firm Transmission Service	360	Earlier of: permanent removal of Mead-Adelanto Project from service; or upon eight (8) months advance written notice by Vernon to Edison, or if Edison agrees, on lesser notice.	11 MW
16	Hoover - . Mead	WAPA	Bi-directional	Lease of two SCE owned 220-kV Transmission Lines Between Hoover Power Plant and Mead Substation	304	9/30/2017 or upon 3-years' notice by WAPA; WAPA entitled to renew through life of Hoover.	Entire Transmission line capacity leased to WAPA.

## **SDG&E APPENDIX B**

### **SDG&E'S ENCUMBRANCES**

#### **I. Local Furnishing Transmission System Encumbrances**

The CAISO shall exercise Operational Control over SDG&E's Local Furnishing Transmission System consistent with the following Encumbrances in accordance with the Local Furnishing Bonds Operating Procedures that SDG&E has provided the CAISO:

- A. Section 9600(a)(6) of the California Public Utilities Code provides that Participating TOs shall not be compelled to violate restrictions applicable to facilities financed with tax-exempt bonds or contractual restrictions and covenants regarding use of transmission facilities existing as of December 20, 1995.

SDG&E's transmission facilities and other electric properties are financed in part with the proceeds of Local Furnishing Bonds. Prior to December 20, 1995, pursuant to provisions of the loan agreements, engineering certificates, and tax certificates and agreements associated with outstanding Local Furnishing Bonds issued for its benefit, SDG&E has covenanted not to take or permit any action that would jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued for its benefit. Accordingly, notwithstanding anything to the contrary contained in the Agreement, including SDG&E's agreement to be bound by the terms of the Restated and Amended CAISO Tariff and the Restated and Amended TO Tariff, SDG&E may not take (nor may SDG&E allow the CAISO to take) any action that would jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued or to be issued for its benefit, including (without limitation) the actions specified below.

- B. Absent an approving written opinion of nationally recognized bond counsel selected by SDG&E, taking into account the adjustments outlined in paragraph C below, SDG&E will not operate its facilities (or allow its facilities to be operated) so as to cause or permit a cumulative annual net outbound flow of electric energy during any calendar year from the points of interconnection between (i) SDG&E's wholly-owned electric distribution facilities or SDG&E's wholly-owned electric transmission facilities which are directly connected to SDG&E's wholly-owned electric distribution facilities (the "Local T/D System"), and (ii) other electric utility properties. As of December 15, 2016, these interconnection points include:

1. the point at the International Border where SDG&E's wholly-owned interest in 230kV TL 23040 (Otay Mesa – Tijuana I) connects with CFE's ownership interest in TL 23040;
  2. the set of points at the San Onofre Nuclear Generating Station ("SONGS") switchyard bus where SDG&E's wholly-owned transmission facilities interconnect with facilities owned (in whole or in part) by Southern California Edison Company ("SCE");
  3. the point where SDG&E's wholly-owned 500kV TL 50004 (Imperial Valley – East County) interconnects with the Imperial Valley Substation facilities owned in part by Imperial Irrigation District ("IID");
  4. the point where SDG&E's wholly-owned 500kV TL 50005 (Imperial Valley – Ocotillo) connects to the Imperial Valley Substation facilities owned in part by IID
  5. the point at the San Diego/Imperial County border where SDG&E's ownership interest in a 2.5 mile-long radial distribution line intersects with IID's ownership interest in that same distribution line;
  6. the points at the Riverside/Orange County border and the Riverside/San Diego County border where SDG&E's ownership interest in several isolated distribution lines interconnect with SCE's ownership interest in those same distribution lines; and,
  7. the point where SDG&E's wholly-owned Narrows Substation interconnects with transmission facilities owned in whole or in part by IID.
- C. For purposes of paragraph B, net flows of electric energy shall be calculated after taking into account the following adjustments:
1. Treating as a deemed outbound flow (or as a reduction in inbound flow) SDG&E's share as owner or lessee of electric energy generated at facilities which are not connected directly to the Local T/D System ("Owned/Leased Remote SDG&E Generating Units").

- i. As of December 15, 2016, Owned/Leased Remote SDG&E Generating Units consist of only SDG&E's 480 MW Desert Star Energy Center.
2. Excluding outbound flows (or reductions in inbound flows) attributable to or caused by wheeling of electric energy generated by independent power projects
  - i. which interconnect directly to the Local T/D System, and
  - ii. with bilateral contracts to sell the electric energy output at wholesale to electric utilities other than SDG&E.
3. Excluding outbound flows (or reductions in inbound flows) attributable to or caused by wholesale sales of excess electric energy from SDG&E's available generating units to the extent generation of that electric energy is required pursuant to federal or state regulations, rules, orders, decisions or mandatory protocols, but only if the total amount of electric energy supplied by SDG&E to its retail customers who receive both electric energy delivery service and electric energy supply service from SDG&E ("Native Load Customers") during the calendar year equals or exceeds
  - i. the total amount of SDG&E's share of electric energy generated during the calendar year by facilities which are either owned, leased, or controlled by or for the benefit of SDG&E, reduced by
  - ii. the sum of:
    - (a) assumed line losses, based on the most recent long-term demand forecast adopted by the California Energy Commission (as of December 16, 2010, 6.4% of electric energy delivered to SDG&E's retail customers);
    - (b) a pro rata share of electric energy actually produced by SDG&E's available generating units and allocable to CPUC-mandated reserves (15% as of July 1, 2011)];
    - (c) electric energy actually produced by SDG&E's available generating units pursuant to least-cost, best-fit orders of the CPUC and/or the CAISO; and

(d) electric energy actually produced by SDG&E's available generating units which exceeds the requirements of SDG&E's Native Load Customers due to SDG&E's inability to reduce generation from peak levels during off-peak periods.

- D. SDG&E will not operate its facilities (or allow its facilities to be operated) so as to curtail delivery of electric energy to its Native Load Customers involuntarily in order to provide electric energy to customers outside of its electric service territory in San Diego and Orange Counties, unless such curtailment is necessitated by the failure of facilities either partially or wholly owned by SDG&E.
- E. Upon SDG&E's receipt of a written request from the CAISO to take (or to refrain from taking) any action that SDG&E believes might jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued for its benefit, SDG&E in good faith shall promptly seek to obtain an opinion (of the type generally regarded in the municipal bond market as unqualified) from a nationally recognized bond counsel selected by SDG&E that the requested action (or inaction) will not adversely affect such tax-exempt status. Examples of actions the CAISO might request SDG&E to take (or refrain from taking) might include
1. closing (or refraining from opening) switches to allow electric energy to flow out of the Local T/D System,
  2. closing (or refraining from opening) switches to allow electric energy from local generating units to flow into the Local T/D System,
  3. acquiring or constructing new electric utility facilities or improving existing electric utility facilities,
  4. generating electric energy or refraining from generating electric energy at resources which are directly or indirectly under SDG&E's control, or
  5. bringing transmission or generation facilities or resources into service (or withholding transmission or generation facilities or resources from service).

Until the opinion of bond counsel described above is obtained, SDG&E shall not be required to take (or to refrain from taking) the specified action, and the CAISO shall exercise its Operational

Control consistent with such limitation.

- F. If SDG&E has been unable to obtain the unqualified opinion of bond counsel described in paragraph E above, upon written request by an entity eligible to file an application under Section 211 of the Federal Power Act ("FPA") (or the CAISO acting as its agent) (collectively, the "Eligible Entity"), SDG&E in good faith shall promptly seek to obtain a ruling from the Internal Revenue Service that the requested action (or inaction) will not adversely affect the tax-exempt status of interest on Local Furnishing Bonds issued for the benefit of SDG&E. If such a ruling cannot be obtained, SDG&E will not object to an Eligible Entity seeking an order under Section 211 of the FPA with respect to the requested action (or inaction). Until such a ruling is obtained from the Federal Energy Regulatory Commission, and such ruling has become final and non-appealable, SDG&E shall not be required to take (or to refrain from taking) the specified action, and the CAISO shall exercise its Operational Control consistent with such limitation.

## **II. Mortgage Lien**

The CAISO shall acknowledge the mortgage lien set forth below:

- A. The lien of the Mortgage and Deed of Trust dated July 1, 1940 between San Diego Gas & Electric Company and The Bank of California, as trustee, as amended and supplemented and in effect on the date hereof (the "SDG&E Mortgage"). The transfer of Operational Control to the CAISO pursuant to this Agreement shall in no event be deemed to be a lien or charge on the property subject to the SDG&E Mortgage which would be prior to the lien of the SDG&E Mortgage; however, no consent of the trustee under the SDG&E Mortgage is required to consummate the transfer of Operational Control to the CAISO pursuant to this Agreement.

## **III. SDG&E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease**

- A. San Diego Gas & Electric Company ("SDG&E") and Citizens Energy Corporation ("Citizens Energy") have agreed in their Development and Coordination Agreement of May 9, 2009 ("DCA"), as amended December 21, 2011, that Citizens Energy would have an opportunity to obtain an interest in the Sunrise Powerlink Project ("Sunrise Powerlink"), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease 50% of the transfer capability of the 500 kV segment of the Sunrise Powerlink located in Imperial County, California for 30 years (the "Border-East Line"). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option on or before the scheduled date of commercial operation of the Sunrise



Powerlink, (2) to pay SDG&E certain associated costs (one half of the actual cost of construction and development of the Border-East Line), and (3) to assume all operating costs related to its interest in the Border-East Line. Citizens Energy is further obligated to turn over operational control of its interest in the Border-East Line to the CAISO. Prior to exercising its option under the DCA, Citizens Energy will finalize its rights set forth in a Transfer Capability Lease (collectively, the "Lease") as provided for in the DCA and will assign and transfer all of its rights and obligations thereunder, and all of the regulatory approvals it has obtained to date, to Citizens Sunrise Transmission LLC.

***IV. SDG&E-Citizens Sycamore-Penasquitos  
Transmission LLC Development and Coordination  
Agreement/Transfer Capability Lease Capability  
Lease***

- A. SDG&E and Citizens Energy have agreed in their Development, Coordination, and Option Agreement on November 9, 2017, as amended on April 10, 2018, that Citizens Energy would have an opportunity to obtain an interest in the Sycamore-Penasquitos Project, currently being constructed and developed by SDG&E. Specifically, the DCOA provides Citizens Energy with an option to lease approximately 12.92 percent of the transfer capability in an underground segment of the Sycamore to Penasquitos 230 kV transmission project located in San Diego County for 30 years ("Underground Segment B"). To perfect its interest, Citizens Energy is obliged, among other things, (1) to exercise its option in accordance with the DCOA, (2) to pay SDG&E \$27 million in the form of prepaid rent, and (3) to assume all operating costs related to its interest in the Underground Segment B of the Sycamore-Penasquitos Project. Citizens Energy is further obligated to turn over operational control of its interest in Underground Segment B to the CAISO. While Citizens Energy executed the DCOA with SDG&E, Citizens Energy will assign and transfer all of its rights and obligations under the DCOA and all of the regulatory approvals it has obtained to date to Citizens Sycamore-Penasquitos Transmission LLC ("CSPT").

## APPENDIX B.2

### SDG&E's List of Contract Encumbrances<sup>1/2</sup>

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
79-017	IID-SDG&E Interconnection and Exchange Agreement	IID	065	June 24, 2051 (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by IID of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, IID and SDG&E to provide each other emergency capacity and energy without charge.
78-007	CFE-SDG&E Interconnection and Exchange Agreement	CFE		12 month notice (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by CFE of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, CFE and SDG&E to provide each other emergency capacity and energy.
81-005	Palo Verde-North Gila Line ANPP High Voltage Switchyard Interconnection Agreement	APS, IID, PNM, SRP, El Paso, SCE, SCPPA	063	July 31, 2031	In the event that the capacity of the ANPP Switchyard is insufficient to accommodate all requests, the rights of the ANPP Switchyard Participants shall take precedence in all allocations.

<sup>1</sup> An additional encumbrance pertaining to Local Furnishing Bonds that does not fit into the format for existing contract encumbrances is set forth in Section I of this SDG&E App. B.

<sup>2</sup> An additional encumbrance pertaining to SDG&E's lien of Mortgage and Deed of Trust that does not fit into the format for existing contract encumbrances is set forth in Section II of this SDG&E App. B.

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
81-050	IID-SDG&E Transmission System Participation Agreement	IID		June 24, 2051	SDG&E and IID schedule power and energy over the California Transmission System for their respective accounts at the Yuma (North Gila) 500kV Switchyard for delivery to the 500 kV breaker yard of the Imperial Valley in the following percentages of operating capacity: SDG&E -- 85.64%; and IID -- 14.36%.
78-003	APS-SDG&E Transmission System Participation Agreement	APS		July 31, 2031	SDG&E, APS, and IID schedule power and energy over the Arizona Transmission System for their respective accounts at the Palo Verde Switchyard for delivery at the Yuma (North Gila) 500 kV Switchyard in the following percentages of operating capacity: APS -- 11%; SDG&E -- 76.22%; IID -- 12.78%.
QFD000.016	Power Sale Agreement between SDG&E-City of Escondido for the Rincon Indian Reservation	City of Escondido	76	Agreement to be terminated effective upon FERC acceptance of Notice of Termination.	Obligates SDG&E to sell and deliver electricity at stated prices to the City of Escondido for resale to the United States Indian Services at the Rincon Indian Reservation.

**Appendix B: Citizens Sunrise Transmission, LLC  
Encumbrances**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Imperial Valley Substation*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Transmission Control Agreement, SDG&E Appendix B, SDG&E's Encumbrances, Local Furnishing Transmission System Encumbrances	NA	2012	2042	NA
Suncrest Substation/ Sycamore Canyon Substations*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Transmission Control Agreement, SDG&E Appendix B, SDG&E's Encumbrances, Local Furnishing Transmission System Encumbrances	NA	2012	2042	NA
* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation							
only to the San Diego County/Imperial County Border							

**Appendix B: Citizens Sycamore-Penasquitos Transmission, LLC  
Encumbrances**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Sycamore Canyon Substation*	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017, SDG&E Appendix B, SDG&E's Local Encumbrances, Local Furnishing	NA	2018	2048	NA
Peñasquitos Substation *	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017, SDG&E Appendix B, SDG&E's Local Encumbrances, Local Furnishing	NA	2018	2048	NA
* Citizens Sycamore-Penasquitos Transmission's interest are limited to the underground segment of the transmission line between the referenced substations.							

# TRANSMISSION CONTROL AGREEMENT

## APPENDIX C

### CAISO TRANSMISSION MAINTENANCE STANDARDS

#### TABLE OF CONTENTS

1. DEFINITIONS
2. INTRODUCTION
- 2.1. OBJECTIVE
- 2.2. AVAILABILITY
- 2.3. MAINTENANCE DOCUMENTATION REQUIREMENTS
- 2.4. AVAILABILITY DATA STANDARDS
3. FACILITIES COVERED BY THESE CAISO TRANSMISSION MAINTENANCE STANDARDS
4. AVAILABILITY MEASURES
  - 4.1. CALCULATION OF AVAILABILITY MEASURES FOR INDIVIDUAL TRANSMISSION LINE CIRCUITS
    - 4.1.1. FREQUENCY AND DURATION
    - 4.1.2. CAPPING FORCED OUTAGE(IMS) DURATIONS
    - 4.1.3. EXCLUDED OUTAGES(IMS)
  - 4.2. AVAILABILITY MEASURE TARGETS
    - 4.2.1. CALCULATIONS OF ANNUAL AVAILABILITY MEASURES INDICES FOR INDIVIDUAL VOLTAGE CLASSES
    - 4.2.2. DEVELOPMENT OF LIMITS FOR CONTROL CHARTS
      - 4.2.2.1. CENTER CONTROL LINES (CLs)
      - 4.2.2.2. UCLs, LCLs, UWLs AND LWLs
    - 4.2.3. EVALUATION OF AVAILABILITY MEASURES PERFORMANCE  
TABLE 4.2.1 PERFORMANCE INDICATIONS PROVIDED BY CONTROL CHART TESTS
  - 4.3. AVAILABILITY REPORTING
5. MAINTENANCE PRACTICES
  - 5.1. INTRODUCTION
  - 5.2. PREPARATION OF MAINTENANCE PRACTICES
    - 5.2.1. TRANSMISSION LINE CIRCUIT MAINTENANCE
      - 5.2.1.1. OVERHEAD TRANSMISSION LINES
      - 5.2.1.2. UNDERGROUND TRANSMISSION LINES
    - 5.2.2. STATION MAINTENANCE
    - 5.2.3. DESCRIPTIONS OF MAINTENANCE PRACTICES
  - 5.3. REVIEW AND ADOPTION OF MAINTENANCE PRACTICES
    - 5.3.1. INITIAL ADOPTION OF MAINTENANCE PRACTICES
    - 5.3.2. AMENDMENTS TO THE MAINTENANCE PRACTICES
      - 5.3.2.1. AMENDMENTS PROPOSED BY THE CAISO
      - 5.3.2.2. AMENDMENTS PROPOSED BY A PTO
    - 5.3.3. DISPOSITION OF RECOMMENDATIONS
      - 5.3.3.1.
      - 5.3.3.2.
      - 5.3.3.3
  - 5.4. QUALIFICATIONS OF PERSONNEL
6. MAINTENANCE RECORD KEEPING AND REPORTING
  - 6.1. PTO MAINTENANCE RECORD KEEPING
  - 6.2. PTO MAINTENANCE REPORTING
  - 6.3. CAISO VISIT TO PTO'S TRANSMISSION FACILITIES

- 7. CAISO AND TRANSMISSION MAINTENANCE COORDINATION COMMITTEE
- 8. REVISION OF CAISO TRANSMISSION MAINTENANCE STANDARDS AND MAINTENANCE PROCEDURES
  - 8.1. REVISIONS TO CAISO TRANSMISSION MAINTENANCE STANDARDS
  - 8.2. REVISIONS TO AND DEVIATIONS FROM MAINTENANCE PROCEDURES
- 9. INCENTIVES AND PENALTIES
  - 9.1 DEVELOPMENT OF A FORMAL PROGRAM
  - 9.2 ADOPTION OF A FORMAL PROGRAM .....
  - 9.3 IMPOSITION OF PENALTIES IN THE ABSENCE OF A FORMAL PROGRAM
  - 9.4 NO WAIVER .....
  - 9.5 LIMITATIONS ON APPLICABILITY TO NEW PTOS .....
- 10. COMPLIANCE WITH OTHER REGULATIONS/LAWS
  - 10.1 SAFETY
- 11. DISPUTE RESOLUTION

## 1. DEFINITIONS<sup>1</sup>

Availability - A measure of time a Transmission Line Circuit under CAISO Operational Control is capable of providing service, whether or not it actually is in service.

Availability Measures - Within each Voltage Class in a calendar year: 1) the average Forced Outage<sup>(IMS)</sup> frequency for all Transmission Line Circuits, 2) the average accumulated Forced Outage<sup>(IMS)</sup> duration for only those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>, and 3) the proportion of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup>.

Availability Measure Targets - The Availability performance goals jointly established by the CAISO and a PTO for that PTO's Transmission Facilities.

Forced Outage<sup>(IMS)</sup> – An event that occurs when a Transmission Facility is in an Outage<sup>(IMS)</sup> condition for which there is no Scheduled Outage<sup>(IMS)</sup> request in effect.

CAISO Transmission Maintenance Standards - The Maintenance standards set forth in this Appendix C.

Maintenance - Maintenance as used herein, unless otherwise noted, encompasses inspection, assessment, maintenance, repair and replacement activities performed with respect to Transmission Facilities.

Maintenance Practices - A confidential description of methods used by a PTO, and adopted by the CAISO, for the Maintenance of that PTO's Transmission Facilities.

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<sup>1</sup> A term followed by the superscript "(IMS)" denotes a term which has a special, unique definition in this Appendix C.



Maintenance Procedures – Documents developed by the Transmission Maintenance Coordination Committee for use by the CAISO and the PTOs to facilitate compliance with the CAISO Transmission Maintenance Standards. These documents shall serve as guidelines only.

Outage<sup>(IMS)</sup> - Any interruption of the flow of power in a Transmission Line Circuit between any terminals under CAISO Operational Control.

PTO - A Participating TO as defined in Appendix D of the Transmission Control Agreement.

Scheduled Outage<sup>(IMS)</sup> - The removal from service of Transmission Facilities in accordance with the requirements of Section 7.1 of the Transmission Control Agreement and the applicable provisions of the CAISO Tariff and CAISO Protocols.

Station – Type of Transmission Facility used for such purposes as line termination, voltage transformation, voltage conversion, stabilization, or switching.

Transmission Facilities - All equipment and components transferred by a PTO to the CAISO for Operational Control, pursuant to the Transmission Control Agreement, such as overhead and underground transmission lines, Stations, and associated facilities.

Transmission Line Circuit - The continuous set of transmission conductors, under the CAISO Operational Control, located primarily outside of a Station, and apparatus terminating at interrupting devices, which would be isolated from the transmission system following a fault on such equipment.



Transmission Maintenance Standards. The effectiveness of each PTO's Maintenance Practices will be gauged through the Availability performance monitoring system. Each PTO's adherence to its Maintenance Practices will be assessed through a CAISO review.

In developing these CAISO Transmission Maintenance Standards, both the CAISO Maintenance Standards Task Force and TMCC determined that it is impractical to develop and/or impose on the PTOs a single uniform set of prescriptive practices delineating conditions or time-based schedules for various Maintenance activities that account for the myriad of equipment, operating conditions, and environmental conditions within the CAISO Controlled Grid. For this reason, these CAISO Transmission Maintenance Standards provide requirements for the PTOs in preparing their respective Maintenance Practices.

## **2.1. OBJECTIVE**

This Appendix C provides for a high quality, safe, and reliable CAISO Controlled Grid by meeting the following objectives:

- Ensuring that the Availability performance levels inherent to the Transmission Facilities are maintained,
- Restoring Availability to the levels inherent to the Transmission Facilities when degradation has occurred,
- Economically extending the useful life of the Transmission Facilities while maintaining inherent levels of Availability, and
- Achieving the aforementioned objectives at a minimum reasonable total cost for Maintenance with the intent of minimizing customer impacts.

## 2.2. AVAILABILITY

CAISO Controlled Grid reliability is a function of a complex set of variables, including accessibility of alternative paths to serve Load, Generating Unit availability, Load forecasting and resource planning; speed, sophistication and coordination of protection systems; and the Availability of Transmission Line Circuits owned by the PTOs. Availability Measures have been chosen as the principal determinant of each PTO's Maintenance effectiveness.

When using Availability Measures as a general gauge of Maintenance effectiveness, several things must be considered to avoid misinterpreting performance. Availability is a function of several variables, including Transmission Facility Maintenance, initial design, extreme exposure, capital improvements, and improvements in restoration practices. These factors should be taken into account when assessing Availability Measures and Maintenance effectiveness. It is important to consider that Maintenance is one of many variables that impact changes in Availability. For example, certain Forced Outages<sup>(IMS)</sup> that impact Availability may be due to events that generally cannot be controlled by Maintenance.

If Availability Measures are either improving or declining, it is important to investigate the cause(s) and any trends that are causing change before drawing conclusions. If Maintenance is being performed by a PTO consistent with Good Utility Practice, increasing Maintenance activities by a significant order may not result in a corresponding increase in Availability and if Maintenance is not performed consistent with Good Utility Practice, Availability may decline. Thus, while Maintenance is important to ensure Availability, unless a PTO fails to perform Maintenance on a basis consistent with Good Utility Practice, significant increases in Maintenance activities will generally not lead to substantial improvements in Availability and associated CAISO Controlled Grid reliability.

A variety of techniques can be used to monitor Maintenance effectiveness. However, techniques that do not account for random variations in processes have severe limitations in that they may yield inconsistent and/or erroneous assessments of Maintenance effectiveness. To account for random/chance variations while enabling monitoring for shifts and trends, control charts have been widely accepted and utilized. Control charts are statistically based graphs which illustrate both an expected range of performance for a particular process based on historical data, and discrete measures of recent performance. The relative positions of these discrete measures of recent performance and their relationship to the expected range of performance are used to gauge Maintenance effectiveness.

To enhance the use of Availability Measures as a gauge of Maintenance effectiveness, it is necessary to exclude certain types of Outages<sup>(IMS)</sup>. These excluded Outages<sup>(IMS)</sup>, as set forth in more detail in Section 4.1.3 of this Appendix C, are:

- Scheduled Outages<sup>(IMS)</sup>;
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures;
- Forced Outages<sup>(IMS)</sup> caused by events originating outside the PTO’s system;  
or
- Forced Outages<sup>(IMS)</sup> demonstrated to have been caused by earthquakes.

Additionally, as described in Section 4.1.2 of this Appendix C, the Forced Outage<sup>(IMS)</sup> duration used to calculate the Availability control charts has been capped at 72 hours so that excessively long Forced Outages<sup>(IMS)</sup> do not skew the data as to detract from the meaningfulness and interpretation of the control charts for accumulated Forced Outage<sup>(IMS)</sup> duration. This is not to say that an excessively long Forced Outage<sup>(IMS)</sup> is not a concern. Rather, such Forced

Outages<sup>(IMS)</sup> should be investigated to assess the reasons for their extended duration.

Establishing Availability Measures requires each PTO to use separate control charts for each Voltage Class. Existing Forced Outage<sup>(IMS)</sup> data contains significant differences in the Availability between Voltage Classes and between PTOs. These differences may be attributable to factors such as the uniqueness of operating environments, Transmission Facility designs, and PTO operating policies. Regardless of the cause of these differences, review of the Forced Outage<sup>(IMS)</sup> data makes it eminently apparent that differences are such that no single set of control chart parameters for a particular Voltage Class could be applied to all PTOs.

Three types of control charts are utilized to provide a complete representation of historical Availability Measures, and to provide a benchmark against which future Availability Measures can be gauged. The three types of control charts for each PTO and Voltage Class are:

- The annual average Forced Outage<sup>(IMS)</sup> frequency for all Transmission Line Circuits;
- The annual average accumulated Forced Outage<sup>(IMS)</sup> duration for those Transmission Line Circuits which experience Forced Outages<sup>(IMS)</sup>; and
- The annual proportion of Transmission Line Circuits that experienced no Forced Outages<sup>(IMS)</sup>.

These three control charts assist the CAISO and PTOs in assessing the Maintenance effectiveness of each Voltage Class over time. To accommodate this process on a cumulative basis, data is made available to the CAISO by each PTO at the beginning of each new calendar year to assess past calendar years.

### **2.3. MAINTENANCE DOCUMENTATION REQUIREMENTS**

Two specific requirements regarding Maintenance documentation are incorporated into these CAISO Transmission Maintenance Standards. First, these standards require that each PTO develop and submit a description of its Maintenance Practices to the CAISO. Second, these standards require that each PTO retain Maintenance records as set forth in Section 6.1 of this Appendix C and make those records available to the CAISO as set forth in the Maintenance Procedures, in order to demonstrate compliance with each element of its Maintenance Practices.

### **2.4. AVAILABILITY DATA STANDARDS**

To facilitate processing Forced Outage<sup>(IMS)</sup> data for the Availability Measures, and to enable consistent and equitable interpretation of PTO Maintenance records by the CAISO, these standards address the need for data recording and reporting. The TMCC has also developed standardized formats for transmitting Forced Outage<sup>(IMS)</sup> data to the CAISO for the Availability Measures. These standard formats are provided in the Maintenance Procedures. To facilitate review of the data by the CAISO, the TMCC has developed a standard Availability Measures reporting system detailed in the Maintenance Procedures and in Section 4 of this Appendix C. This system will provide for consistent gathering of information that can be used as the basis for analyzing Availability Measures trends.

## **3. FACILITIES COVERED BY THESE CAISO TRANSMISSION MAINTENANCE STANDARDS**

The CAISO Transmission Maintenance Standards set forth in this Appendix C shall apply to all Transmission Facilities. Each PTO shall maintain its Transmission Facilities in accordance with its Maintenance Practices as adopted

by the CAISO in accordance with these CAISO Transmission Maintenance Standards.

#### **4. AVAILABILITY MEASURES**

##### **4.1. CALCULATION OF AVAILABILITY MEASURES FOR INDIVIDUAL TRANSMISSION LINE CIRCUITS**

###### **4.1.1 FREQUENCY AND DURATION**

The calculation of the Availability Measures will be performed utilizing Forced Outage<sup>(IMS)</sup> data through December 31st of each calendar year. Separate Forced Outage<sup>(IMS)</sup> frequency and accumulated Forced Outage<sup>(IMS)</sup> duration Availability Measures shall be calculated as follows for each Transmission Line Circuit under CAISO Operational Control within each Voltage Class. The calculations shall be performed annually for each of the Transmission Line Circuits utilizing all appropriate Forced Outage<sup>(IMS)</sup> data for the calendar year in question.

###### Forced Outage<sup>(IMS)</sup> Frequency:

The Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) of the  $i^{\text{th}}$  Transmission Line Circuit shall equal the total number of Forced Outages<sup>(IMS)</sup> that occurred on the  $i^{\text{th}}$  Transmission Line Circuit during the calendar year “k”. See Notes 1 and 2.

###### **NOTES:**

1. Multiple momentary Forced Outages<sup>(IMS)</sup> on the same Transmission Line Circuit in the span of a single minute shall be treated as a single Forced Outage<sup>(IMS)</sup> with a duration of one minute. When the operation of a Transmission Line Circuit is restored following a Forced Outage<sup>(IMS)</sup> and the Transmission Line Circuit remains operational for a period exceeding one minute, i.e., 61 seconds or more, followed by another Forced Outage<sup>(IMS)</sup>, then these should be counted as two Forced Outages<sup>(IMS)</sup>. Multiple Forced Outages<sup>(IMS)</sup> occurring as a result of a single event should be handled as multiple Forced Outages<sup>(IMS)</sup> only if subsequent operation of the Transmission Line Circuit between events exceeds one minute. Otherwise they shall be considered one continuous Forced Outage<sup>(IMS)</sup>.
2. If a Transmission Line Circuit, e.g., a new Transmission Line Circuit, is only in service for a portion of a calendar year, the Forced Outage<sup>(IMS)</sup> frequency and accumulated duration data shall be treated as if the Transmission Line Circuit had been in service for the entire calendar year, i.e., the Forced Outage<sup>(IMS)</sup> data for that Transmission Line Circuit shall be handled the same as those for any other Transmission Line Circuit.



Accumulated Forced Outage<sup>(IMS)</sup> Duration:

The accumulated Forced Outage<sup>(IMS)</sup> duration in minutes shall be calculated as follows for each of the Transmission Line Circuits having a Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) greater than zero for the calendar year “k”:

$$d_{ik} = \sum_{j=1}^{f_{ik}} o_{ijk}$$

where

$d_{ik}$  = accumulated duration of Forced Outages<sup>(IMS)</sup> (total number of Forced Outage<sup>(IMS)</sup> minutes) for the “i<sup>th</sup>” Transmission Line Circuit having a Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) greater than zero for the calendar year “k”.

$f_{ik}$  = Forced Outage<sup>(IMS)</sup> frequency as defined above for calendar year “k”.

$o_{ijk}$  = duration in minutes of the “j<sup>th</sup>” Forced Outage<sup>(IMS)</sup> which occurred during the “k<sup>th</sup>” calendar year for the “i<sup>th</sup>” Transmission Line Circuit. See Notes 1 and 2.

The durations of extended Forced Outages<sup>(IMS)</sup> shall be capped as described in Section 4.1.2 of this Appendix C for the purposes of calculating the Availability Measures. In addition, certain types of Outages<sup>(IMS)</sup> shall be excluded from the calculations of the Availability Measures as described in Section 4.1.3 of this Appendix C.

If a PTO makes changes to its Transmission Line Circuit identification, configuration, or Forced Outage<sup>(IMS)</sup> data reporting schemes, the PTO shall notify the CAISO at the time of the change. In its annual report to the CAISO, the PTO shall provide recommendations regarding if and how the Availability Measures and Availability Measure Targets should be modified to ensure that they (1) remain consistent with the modified Transmission Line Circuit identification or

Forced Outage<sup>(IMS)</sup> data reporting scheme, and (2) provide an appropriate gauge of Availability.

#### **4.1.2. CAPPING FORCED OUTAGE<sup>(IMS)</sup> DURATIONS**

The duration of each Forced Outage<sup>(IMS)</sup> which exceeds 72 hours (4320 minutes) shall be capped at 4320 minutes for the purpose of calculating the accumulated Forced Outage<sup>(IMS)</sup> duration.

#### **4.1.3. EXCLUDED OUTAGES<sup>(IMS)</sup>**

The following types of Outages<sup>(IMS)</sup> shall be excluded from the calculation of the Availability Measures and the Availability Measure Targets:

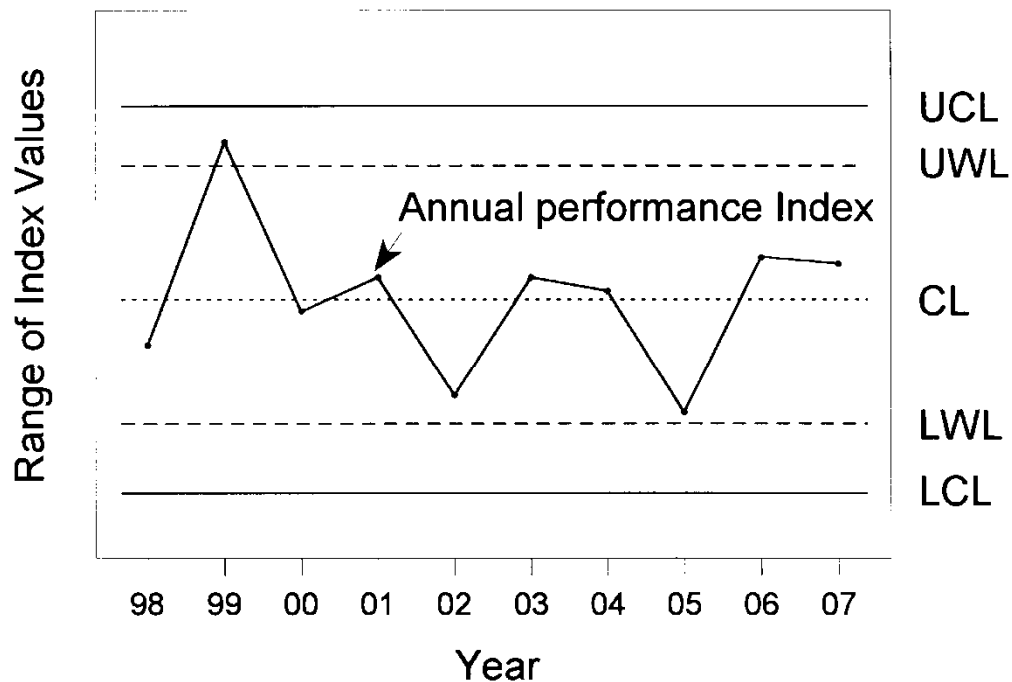
- Scheduled Outages<sup>(IMS)</sup>
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures.
- Forced Outages<sup>(IMS)</sup> which: (1) were caused by events outside the PTO’s system including Outages<sup>(IMS)</sup> which originate in other TO systems, other electric utility systems, or customer equipment, or (2) are Outages<sup>(IMS)</sup> which can be demonstrated to have been caused by earthquakes.

#### **4.2. AVAILABILITY MEASURE TARGETS**

The Availability Measure Targets described herein shall be phased in over a period of five calendar years beginning on the date a Transmission Owner becomes a PTO in accordance with the provisions of the Transmission Control Agreement. The adequacy of each PTO’s Availability Measures shall be monitored through the use of charts. These charts, called control charts as shown in Figure 4.2.1, are defined by a horizontal axis with a scale of calendar years and a vertical axis with a scale describing the expected range of

magnitudes of the index in question. Annual performance indices shall be plotted on these charts and a series of tests may then be performed to assess the stability of annual performance, shifts in performance and longer-term performance trends.

Control charts for each of the following indices shall be developed and utilized to monitor Availability Measures for each Voltage Class within each PTO's system:



**Figure 4.2.1 Sample Control Chart**

- Index 1: Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits.
- Index 2: Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>.

- Index 3: Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>.

The control charts incorporate a center control line (CL), upper and lower control limits (UCL and LCL, respectively), and upper and lower warning limits (UWL and LWL, respectively). The CL represents the average annual historical performance for a period prior to the current calendar year. The UCL and LCL define a range of expected performance extending above and below the CL. For the annual proportion of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup>, the limits are based on standard control chart techniques for binomial proportion data. For the other two indices, bootstrap resampling techniques are used to determine empirical UCL and LCL at 99.75% and 0.25% percentile values, respectively, for means from the historical data. The bootstrap procedure is described in Section 4.2.2 of this Appendix C. Similarly, the UWL and LWL define a range of performance intending to cover the percentiles from 2.5% to 97.5%. The bootstrap algorithm is also used to determine these values. Thus, the UCL and LCL will contain about 99.5% of resampling means from the Voltage Class of interest. UWL and LWL will contain about 95% of the resampling means. These limits coincide with the usual choices for control charts when the means are approximately normal. Bootstrap estimation procedures are used here since the sampling means do not follow the normal distribution model. The bootstrap estimation procedures ensure consistent control chart limits by using a starting base number (“seed”) for its random number generator. Accuracy or reduced variances in the control chart limits are attained by using the average control chart limits generated from applying ten repetitions or cycles of the bootstrap sampling method. Collectively, the CL, UCL, LCL, UWL and LWL provide reference values for use in evaluating performance as described in Section 4.2.3 of this Appendix C.

For the special case where there is a Voltage Class with only one Transmission Line Circuit, individual and moving range control charts should be

used for Index 1 and 2. The method used herein for calculating Index 3 is not applicable for those Voltage Classes containing less than six Transmission Line Circuits. The Maintenance Procedures will be used by the PTOs to calculate Index 1, 2, or 3 where the methods provided herein do not apply. More information on the individual and moving range control charts can be found in the user manuals of the statistical software recommended by the TMCC and approved by the CAISO Governing Board for use in creating the control charts.

#### **4.2.1. CALCULATIONS OF ANNUAL AVAILABILITY MEASURES INDICES FOR INDIVIDUAL VOLTAGE CLASSES**

Separate annual Availability Measures indices shall be calculated for each Voltage Class and each PTO as described below by utilizing the calculations discussed in Section 4.1 of this Appendix C.

Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits (Index 1):

$$F_{vc,k} = \frac{1}{N_k} \sum_{i=1}^{N_k} f_{ik}$$

where

$F_{vc,k}$  = frequency index for the Voltage Class, vc, (units = Forced Outages<sup>(IMS)</sup> / Transmission Line Circuit). The frequency index equals the average (mean) number of Forced Outages<sup>(IMS)</sup> for all Transmission Line Circuits within a Voltage Class for the calendar year “k”.

$N_k$  = number of Transmission Line Circuits in Voltage Class in calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$f_{ik}$  = frequency of Forced Outages<sup>(IMS)</sup> for the “i<sup>th</sup>” Transmission Line Circuit as calculated in accordance with Section 4.1.1 of this Appendix C for calendar year “k”.

Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> (Index 2):

$$D_{vc,k} = \frac{1}{N_{o,k}} \sum_{i=1}^{N_{o,k}} d_{ik}$$

where

$D_{vc,k}$  = duration index for the Voltage Class (units = minutes/Transmission Line Circuit). The duration index equals the average accumulated duration of Forced Outages<sup>(IMS)</sup> for all Transmission Line Circuits within a Voltage Class which experienced Forced Outages<sup>(IMS)</sup> during the calendar year “k”.

$N_{o,k}$  = number of Transmission Line Circuits in the Voltage Class for which the Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) as calculated in accordance with Section 4.1.1 of this Appendix C is greater than zero for the calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$d_{ik}$  = accumulated duration of Forced Outages<sup>(IMS)</sup> for the “i<sup>th</sup>” Transmission Line Circuit having a Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) greater than zero for calendar year “k” as calculated in accordance with Section 4.1.1 of this Appendix C.

Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup> (Index 3):

$$P_{vc,k} = \frac{N_k - N_{o,k}}{N_k}$$

where

$P_{vc,k}$  = index for the proportion of Transmission Line Circuits for the Voltage Class with no Forced Outages<sup>(IMS)</sup> for the calendar year “k”.

$N_k$  = number of Transmission Line Circuits in Voltage Class for calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$N_{o,k}$  = number of Transmission Line Circuits in the Voltage Class for which the Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) as calculated in accordance with Section 4.1.1 of this Appendix C is greater than zero for the calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

#### **4.2.2. DEVELOPMENT OF LIMITS FOR CONTROL CHARTS**

The CL, UCL, LCL, UWL and LWL for the three control charts (Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits; Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>; and Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>) on which the annual Availability Measures indices are to be plotted shall be calculated as described below. The CL, UCL, LCL, UWL and LWL for each of the three control charts shall be determined using continuously recorded Forced Outage<sup>(IMS)</sup> data for the ten calendar year period immediately preceding the date a Transmission Owner becomes a PTO in accordance with the provisions of the Transmission Control Agreement.

In the event that a PTO does not have reliable, continuously recorded Forced Outage<sup>(IMS)</sup> data for this 10 calendar year period, that PTO may determine the control chart limits using data for a shorter period. However, if data for a shorter period are to be used, that PTO shall prepare a brief report to the CAISO providing reasonable justification for this modification. This report shall be submitted to the CAISO within 90 days after the date a TO becomes a PTO in accordance with the provisions of the Transmission Control Agreement.

The CAISO shall periodically review the control chart limits and recommend appropriate modifications to each PTO in accordance with this Appendix C.

##### **4.2.2.1. CENTER CONTROL LINES (CLs)**

The calculation of the CLs for each of the three control charts is similar to the calculation of the annual Availability Measures indices described in Section 4.2.1 of this Appendix C except that the time period is expanded from a single calendar year to ten calendar years, unless a shorter period is justified by a PTO, for the period preceding the date a TO becomes a PTO in accordance with the provisions of the Transmission Control Agreement. To account for this change, a count of Transmission Line Circuit years is included in the equations as shown below to enable derivation of CLs which represent average performance during a multi-year period.

CL for Annual Average Transmission Line Circuit Forced Outage<sup>(IMS)</sup>

Frequency

$$CL_{fvc} = \sum_{k=1}^Y \sum_{i=1}^{N_k} f_{ik} / \left( \sum_{k=1}^Y N_k \right)$$

where

$CL_{fvc}$  = center control line value for the Forced Outage<sup>(IMS)</sup>

frequencies for each of the Transmission Line Circuits in the Voltage Class for “Y” calendar years prior to the date a TO becomes a PTO.

Y = number of calendar years prior to the date a TO becomes a PTO for which the PTO has reliable, continuously recorded Forced Outage<sup>(IMS)</sup> data. Y=10 is preferred.

CL for Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>

$$CL_{dvc} = \sum_{k=1}^Y \sum_{i=1}^{N_{o,k}} d_{ik} / \left( \sum_{k=1}^Y N_{o,k} \right)$$

where

$CL_{dvc}$  = center control line value for accumulated Forced Outage<sup>(IMS)</sup>

duration for each of the Transmission Line Circuits in the Voltage Class for “Y”



calendar years prior to the date a TO becomes a PTO in which the Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) was greater than zero.

CL for Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>

$$CL_{Pvc} = \frac{\sum_{k=1}^Y (N_k - N_{o,k})}{\sum_{k=1}^Y N_k}$$

where

$CL_{Pvc}$  = center control line value for the proportion of Transmission Line Circuits in the Voltage Class with no Forced Outages<sup>(IMS)</sup> for “Y” calendar years prior to the date a TO becomes a PTO.

**4.2.2.2. UCLs, LCLs, UWLs AND LWLs**

**UCLs, LCLs, UWLs and LWLs for Index 1 and 2 for Voltage Classes Containing Four or More Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> for Five or More Calendar Years**

The UCLs, UWLs, LWLs, and LCLs for the control charts for each Voltage Class containing four or more Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> shall be determined by bootstrap resampling methods as follows: The available historical data for Index 1 and 2 will each be entered into columns. A “seed” is then selected prior to beginning the sampling process. The CAISO assigns a number for the “seed” prior to each calendar year’s development of the control charts. The “seed” allows the user to start the sampling in the same place and get the same results provided the data order hasn’t changed. For Index 1, sampling with replacement will occur for the median number of Transmission Line Circuits per calendar year in a Voltage Class for the time period being evaluated. A sample, the size of which is the median number of all Transmission Line Circuits for the period being evaluated, is taken from the

column of actual frequency values for all Transmission Line Circuits. A mean is calculated from this sample and the resulting number will be stored in a separate column. This process will be repeated 10,000 times in order to create a column of sampling means from the historical database. The column of sampling means is then ordered from the smallest to largest means. From this column percentiles are determined for a UCL (99.75), a LCL (0.25), a UWL (97.5), and a LWL (2.5). Thus, for one cycle, the limits are determined by resampling from the historical database, calculating statistics of interest, in this case means, and then estimating appropriate limits from the resampling means. Ten cycles of this same process are necessary to get ten values each of UCLs, LCLs, UWLs, and LWLs. The average for the ten values of each limit is taken to provide the UCL, LCL, UWL, and LWL values used in analyzing annual performance. The procedure is repeated for Index 2, forming means for the median number of Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> in this Voltage Class for the time period being evaluated. See **Bootstrapping - A Nonparametric Approach to Statistical Inference** (1993) by Christopher Z. Mooney and Robert D. Duval, Sage Publications with ISBN 0-8039-5381-X, and **An Introduction to the Bootstrap** (1993) by Bradley Efron and Robert J. Tibshirani, Chapman and Hall Publishing with ISBN 0-412-04231-2 for further information.

Consider an example to illustrate how the bootstrap procedure works for one cycle of the ten required. Assume that a Voltage Class has approximately 20 Transmission Line Circuits per calendar year with a history of ten calendar years. Furthermore, assume that about 15 Transmission Line Circuits per calendar year experience Forced Outages<sup>(IMS)</sup>. Therefore, there are  $10 \times 15 = 150$  Forced Outage<sup>(IMS)</sup> durations available for bootstrap sampling. Place these 150 Forced Outage<sup>(IMS)</sup> durations in a column, say "outdur," in a specified order. The order is automatically provided in the bootstrap algorithm developed by the CAISO and made available to the PTO. The bootstrap algorithm will sample 15 rows from "outdur" with replacement. That is, any row may, by chance, be sampled more than once. From these 15 values determine

the sample mean and place this in another column, say "boot". Repeat this sampling process 10,000 times adding the new means to "boot". The column "boot" now has 10,000 means from samples of size 15 from the original Forced Outage<sup>(IMS)</sup> duration data for this Voltage Class. The next step is to locate the appropriate percentiles from these means for use in determining the control chart limits for one cycle. This is accomplished by ordering the column "boot" from smallest-to-largest mean and restoring these ordered means in "boot". The percentiles which are needed are 99.75% (UCL), 97.50% (UWL), 2.50% (LWL) and 0.25% (LCL). These are easily estimated from the sorted means by finding the associated rows in the column "boot". For example, LWL will be estimated as the average of the 250th and 251st rows in column "boot". Likewise the other limits will be determined. Of course, the CL is the actual mean average for 15 Transmission Line Circuits over the ten calendar years using the formulas in Section 4.2.2.1 of this Appendix C. This example is for one cycle. Nine more cycles of this process will establish the more accurate control and warning limits necessary to evaluate a PTO's annual performance.

### **UCLs, LCLs, UWLs and LWLs for Index 1 and 2 for All Other Voltage Classes**

When data for less than four Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> are available per calendar year in a Voltage Class for fewer than five calendar years, an exhaustive enumeration of all possible selections with replacement may need to be performed. This is because the number of possible samples for bootstrap resampling will be less than the aforementioned 10,000 resampling frequency used for Voltage Classes containing four or more Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> for five or more calendar years. For example, if a Voltage Class has only two Transmission Line Circuits per calendar year for five calendar years, the data base will consist of  $2 \times 5 = 10$  accumulated Forced Outage<sup>(IMS)</sup> durations assuming both Transmission Line Circuits experience one Forced Outage<sup>(IMS)</sup> or more per calendar year. Resampling two values from the column of ten yields only  $10 \times 2 = 100$  possible

means. Thus, bootstrap resampling of 10,000 would over-sample the original data  $10,000/100 = 100$  times.

For the general case, let  $M$  = the number of accumulated Forced Outage<sup>(IMS)</sup> durations (or Forced Outage<sup>(IMS)</sup> frequencies) from the historical database. If  $n$  is the median number of Transmission Line Circuits per calendar year, there are  $M \cdot n = U$  possible enumerated means for this Voltage Class. The procedure to determine the appropriate limits for a Voltage Class is to order the column containing “U” enumerated means from smallest to largest means. Then, the UCL, LCL, UWL, and LWL are determined from this vector as described above (i.e., at the 99.75, 0.25, 97.5, and 2.5 percentiles, respectively).

### **UCLs, LCLs, UWLs and LWLs for Index 3 When Number of Transmission Line Circuits is > 125**

According to standard procedures for proportion control charts for Voltage Classes where the median number of Transmission Line Circuits in service is greater than 125 for any given calendar year, the upper and lower control chart limits (UCL, LCL, UWL, and LWL) for the “k<sup>th</sup>” calendar year are determined using the normal approximation to the binomial distribution. The formulas are:

$$UCL = CL_{PVC} + 3S_{PVC,k} \qquad LCL = CL_{PVC} - 3S_{PVC,k}$$

UWL and LWL are calculated by replacing the “3” above with “2”.

and

$$S_{PVC,k} = \sqrt{CL_{PVC} (1 - CL_{PVC}) / N_k}$$

where

$S_{PVC,k}$  = standard deviation for the annual proportion of Transmission Line Circuits in the Voltage Class with no Forced Outages<sup>(IMS)</sup> for each “k<sup>th</sup>” year

of the “Y” calendar years prior to the date a TO becomes a PTO. If LCL or LWL is less than zero, they should be set to zero by default.

**UCLs, LCLs, UWLs and LWLs for Index 3 when Number of Transmission Line Circuits is less than or equal to 125 and greater than or equal to six**

The UCLs, LCLs, UWLs, and LWLs for the control charts for each Voltage Class shall be based on exact binomial probabilities for those Voltage Classes having equal to or more than six, but less than or equal to 125 median Transmission Line Circuits per calendar year. A customized macro and a statistical software package approved by the CAISO creates the proportion control charts. The macro determines the control limits and use of the exact binomial or the normal approximation to the binomial for computing the control chart limits. This macro ensures the UCL and LCL contain about 99.5% and the UWL and LWL contain about 95% of the binomial distribution. The percentile values of the UCL, UWL, LWL, and LCL are respectively 99.75%, 97.5%, 2.5%, and 0.25%.

The UCL, UWL, LWL, and LCL are calculated using the following formulas:

$$\text{UCL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{UWL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{LWL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{LCL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

Where

$P_1$  = A cumulative binomial probability that if not equal to the  $P_2$  value is representing the percentile value that is less than and closest to the 99.75, 97.50, 2.5, and 0.25 percentile values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_1 = 0.99529$  and is closest to the 99.75 percentile value, from the low side,  $P_1 = 0.99529$  should be used in the UCL formula).

$P_2$  = A cumulative binomial probability equal to the 0.9975, 0.9750, 0.025, and 0.0025 values used respectively in the UCL, UWL, LWL, and LCL above formulas (e.g.,  $P_2 = 0.9975$  in the UCL formula and  $= 0.025$  in the LWL formula).

$P_3$  = A cumulative binomial probability that if not equal to the  $P_2$  value is representing the percentile value that is greater than and closest to the 99.75, 97.50, 2.5, and 0.25 percentile values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_3 = 0.99796$  and is closest to the 99.75 percentile value, from the high side, then  $P_3 = 0.99796$  should be used in the UCL formula).

$X_1$  = The number of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup> associated with the  $P_1$  cumulative binomial probability values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_1 = 0.99529$  and represents the closest percentile from below the 99.75 percentile for the case where 19 Transmission Line Circuits had no Forced Outages<sup>(IMS)</sup>, then  $X_1 = 19$  should be used in the UCL formula).

$n$  = The median number of Transmission Line Circuits that are in service in a given calendar year. This number remains the same in each of the UCL, UWL, LWL, and LCL formulas.

#### **4.2.3. EVALUATION OF AVAILABILITY MEASURES PERFORMANCE**

The control charts shall be reviewed annually by the CAISO and PTOs in order to evaluate Availability Measures performance. The annual evaluation shall consist of an examination of each of the control charts to determine if one or more of the following four tests indicate a change in performance. The four tests have been selected to enable identification of exceptional performance in an individual calendar year, shifts in longer-term performance, and trends in longer-term performance.

##### **Tests**

- **Test 1:** The index value for the current calendar year falls outside the UCL or LCL.
- **Test 2:** At least  $v_1$  consecutive annual index values fall above the CL or  $v_2$  consecutive annual index values fall below the CL. The actual values of  $v_1$  and  $v_2$  will be output from the bootstrap resampling procedures. The choices

for v1 and v2 are designed to keep the probability of these events less than one percent.

**Table 1. Values of v1 and v2 for Percentiles of the CL in Specified Ranges**

Percentile	v1	v2
35 - 39	10	5
40	10	6
41 - 43	9	6
44 - 46	8	6
47 - 48	8	7
49 - 51	7	7
52 - 53	7	8
54 - 56	6	8
57 - 59	6	9
60	6	10
61 - 65	5	10

Thus, for example, if for a particular Voltage Class the percentile of the historical CL is 55%, this Table indicates that the CL is located at the 55 percentile of all bootstrap means in the “boot” column. From Table 1, v1=6, and v2=8.

- **Test 3:** At least two out of three consecutive annual index values fall outside the UWL or LWL on the same side of the CL.
- **Test 4:** Six or more values are consecutively increasing or consecutively decreasing.

Therefore, Test 1 is designed to detect a short-term change or jump in the average level. Tests 2 and 4 are looking for long-term changes. Test 2 will detect a shift up in averages or a shift to a lower level. Test 4 is designed to detect either a trend of continuous increase in the average values or continuous decrease. Test 3 is designed to assess changes in performance during an intermediate period of three calendar years. If Test 3 is satisfied, the evidence is of a decline (or increase) in Availability over a three calendar year period. Together the four tests allow the CAISO to monitor the Availability performance of a Voltage Class for a PTO.

If none of these tests indicate that a change has occurred, performance shall be considered to be stable and consistent with past performance. If one or more of these tests indicates a change then Availability performance shall be considered as having improved or degraded relative to the performance defined by the control chart. Table 4.2.1 provides a summary of the performance indications provided by the tests. The control chart limits may be updated annually if the last calendar year's Availability performance indices did not trigger any of the four tests. If none of the four tests are triggered, the new limits will be constructed including the last calendar year's data.

The control chart limits may be modified each year to reflect the number of Transmission Line Circuits in service during that calendar year if necessary. However, it is suggested that unless the number of Transmission Line Circuits changes by more than 30% from the previous calendar year, the use of the median number of Transmission Line Circuits should continue. Consider an example; suppose after the control chart has been prepared for a Voltage Class, next calendar year's data arrives with the number of Transmission Line Circuits 30% higher than the median used in the past. New limits will be generated in order to assess the Availability performance for that calendar year.



For the special case where only one Transmission Line Circuit has a Forced Outage<sup>(IMS)</sup> in a Voltage Class during a calendar year, the assessment process for Index 2 is as follows; if Index 2 for this Transmission Line Circuit does not trigger any of the four tests, no further action is necessary. If, however, one or more of the tests are triggered, then limits for this Transmission Line Circuit for that calendar year should be recalculated based on the historical data for this Transmission Line Circuit alone using an individual and moving range control chart. The only test warranted here is Test 1. More information on the individual and moving range control charts can be found in the user manuals of the statistical software used in creating the control charts

**Table 4.2.1 Performance Indications Provided by Control Chart Tests**

Control Chart Type	Test		Performance Status Indicated by Test Results	
	Number	Results	Improvement	Degradation
Annual Average Forced Outage <sup>(IMS)</sup> Frequency	1	value is above the UCL		X
		value is below the LCL when LCL>0	X	
	2	v1 or more consecutive values above the CL		X
		v2 or more consecutive values below the CL	X	
	3	2 out of 3 values above the UWL		X
		2 out of 3 values below the LWL	X	
	4	6 consecutive values increasing		X
		6 consecutive values decreasing	X	
Annual Average Accumulated Forced Outage <sup>(IMS)</sup> Duration	1	value is above the UCL		X
		value is below the LCL when LCL>0	X	
	2	v1 or more consecutive values above the CL		X
		v2 or more consecutive values below the CL	X	
	3	2 out of 3 values above the UWL		X
		2 out of 3 values below the LWL	X	
	4	6 consecutive values increasing		X
		6 consecutive values decreasing	X	
Annual Proportion of Transmission Line Circuits with No Forced Outages <sup>(IMS)</sup>	1	value is above the UCL	X	
		value is below the LCL when LCL>0		X
	2	v1 or more consecutive values above the CL	X	
		v2 or more consecutive values below the CL		X
	3	2 out of 3 values above the UWL	X	
		2 out of 3 values below the LWL		X
	4	6 consecutively increasing values	X	
		6 consecutively decreasing values		X

### **4.3. AVAILABILITY REPORTING**

Each PTO shall submit an annual report to the CAISO within 90 days after the end of each calendar year describing its Availability Measures performance. This annual report shall be based on Forced Outage<sup>(IMS)</sup> records. All Forced Outage<sup>(IMS)</sup> records shall be submitted by each PTO to the CAISO and shall include the date, start time, end time, affected Transmission Facility, and the probable cause(s) if known.

## **5. MAINTENANCE PRACTICES**

### **5.1. INTRODUCTION**

These CAISO Transmission Maintenance Standards, as they may be periodically revised in accordance with the provisions of the Transmission Control Agreement and this Appendix C, and as they may be clarified by the Maintenance Procedures, shall be followed by each PTO in preparing, submitting, and amending its Maintenance Practices. The Maintenance Practices will provide for consideration of the criteria referenced in Section 14.1 of the TCA, including facility importance.

### **5.2. PREPARATION OF MAINTENANCE PRACTICES**

#### **5.2.1. TRANSMISSION LINE CIRCUIT MAINTENANCE**

As may be appropriate for the specific Transmission Line Circuits under the CAISO's Operational Control, each PTO's Maintenance Practices shall describe the Maintenance activities for the various attributes listed below:

##### **5.2.1.1. OVERHEAD TRANSMISSION LINES**

- Patrols and inspections, scheduled and unscheduled
- Conductor and shield wire
- Disconnects/pole-top switches
- Structure grounds
- Guys/anchors
- Insulators

- Rights-of-way
- Structures/Foundations
- Vegetation Management

#### **5.2.1.2. UNDERGROUND TRANSMISSION LINES**

- Patrols and inspections, scheduled and unscheduled
- Cable/Cable systems
- Cathodic Protection
- Fluid pumping facilities
- Terminations
- Arrestors
- Rights-of-way
- Splices
- Structures/vaults/manholes
- Vegetation Management

#### **5.2.2. STATION MAINTENANCE**

As may be appropriate for the specific Stations under the CAISO's Operational Control, each PTO's Maintenance Practices shall describe Maintenance activities for the various attributes listed below:

- Inspections, scheduled and unscheduled
- Battery systems
- Circuit breakers
- Direct Current transmission components
- Disconnect switches
- Perimeter fences and gates
- Station grounds
- Insulators/bushings/arrestors
- Reactive power components
- Protective relay systems
- Station Service equipment
- Structures/Foundations
- Transformers/regulators
- Vegetation Management

### **5.2.3. DESCRIPTIONS OF MAINTENANCE PRACTICES**

Each PTO's Maintenance Practices shall include a schedule for any time-based Maintenance activities and a description of conditions that will initiate any performance-based activities. The Maintenance Practices shall describe the Maintenance methods for each substantial type of component and shall provide any checklists/report forms, which may be required for the activity. Where appropriate, the Maintenance Practices shall provide criteria to be used to assess the condition of a Transmission Facility. Where appropriate, the Maintenance Practices shall specify condition assessment criteria and the requisite response to each condition as may be appropriate for each specific type of component or feature of the Transmission Facility.

### **5.3. REVIEW AND ADOPTION OF MAINTENANCE PRACTICES**

#### **5.3.1. INITIAL ADOPTION OF MAINTENANCE PRACTICES**

In conjunction with its application to become a PTO, each prospective PTO shall provide to the CAISO its proposed Maintenance Practices which comply with the requirements set forth in this Appendix C and Section 14.1 of the Transmission Control Agreement. This information shall provide sufficient detail for the CAISO to assess the proposed Maintenance Practices.

The CAISO shall review the proposed Maintenance Practices and may provide recommendations for an amendment. To the extent there is any disagreement between the CAISO and the prospective PTO regarding the prospective PTO's proposed Maintenance Practices, such disagreement shall be resolved by the CAISO and prospective PTO so that the CAISO and the prospective PTO will have adopted Maintenance Practices, consistent with the requirements of this Appendix C and the Transmission Control Agreement, for the prospective PTO at the time that the CAISO assumes Operational Control of the prospective PTO's Transmission Facilities. To the extent there are no recommendations, the proposed Maintenance Practices will be

adopted by the CAISO and the prospective PTO as the Maintenance Practices for that prospective PTO.

## **5.3.2. AMENDMENTS TO THE MAINTENANCE PRACTICES**

### **5.3.2.1. AMENDMENTS PROPOSED BY THE CAISO**

Each PTO shall have in place Maintenance Practices that have been adopted by the CAISO as set forth in this Appendix C. The CAISO shall periodically review each PTO's Maintenance Practices having regard to these CAISO Transmission Maintenance Standards and Maintenance Procedures. Following such a review, the CAISO may recommend an amendment to any PTO's Maintenance Practices by means of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement. The PTO may draft amended language in response to the CAISO's recommendation. If the PTO exercises its option to draft amended language to the CAISO's proposed amendment, the PTO shall so notify the CAISO within 30 days after the receipt of notice from the CAISO. The PTO will provide the CAISO with its proposed amendment language in a time frame mutually agreed upon between the PTO and the CAISO. If, after the CAISO receives the proposed amendment language from the PTO, the CAISO and the PTO are unable to agree on the language implementing the CAISO recommendation, then the provisions of Section 5.3.3.2 of this Appendix C shall apply.

### **5.3.2.2. AMENDMENTS PROPOSED BY A PTO**

Each PTO may provide to the CAISO its own recommendation for an amendment to its own Maintenance Practices, by means of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement.

## **5.3.3. DISPOSITION OF RECOMMENDATIONS**

**5.3.3.1.** If the CAISO makes a recommendation to amend the Maintenance Practices of a PTO, as contemplated in Section 5.3.2.1 of this Appendix C, that PTO shall have 30 Business Days to provide a notice to the CAISO, pursuant to

Section 26.1 of the Transmission Control Agreement, stating that it does not agree with the recommended amendment or that it intends to draft the language implementing the amendment, as set forth in Section 5.3.2.1 of this Appendix C. If the PTO does not provide such a notice, the amendment recommended by the CAISO shall be deemed adopted.

If a PTO makes a recommendation to amend its own Maintenance Practices, as contemplated in Section 5.3.2.2 of this Appendix C, the CAISO shall have 30 Business Days to provide a notice to that PTO, pursuant to Section 26.1 of the Transmission Control Agreement, that it does not concur with the recommended amendment. If the CAISO does not provide such a notice, then the recommended amendment shall be deemed adopted. Notwithstanding the foregoing, if an amendment proposed by a PTO to its own Maintenance Practices meets the objectives of Section 2.1 of this Appendix C and is submitted in accordance with the requirements in Section 5.2 of this Appendix C, the CAISO shall adopt said amendment.

If any amendment to a PTO's Maintenance Practices is adopted, the PTO will specify the transition time to implement the adopted amendment so as to ensure the CAISO and PTO are clear as to the implementation time frame where Maintenance may be performed under both sets of practices.

**5.3.3.2.** If the CAISO or a PTO makes a recommendation to amend Maintenance Practices and if the CAISO or PTO provides notice within the 30 Business Days specified in Section 5.3.3.1 of this Appendix C that the CAISO or PTO does not agree with the recommended amendment, the PTO and the CAISO shall make good faith efforts to reach a resolution relating to the recommended amendment. If, after such efforts, the PTO and the CAISO cannot reach a resolution, the pre-existing Maintenance Practices shall remain in effect. Either Party may, however, seek further redress through appropriate processes, including non-binding discussions at the TMCC and/or the dispute resolution mechanism specified in Section 15 of the Transmission Control Agreement. The PTO may also request, during the initial attempts at resolution

and at any stage of the redress processes, a deferral of the CAISO recommended amendment and the CAISO shall not unreasonably withhold its consent to such a request. Following the conclusion of any and all redress processes, the PTO's Maintenance Practices, as modified, if at all, by these processes, shall be deemed adopted by the CAISO, as the Maintenance Practices for that PTO, pursuant to the implementation time frame agreed to between the PTO and the CAISO.

**5.3.3.3.** If the CAISO determines, that prompt action is required to avoid a substantial risk to reliability of the CAISO Controlled Grid, it may direct a PTO to implement certain temporary Maintenance activities in a period of less than 30 Business Days, by issuing an advisory to the PTO to that effect, by way of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement. Any advisory issued pursuant to this Section 5.3.3.3 shall specify why implementation solely under Sections 5.3.3.1 and 5.3.3.2 of this Appendix C is not sufficient to avoid a substantial risk to reliability of the CAISO Controlled Grid, including, where a substantial risk is not imminent or clearly imminent, why prompt action is nevertheless required. The CAISO shall consult with the relevant PTO before issuing a Maintenance advisory. Upon receiving such an advisory, a PTO shall implement the temporary Maintenance activities in question, as of the date specified by the CAISO in its advisory, unless the PTO provides a notice to the CAISO, in accordance with Section 26.1 of the Transmission Control Agreement, that the PTO is unable to implement the temporary Maintenance activities as specified. Even if the PTO provides such a notice, the PTO shall use its best efforts to implement the temporary Maintenance activities as fully as possible. All Maintenance advisories shall cease to have effect 90 Business Days after issuance by the CAISO or on such earlier date as the CAISO provides in its notice. Any Maintenance advisories required to remain in effect beyond 90 Business Days shall require a recommendation process pursuant to Section 5.3.3.1 or Section 5.3.3.2 of this Appendix C.



#### **5.4. QUALIFICATIONS OF PERSONNEL**

All Maintenance of Transmission Facilities shall be performed by persons who, by reason of training, experience and instruction, are qualified to perform the task.

### **6. MAINTENANCE RECORD KEEPING AND REPORTING**

A PTO shall maintain and provide to the CAISO records of its Maintenance activities in accordance with this Section 6 of this Appendix C.

#### **6.1. PTO MAINTENANCE RECORD KEEPING**

The minimum record retention period for Transmission Facilities subject to time based scheduled intervals shall be the designated Maintenance cycle plus two years. The minimum record retention period for all other Transmission Facility Maintenance activities identified through inspection, assessment, diagnostic or another process shall be a minimum of 2 years after the date completed.

A PTO's Maintenance records shall, at a minimum, include the: 1) responsible person; 2) Maintenance date; 3) Transmission Facility; 4) findings (if any); 5) priority rating (if any); and 6) description of Maintenance activity performed.

#### **6.2. PTO MAINTENANCE REPORTING**

Each PTO will submit a Standardized Maintenance Report as outlined in the Maintenance Procedures. The CAISO will accept, at the PTO's option, a Standardized Maintenance Report in either electronic or paper form.

If a PTO retains records in a manner that includes additional information, such records may be submitted in that manner.

Each PTO shall provide to the CAISO Maintenance records as described in Section 6.1 and as set forth in the Maintenance Procedures.

### **6.3. CAISO VISIT TO PTO'S TRANSMISSION FACILITIES**

The CAISO may visit Transmission Facilities in accordance with Section 18.3 of the Transmission Control Agreement to determine if the Maintenance Practices are being followed by a PTO.

## **7. CAISO AND TRANSMISSION MAINTENANCE COORDINATION COMMITTEE**

The CAISO shall establish and convene a Transmission Maintenance Coordination Committee (TMCC). The TMCC shall develop and, if necessary, revise the Maintenance Procedures, including conveying information to and seeking input from PTOs and other interested stakeholders regarding these Maintenance Procedures and any proposed amendments or revision thereto. The TMCC will also make recommendations on the CAISO Transmission Maintenance Standards and any proposed revisions or amendments thereto. The TMCC will convey information to and seek input from the PTOs and other interested stakeholders on these CAISO Transmission Maintenance Standards and any proposed revisions or amendments thereto. The TMCC will also perform any other functions assigned in this Appendix C.

Although the role of the Transmission Maintenance Coordination Committee is advisory in nature, the CAISO will strive to achieve a consensus among committee members.

## **8. REVISION OF CAISO TRANSMISSION MAINTENANCE STANDARDS AND MAINTENANCE PROCEDURES**

### **8.1 REVISIONS TO CAISO TRANSMISSION MAINTENANCE STANDARDS**

The CAISO, PTOs, or any interested stakeholder may submit proposals to amend or revise these CAISO Transmission Maintenance Standards. All proposals shall be initially submitted to the TMCC for review in accordance with this Appendix C. Any

revisions to these CAISO Transmission Maintenance Standards shall be made only upon recommendation by the TMCC and only in accordance with the provisions and requirements of the Transmission Control Agreement and this Appendix C.

## **8.2 REVISIONS TO AND DEVIATIONS FROM MAINTENANCE PROCEDURES**

The CAISO or any PTO may submit proposals to the TMCC to amend or revise the Maintenance Procedures. Any deviations from the Maintenance Procedures should be held to a minimum and will be negotiated between the CAISO and the affected PTO.

## **9. INCENTIVES AND PENALTIES**

### **9.1 DEVELOPMENT OF A FORMAL PROGRAM**

The TMCC shall periodically investigate and report to the CAISO on the appropriateness of a formal program of incentives and penalties associated with Availability Measures. Should the TMCC ever recommend that the CAISO adopt a formal program of incentive and penalties, the formal program will only be adopted as set forth in Section 9.2 of this Appendix C.

### **9.2 ADOPTION OF A FORMAL PROGRAM**

Any formal program of incentives and penalties adopted by the CAISO in connection with matters covered in Section 14 of the Transmission Control Agreement or this Appendix C, shall be established only: 1) with respect to Availability Measures; 2) upon recommendation of the TMCC as set forth in Section 9.1 of this Appendix C; 3) by express incorporation into this Appendix C in accordance with the provisions of the Transmission Control Agreement; and 4) upon approval by the FERC. Nothing in this Appendix C shall be construed as waiving or limiting in any way the right of any party or PTO to oppose or protest any formal program of incentives and penalties filed, proposed or adopted by the CAISO and/or FERC or any portion thereof.

### **9.3 IMPOSITION OF PENALTIES IN THE ABSENCE OF A FORMAL PROGRAM**

In the absence of a formal program of incentives and penalties, the CAISO may seek FERC permission for the imposition of specific penalties on a PTO on a case-by-case basis in the event that the relevant PTO 1) exhibits significant degradation trends in Availability performance due to Maintenance, or 2) is grossly or willfully negligent with regard to Maintenance.

### **9.4 NO WAIVER**

Nothing in this Appendix C shall be construed as waiving the rights of any PTO to oppose or protest any incentive, penalty or sanction proposed by the CAISO to the FERC, the approval by FERC of any specific penalty or sanction, or the specific imposition by the CAISO of any FERC approved penalty or sanction on the PTO.

### **9.5 LIMITATIONS ON APPLICABILITY TO NEW PTOS**

For a new PTO, the Availability Measures system needs to be used and updated during a five calendar year phase in period, as set forth in Section 4.2 of this Appendix C, to be considered in connection with any formal program of incentives and penalties associated with Availability Measures.

## **10. COMPLIANCE WITH OTHER REGULATIONS/LAWS**

Each PTO shall maintain and the CAISO shall operate Transmission Facilities in accordance with Good Utility Practice, sound engineering judgment, the guidelines as outlined in the Transmission Control Agreement, and all other applicable laws and regulations.

## **10.1 SAFETY**

Each PTO shall take proper care to ensure the safety of personnel and the public in performing Maintenance duties. The CAISO shall operate Transmission Facilities in a manner compatible with the priority of safety. In the event there is conflict between safety and reliability, the jurisdictional agency regulations for safety shall take precedence.

## **11. DISPUTE RESOLUTION**

Any dispute between the CAISO and a PTO relating to matters covered in this Appendix C shall be subject to the provisions of the Transmission Control Agreement, including the dispute resolution provisions set forth therein.

# **TRANSMISSION CONTROL AGREEMENT**

## **APPENDIX D**

### **Master Definitions Supplement**

**Actual Adverse Tax Action**

A plan, tariff provision, operating protocol, action, order, regulation, or law issued, adopted, implemented, approved, made effective, taken, or enacted by the CAISO, the FERC, the IRS or the United States Congress, as applicable, that likely adversely affects the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO or that, with the passage of time, likely would adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO if the affected facilities were to remain under the Operational Control of the CAISO; provided, however, no Actual Adverse Tax Action shall result with respect to a Tax Exempt Participating TO that initiates such a plan, tariff provision, operating protocol, action, order, regulation, or law; provided further, however, that the immediately preceding proviso shall not include private letter ruling requests or related actions; provided further, that no Actual Adverse Tax Action shall result in connection with Local Furnishing Bonds if the adverse effect on the tax-exempt status of the Local Furnishing Bonds reasonably could be avoided by application of the procedures set forth in Section 4.1.2 or in Section 2.3.2 and Appendix B.

**Adverse Tax Action Determination**

A determination by a Tax Exempt Participating TO, as supported by (i) an opinion of its (or its joint action agency's) nationally recognized bond counsel, or (ii) the IRS (e.g., through a private letter ruling received by a Tax Exempt Participating TO or its joint action agency), that an Impending Adverse Tax Action or an Actual Adverse Tax Action has occurred.

**Ancillary Services**

As used in this Agreement, the term Ancillary Services shall have the definition set forth in Appendix A of the CAISO Tariff.

**Applicable Reliability Criteria**

The Reliability Standards and reliability criteria established by NERC and WECC and Local Reliability Criteria, as amended from time to time, including any requirements of the NRC.

**Approved Maintenance Outage**

A Maintenance Outage which has been approved by the CAISO through the CAISO Outage Coordination Office.

**Balancing Authority**

The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports



interconnection frequency in real time.

**Balancing Authority Area**

The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

**Black Start**

The procedure by which a Generating Unit self-starts without an external source of electricity thereby restoring a source of power to the CAISO Balancing Authority Area following system or local area blackouts.

**Business Day**

Monday through Friday, excluding federal holidays and the day after Thanksgiving Day.

**CAISO**

The California Independent System Operator Corporation, a state chartered, California non-profit public benefit corporation that operates the transmission facilities of all Participating TOs and dispatches certain Generating Units and Loads.

**CAISO ADR Procedures**

The procedures for resolution of disputes or differences set out in Section 13 of the CAISO Tariff, as amended from time to time.

**CAISO Code of Conduct**

For employees, the code of conduct for officers, employees and substantially full-time consultants and

contractors of the CAISO as set out in exhibit A to the CAISO bylaws; for governors, the code of conduct for governors of the CAISO as set out in exhibit B to the CAISO bylaws.

**CAISO Control Center**

The control center established by the CAISO pursuant to Section 7.1 of the CAISO Tariff.

**CAISO Controlled Grid**

The system of transmission lines and associated facilities of the Participating TOs that have been placed under the CAISO's Operational Control.

**CAISO Governing Board**

The Board of Governors established to govern the affairs of the CAISO.

**CAISO Operations Date**

March 31, 1998.

**CAISO Outage  
Coordination Office**

The office established by the CAISO to coordinate Maintenance Outages in accordance with Section 9.3 of the CAISO Tariff.

**CAISO Protocols**

The rules, protocols, procedures and standards promulgated by the CAISO (as amended from time to time) to be complied with by the CAISO, Scheduling Coordinators, Participating TOs and all other Market Participants in relation to the operation of the CAISO Controlled Grid and the participation in the markets for

Energy and Ancillary Services in accordance with the CAISO Tariff.

**CAISO Register**

The register of all the transmission lines, associated facilities and other necessary components that are at the relevant time being subject to the CAISO's Operational Control.

**CAISO Tariff**

The California Independent System Operator Corporation Agreement and Tariff, dated March 31, 1997, as it may be modified from time to time.

**CAISO Website**

The CAISO internet home page at <http://www.caiso.com> or such other internet address as the CAISO shall publish from time to time.

**Congestion**

A characteristic of the transmission system produced by a binding Transmission Constraint (as that term is defined in Appendix A of the CAISO Tariff) to the optimum economic dispatch to meet Demand such that the LMP (as that term is defined in Appendix A of the CAISO Tariff), exclusive of Marginal Cost of Losses (as that term is defined in Appendix A of the CAISO Tariff), at different Locations (as that term is defined in Appendix A of the CAISO Tariff) of the transmission system is not equal.

**Congestion Management**

The alleviation of Congestion in accordance with applicable CAISO procedures, the CAISO Tariff, and Good Utility Practice.

**CPUC**

The California Public Utilities Commission, or its successor.

**Critical Protective System**

Facilities and sites with protective relay systems and Remedial Action Schemes that the CAISO determines may have a direct impact on the ability of the CAISO to maintain system security and over which the CAISO

exercises Operational Control.

**Demand**

The instantaneous amount of Power that is delivered to Loads and Scheduling Points by Generation, transmission or distribution facilities. It is the product of voltage and the in-phase component of alternating current measured in units of watts or standard multiples thereof, e.g., 1,000W=1kW, 1,000kW=1MW, etc.

**Eligible Customer**

(i) any utility (including Participating TOs, Market Participants and any power marketer), Federal power marketing agency, or any person generating Energy for sale or resale; Energy sold or produced by such entity may be Energy produced in the United States, Canada or Mexico; however, such entity is not eligible for transmission service that would be prohibited by Section 212(h)(2) of the Federal Power Act; and (ii) any retail customer taking unbundled transmission service pursuant to a state retail access program or pursuant to a voluntary offer of unbundled retail transmission service by the Participating TO.

**Encumbrance**

A legal restriction or covenant binding on a Participating TO that affects the operation of any transmission lines or associated facilities and which the CAISO needs to take

into account in exercising Operational Control over such transmission lines or associated facilities if the Participating TO is not to risk incurring significant liability. Encumbrances shall include Existing Contracts and may include: (1) other legal restrictions or covenants meeting the definition of Encumbrance and arising under other arrangements entered into before the CAISO Operations Date, if any; and (2) legal restrictions or covenants meeting the definition of Encumbrance and arising under a contract or other arrangement entered into after the CAISO Operations Date.

**End-Use Customer or End-User**

A consumer of electric power who consumes such power to satisfy a Load directly connected to the CAISO Controlled Grid or to a Distribution System (as that term is defined in Appendix A of the CAISO Tariff) and who does not resell the power.

**Energy**

The electrical energy produced, flowing or supplied by generation, transmission or distribution facilities, being the integral with respect to time of the instantaneous power, measured in units of watt-hours or standard multiples thereof, e.g., 1,000 Wh=1kWh, 1,000 kWh=1MWh, etc.

**Energy Management System (EMS)**

A computer control system used by electric utility dispatchers to monitor the real time performance of the various elements of an electric system and to control Generation and transmission facilities.

**Entitlements**

The right of a Participating TO obtained through contract or other means to use another entity's transmission facilities for the transmission of Energy.

**Existing Contracts**

The contracts which grant transmission service rights in existence on the CAISO Operations Date (including any contracts entered into pursuant to such contracts) as may be amended in accordance with their terms or by agreement between the parties thereto from time to time.

**Existing Rights**

The transmission service rights and obligations of non-Participating TOs under Existing Contracts, including all terms, conditions, and rates of the Existing Contracts, as they may change from time to time under the terms of the Existing Contracts.

**FERC**

The Federal Energy Regulatory Commission or its successor.

**Forced Outage**

An Outage for which sufficient notice cannot be given to allow the Outage to be factored into the Day-Ahead

Market, HASP, or RTM bidding processes, as the terms for those bidding processes are defined in Appendix A of the CAISO Tariff.

**FPA**

Parts II and III of the Federal Power Act, 16 U.S.C. § 824 et seq., as they may be amended from time to time.

**Generating Unit**

An individual electric generator and its associated plant and apparatus whose electrical output is capable of being separately identified and metered or a Physical Scheduling Plant that, in either case, is:

- (a) located within the CAISO Balancing Authority Area;
- (b) connected to the CAISO Controlled Grid, either directly or via interconnected transmission, or distribution facilities; and
- (c) that is capable of producing and delivering net Energy (Energy in excess of a generating station's internal power requirements).

**Generation**

Energy delivered from a Generating Unit.

**Generator**

The seller of Energy or Ancillary Services produced by a Generating Unit.



### **Good Utility Practice**

Any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good Utility Practice is not intended to be limited to any one of a number of the optimum practices, methods, or acts to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).

### **Hydro Spill Generation**

Hydro-electric Generation in existence prior to the CAISO Operations Date that: i) has no storage capacity and that, if backed down, would spill; ii) has exceeded its storage capacity and is spilling even though the generators are at full output, iii) has inadequate storage capacity to prevent loss of hydro-electric Energy either immediately or during the forecast period, if hydro-electric Generation is reduced; or iv) has increased regulated water output to

avoid an impending spill.

**Impending Adverse Tax Action**

A proposed plan, tariff, operating protocol, action, order, regulation, or law that, if issued, adopted, implemented, approved, made effective, taken, or enacted by the CAISO, the FERC, the IRS or the United States Congress, as applicable, likely would adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO if the affected facilities were to remain under the Operational Control of the CAISO; provided, however, that with respect to a proposed federal law, such proposed law must first have been approved by (i) one of the houses of the United States Congress and (ii) at least one committee or subcommittee of the other house of the United States Congress; provided further, however, no Impending Adverse Tax Action shall result with respect to a Tax Exempt Participating TO that initiates such a plan, tariff provision, operating protocol, action, order, regulation, or law; provided further, however, that the immediately preceding proviso shall not include private letter ruling requests or related actions; provided further, that no Impending Adverse Tax Action shall result in connection with Local Furnishing Bonds if the adverse

effect on the tax-exempt status of the Local Furnishing Bonds reasonably could be avoided by application of the procedures set forth in Section 4.1.2 or in Section 2.3.2 and Appendix B.

**IRS**

The United States Department of Treasury, Internal Revenue Service, or any successor thereto.

**Load**

An end-use device of an End-Use Customer that consumes Power. Load should not be confused with Demand, which is the measure of Power that a Load receives or requires.

**Local Furnishing Bond**

Tax-exempt bonds utilized to finance facilities for the local furnishing of electric energy, as described in section 142(f) of the Internal Revenue Code, 26 U.S.C. § 142(f).

**Local Furnishing Participating TO**

Any Tax Exempt Participating TO that owns facilities financed by Local Furnishing Bonds.

**Local Regulatory Authority**

The state or local governmental authority, or the board of directors of an electric cooperative, responsible for the regulation or oversight of a utility.

**Local Reliability Criteria**

Reliability Criteria unique to the transmission systems of each of the Participating TOs established at the later of: (1) CAISO Operations Date, or (2) the date upon which a

New Participating TO places its facilities under the control of the CAISO.

**Maintenance Outage**

A period of time during which an Operator (as that term is defined in Appendix A of the CAISO Tariff) takes its transmission facilities out of service for the purposes of carrying out routine planned maintenance, or for the purposes of new construction work or for work on de-energized and live transmission facilities (e.g., relay maintenance or insulator washing) and associated equipment.

**Market Participant**

An entity, including a Scheduling Coordinator, who either: (1) participates in the CAISO Markets (as that term is defined in Appendix A of the CAISO Tariff) through the buying, selling, transmission, or distribution of Energy, capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; (2) is a CRR Holder or Candidate CRR Holder (as those terms are defined in Appendix A of the CAISO Tariff), or (3) is a Convergence Bidding Entity (as that term is defined in Appendix A of the CAISO Tariff).

**Municipal Tax Exempt Debt**

An obligation the interest on which is excluded from gross income for federal tax purposes pursuant to Section

103(a) of the Internal Revenue Code of 1986 or the corresponding provisions of prior law without regard to the identity of the holder thereof. Municipal Tax Exempt Debt does not include Local Furnishing Bonds.

**Municipal Tax Exempt TO**

A Transmission Owner that has issued Municipal Tax Exempt Debt with respect to any transmission facilities, or rights associated therewith, that it would be required to place under the CAISO's Operational Control pursuant to the Transmission Control Agreement if it were a Participating TO.

**NERC**

The North American Electric Reliability Corporation or its successor.

**New Participating TO**

A Participating TO that is not an Original Participating TO.

**Nomogram**

A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC.

**Non-Participating TO**

A TO that is not a party to this Agreement or, for the purposes of Section 16.1 of the CAISO Tariff, the holder of transmission service rights under an Existing Contract that is not a Participating TO.

**NRC**

The Nuclear Regulatory Commission or its successor.

**Operating Procedures**

Procedures governing the operation of the CAISO Controlled Grid as the CAISO may from time to time develop, and/or procedures that Participating TOs currently employ which the CAISO adopts for use.

**Operational Control**

The rights of the CAISO under this Agreement and the CAISO Tariff to direct Participating TOs how to operate their transmission lines and facilities and other electric plant affecting the reliability of those lines and facilities for the purpose of affording comparable non-discriminatory transmission access and meeting Applicable Reliability Criteria.

**Original Participating TO**

A Participating TO that was a Participating TO as of January 1, 2000.

**Outage**

Disconnection, separation or reduction in capacity, planned or forced, of one or more elements of an electric system.

**Participating Generator**

A Generator or other seller of Energy or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid (1) from a Generating Unit with a rated capacity of 1 MW or greater, (2) from a Generating Unit

with a rated capacity of from 500 kW up to 1 MW for which the Generator elects to be a Participating Generator, or (3) from a Generating Unit providing Ancillary Services or submitting Energy Bids (as that term is defined in Appendix A of the CAISO Tariff) through an aggregation arrangement approved by the CAISO, which has undertaken to be bound by the terms of the CAISO Tariff, in the case of a Generator through a Participating Generator Agreement or QF PGA (as those terms are defined in Appendix A of the CAISO Tariff).

**Participating TO**

A party to this Agreement whose application under Section 2.2 has been accepted and who has placed its transmission assets and Entitlements under the CAISO's Operational Control in accordance with this Agreement. A Participating TO may be an Original Participating TO or a New Participating TO.



**Physical Scheduling  
Plant**

A group of two or more related Generating Units, each of which is individually capable of producing Energy, but which either by physical necessity or operational design must be operated as if they were a single Generating Unit and any Generating Unit or Units containing related multiple generating components which meet one or more of the following criteria: i) multiple generating components are related by a common flow of fuel which cannot be interrupted without a substantial loss of efficiency of the combined output of all components; ii) the Energy production from one component necessarily causes Energy production from other components; iii) the operational arrangement of related multiple generating components determines the overall physical efficiency of the combined output of all components; iv) the level of coordination required to schedule individual generating components would cause the CAISO to incur scheduling costs far in excess of the benefits of having scheduled such individual components separately; or v) metered output is available only for the combined output of related multiple generating components and separate generating component metering is either impractical or economically inefficient.

**Power**

The electrical work produced by a Generating Unit that is absorbed by the resistive components of Load or other network components, measured in units of watts or standard multiples thereof, e.g., 1,000 Watt = 1 kW; 1,000 kW = 1 MW, etc.

**Project Sponsor**

A Market Participant, group of Market Participants, a Participating TO or a project developer who is not a Market Participant or Participating TO that proposes the construction of a transmission addition or upgrade in accordance with Section 24 of the CAISO Tariff.

**Regulatory Must-Run Generation**

Hydro Spill Generation and Generation which is required to run by applicable federal or California laws, regulations, or other governing jurisdictional authority. Such requirements include but are not limited to hydrological flow requirements, environmental requirements, such as minimum fish releases, fish pulse releases and water quality requirements, irrigation and water supply requirements, or the requirements of solid waste Generation, or other Generation contracts specified or designated by the jurisdictional regulatory authority as it existed on December 20, 1995, or as revised by federal or California law or Local Regulatory Authority.

**Reliability Criteria**

Pre-established criteria that are to be followed in order to maintain desired performance of the CAISO Controlled Grid under Contingency (as that term is defined in Appendix A of the CAISO Tariff) or steady state conditions.

**Reliability Standard**

A requirement approved by FERC under Section 215 of the Federal Power Act to provide for reliable operation of the bulk power system. The term includes requirements for the operation of existing bulk power system facilities, including cyber security protection, and the design of planned additions or modifications to such facilities to the extent necessary for reliable operation of the bulk power system; but the term does not include any requirement to enlarge such facilities or to construct new transmission capacity or generation capacity.

**Remedial Action Schemes (RAS)**

Protective systems that typically utilize a combination of conventional protective relays, computer-based processors, and telecommunications to accomplish rapid, automated response to unplanned power system events. Also, details of RAS logic and any special requirements for arming of RAS schemes, or changes in RAS programming, that may be required. Remedial Action

Schemes are also referred to as Special Protection Systems (as that term is defined in Appendix A of the CAISO Tariff).

**SCADA (Supervisory Control and Data Acquisition)**

A computer system that allows an electric system operator to remotely monitor and control elements of an electric system.

**Scheduling Coordinator**

An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3 of the CAISO Tariff.

**Scheduling Point**

A location at which the CAISO Controlled Grid or a transmission facility owned by a Transmission Ownership Right holder is connected, by a group of transmission paths for which a physical, non-simultaneous transmission capacity rating has been established for Congestion Management, to transmission facilities that are outside the CAISO's Operational Control.

**System Emergency**

Conditions beyond the normal control of the CAISO that affect the ability of the CAISO Balancing Authority Area to function normally, including any abnormal system condition which requires immediate manual or automatic action to prevent loss of Load, equipment damage, or tripping of system elements which might result in

cascading Outages or to restore system operation to meet Applicable Reliability Criteria.

**System Reliability**

A measure of an electric system's ability to deliver uninterrupted service at the proper voltage and frequency.

**Tax Exempt Debt**

Municipal Tax Exempt Debt or Local Furnishing Bonds.

**Tax Exempt Participating TO**

A Participating TO that is the beneficiary of outstanding Tax Exempt Debt issued to finance any electric facilities, or rights associated therewith, which are part of an integrated system including transmission facilities the Operational Control of which is transferred to the CAISO pursuant to this Agreement.

**TO Tariff**

A tariff setting out a Participating TO's rates and charges for transmission access to the CAISO Controlled Grid and whose other terms and conditions are the same as those contained in the document referred to as the Transmission Owners Tariff approved by FERC as it may be amended from time to time.

**Transmission Control Agreement (TCA)**

This Agreement between the CAISO and Participating TOs establishing the terms and conditions under which TOs will become Participating TOs and how the CAISO and each Participating TO will discharge their respective

duties and responsibilities, as may be modified from time to time.

**Transmission Owner (TO)** An entity owning transmission facilities or having firm contractual rights to use transmission facilities.

**Transmission Ownership Right** The ownership or joint ownership right to transmission facilities within the CAISO Balancing Authority Area of a Non-Participating TO that has not executed this Agreement, which transmission facilities are not incorporated into the CAISO Controlled Grid.

**Uncontrollable Force** Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, earthquake, explosion, any curtailment, order, regulation, or restriction imposed by governmental, military, or lawfully established civilian authorities or any other cause beyond a Party's reasonable control which could not be avoided through the exercise of Good Utility Practice.

**Voltage Support** Services provided by Generating Units or other equipment such as shunt capacitors, static var compensators, or synchronous condensers that are required to maintain established grid voltage criteria. This service is required under normal or System Emergency conditions.

**Western Electricity  
Coordinating Council  
(WECC)**

The Western Electricity Coordinating Council or its successor.

**Wheeling Out**

Except for Existing Rights exercised under an Existing Contract in accordance with Section 16.1 of the CAISO Tariff, the use of the CAISO Controlled Grid for the transmission of Energy from a Generating Unit located within the CAISO Controlled Grid to serve a Load located outside the transmission and distribution system of a Participating TO.

**Wheeling Through**

Except for Existing Rights exercised under an Existing Contract in accordance with Section 16.1 of the CAISO Tariff, the use of the CAISO Controlled Grid for the transmission of Energy from a resource located outside the CAISO Controlled Grid to serve a Load located outside the transmission and distribution system of a Participating TO.

**Withdraw for Tax  
Reasons or Withdrawal  
for Tax Reasons**

In accordance with Section 3.4 of this Agreement, withdrawal from this Agreement, or withdrawal from the CAISO's Operational Control of all or any portion of the transmission lines, associated facilities, or Entitlements that were financed in whole or in part with proceeds of the Tax Exempt Debt that is the subject of an Impending

Adverse Tax Action or an Actual Adverse Tax Action.



# **TRANSMISSION CONTROL AGREEMENT**

## **APPENDIX E**

### **Nuclear Protocols**

# **DIABLO CANYON NUCLEAR POWER PLANT UNITS 1 & 2**

For purposes of this Appendix E, the requirements applicable to Pacific Gas and Electric Company's Diablo Canyon Nuclear Power Plant are set forth in Attachment A to Appendix 2 of the Nuclear Plant Interface Requirement Coordination Agreement between Pacific Gas and Electric Company (NCR005299), Generation-Diablo Canyon Nuclear Power Plant Electric Operations and Engineering Department, and California Independent System Operator (NCR050548) Concerning Nuclear Plant Interface Requirements For the Diablo Canyon Nuclear Power Plant, as that agreement may be amended from time to time.

# **SONGS 2&3 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY**

**Revised as of June 1, 2014**

For purposes of this Appendix E, the requirements applicable to San Onofre Nuclear Generating Station (SONGS) are set forth in the San Onofre Nuclear Generating Station (SONGS) Nuclear Plant Interface Requirement Coordination Agreement between SONGS, Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E), and the California Independent System Operator Corporation (CAISO) Concerning Nuclear Plant Interface Requirements For the San Onofre Nuclear Generating Station, as that agreement may be amended from time to time or in any successor agreement regarding Nuclear Plant Interface Requirements.

AMENDED AND RESTATED TRANSMISSION CONTROL  
AGREEMENT

Among  
The California Independent System Operator Corporation  
and  
Transmission Owners

## TABLE OF CONTENTS

### Section

1. DEFINITIONS .....	
2. PARTICIPATION IN THIS AGREEMENT .....	
3. EFFECTIVE DATE, TERM AND WITHDRAWAL.....	
4. TRANSFER OF OPERATIONAL CONTROL.....	
5. INDEPENDENT SYSTEM OPERATOR.....	
6. PARTICIPATING TRANSMISSION OWNERS .....	
7. SYSTEM OPERATION AND MAINTENANCE.....	
8. CRITICAL PROTECTIVE SYSTEMS THAT SUPPORT CAISO CONTROLLED GRID OPERATIONS .....	
9. SYSTEM EMERGENCIES.....	
10. CAISO CONTROLLED GRID ACCESS AND INTERCONNECTION.....	
11. EXPANSION OF TRANSMISSION FACILITIES .....	
12. USE AND ADMINISTRATION OF THE CAISO CONTROLLED GRID .....	
13. EXISTING AGREEMENTS .....	
14. MAINTENANCE STANDARDS.....	
15. DISPUTE RESOLUTION .....	
16. BILLING AND PAYMENT.....	
17. RECORDS AND INFORMATION SHARING .....	
18. GRANTING RIGHTS-OF-ACCESS TO FACILITIES.....	
19. [INTENTIONALLY LEFT BLANK].....	
20. TRAINING .....	
21. OTHER SUPPORT SYSTEMS REQUIREMENTS .....	
22. LIABILITY.....	
23. UNCONTROLLABLE FORCES .....	

24. ASSIGNMENTS AND CONVEYANCES .....	
25. CAISO ENFORCEMENT .....	
26. MISCELLANEOUS.....	
27. SIGNATURE PAGE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION.....	
28. SIGNATURE PAGE PACIFIC GAS AND ELECTRIC COMPANY .....	
29. SIGNATURE PAGE SAN DIEGO GAS & ELECTRIC COMPANY .....	
30. SIGNATURE PAGE SOUTHERN CALIFORNIA EDISON COMPANY .....	
31. SIGNATURE PAGE CITY OF VERNON.....	
32. SIGNATURE PAGE CITY OF ANAHEIM.....	
33. SIGNATURE PAGE CITY OF AZUSA .....	
34. SIGNATURE PAGE CITY OF BANNING.....	
35. SIGNATURE PAGE CITY OF RIVERSIDE .....	
36. SIGNATURE PAGE OF DATC PATH 15, LLC.....	
37. SIGNATURE PAGE OF WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA REGION.....	
38. SIGNATURE PAGE OF CITY OF PASADENA.....	
39. SIGNATURE PAGE OF TRANS BAY CABLE LLC.....	
40. SIGNATURE PAGE OF STARTRANS IO, L.L.C. ....	
41. SIGNATURE PAGE OF CITIZENS SUNRISE TRANSMISSION LLC .....	
42. SIGNATURE PAGE OF CITY OF COLTON .....	
43. SIGNATURE PAGE OF VALLEY ELECTRIC ASSOCIATION, INC.....	
44. SIGNATURE PAGE OF GRIDLIANCE WEST LLC	
45. SIGNATURE PAGE OF CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC	
46. SIGNATURE PAGE HORIZON WEST TRANSMISSION, LLC	

47. SIGNATURE PAGE OF DESERTLINK, LLC

## APPENDICES A – FACILITIES AND ENTITLEMENTS

PG&E Appendix A and Supplement

Edison Appendix A and Supplement

SDG&E Appendix A and Supplement

Vernon Appendix A

Anaheim Appendix A

Azusa Appendix A

Banning Appendix A

Riverside Appendix A

DATC Path 15, LLC Appendix A

Western Area Power Administration, Sierra Nevada Region Appendix A

Pasadena Appendix A

Trans Bay Cable LLC Appendix A

Startrans IO, L.L.C. Appendix A

Citizens Sunrise Transmission LLC Appendix A

Colton Appendix A

Valley Electric Association, Inc. Appendix A

GridLiance West LLC Appendix A

Citizens Sycamore-Penasquitos Transmission LLC Appendix A

Horizon West Transmission, LLC Appendix A

[DesertLink, LLC Appendix A](#)

## APPENDICES B - ENCUMBRANCES

PG&E Appendix B

Edison Appendix B

SDG&E Appendix B

Citizens Sunrise Transmission LLC Appendix B

Citizens Sycamore-Penasquitos Transmission LLC Appendix B

## APPENDIX C - CAISO MAINTENANCE STANDARDS

## APPENDIX D - MASTER DEFINITIONS SUPPLEMENT

## APPENDICES E - NUCLEAR PROTOCOLS

Diablo Canyon Appendix E

SONGS Appendix E



**AMENDED AND RESTATED TRANSMISSION CONTROL AGREEMENT**  
**Among**  
**The California Independent System Operator Corporation**  
**and**  
**Transmission Owners**

The Parties to this amended and restated Transmission Control Agreement (“Agreement”) originally effective as of March 31, 1998, are

(1) The California Independent System Operator Corporation, a California nonprofit public benefit corporation (“CAISO”), which expression includes its permitted successors); and

(2) Entities owning or holding Entitlements to transmission lines and associated facilities who subscribe to this Agreement (“Transmission Owners” or “TOs”, which expression includes their permitted successors and assigns).

This Agreement is made with reference to the following facts:

(i) The Legislature of the State of California enacted Assembly Bill 1890 (“AB 1890”) that addressed the restructuring of the California electric industry in order to increase competition in the provision of electricity.

(ii) AB 1890 provides the means for transforming the regulatory framework of California's electric industry in ways to meet the objectives of the law.

(iii) In order to create a new market structure, AB 1890 establishes an independent system operator with centralized control of a state-wide transmission grid charged with ensuring the efficient use and reliable operation of the transmission system.

(iv) AB 1890 states that it is the intention of the California Legislature that California transmission owners commit control of their transmission facilities to the

CAISO with the assurances provided in the law that the financial interests of such TOs will be protected.

(v) Each TO: (1) owns, operates, and maintains transmission lines and associated facilities; and/or (2) has Entitlements to use certain transmission lines and associated facilities, with responsibilities attached thereto.

(vi) Each TO, upon satisfying the criteria for becoming a Participating TO under Section 2.2 of this Agreement, will transfer to the CAISO Operational Control of certain transmission lines and associated facilities and/or Entitlements, which are to be incorporated by the CAISO into the CAISO Controlled Grid for the purpose of allowing them to be controlled as part of an integrated Balancing Authority Area.

(vii) Each Participating TO will continue to own and maintain its transmission lines and associated facilities, if any, and will retain its Entitlements, if any, and associated responsibilities.

(viii) The CAISO intends to provide to each Participating TO access to the CAISO Controlled Grid while exercising its Operational Control for the benefit of all Market Participants by providing non-discriminatory transmission access, Congestion Management, grid security, and Balancing Authority Area services.

(ix) Pacific Gas and Electric Company ("PG&E"), San Diego Gas & Electric Company ("SDG&E"), and Southern California Edison Company ("Edison") (each a Participating TO) are entering into this agreement transferring Operational Control of their transmission facilities in reliance upon California Public Utilities Code Sections 367, 368, 375, 376, and 379 enacted as part of AB 1890 which contain assurances and schedules with respect to recovery of transition costs.

(x) The Parties desire to enter into this Agreement in order to establish the terms and conditions under which TOs will become Participating TOs and how the CAISO and each Participating TO will discharge their respective duties and responsibilities.

In consideration of the above and the covenants and mutual agreements set forth herein, and intending to be legally bound, the Parties agree as follows:

## **1. DEFINITIONS**

Capitalized terms in this Agreement have the meaning set out in the Master Definitions Supplement set out in Appendix D. No subsequent amendment to the Master Definitions Supplement shall affect the interpretation of this Agreement unless made pursuant to Section 26.11.

## **2. PARTICIPATION IN THIS AGREEMENT**

### **2.1. Transmission Owners:**

#### **2.1.1 Original Participating TOs.**

The following entities are subscribing to this Agreement as of the date hereof for the purpose of applying to become Participating TOs in accordance with Section 2.2:

- i. Pacific Gas and Electric Company;
- ii. San Diego Gas & Electric Company; and
- iii. Southern California Edison Company.

#### **2.1.2 Right to Become a Party.**

After this Agreement takes effect, any other owner of or holder of Entitlements to transmission lines and facilities connected to the CAISO Controlled Grid may apply to the CAISO under Section 2.2 to become a Participating TO and become a Party to this

Agreement, except Approved Project Sponsors need not do so. In accordance with Section 4.3.1 of the CAISO Tariff neither the written declaration nor the application requirement applies to Approved Project Sponsors.

## **2.2. Applications for Participating TO Status; Eligibility Criteria.**

**2.2.1 Application Procedures.** All applications under this Section 2.2 shall be made in accordance with the procedures adopted by the CAISO from time to time and shall be accompanied by:

- (i) a description of the transmission lines and associated facilities that the applicant intends to place under the CAISO's Operational Control;
- (ii) in relation to any such transmission lines and associated facilities that the applicant does not own, a copy of each document setting out the applicant's Entitlements to such lines and facilities;
- (iii) a statement of any Encumbrances to which any of the transmission lines and associated facilities to be placed under the CAISO's Operational Control are subject, together with any documents creating such Encumbrances and any dispatch protocols to give effect to them, as the CAISO may require;
- (iv) a statement that the applicant intends to place under the CAISO's Operational Control all of the transmission lines and associated facilities referred to in Section 4.1 that it owns or, subject to the treatment of Existing Contracts under Section 16 of the CAISO Tariff, to which it has Entitlements and its reasons for believing that certain lines and facilities do not form part of the applicant's transmission network pursuant to Sections 4.1.1.i and 4.1.1.ii;
- (v) a statement of any Local Reliability Criteria to be included as part of

the Applicable Reliability Criteria;

(vi) a description of the applicant's current maintenance practices;

(vii) a list of any temporary waivers that the applicant wishes the CAISO to grant under Section 5.1.6 and the period for which it requires them;

(viii) a copy of the applicant's proposed TO Tariff, if any, must be filed;

(ix) address and contact names to which notices under this Agreement may be sent pursuant to Section 26.1;

(x) any other information that the CAISO may reasonably require in order to evaluate the applicant's ability to comply with its obligations as a Participating TO; and

(xi) details of the applicant's intent to establish a settlement account.

**2.2.2 Notice of Application.** The CAISO shall require the applicant to deliver to each existing Participating TO a copy of each application under this Section 2.2 and each amendment, together with all supporting documentation, and to provide the public with reasonable details of its application and each amendment through the CAISO Website. The CAISO shall not grant an application for Participating TO status until it has given each other Party and the public sixty (60) days to comment on the original application and thirty (30) days to comment on each amendment.

**2.2.3 Determination of Eligibility.** Subject to Section 2.2.4, the CAISO shall permit a Party who has submitted an application under this Section 2.2 to become a Participating TO if, after considering all comments received from other Parties and third parties, the CAISO determines that:

i. the applicant's transmission lines and associated facilities, including

Entitlements, that are to be placed under the CAISO's Operational Control can be incorporated into the CAISO Controlled Grid without any material adverse impact on its reliability;

ii. incorporating such transmission lines and associated facilities and Entitlements into the CAISO Controlled Grid will not put the CAISO in breach of Applicable Reliability Criteria and its obligations as a member of WECC;

iii. objections by the CAISO under Section 4.1.3 shall have been withdrawn or determined by the CAISO Governing Board to be invalid;

iv. all applicable regulatory approvals of the applicant's TO Tariff have been obtained, which approvals shall specify that the effective date of the TO Tariff is the date that the CAISO assumes Operational Control of the applicant's transmission lines and associated facilities and Entitlements; and

v. the applicant is capable of performing its obligations under this Agreement.

Objections under Section 4.1.3 relating solely to a portion of a TO's facilities or Entitlements shall not prevent the TO from becoming a Participating TO while the objections are being resolved.

**2.2.4 Challenges to Eligibility.** The CAISO shall permit a Party to become a Participating TO pending the outcome of CAISO ADR Procedures challenging whether or not the applicant satisfies the criteria set out in Section 2.2.3 if the CAISO determines that the applicant satisfies those criteria unless otherwise ordered by FERC.

**2.2.5 Becoming a Participating TO.** A Party whose application under

this Section 2.2 has been accepted shall become a Participating TO with effect from the date when its TO Tariff takes effect and the CAISO assumes Operational Control of its transmission lines and associated facilities and Entitlements, either as a result of acceptance by FERC or by action of a Local Regulatory Authority, whichever is appropriate. The TO Tariff of each Participating TO shall be posted on the CAISO Website.

**2.2.6 Procedures and Charges.** The CAISO shall adopt fair and non-discriminatory procedures for processing applications under this Section 2.2. The CAISO shall publish its procedures for processing applications under this Section 2.2 on the CAISO Website and shall furnish a copy of such procedures to FERC. If the burden of processing applications under this Section 2.2 becomes significant, in the CAISO's judgment, the CAISO may establish an application fee. Applicants shall pay any application fee established by the CAISO as filed with and accepted by FERC for processing their applications. Nothing herein waives the right of any Party to object to or challenge the amount of the application fee established by the CAISO.

### **2.3. Tax Exempt Debt.**

**2.3.1 Municipal Tax Exempt TOs.** In the event a Municipal Tax Exempt TO executes this Agreement in reliance upon this Section 2.3, it shall provide written notice thereof to the CAISO. Notwithstanding any other provision to the contrary herein, except for this Section 2.3, no other provisions of this Agreement shall become effective with respect to a Municipal Tax Exempt TO until such Municipal Tax Exempt TO's nationally recognized bond counsel renders an opinion, generally of the type regarded as unqualified in the bond market, that participation in the CAISO Controlled Grid in

accordance with this Agreement will not adversely affect the tax-exempt status of any Municipal Tax Exempt Debt issued by, or for the benefit of, the Municipal Tax Exempt TO. A Municipal Tax Exempt TO shall promptly seek, in good faith, to obtain such unqualified opinion from its bond counsel at the earliest opportunity. Upon receipt of such unqualified opinion, a Municipal Tax Exempt TO shall provide a copy of the opinion to the CAISO and all other provisions of this Agreement shall become effective with respect to such Municipal Tax Exempt TO as of the date thereof. If the Municipal Tax Exempt TO is unable to provide to the CAISO such unqualified opinion within one year of the execution of this Agreement by the Municipal Tax Exempt TO, without further act, deed, or notice this Agreement shall be deemed to be void *ab initio* with respect to such Municipal Tax Exempt TO.

**2.3.2 Acceptable Encumbrances.** A Transmission Owner that has issued Local Furnishing Bonds may become a Participating TO under Section 2.2 even though covenants or restrictions applicable to the Transmission Owner's Local Furnishing Bonds require the CAISO's Operational Control to be exercised subject to Encumbrances, provided that such Encumbrances do not materially impair the CAISO's ability to meet its obligations under the CAISO Tariff or the Transmission Owner's ability to comply with the TO Tariff.

**2.3.3 Savings Clause.** Nothing in this Agreement shall compel any Participating TO or Municipal Tax Exempt TO which has issued Tax Exempt Debt to violate restrictions applicable to transmission facilities financed with Tax Exempt Debt or contractual restrictions and covenants regarding use of transmission facilities.

### **3. EFFECTIVE DATE, TERM AND WITHDRAWAL**



### **3.1. Effective Date.**

This Agreement was originally effective as of March 31, 1998 and is amended and restated as of the date accepted for filing and made effective by FERC.

### **3.2. Term.**

This Agreement shall remain in full force and effect until terminated: (1) by operation of law or (2) the withdrawal of all Participating TOs pursuant to Section 3.3 or Section 4.4.1.

### **3.3. Withdrawal.**

**3.3.1 Notice.** Subject to Section 3.3.3, any Participating TO may withdraw from this Agreement on two years' prior written notice to the other Parties. In addition, Western Area Power Administration ("Western") may be required to withdraw as a Participating TO pursuant to Section 26.14.1.

**3.3.2 Sale.** Subject to Section 3.3.3, any Participating TO may withdraw from this Agreement if that Participating TO sells or otherwise disposes of all of the transmission facilities and Entitlements that the Participating TO placed under the CAISO's Operational Control, subject to the requirements of Section 4.4.

**3.3.3 Conditions of Withdrawal.** Any withdrawal from this Agreement pursuant to Section 3.3.1 or Section 3.3.2 shall be contingent upon the withdrawing party obtaining any necessary regulatory approvals for such withdrawal. The withdrawing Participating TO shall make a good faith effort to ensure that its withdrawal does not unduly impair the CAISO's ability to meet its Operational Control responsibilities as to the facilities remaining within the CAISO Controlled Grid.

**3.3.4 Publication of Withdrawal Notices.** The CAISO shall inform the

public through the CAISO Website of all notices received under this Section 3.3.

### **3.4 Withdrawal Due to Adverse Tax Action.**

**3.4.1 Right to Withdraw Due To Adverse Tax Action.** Subject to Sections 3.4.2 through 3.4.4, in the event an Adverse Tax Action Determination identifies an Impending Adverse Tax Action or an Actual Adverse Tax Action, a Tax Exempt Participating TO may exercise its right to Withdraw for Tax Reasons. The right to Withdraw for Tax Reasons, in accordance with the provisions of this Section 3.4, shall not be subject to any approval by the CAISO, the FERC, or any other Party.

#### **3.4.2 Adverse Tax Action Determination.**

**3.4.2.1** A Tax Exempt Participating TO shall provide to all other Parties written notice of an Adverse Tax Action Determination and a copy of the Tax Exempt Participating TO's (or its joint action agency's) nationally recognized bond counsel's opinion or an IRS determination supporting such Adverse Tax Action Determination. Such written notice shall be provided promptly under the circumstances, but in no event more than 15 Business Days from the date of receipt of such documents.

**3.4.2.2** The Adverse Tax Action Determination shall include (i) the actual or projected date of the Actual Adverse Tax Action and (ii) a description of the transmission lines, associated facilities, or Entitlements that were financed in whole or in part with proceeds of the Tax Exempt Debt that is the subject of such Adverse Tax Action Determination. A Tax Exempt Participating TO shall promptly notify all other Parties in writing in the event the actual or projected date of the Actual Adverse Tax Action changes. The Tax Exempt Participating TO's determination of the actual or

projected date of the Actual Adverse Tax Action shall be binding upon all Parties.

3.4.2.3 Any transmission lines, associated facilities, or Entitlements of the Tax Exempt Participating TO not identified in both the Adverse Tax Action Determination and the written notice of Withdrawal for Tax Reasons shall remain under the CAISO's Operational Control.

**3.4.3 Withdrawal Due to Impending Adverse Tax Action.** A Tax Exempt Participating TO may Withdraw for Tax Reasons prior to an Actual Adverse Tax Action if such Tax Exempt Participating TO provides prior written notice of its Withdrawal for Tax Reasons to all other Parties as required in Sections 3.4.3(i) through 3.4.3(iv).

i. In the event the date of the Adverse Tax Action Determination is seven months or more from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least six months in advance of the projected date of the Actual Adverse Tax Action.

ii. In the event the date of the Adverse Tax Action Determination is less than seven months but more than two months from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least 30 days in advance of the projected date of the Actual Adverse Tax Action.

iii. In the event the date of the Adverse Tax Action Determination is between two months and one month from the projected date of the Actual Adverse Tax

Action, then a Tax Exempt Participating TO that exercises its right to Withdraw for Tax Reasons shall provide prior written notice of its Withdrawal for Tax Reasons to all other Parties at least 15 days in advance of the projected date of the Actual Adverse Tax Action.

iv. In the event the date of the Adverse Tax Action Determination is less than one month from the projected date of the Actual Adverse Tax Action, then a Tax Exempt Participating TO shall have up to 15 days following the date of the Adverse Tax Action Determination to exercise its right to Withdraw for Tax Reasons, and if so exercised shall provide no later than one day thereafter written notice of its Withdrawal for Tax Reasons to all other Parties.

v. With respect to Sections 3.4.3(i) through 3.4.3(iii), upon receipt by the CAISO of a notice to Withdraw for Tax Reasons, the CAISO shall promptly begin working with the applicable Tax Exempt Participating TO to relinquish the CAISO's Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO, provided that such Operational Control must be relinquished by the CAISO no later than five days prior to the projected date of the Actual Adverse Tax Action. With respect to Section 3.4.3(iv), (1) if the notice of Withdrawal for Tax Reasons is received by the CAISO at least six days prior to the projected date of the Actual Adverse Tax Action, Operational Control over the affected transmission lines, associated facilities, or Entitlements must be relinquished by the CAISO to such Tax Exempt Participating TO no later than five days prior to the projected date of the Actual Adverse Tax Action, or (2) if the notice of Withdrawal for Tax Reasons is received by the CAISO any time after six days prior to the projected

date of the Actual Adverse Tax Action, the CAISO shall on the next day relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO.

**3.4.4 Withdrawal Due to Actual Adverse Tax Action.** In addition to the foregoing, upon the occurrence of an Actual Adverse Tax Action, the affected Tax Exempt Participating TO may immediately Withdraw for Tax Reasons. The Tax Exempt Participating TO shall have up to 15 days from the date of the Adverse Tax Action Determination with respect to an Actual Adverse Tax Action to exercise its right to Withdraw for Tax Reasons. If the Tax Exempt Participating TO determines to exercise its right to Withdraw for Tax Reasons, upon receipt of the notice of Withdrawal for Tax Reasons, the CAISO shall immediately relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO.

**3.4.5 Alternate Date To Relinquish Operational Control.** Notwithstanding anything to the contrary in this Section 3.4, the CAISO and a Tax Exempt Participating TO who has provided a notice of Withdrawal for Tax Reasons may mutually agree in writing to an alternate date that the CAISO shall relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO. If the CAISO or a Tax Exempt Participating TO who has provided a notice of Withdrawal for Tax Reasons desires an alternate date from the date provided in Sections 3.4.3(i) through 3.4.3(v)(1) for the CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO, such Party

promptly shall give written notice to the other, and each agrees to negotiate in good faith, for a reasonable period of time, to determine whether or not they can reach mutual agreement for such an alternate date; provided, however, such good faith negotiations are not required to be conducted during the five days preceding the date provided in Sections 3.4.3(i) through 3.4.3(v)(1) for the CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements.

**3.4.6 Procedures to Relinquish Operational Control.** The CAISO shall implement a procedure jointly developed by all Parties to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements as provided in this Section 3.4.

**3.4.7 Right to Rescind Notice of Withdrawal for Tax Reasons.** At any time up to two days prior to the CAISO's relinquishment to the Tax Exempt Participating TO of Operational Control over the affected transmission lines, associated facilities, or Entitlements, a Tax Exempt Participating TO may rescind its notice of Withdrawal for Tax Reasons by providing written notice thereof to all other Parties, and such notice shall be effective upon receipt by the CAISO.

**3.4.8 Amendment of Agreement.** Following the relinquishment by the CAISO of Operational Control of any affected transmission lines, associated facilities, or Entitlements in accordance with this Section 3.4, the CAISO promptly shall prepare the necessary changes to this Agreement and to the CAISO Tariff (if any), make a filing with FERC pursuant to Section 205 of the FPA, and take whatever other regulatory action, if any, that is required to properly reflect the Withdrawal for Tax Reasons.

**3.4.9 Provision of Information by CAISO.** To assist Tax Exempt

Participating TOs in identifying at the earliest opportunity Impending Adverse Tax Actions or Actual Adverse Tax Actions, the CAISO promptly shall provide to Participating TOs any non-confidential information regarding any CAISO plans, actions, or operating protocols that the CAISO believes might adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO.

3.4.10 **Publication of Notices.** The CAISO shall inform the public through the CAISO Website of all notices received under this Section 3.4.

#### **4. TRANSFER OF OPERATIONAL CONTROL**

##### **4.1. TO Facilities and Rights Provided to the CAISO.**

4.1.1 **CAISO Controlled Grid.** Subject to Section 4.1.2 and the treatment of Existing Contracts under Section 16 of the CAISO Tariff and subject to the applicable interconnection, integration, exchange, operating, joint ownership, and joint participation agreements, each Participating TO shall place under the CAISO's Operational Control the transmission lines and associated facilities forming part of the transmission network that it owns or to which it has Entitlements, except that Western shall only be required to place under the CAISO's Operational Control the transmission lines and associated facilities that it owns or to which it has Entitlements as set forth in Appendix A (Western). The Original Participating TOs identified in Section 2.1.1 shall be deemed to have placed such transmission lines and associated facilities and Entitlements under the CAISO's Operational Control as of the date the CPUC or its delegate declares to be the start date for direct access pursuant to CPUC Decisions 97-12-131 and 98-01-053. An applicant to become a Participating TO shall provide the

CAISO notice of the transmission lines and associated facilities that it owns or to which it has Entitlements in its application pursuant to Section 2. An Approved Project Sponsor that is becoming a Participating TO shall place under the CAISO's Operational Control such transmission lines and associated facilities that the CAISO directed the Approved Project Sponsor to build in accordance with the transmission planning process. An existing Participating TO shall provide the CAISO notice of any new transmission lines, associated facilities, or Entitlements that it proposes to make part of its transmission network and to turn over to the CAISO's Operational Control either (i) through the transmission planning process established pursuant to Sections 24 and 25 of the CAISO Tariff or (ii) by written notice pursuant to this Agreement. Any transmission lines or associated facilities or Entitlements that the CAISO determines not to be necessary to fulfill the CAISO's responsibilities under the CAISO Tariff in accordance with Section 4.1.3 of this Agreement shall not be treated as part of a Participating TO's network for the purposes of this Section 4.1. The CAISO shall provide an applicant to become a Participating TO notice of its determination not to accept a transmission line, associated facility, or Entitlement as part of a Participating TO's network for the purposes of this Section 4.1 in conjunction with its acceptance or rejection of that application. The CAISO shall provide an existing Participating TO notice of its determination whether or not to accept a transmission line, associated facility, or Entitlement as part of a Participating TO's network for the purposes of this Section 4.1 either (i) as part of the transmission planning process established pursuant to Sections 24 and 25 of the CAISO Tariff or (ii) by written notice in response to a written notice provided by the Participating TO. The CAISO shall recognize the rights



and obligations of Participating TOs that are owners of or holders of Entitlements to jointly-owned facilities which are placed under the CAISO's Operational Control by one or more but not all of the joint owners or rights holders. The CAISO shall, in exercise of Operational Control transferred to it, ensure that the operating obligations, as specified by the Participating TO pursuant to Section 6.4.2 of this Agreement, for the contracts referenced in Appendix B are performed. Any other terms of such contracts shall not be the responsibility of the CAISO. The following transmission lines and associated facilities, and Entitlements thereto, are also deemed not to form part of a Participating TO's transmission network:

- i. directly assignable radial lines and associated facilities

interconnecting generation (other than those facilities which may be identified from time to time interconnecting CAISO Controlled Grid Critical Protective Systems or Generating Units of Generators contracted to provide Black Start or Voltage Support) and

- ii. lines and associated facilities classified as "local distribution"

facilities in accordance with FERC's applicable technical and functional test and other facilities excluded consistent with FERC established criteria for determining facilities subject to CAISO Operational Control.

#### **4.1.2 Transfer of Facilities by Local Furnishing Participating TOs.**

This Section 4.1.2 is applicable only to the enlargement of transmission capacity by Local Furnishing Participating TOs. The CAISO shall not require a Local Furnishing Participating TO to enlarge its transmission capacity except pursuant to an order under Section 211 of the FPA directing the Local Furnishing Participating TO to enlarge its

transmission capacity as necessary to provide transmission service as determined pursuant to Section 24.16 of the CAISO Tariff. If an application under Section 211 of the FPA is filed by an eligible entity (or the CAISO acting as its agent), the Local Furnishing Participating TO shall thereafter, within 10 days of receiving a copy of the Section 211 application, waive its right to a request for service under Section 213(a) of the FPA and to the issuance of a proposed order under Section 212(c) of the FPA. Upon receipt of a final order from FERC under Section 211 of the FPA that is no longer subject to rehearing or appeal, such Local Furnishing Participating TO shall enlarge its transmission capacity to comply with that FERC order and shall transfer to the CAISO Operational Control over its expanded transmission facilities in accordance with this Section 4.

**4.1.3 Refusal of Facilities.** The CAISO may refuse to exercise Operational Control over certain of an applicant's or a Participating TO's transmission lines, associated facilities, or Entitlements over which the CAISO does not currently exercise Operational Control if it determines that any one or more of the following conditions exist and it provides notice of its refusal in accordance with Section 4.1.1:

- i. The transmission lines, associated facilities, or Entitlements do not meet or do not permit the CAISO to meet the Applicable Reliability Criteria and the applicant or Participating TO fails to give the CAISO a written undertaking to take all good faith actions necessary to ensure that those transmission lines, facilities, or Entitlements, as the case may be, meet the Applicable Reliability Criteria within a reasonable period from the date of the applicant's application under Section 2.2 or the Participating TO's notice to the CAISO of its intent to turn over Operational Control as

determined by the CAISO.

ii. The transmission lines, associated facilities, or Entitlements are subject to Encumbrances that unduly impair the CAISO's ability to exercise its Operational Control over them in accordance with the CAISO Tariff and the applicant or Participating TO fails to give the CAISO a written undertaking to negotiate in good faith to the extent permitted by the applicable contract the removal of the Encumbrances identified by the CAISO which preclude it from using unused capacity on the relevant transmission lines. If the applicant or Participating TO provides such written undertaking but is unable to negotiate the removal of such Encumbrances to the extent required by the CAISO, the ADR Procedures shall be used to resolve any disputes between the CAISO and the applicant or Participating TO. For this purpose, Non-Participating TOs may utilize CAISO ADR Procedures on a voluntary basis.

iii. The transmission lines, associated facilities, and Entitlements are located in a Balancing Authority Area outside of California, are operated under the direction of another Balancing Authority Area or independent system operator, and cannot be integrated into the CAISO Controlled Grid due to technical considerations.

If the CAISO refuses to accept any of an applicant's transmission lines, associated facilities, or Entitlements, then that applicant shall have the right to notify the CAISO within a reasonable period from being notified of such refusal that it will not proceed with its application under Section 2.2.

**4.1.4 Facilities Initially Placed Under the CAISO's Operational Control.** The transmission lines, associated facilities, and Entitlements which each Participating TO places under the CAISO's Operational Control on the date that this

Agreement takes effect with respect to it shall be identified in Appendix A.

4.1.5 **Warranties.** Each Participating TO warrants that as of the date on which it becomes a Participating TO pursuant to Section 2.2.5:

i. the transmission lines and associated facilities that it is placing under the CAISO's Operational Control and the Entitlements that it is making available for the CAISO's use are correctly identified in Appendix A (as amended in accordance with this Agreement); that the Participating TO has all of the necessary rights and authority to place such transmission lines and associated facilities under the CAISO's Operational Control subject to the terms and conditions of all agreements governing the use of such transmission lines and associated facilities; and that the Participating TO has the necessary rights and authority to transfer the use of such Entitlements to the CAISO subject to the terms and conditions of all agreements governing the use of such Entitlements;

ii. the transmission lines and associated facilities and Entitlements that it is placing under the CAISO's Operational Control are not subject to any Encumbrances except as disclosed in Appendix B (as amended in accordance with this Agreement);

iii. the transmission lines and associated facilities that it is placing under the CAISO's Operational Control meet the Applicable Reliability Criteria for the relevant Participating TO except as disclosed in writing to the CAISO. As to the Local Reliability Criteria component of the Applicable Reliability Criteria, each Participating TO has provided the CAISO with such information required to identify such Participating TO's Local Reliability Criteria.

## **4.2. The CAISO Register.**

### **4.2.1 Register of Facilities Subject to CAISO Operational Control.**

The CAISO shall maintain a register (the “CAISO Register”) of all transmission lines, associated facilities, and Entitlements that are for the time being subject to the CAISO’s Operational Control. The CAISO Register shall also indicate those facilities over which the CAISO has asserted temporary control pursuant to Section 4.5.2 and whether or not the CAISO has commenced proceedings under Section 203 of the FPA in relation to them.

**4.2.2 Contents.** The CAISO Register shall disclose in relation to each transmission line and associated facility subject to the CAISO’s Operational Control:

- i. the identity of the Participating TO responsible for its operation and maintenance and its owner(s) (if other than the Participating TO);
- ii. the date on which the CAISO assumed Operational Control over it and, in the case of transmission lines and associated facilities over which it has asserted temporary Operational Control, the date on which it relinquished Operational Control over it;
- iii. the date of any change in the identity of the Participating TO responsible for its operation and maintenance or in the identity of its owner; and
- iv. its applicable ratings.

**4.2.3 Updates.** In order to keep the CAISO Register current, each Participating TO shall submit a CAISO Register change for each addition or removal of a transmission line or associated facility or Entitlement from the CAISO’s Operational Control or any change in a transmission line or associated facility’s ownership, rating, or

the identity of the responsible Participating TO. The CAISO shall review each CAISO Register change for accuracy and to assure that all requirements of this Agreement have been met. If the CAISO determines that a submitted CAISO Register change is accurate and meets all the requirements of this Agreement, the CAISO will modify the CAISO Register to incorporate such change by the end of the next Business Day. The CAISO may determine that a CAISO Register change cannot be implemented due to (a) lack of clarity or necessary information, or (b) conflict between the revised rating and applicable contractual, regulatory, or legal requirements, including operating considerations, or other conflict with the terms of this Agreement. In such event, the CAISO promptly will communicate to the Participating TO the reason that the CAISO cannot implement the CAISO Register change and will work with the Participating TO in an attempt to resolve promptly the concerns leading to the CAISO's refusal to implement a CAISO Register change. The CAISO consent required with respect to a sale, assignment, release, transfer, or other disposition of transmission lines, associated facilities, or Entitlements as provided in Section 4.4 hereof shall not be withheld by the CAISO as a result of a CAISO determination that a CAISO Register change cannot be implemented pursuant to this Section 4.2.3.

**4.2.4 Publication.** The CAISO shall make the CAISO Register information for a given Participating TO available to that same Participating TO on a secure CAISO-maintained portion of the CAISO Website. The CAISO will provide a copy of the CAISO Register information to other entities that can demonstrate a legitimate need for the information in accordance with screening procedures posted on the CAISO Website and filed with FERC.

**4.2.5 Duty to Maintain Records.** The CAISO shall maintain the CAISO Register in a form that conveniently shows the entities responsible for operating, maintaining, and controlling the transmission lines and associated facilities forming part of the CAISO Controlled Grid at any time and the periods during which they were so responsible.

**4.3. Rights and Responsibilities of Participating TOs.**

Each Participating TO shall retain its benefits of ownership and its rights and responsibilities in relation to the transmission lines and associated facilities and Entitlements placed under the CAISO's Operational Control except as otherwise provided in this Agreement. Participating TOs shall be responsible for operating and maintaining those lines and facilities in accordance with this Agreement, the Applicable Reliability Criteria, the Operating Procedures, and other criteria, CAISO Protocols, procedures, and directions of the CAISO issued or given in accordance with this Agreement. Rights and responsibilities that have not been transferred to the CAISO as operating obligations under Section 4.1.1 of this Agreement remain with the Participating TO. This Agreement shall have no effect on the remedies for breach or non-performance available to parties to existing interconnection, integration, exchange, operating, joint ownership, and joint participation agreements. Notwithstanding the foregoing or any other provision in this Agreement, the Parties recognize that a Participating TO under this Agreement may have entered into a Reliability Standards Agreement ("RSA"), or similar agreement, with the CAISO that allocates responsibility and delegates tasks for compliance with NERC or WECC Reliability Standard requirements, or how those requirements will be implemented. In the event that the

CAISO and a Participating TO have a dispute regarding a Participating TO's satisfaction of or compliance with any obligations or responsibilities under this Agreement, and either Party asserts that it has executed an RSA or similar agreement with the other Party that sets forth inconsistent or conflicting obligations or responsibilities, then the CAISO and that Participating TO shall engage in good faith negotiations to resolve the alleged inconsistent or conflicting obligations or responsibilities.

#### **4.4. Sale or Disposal of Transmission Facilities or Entitlements.**

##### **4.4.1 Sale or Disposition.**

4.4.1.1 No Participating TO shall sell or otherwise dispose of any lines or associated facilities forming part of the CAISO Controlled Grid without the CAISO's prior written consent, which consent shall not be unreasonably withheld.

4.4.1.2 As a condition to the sale or other disposition of any lines or associated facilities forming part of the CAISO Controlled Grid to an entity that is not a Participating TO, the Participating TO shall require the transferee to assume in writing all of the Participating TO's obligations under this Agreement (but without necessarily requiring it to become a Participating TO for the purposes of the CAISO Tariff or a TO Tariff).

4.4.1.3 Any subsequent sale or other disposition by a transferee referred to in Section 4.4.1.2 shall be subject to this Section 4.4.1.

4.4.1.4 A transferee referred to in Section 4.4.1.2 that does not become a Participating TO shall have the same rights and responsibilities regarding withdrawal that a Participating TO has under Sections 3.3.1 and 3.3.3.

4.4.2 **Entitlements.** No Participating TO shall sell, assign, release, or



transfer any Entitlements that have been placed under the CAISO's Operational Control without the CAISO's prior written consent, which consent shall not be unreasonably withheld, provided that such written consent is not required for such release or transfer to another Participating TO who is not in any material respect in breach of its obligations under this Agreement and who has not given notice of its intention to withdraw from this Agreement.

**4.4.3 Encumbrances.** No Participating TO shall create any new Encumbrance or (except as permitted by Section 16 of the CAISO Tariff) extend the term of an existing Encumbrance over any lines or associated facilities or Entitlements forming part of its transmission network (as determined in accordance with Section 4.1.1) without the CAISO's prior written consent. The CAISO shall give its consent to the creation or extension of an Encumbrance within thirty (30) days after receiving a written request for its consent disclosing in reasonable detail the nature of and reasons for the proposed change unless the CAISO reasonably determines that the change is inconsistent with the Participating TO's obligations under the CAISO Tariff or the TO Tariff or that the change may materially impair the CAISO's ability to exercise Operational Control over the relevant lines or facilities or Entitlements or may reduce the reliability of the CAISO Controlled Grid. Exercise of rights under an Existing Contract shall not be deemed to create a new Encumbrance for the purposes of this Section 4.4.3.

**4.4.4 Trans Bay Cable**

4.4.4.1 In addition to the foregoing, the CAISO, Trans Bay Cable LLC ("Trans Bay Cable"), and the Participating TOs acknowledge and agree that,

following the CAISO's approval of Trans Bay Cable's application for Participating TO status and upon the effective date of Trans Bay Cable's TO Tariff as approved by FERC, Trans Bay Cable shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements through Trans Bay Cable's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in Docket No. ER05-985, to the extent that the transmission assets and associated facilities used to provide the Entitlements, as well as the Entitlements themselves, are placed under CAISO Operational Control.

4.4.4.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Trans Bay Cable will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of any of its Entitlements in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.4.3 If Trans Bay Cable should seek to transfer, sell, or dispose of its Entitlements or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Trans Bay Cable shall require as a condition of such transfer, sale, or disposition that the transferee of any of its Entitlement(s): (a) assume in writing Trans Bay Cable's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.4, e.g., the obligation to recover the just and reasonable costs of developing,

financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements, as set forth in Section 4.4.4.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Trans Bay Cable under this Agreement. For the avoidance of doubt, the transfer of any of Trans Bay Cable Entitlements cannot take place unless and until the holder of any such Entitlements has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.4.4 For the avoidance of doubt, the Parties hereby also confirm that the Operating Memorandum dated May 16, 2005, between Trans Bay Cable, the City of Pittsburg, California, and Pittsburg Power Company and filed by Trans Bay Cable in Docket No. ER05-985, including the option agreement contained therein, does not address or pertain to any transfer, disposition, sale, or purchase of any of Trans Bay Cable's Entitlements.

4.4.4.5 Nothing in this Section 4.4.4 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals therefrom, the established or proposed Transmission Revenue Requirement of Trans Bay Cable or any subsequent holder of any of the Entitlements.

4.4.4.6 Notwithstanding the foregoing subsections of Section 4.4.4, this Section 4.4.4 shall become null and void in the event of and upon the first to occur of: (a) Trans Bay Cable receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments

under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Trans Bay Cable from the CAISO, or (b) Trans Bay Cable receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Trans Bay Cable from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, *provided* such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Trans Bay Cable, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Trans Bay Cable's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Trans Bay Cable and the CAISO.

4.4.4.7           Should this Section 4.4.4 become null and void under Section 4.4.4.6, then Trans Bay Cable, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### 4.4.5 **Startrans IO**

4.4.5.1           In addition to the foregoing, the CAISO, Startrans IO, L.L.C. ("Startrans IO"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Startrans IO's application for Participating TO status and upon the effective date of Startrans IO's TO Tariff as approved by FERC, Startrans IO shall be

entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has transmission rights and Entitlements through Startrans IO's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in Docket No. ER08-413, to the extent that the transmission assets and associated facilities used to provide the transmission rights and Entitlements, as well as the transmission rights and Entitlements themselves, are placed under CAISO Operational Control.

4.4.5.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Startrans IO will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of any of its transmission rights and Entitlements in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.5.3 If Startrans IO should seek to transfer, sell, or dispose of its transmission rights and Entitlements or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Startrans IO shall require as a condition of such transfer, sale, or disposition that the transferee of any of its transmission rights and Entitlement(s): (a) assume in writing Startrans IO's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.5, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in

which it has transmission rights and Entitlements, as set forth in Section 4.4.5.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Startrans IO under this Agreement. For the avoidance of doubt, the transfer of any of Startrans IO's transmission rights and Entitlements cannot take place unless and until the holder of any such transmission rights and Entitlements has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.5.4 Nothing in this Section 4.4.5 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals therefrom, the established or proposed Transmission Revenue Requirement of Startrans IO or any subsequent holder of any of the transmission rights and Entitlements.

4.4.5.5 Notwithstanding the foregoing subsections of Section 4.4.5, this Section 4.4.5 shall become null and void in the event of and upon the first to occur of: (a) Startrans IO receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Startrans IO from the CAISO, or (b) Startrans IO receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of

the total amount due and owing to Startrans IO from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, *provided* such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Startrans IO, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Startrans IO's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Startrans IO and the CAISO.

4.4.5.6 Should this Section 4.4.5 become null and void under Section 4.4.5.5, then Startrans IO, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.6 Citizens Sunrise Transmission LLC**

4.4.6.1 In addition to the foregoing, the CAISO, Citizens Sunrise Transmission LLC ("Citizens Sunrise Transmission"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Citizens Sunrise Transmission's application for Participating TO status and upon the effective date of Citizens Sunrise Transmission's TO Tariff as approved by FERC, Citizens Sunrise Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has an Entitlement through Citizens Sunrise Transmission's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles approved by FERC in

Docket No. EL10-3-000, to the extent that the transmission assets and associated facilities used to provide the Entitlement, as well as the Entitlement itself, are placed under CAISO Operational Control, all pursuant to the Development and Coordination Agreement of May 9, 2009 (“DCA”) between San Diego Gas & Electric Company and Citizens Energy Corporation (“Citizens Energy”) and the Transfer Capability Lease to be executed in accordance therewith.

4.4.6.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Citizens Sunrise Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its Entitlement in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement or (ii) the withdrawal of San Diego Gas & Electric Company (the provider of Citizens Sunrise Transmission’s Entitlement) from this Agreement in compliance with this Agreement.

4.4.6.3 If Citizens Sunrise Transmission should seek to transfer, sell, or dispose of its Entitlement or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Citizens Sunrise Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its Entitlement: (a) assume in writing Citizens Sunrise Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.6, *e.g.*, the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in



which it has its Entitlements, as set forth in Section 4.4.6.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Citizens Sunrise Transmission under this Agreement. For the avoidance of doubt, the transfer of Citizens Sunrise Transmission's Entitlement cannot take place unless and until the holder of such Entitlement has, in conjunction with the transfer, become a Participating TO in the CAISO. Notwithstanding the foregoing, this Section 4.4.6.3 shall not apply to any transfer, sale, or disposition of all or any part of Citizens Sunrise Transmission's Entitlement to San Diego Gas & Electric Company (in which case such Entitlement would continue to be subject to this Agreement as an Entitlement of San Diego Gas & Electric Company).

4.4.6.4 Nothing in this Section 4.4.6 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Citizens Sunrise Transmission or any subsequent holder of any of the Entitlement.

4.4.6.5 Notwithstanding the foregoing subsections of Section 4.4.6, this Section 4.4.6 shall become null and void in the event of and upon the first to occur of: (a) Citizens Sunrise Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Citizens Sunrise Transmission from the CAISO, or

(b) Citizens Sunrise Transmission receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Citizens Sunrise Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Citizens Sunrise Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Citizens Sunrise Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Citizens Sunrise Transmission and the CAISO.

4.4.6.6 Should this Section 4.4.6 become null and void under Section 4.4.6.5, then Citizens Sunrise Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.7 GridLiance West LLC**

4.4.7.1 In addition to the foregoing, the CAISO, GridLiance West LLC ("GridLiance West"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of GridLiance West's application for Participating TO status and upon the effective date of GridLiance West's TO Tariff as approved by FERC, GridLiance West shall be entitled and obligated to recover the just and

reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has Entitlements through GridLiance West's Transmission Revenue Requirement as established from time to time by FERC to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.7.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, GridLiance West will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.7.3 If GridLiance West should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, GridLiance West shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission assets and associated facilities: (a) assume in writing GridLiance West's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.7, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has its transmission assets and associated facilities, as set forth in Section 4.4.7.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and

(c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by GridLiance West under this Agreement. For the avoidance of doubt, the transfer of GridLiance West's transmission assets and associated facilities cannot take place unless and until the holder of such transmission assets and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.7.4 Nothing in this Section 4.4.7 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of GridLiance West or any subsequent holder of any of the transmission assets and associated facilities.

4.4.7.5 Notwithstanding the foregoing subsections of Section 4.4.7, this Section 4.4.6 shall become null and void in the event of and upon the first to occur of: (a) GridLiance West receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to GridLiance West from the CAISO, or (b) GridLiance West receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to GridLiance West from the CAISO for the twelve (12) month period ending prior to the month or months in which such

underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to GridLiance West, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) GridLiance West's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between GridLiance West and the CAISO.

4.4.7.6 Should this Section 4.4.7 become null and void under Section 4.4.6.5, then GridLiance West, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.8 Citizens Sycamore-Penasquitos Transmission LLC**

4.4.8.1 In addition to the foregoing, the CAISO, Citizens Sycamore-Penasquitos Transmission LLC ("Citizens Sycamore-Penasquitos Transmission"), and the Participating TOs acknowledge and agree that, following the CAISO's approval of Citizens Sycamore-Penasquitos Transmission's application for Participating TO status and upon the effective date of Citizens Sycamore-Penasquitos Transmission's TO Tariff as approved by FERC, Citizens Sycamore-Penasquitos Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network in which it has an Entitlement through Citizens Sycamore-Penasquitos Transmission's Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles Citizens Sycamore-Penasquitos Transmission has requested FERC approval of in Docket No. EL18-29, to

the extent that the transmission assets and associated facilities used to provide the Entitlement, as well as the Entitlement itself, are placed under CAISO Operational Control, all pursuant to the Development, Coordination, and Option Agreement of November 9, 2017 (“DCOA”) between San Diego Gas & Electric Company and Citizens Energy Corporation (“Citizens Energy”) and the Transfer Capability Lease to be executed in accordance therewith.

4.4.8.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Citizens Sycamore-Penasquitos Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its Entitlement in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement or (ii) the withdrawal of San Diego Gas & Electric Company (the provider of Citizens Sycamore-Penasquitos Transmission’s Entitlement) from this Agreement in compliance with this Agreement.

4.4.8.3 If Citizens Sycamore-Penasquitos Transmission should seek to transfer, sell, or dispose of its Entitlement or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Citizens Sycamore-Penasquitos Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its Entitlement: (a) assume in writing Citizens Sycamore-Penasquitos Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.8, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated

facilities forming part of the network in which it has its Entitlements, as set forth in Section 4.4.8.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Citizens Sycamore-Penasquitos Transmission under this Agreement. For the avoidance of doubt, the transfer of Citizens Sycamore-Penasquitos Transmission's Entitlement cannot take place unless and until the holder of such Entitlement has, in conjunction with the transfer, become a Participating TO in the CAISO. Notwithstanding the foregoing, this Section 4.4.8.3 shall not apply to any transfer, sale, or disposition of all or any part of Citizens Sycamore-Penasquitos Transmission's Entitlement to San Diego Gas & Electric Company (in which case such Entitlement would continue to be subject to this Agreement as an Entitlement of San Diego Gas & Electric Company).

4.4.8.4 Nothing in this Section 4.4.8 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Citizens Sycamore-Penasquitos Transmission or any subsequent holder of any of the Entitlement.

4.4.8.5 Notwithstanding the foregoing subsections of Section 4.4.8, this Section 4.4.8 shall become null and void in the event of and upon the first to occur of: (a) Citizens Sycamore-Penasquitos Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with

each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Citizens Sycamore-Penasquitos Transmission from the CAISO, or (b) Citizens Sycamore-Penasquitos Transmission receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Citizens Sycamore-Penasquitos Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Citizens Sycamore-Penasquitos Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Citizens Sycamore-Penasquitos Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Citizens Sycamore-Penasquitos Transmission and the CAISO.

4.4.8.6 Should this Section 4.4.8 become null and void under Section 4.4.8.5, then Citizens Sycamore-Penasquitos Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.9 Horizon West Transmission, LLC**

4.4.9.1 In addition to the foregoing, the CAISO, Horizon West



Transmission, LLC (“Horizon West Transmission”), and the Participating TOs acknowledge and agree that, upon the effective date of Horizon West Transmission’s TO Tariff as approved by FERC, Horizon West Transmission shall be entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network through Horizon West Transmission’s Transmission Revenue Requirement as established from time to time by FERC, including the specific rate principles Horizon West Transmission has requested FERC approval of in Docket No. ER15-2239, to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.9.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, Horizon West Transmission will not withdraw from this Agreement except in connection with (i) the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.9.3 If Horizon West Transmission should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, Horizon West Transmission shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission rights and associated facilities: (a) assume in writing Horizon West Transmission’s rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section

4.4.9, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network, as set forth in Section 4.4.9.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by Horizon West Transmission under this Agreement. For the avoidance of doubt, the transfer of Horizon West Transmission's transmission assets and associated facilities cannot take place unless and until the holder of such transmission rights and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.9.4 Nothing in this Section 4.4.9 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of Horizon West Transmission or any subsequent holder of any of the transmission rights and associated facilities.

4.4.9.5 Notwithstanding the foregoing subsections of Section 4.4.9, this Section 4.4.9 shall become null and void in the event of and upon the first to occur of: (a) Horizon West Transmission receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to Horizon West Transmission from the CAISO, or (b) Horizon West Transmission receives either an underpayment, pursuant to Section

11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to Horizon West Transmission from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge revenue disbursement to Horizon West Transmission, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) Horizon West Transmission's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between Horizon West Transmission and the CAISO.

4.4.9.6 Should this Section 4.4.9 become null and void under Section 4.4.9.5, then Horizon West Transmission, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.4.10 DesertLink, LLC**

**4.4.10.1 In addition to the foregoing, the CAISO, DesertLink, LLC ("DesertLink"), and the Participating TOs acknowledge and agree that DesertLink is entitled and obligated to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network through DesertLink's Transmission Revenue Requirement**

as established from time to time by FERC, including the specific rate principles and TO Tariff approved by FERC in Docket Nos. ER17-135 and ER19-2531, to the extent that the transmission assets and associated facilities are placed under CAISO Operational Control.

4.4.10.2 In reliance on the continued availability of a FERC-approved Transmission Revenue Requirement, as set forth above, DesertLink will not withdraw from this Agreement except in connection with the transfer, sale, or disposition of its transmission assets and associated facilities in compliance with Sections 3.3, 4.4, and any other applicable provision of this Agreement.

4.4.10.3 If DesertLink should seek to transfer, sell, or dispose of its transmission assets and associated facilities or any part thereof, then in addition to any and all other obligations imposed on such a transfer, sale, or disposition by this Agreement, any applicable provisions of the CAISO Tariff, and FERC rules and regulations, DesertLink shall require as a condition of such transfer, sale, or disposition that the transferee of its transmission rights and associated facilities: (a) assume in writing DesertLink's rights and obligations under this Agreement, including without limitation all of the obligations imposed by this Section 4.4.10, e.g., the obligation to recover the just and reasonable costs of developing, financing, constructing, operating, and maintaining transmission assets and associated facilities forming part of the network, as set forth in Section 4.4.10.1, exclusively through a FERC-approved Transmission Revenue Requirement; (b) become a Participating TO in the CAISO; and (c) assume the obligation to bind each and every one of its transferees, successors, and assigns to all of the obligations assumed by DesertLink under this Agreement. For the

avoidance of doubt, the transfer of DesertLink's transmission assets and associated facilities cannot take place unless and until the holder of such transmission rights and associated facilities has, in conjunction with the transfer, become a Participating TO in the CAISO.

4.4.10.4 Nothing in this Section 4.4.10 shall be interpreted as affecting the right of any party to seek to increase or decrease, at the FERC or appeals there from, the established or proposed Transmission Revenue Requirement of DesertLink or any subsequent holder of any of the transmission rights and associated facilities.

4.4.10.5 Notwithstanding the foregoing subsections of Section 4.4.10, this Section 4.4.10 shall become null and void in the event of and upon the first to occur of: (a) DesertLink receives for three (3) consecutive months either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff, with each such underpayment or pro rata reduction equal to or greater than twenty percent (20%) of the monthly amount due and owing to DesertLink from the CAISO, or (b) DesertLink receives either an underpayment, pursuant to Section 11.29.19.6 of the CAISO Tariff, or a pro rata reduction in payments under Section 11.29.17.1 of the CAISO Tariff which, when calculated on a cumulative annual basis, is equal to or greater than five percent (5%) of the total amount due and owing to DesertLink from the CAISO for the twelve (12) month period ending prior to the month or months in which such underpayment or pro rata reduction occurs, provided such an underpayment or pro rata reduction does not result from: (i) Access Charge sales fluctuations that impact the monthly Access Charge

revenue disbursement to DesertLink, but which are subject to annual TRBA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the CAISO Tariff; (ii) DesertLink's action or failure to act; (iii) an error that has been corrected by the CAISO; or (iv) a billing or payment dispute between DesertLink and the CAISO.

4.4.10.6 Should this Section 4.4.10 become null and void under Section 4.4.10.5, then DesertLink, the CAISO, and the other Participating TOs shall remain bound by all of the remaining provisions of this Agreement.

#### **4.5. Procedure for Designating CAISO Controlled Grid Facilities.**

**4.5.1 Additional Facilities.** If the CAISO determines that it requires Operational Control over additional transmission lines and associated facilities not then constituting part of the CAISO Controlled Grid in order to fulfill its responsibilities in relation to the CAISO Controlled Grid then the CAISO shall apply to FERC pursuant to Section 203 of the Federal Power Act, and shall make all other regulatory filings necessary to obtain approval for such change of control and shall serve a copy of all such applications on the affected Participating TO and the owner of such lines and facilities (if other than the Participating TO). In the event that a Party invokes the dispute resolution provisions identified in Section 15 with respect to the transfer of Operational Control over a facility, such facility shall not be transferred while the dispute resolution process is pending except pursuant to Section 4.5.2.

**4.5.2 Temporary Operational Control.** The CAISO may exercise

temporary Operational Control over any transmission lines or associated facilities of a Participating TO (including lines and facilities to which the Participating TO has sufficient Entitlement to permit the CAISO to exercise Operational Control over them) that do not then form part of the CAISO Controlled Grid:

- i. in order to prevent or remedy an imminent System Emergency;
- ii. on reasonable notice, for a period not exceeding ninety (90) days,

in order to determine whether exercising Operational Control over the relevant lines and facilities will assist the CAISO to meet Applicable Reliability Criteria or to fulfill its Balancing Authority Area responsibilities under the CAISO Tariff; or

- iii. subject to any contrary order of FERC, pending the resolution of the procedures referenced in Section 4.5.1.

**4.5.3 Return of Control of Facilities.** Control of facilities over which the CAISO has assumed temporary Operational Control will be returned to the appropriate Participating TO when the conditions set forth in Section 4.5.2 no longer require the CAISO to assume such temporary control.

**4.5.4 Transmission Expansion Projects.** Any transmission expansion projects carried out pursuant to Section 24 of the CAISO Tariff shall be subject to the CAISO's Operational Control from the date that it goes into service or after such period as the CAISO deems to be reasonably necessary for the CAISO to integrate the project into the CAISO Controlled Grid.

**4.6. [INTENTIONALLY LEFT BLANK]**

**4.7. Termination of CAISO's Operational Control.**

**4.7.1 Release from CAISO's Operational Control.** Subject to Section 4.7.2, the CAISO may relinquish its Operational Control over any transmission lines and associated facilities constituting part of the CAISO Controlled Grid if, after consulting the Participating TOs owning or having Entitlements to them, the CAISO determines that it no longer requires to exercise Operational Control over them in order to meet its Balancing Authority Area responsibilities and they constitute:

i. directly assignable radial lines and associated facilities interconnecting Generation (other than lines and facilities interconnecting CAISO Controlled Grid Critical Protective Systems or Generators contracted to provide Black Start or Voltage Support);

ii. lines and associated facilities which, by reason of changes in the configuration of the CAISO Controlled Grid, should be classified as "local distribution" facilities in accordance with FERC's applicable technical and functional test, or should otherwise be excluded from the facilities subject to CAISO Operational Control consistent with FERC established criteria; or

iii. lines and associated facilities which are to be retired from service in accordance with Good Utility Practice.

**4.7.2 Procedures.** Before relinquishing Operational Control over any transmission lines or associated facilities pursuant to section 4.7.1, the CAISO shall inform the public through the CAISO Website of its intention to do so and of the basis for its determination pursuant to Section 4.7.1. The CAISO shall give interested parties not less than 45 days within which to submit written objections to the proposed removal of such lines or facilities from the CAISO's Operational Control. If the CAISO cannot



resolve any timely objections to the satisfaction of the objecting parties and the Participating TOs owning or having Entitlements to the lines and facilities, such parties, Participating TOs, or the CAISO may refer any disputes for resolution pursuant to the CAISO ADR Procedures in Section 13 of the CAISO Tariff. Alternatively, the CAISO may apply to FERC for its approval of the CAISO's proposal.

4.7.3 **Duty to Update CAISO Register.** The CAISO shall promptly record any change in Operational Control pursuant to this Section 4.7 in the CAISO Register in accordance with Section 4.2.3.

## 5. INDEPENDENT SYSTEM OPERATOR

5.1. Balancing Authority.

5.1.1 **CAISO as Balancing Authority.** The CAISO shall be the designated Balancing Authority for the CAISO Controlled Grid.

5.1.2 **Operational Control.** The CAISO shall exercise Operational Control over the CAISO Controlled Grid for the purpose of:

- i. providing a framework for the efficient transmission of electricity across the CAISO Controlled Grid in accordance with the CAISO Tariff;
- ii. securing compliance with all Applicable Reliability Criteria;
- iii. scheduling transactions for Market Participants to provide open and non-discriminatory access to the CAISO Controlled Grid in accordance with the CAISO Tariff;
- iv. relieving Congestion; and
- v. to the extent provided in this Agreement, assisting Market Participants to comply with other operating criteria, contractual obligations, and legal

requirements binding on them.

**5.1.3 Duty of Care.** The CAISO shall have the exclusive right and responsibility to exercise Operational Control over the CAISO Controlled Grid, subject to and in accordance with Applicable Reliability Criteria and the operating criteria established by the NRC operating licenses for nuclear generating units as provided in Appendix E pursuant to Section 6.4.2. The CAISO shall take proper care to ensure the safety of personnel and the general public. It shall act in accordance with Good Utility Practice, applicable law, Existing Contracts, the CAISO Tariff, and the Operating Procedures. The CAISO shall not direct a Participating TO to take any action which would require a Participating TO to operate its transmission facilities in excess of their applicable rating as established or modified from time to time by the Participating TO pursuant to Section 6.4 except in a System Emergency where such a direction is consistent with Applicable Reliability Criteria.

**5.1.4 Operating Procedures.** The CAISO shall, in consultation with the Participating TOs and other Market Participants, promulgate Operating Procedures governing its exercise of Operational Control over the CAISO Controlled Grid in accordance with this Agreement. The CAISO shall provide copies of the Operating Procedures and all amendments, revisions, and updates to the Participating TOs and shall make them available to the public through the CAISO Website.

**5.1.5 Applicable Reliability Criteria.** The CAISO shall, in consultation with Participating TOs and other Market Participants, develop and promulgate Applicable Reliability Criteria for the CAISO Controlled Grid, which shall be in compliance with the reliability standards promulgated by NERC and WECC, Local

Reliability Criteria, and NRC grid criteria related to operating licenses for nuclear generating units. The CAISO shall provide copies of the Applicable Reliability Criteria and all amendments, revisions, and updates to the Participating TOs and shall make them available to the public through the CAISO Website.

5.1.6 **Waivers.** The CAISO may grant to any Participating TO whose transmission facilities do not meet the Applicable Reliability Criteria when it becomes a Party to this Agreement such waivers from the Applicable Reliability Criteria as the Participating TO reasonably requires to prevent it from being in breach of this Agreement while it brings its transmission facilities into full compliance. Such waivers shall be effective for such period as the CAISO shall determine. A Participating TO who has been granted a waiver made under this Section 5.1.6 shall bring its transmission facilities into compliance with the Applicable Reliability Criteria before the expiration of the relevant waivers and in any event as soon as reasonably practical.

5.1.7 **Operational Protocols.** In exercising Operational Control over the CAISO Controlled Grid, the CAISO shall comply with the operational protocols to be provided in accordance with Section 6.4.2, as they may be amended from time to time to take account of the removal and relaxation of any Encumbrances to which the CAISO Controlled Grid is subject. Participating TOs whose transmission lines and associated facilities or Entitlements are subject to Encumbrances shall make all reasonable efforts to remove or relax those Encumbrances in order to permit the operational protocols to be amended in such manner as the CAISO may reasonably require, to the extent permitted by Existing Contracts and applicable interconnection, integration, exchange, operating, joint ownership, and joint participation agreements.

**5.1.8 System Emergencies.** In the event of a System Emergency, the CAISO shall have the authority and responsibility to take all actions necessary and shall direct the restoration of the CAISO Controlled Grid to service following any interruption associated with a System Emergency. The CAISO shall also have the authority and responsibility, consistent with Section 4 and Section 9, to act to prevent System Emergencies. Actions and directions by the CAISO pursuant to this Section 5.1.8 shall be consistent with Section 5.1.3, Duty of Care.

**5.1.9 Reporting Criteria.** The CAISO shall comply with the reporting requirements of the WECC, NERC, NRC and regulatory bodies having jurisdiction over it. Participating TOs shall provide the CAISO with information that the CAISO may require to meet this obligation.

## **5.2. Monitoring.**

**5.2.1 System Requirements.** The CAISO shall establish reasonable metering, monitoring, and data collection standards and requirements for the CAISO Controlled Grid, consistent with WECC and NERC standards.

**5.2.2 System Conditions.** The CAISO shall monitor and observe real time system conditions throughout the CAISO Controlled Grid, as well as key facilities in other areas of the WECC region.

**5.2.3 Energy Management System.** The CAISO shall install a computerized Energy Management System (EMS) to monitor transmission facilities in the CAISO Controlled Grid. A Participating TO may at its own expense and for its own internal management purposes install a read only EMS workstation that will provide the Participating TO with the same displays the CAISO uses to monitor the Participating

TO's transmission facilities.

5.2.4 **Data.** Unless otherwise mutually agreed, the CAISO shall obtain real time monitoring data for the facilities listed in the CAISO Register from the Participating TOs through transfers to the CAISO of data available from the Energy Management Systems (EMS) of the Participating TOs.

**5.3. [INTENTIONALLY LEFT BLANK]**

**5.4. Public Information.**

5.4.1 **CAISO Website.** The CAISO shall develop a public information board on the CAISO Website for the CAISO Controlled Grid in accordance with the provisions in Section 6 of the CAISO Tariff.

5.4.2 **Access to CAISO Information.** The CAISO shall permit the general public to inspect and copy other information in its possession, other than information to be kept confidential under Section 26.3, provided that the costs of providing documents for inspection, including any copying costs, shall be borne by the requester.

**5.5. Costs**

The CAISO shall not implement any reliability requirements, operating requirements, or performance standards that would impose increased costs on a Participating TO without giving due consideration to whether the benefits of such requirements or standards are sufficient to justify such increased costs. In any proceeding concerning the cost recovery by a Participating TO of capital and operation and maintenance costs incurred to comply with CAISO-imposed reliability requirements, operating requirements, or performance standards, the CAISO shall, at the request of

the Participating TO, provide specific information regarding the nature of, and need for, the CAISO-imposed requirements or standards to enable the Participating TO to use this information in support of cost recovery through rates and tariffs.

## **6. PARTICIPATING TRANSMISSION OWNERS**

### **6.1. Physical Operation of Facilities.**

**6.1.1 Operation.** Each Participating TO shall have the exclusive right and responsibility to operate and maintain its transmission facilities and associated switch gear and auxiliary equipment (including facilities that it operates under Entitlements).

**6.1.2 CAISO Operating Orders.** Each Participating TO shall operate its transmission facilities in compliance with the CAISO Tariff, CAISO Protocols, the Operating Procedures (including emergency procedures in the event of communications failure), and the CAISO's operating orders unless the health or safety of personnel or the general public would be endangered. Proper implementation of a CAISO operating order by a Participating TO shall be deemed prudent. In the event a CAISO order would risk damage to facilities, and if time permits, a Participating TO shall inform the CAISO of any such risk and seek confirmation of the relevant CAISO order.

**6.1.3 Duty of Care.** In operating and maintaining its transmission facilities, each Participating TO shall take proper care to ensure the safety of personnel and the general public. It shall act in accordance with Good Utility Practice, applicable law, the CAISO Tariff, CAISO Protocols, the Operating Procedures, and the Applicable Reliability Criteria.

**6.1.4 Outages.** Each Participating TO shall obtain approval from the

CAISO pursuant to the CAISO Tariff before taking out of service and returning to service any facility identified pursuant to Section 4.2.1 in the CAISO Register, except in cases involving immediate hazard to the safety of personnel or the general public or imminent damage to facilities or in the case of a Forced Outage. The Participating TO shall promptly notify the CAISO of such situations.

**6.1.5 Return to Service.** After a System Emergency or Forced Outage, the Participating TO shall restore to service the transmission facilities under the CAISO's Operational Control as soon as possible and in the priority order determined by the CAISO. The CAISO's Operating Procedures shall give priority to restoring offsite power to nuclear generating units, in accordance with criteria specified by the Participating TOs under the design basis and licensing requirements of the NRC licenses applicable to such nuclear units and any other Regulatory Must-Run Generation whose operation is critical for the protection of wildlife and the environment.

**6.1.6 Written Report.** Within a reasonable time, the Participating TO shall provide the CAISO with a written report, consistent with Section 17, describing the circumstances and the reasons for any Forced Outage, including outages under Section 6.1.4.

## **6.2. Transmission Service.**

**6.2.1 Compliance with Tariffs.** Participating TOs shall allow access to their transmission facilities (including any that are not for the time being under the CAISO's Operational Control) only on the terms of the CAISO Tariff and the TO Tariff.

**6.2.2 Release of Scheduling Rights.** When required by the CAISO, a Participating TO shall release all of its scheduling rights over the transmission lines and

associated facilities and Entitlements that are part of the CAISO Controlled Grid to the extent such rights are established through Existing Contracts among or between Participating TOs, as provided in the CAISO Tariff.

### **6.3. Other Responsibilities.**

Each Participating TO shall inspect, maintain, repair, replace, and maintain the rating and technical performance of its facilities under the CAISO's Operational Control in accordance with the Applicable Reliability Criteria (subject to any waivers granted pursuant to Section 5.1.6) and the performance standards established under Section 14.

### **6.4. Technical Information and Protocols.**

**6.4.1 Information to be Provided.** Each Participating TO shall provide to the CAISO prior to the effective date of its becoming a Party to this Agreement, and in a format acceptable to the CAISO:

- i. Technical specifications for any facilities under the CAISO's Operational Control, as the CAISO may require;
- ii. The applicable ratings of all transmission lines and associated facilities listed in Appendix A; and
- iii. A copy of each document creating an Entitlement or Encumbrance.

The Participating TO shall promptly notify the CAISO in writing or mutually acceptable electronic format of any subsequent changes in such technical specifications, ratings, Entitlements, or Encumbrances.

**6.4.2 Protocols for Encumbered Facilities.** A Party that is placing a transmission line or associated facility (including an Entitlement) that is subject



to an Encumbrance under the Operational Control of the CAISO shall develop protocols for its operation which shall: (1) reflect the rights the Party has in such facility, and (2) give effect to any Encumbrance on such facility. Such protocols shall be delivered to the CAISO for review not less than ninety (90) days prior to the date on which the CAISO is expected to assume Operational Control of any such facility. The CAISO shall review each protocol and shall cooperate with the relevant Party to assure that operations pursuant to the protocol are feasible and that the protocol is consistent with the applicable rights and Encumbrances. To the extent such protocol is required to be filed at FERC, the relevant Transmission Owner shall file such protocol not less than sixty (60) days prior to the date on which the CAISO is expected to assume Operational Control of the relevant facility. Protocols to implement the operating criteria established by the NRC operating licenses for nuclear generating units are provided in Appendix E.

#### **6.5. EMS/SCADA System.**

Each Participating TO shall operate and maintain its EMS/SCADA systems and shall allow the CAISO access to the Participating TO's data from such systems relating to the facilities under the CAISO's Operational Control. The CAISO, at its own cost, may, if it considers it necessary for the purpose of carrying out its responsibilities under this Agreement, acquire, install, and maintain additional monitoring equipment on any Participating TO's property.

#### **6.6. Single Point Of Contact.**

Each Participating TO shall provide the CAISO with an appropriate single point of contact for the coordination of operations under this Agreement.

### **7. SYSTEM OPERATION AND MAINTENANCE**

### **7.1. Scheduled Maintenance.**

The Parties shall forecast and coordinate Maintenance Outage plans in accordance with Section 9 of the CAISO Tariff.

### **7.2. Exercise of Contractual Rights.**

In order to facilitate Maintenance Outage coordination of the CAISO Controlled Grid by the CAISO, each Participating TO shall, to the extent that the Participating TO has contractual rights to do so: (1) coordinate Maintenance Outages with non-Participating Generators; and (2) exercise its contractual rights to require maintenance by non-Participating Generators in each case in such manner as the CAISO approves or requests. The requirements of this Section 7.2 shall not apply to any non-Participating Generator with a rated capability of less than 50 MW.

### **7.3. Unscheduled Maintenance.**

**7.3.1 Notification.** A Participating TO shall notify the CAISO of any faults on the CAISO Controlled Grid or any actual or anticipated Forced Outages as soon as it becomes aware of them, in accordance with Section 9.3.10 of the CAISO Tariff.

**7.3.2 Returns to Service.** The Participating TO shall take all steps necessary, consistent with Good Utility Practice and in accordance with the CAISO Tariff and CAISO Protocols, to prevent Forced Outages and to return to operation, as soon as possible, any facility under the CAISO's Operational Control that is the subject of a Forced Outage.

## **8. CRITICAL PROTECTIVE SYSTEMS THAT SUPPORT CAISO CONTROLLED GRID OPERATIONS**

### **8.1. Remedial Action Schemes, Underfrequency Load Shedding, Under Voltage Load Shedding.**

Each Participating TO shall coordinate its Critical Protective Systems with the CAISO, other Transmission Owners, and Generators to ensure that its Remedial Action Schemes (“RAS”), Underfrequency Load Shedding (“UFLS”), and Under Voltage Load Shedding (“UVLS”) schemes function on a coordinated and complementary basis in accordance with WECC and NERC planning, reliability, and protection policies and standards. Participating TOs that are parties to contracts affecting RAS, UFLS, and UVLS schemes shall make reasonable efforts to amend those contracts in order to permit the RAS, UFLS, and UVLS schemes to be operated in accordance with WECC and NERC planning, reliability, and protection policies and standards and the CAISO Tariff.

Each Participating TO, in conjunction with the CAISO, shall identify, describe, and provide to the CAISO the functionality of all RAS for electric systems operating at 200 kV nominal voltage or higher and any other lower voltage lines that the CAISO and Participating TO determine to be critical to the reliability of the CAISO Controlled Grid. Each Participating TO shall provide to the CAISO a description of the functionality of UFLS and UVLS schemes that protect the security and reliability of transmission facilities on the CAISO Controlled Grid.

Each Participating TO shall maintain the design, functionality, and settings of its existing RAS, UFLS, and UVLS schemes. New or existing schemes that are functionally modified must be in accordance with WECC and NERC planning, reliability, and protection policies and standards. Each Participating TO shall notify the CAISO in

advance of all RAS, UFLS, and UVLS schemes functionality and setting changes that affect transmission facilities on the CAISO Controlled Grid. Each Participating TO shall not disable or take clearances on RAS or UVLS schemes without the approval of the CAISO through the Maintenance Outage and Forced Outage coordination process in accordance with the CAISO Tariff. Clearances on UFLS may be taken without approval depending upon the armed load disabled as agreed to between the Participating TO and CAISO and incorporated in the Operating Procedures.

The requirements of this Section 8.1 shall apply only to the transmission facilities that are part of the CAISO Controlled Grid.

## **8.2. Protective Relay Systems.**

Each Participating TO shall provide to the CAISO protective relay system functional information necessary to perform system planning and operating analysis, and to operate transmission facilities on the CAISO Controlled Grid in compliance with WECC and NERC planning, reliability, and protection policies and standards.

The requirements of this Section 8.2 shall apply only to the transmission facilities that are part of the CAISO Controlled Grid.

## **9. SYSTEM EMERGENCIES**

### **9.1. CAISO Management of Emergencies.**

The CAISO shall manage a System Emergency pursuant to the provisions of Section 7.7 of the CAISO Tariff. The CAISO may carry out unannounced tests of System Emergency procedures pursuant to the CAISO Tariff.

### **9.2. Management of Emergencies by Participating TOs.**

#### **9.2.1 CAISO Orders.** In the event of a System Emergency, the

Participating TOs shall comply with all directions from the CAISO regarding the management and alleviation of the System Emergency unless such compliance would impair the health or safety of personnel or the general public.

9.2.2 **Communication.** During a System Emergency, the CAISO and Participating TOs shall communicate through their respective control centers, in accordance with the Operating Procedures.

### **9.3. System Emergency Reports: TO Obligations.**

9.3.1 **Records.** Pursuant to Section 17, each Participating TO shall maintain appropriate records pertaining to a System Emergency.

9.3.2 **Review.** Each Participating TO shall cooperate with the CAISO in the preparation of an Outage review pursuant to Sections 7.7.13 and 9.3.10.6 of the CAISO Tariff and Section 17 of this Agreement.

### **9.4. Sanctions.**

In the event of a major Outage that affects at least 10 percent of the customers of an entity providing local distribution service, the CAISO may order a Participating TO to pay appropriate sanctions, as filed with and approved by FERC in accordance with Section 12.3, if the CAISO finds that the operation and maintenance practices of the Participating TO, with respect to its transmission lines and associated facilities that it has placed under the CAISO's Operational Control, prolonged the response time or were responsible for the Outage.

## **10. CAISO CONTROLLED GRID ACCESS AND INTERCONNECTION**

### **10.1. CAISO Controlled Grid Access and Services.**

**10.1.1 Access.** The CAISO shall respond to requests from the Participating TOs and other Market Participants for access to the CAISO Controlled Grid. All Participating TOs who have Eligible Customers connected to their transmission or distribution facilities that do not form part of the CAISO Controlled Grid shall ensure open and non-discriminatory access to those facilities for those Eligible Customers through the implementation of an open access tariff, provided that a Participating TO shall only be required to ensure open access to those facilities for End-Use Customers to the extent it is required by applicable law to do so or pursuant to a voluntary offer to do so.

## **10.2. Interconnection.**

**10.2.1 Obligation to Interconnect.** The Parties shall be obligated to allow interconnection to the CAISO Controlled Grid in a non-discriminatory manner, subject to the conditions specified in this Section 10 and the applicable legal requirements.

**10.2.2 Standards.** All interconnections to the CAISO Controlled Grid shall be designed and built in accordance with Good Utility Practice, all Applicable Reliability Criteria, and applicable statutes and regulations.

**10.2.3 System Upgrades.** The treatment of system upgrades associated with requests for interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. A Participating TO shall be entitled to require an entity requesting interconnection of a transmission facility or load to the CAISO Controlled Grid to pay for all necessary system reliability upgrades on its side of the interconnection and on the CAISO Controlled Grid, as well as for all

required studies, inspection, and testing, to the extent permitted by FERC policy. The entity requesting such an interconnection shall be required to execute an interconnection agreement in accordance with the CAISO Tariff and the TO Tariff as applicable, provided that the terms of the CAISO Tariff shall govern to the extent there is any inconsistency between the CAISO Tariff and the TO Tariff, and must comply with all of their provisions, including provisions related to creditworthiness and payment for interconnection studies.

10.2.4 A Local Furnishing Participating TO shall not be obligated to construct or expand interconnection facilities or system upgrades unless and until the conditions stated in Section 4.1.2 hereof have been satisfied.

### **10.3. Interconnections Responsibilities.**

10.3.1 **Applicability.** The provisions of this Section 10.3 shall apply only to those facilities and Entitlements over which a Participating TO has legal authority to effectuate proposed interconnections to the CAISO Controlled Grid. Where a Participating TO does not have the legal authority to compel interconnection, the Participating TO's obligations with respect to interconnections shall be as set forth in its FERC approved TO Tariff which shall contain an obligation for the Participating TO, at a minimum, to submit or assist in the submission of expansion and/or interconnection requests from third parties to the appropriate bodies of a project pursuant to the individual project agreements to the full extent allowed by such agreements and the applicable laws and regulations.

10.3.2 **Technical Standards.** Each Participating TO shall develop technical standards for the design, construction, inspection, and testing applicable to

proposed interconnections of transmission facilities or load to that part of the CAISO Controlled Grid facilities owned by the Participating TO or to which that Participating TO has Entitlements. Such standards shall be consistent with Applicable Reliability Criteria and shall be developed in consultation with the CAISO. The Participating TO shall periodically review and revise its criteria to ensure compliance with Applicable Reliability Criteria. Technical standards for the design, construction, inspection, and testing applicable to proposed interconnections of generating facilities to the CAISO Controlled Grid shall be developed in accordance with the provisions of the CAISO Tariff.

**10.3.3 Review of Participating TO Technical Standards.** Participating TOs shall provide the CAISO with copies of their technical standards for interconnection developed pursuant to Section 10.3.2 of this Agreement and all amendments so that the CAISO can satisfy itself as to their compliance with the Applicable Reliability Criteria. The CAISO shall develop consistent interconnection standards across the CAISO Controlled Grid, to the extent possible given the circumstances of each Participating TO, in consultation with Participating TOs. Any differences in interconnection standards shall be addressed through negotiations and dispute resolution proceedings, as set forth in the CAISO Tariff, between the CAISO and the Participating TO.

**10.3.4 Notice.** A list of the interconnection standards and procedures developed by each Participating TO pursuant to Section 10.3.2, including any revisions, shall be made available to the public through the CAISO Website. In addition, the posting will provide information on how to obtain the interconnection standards and procedures. The Participating TO shall provide these standards to any party, upon request.



**10.3.5 Interconnection.** Requests for interconnection of generating facilities to the CAISO Controlled Grid shall be processed in accordance with the provisions of the CAISO Tariff. Each Participating TO and the CAISO shall process requests for interconnection of transmission facilities or load to the CAISO Controlled Grid in accordance with the CAISO Tariff and the TO Tariff as applicable, provided that the terms of the CAISO Tariff shall govern to the extent there is any inconsistency between the CAISO Tariff and the TO Tariff. Any differences in the procedures for interconnection contained in the CAISO Tariff and the TO Tariff shall be addressed through negotiations and dispute resolution procedures, as set forth in the CAISO Tariff, between the CAISO and the Participating TO.

**10.3.6 Acceptance of Interconnection Facilities.** Acceptance of interconnection facilities related to interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. With regard to interconnection facilities related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the Participating TO shall perform all necessary site inspections, review all relevant equipment tests, and ensure that all necessary agreements have been fully executed prior to accepting interconnection facilities for operation.

**10.3.7 Collection of Payments.** Payments related to interconnection of generating facilities to the CAISO Controlled Grid shall be processed in accordance with the provisions of the CAISO Tariff. With regard to payments related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the Participating TO shall collect all payments owed under any interconnection study agreement or other

agreement entered into pursuant to this Section 10.3 or the provisions of the CAISO Tariff and its TO Tariff as applicable relating to such interconnection.

**10.3.8 On-Site Inspections.** On-site inspections related to interconnection of generating facilities to the CAISO Controlled Grid shall be in accordance with the provisions of the CAISO Tariff. With regard to on-site inspections related to interconnection of transmission facilities or load to the CAISO Controlled Grid, the CAISO may at its own expense accompany a Participating TO during on-site inspections and tests of such interconnections or, by pre-arrangement, may itself inspect such interconnections or perform its own additional inspections and tests.

#### **10.4 Joint Responsibilities.**

The Parties shall process requests for interconnection of generating facilities to the CAISO Controlled Grid in accordance with the provisions of the CAISO Tariff. The Parties shall share with the CAISO relevant information about requests for interconnection of transmission facilities or load to the CAISO Controlled Grid and coordinate their activities to ensure that all such interconnection requests are processed in a timely, non-discriminatory fashion and that all such interconnections meet the operational and reliability criteria applicable to the CAISO Controlled Grid. Subject to Section 26.3 of this Agreement, the CAISO shall pass on such information to any Parties who require it to carry out their responsibilities under this Agreement.

#### **10.5 Interconnection Responsibilities of Western.**

Notwithstanding any other provision of this Section 10, the responsibilities of Western to allow interconnection to its Path 15 Upgrade facilities and Entitlements set forth in Appendix A (Western) shall be as set forth in Western's General Requirements

for Interconnection as those requirements are set forth in Western's TO Tariff or in Western's "Open Access Transmission Tariff" ("OATT"), as applicable. Western shall be subject to the provisions of this Section 10 to the extent they are not inconsistent with the provisions of Western's TO Tariff or OATT, as applicable. Execution of this Agreement shall not constitute agreement of any Party that Western is in compliance with FERC's regulations governing interconnections.

## **11. EXPANSION OF TRANSMISSION FACILITIES**

The provisions of Sections 24 and 25 of the CAISO Tariff will apply to any expansion or reinforcement of the CAISO Controlled Grid affecting the transmission facilities of the Participating TOs placed under the Operational Control of the CAISO.

## **12. USE AND ADMINISTRATION OF THE CAISO CONTROLLED GRID**

### **12.1. Use of the CAISO Controlled Grid.**

Except as provided in Section 13, use of the CAISO Controlled Grid by the Participating TOs and other Market Participants shall be in accordance with the rates, terms, and conditions established in the CAISO Tariff and the Participating TO's TO Tariff. Pursuant to Section 2 of the CAISO Tariff, transmission service shall be provided only to direct access and wholesale customers eligible under state and federal law.

### **12.2. Administration.**

Each Participating TO transfers authority to the CAISO to administer the terms and conditions for access to the CAISO Controlled Grid and to collect, among other things, Congestion Management revenues, and Wheeling-Through and Wheeling-Out revenues.

### **12.3. Incentives and Penalty Revenues.**

The CAISO, in consultation with the Participating TOs, shall develop standards and a mechanism for paying to and collecting from Participating TOs incentives and penalties that may be assessed by the CAISO. Such standards and mechanism shall be filed with FERC and shall become effective upon acceptance by FERC.

## **13. EXISTING AGREEMENTS**

The provisions of Section 16 of the CAISO Tariff will apply to the treatment of transmission facilities of a Participating TO under the Operational Control of the CAISO which are subject to transmission service rights under Existing Contracts. In addition, the CAISO will honor the operating obligations as specified by the Participating TO, pursuant to Section 6.4.2 of this Agreement, including any provision of interconnection, integration, exchange, operating, joint ownership, and joint participation agreements, when operating the CAISO Controlled Grid.

## **14. MAINTENANCE STANDARDS**

### **14.1. CAISO Determination of Standards.**

The CAISO has adopted and shall maintain, in consultation with the Participating TOs through the Transmission Maintenance Coordination Committee, and in accordance with the requirements of this Agreement, the standards for the maintenance, inspection, repair, and replacement of transmission facilities under its Operational Control in accordance with Appendix C. These standards, as set forth in Appendix C, are and shall be performance-based or prescriptive or both, and provide for high quality, safe, and reliable service and shall take into account costs, local geography and weather, the Applicable Reliability Criteria, national electric industry

practice, sound engineering judgment, and experience.

## **14.2. Availability.**

**14.2.1 Availability Measure.** The CAISO performance-based standards shall be based on the availability measures described in Appendix C of this Agreement.

**14.2.2 Excluded Events.** Scheduled Approved Maintenance Outages and certain Forced Outages will be excluded pursuant to Appendix C of this Agreement from the calculation of the availability measure.

**14.2.3 Availability Measure Target.** The CAISO and each Participating TO shall jointly develop for the Participating TOs an availability measure target, which may be defined by a range. The target will be based on prior Participating TO performance and developed in accordance with Appendix C of this Agreement.

**14.2.4 Calculation of Availability Measure.** The availability measure shall be calculated annually by the Participating TO and reported to the CAISO for evaluation of the Participating TO's compliance with the availability measure target. This calculation will be determined in accordance with Appendix C of this Agreement.

**14.2.5 Compliance with Availability Measure Target.** The CAISO and the Participating TO may track the availability measure on a more frequent basis (e.g., quarterly, monthly), but the annual calculation shall be the sole basis for determining the Participating TO's compliance with its availability measure target.

**14.2.6 Public Record.** The Participating TO's annual availability measure calculation with its summary data shall be made available to the public.

## **14.3. Revisions.**

The CAISO and Participating TOs shall periodically review Appendix C, through

the Transmission Maintenance Coordination Committee process, and in accordance with the provisions of Appendix C and this Agreement shall modify Appendix C as necessary.

#### **14.4. Incentives and Penalties.**

The CAISO may, subject to regulatory approval, and as set forth in Appendix C, develop programs which reward or impose sanctions on Participating TOs by reference to their availability measure and the extent to which the availability performance imposes demonstrable costs or results in demonstrable benefits to Market Participants.

### **15. DISPUTE RESOLUTION**

In the event any dispute regarding the terms and conditions of this Agreement is not settled, the Parties shall follow the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff. The specific references in this Agreement to alternative dispute resolution procedures shall not be interpreted to limit the Parties' rights and obligations to invoke dispute resolution procedures pursuant to this Section 15.

### **16. BILLING AND PAYMENT**

#### **16.1 Application of CAISO Tariff**

The CAISO and Participating TOs shall comply with the billing and payment provisions set forth in Section 11 of the CAISO Tariff.

#### **16.2 Refund Obligation**

Each Participating TO, whether or not it is subject to the rate jurisdiction of the FERC under Section 205 and Section 206 of the Federal Power Act, shall make all refunds, adjustments to its Transmission Revenue Requirement, and adjustments to its TO Tariff and do all other things required of a Participating TO to implement any FERC

order related to the CAISO Tariff, including any FERC order that requires the CAISO to make payment adjustments or pay refunds to, or receive prior period overpayments from, any Participating TO. All such refunds and adjustments shall be made, and all other actions taken, in accordance with the CAISO Tariff, unless the applicable FERC order requires otherwise. If, following the conditional acceptance or acceptance subject to refund of a Participating TO's Transmission Revenue Requirement, FERC issues a final order that reduces that filed Transmission Revenue Requirement, such that the CAISO must make payment adjustments or pay refunds to, or receive prior period overpayments from, any Participating TO in excess of the Transmission Revenue Requirement approved in the final order, the CAISO may invoice settlement adjustment(s) to the Participating TO in the amounts to be adjusted or refunded pursuant to the final order.

## **17. RECORDS AND INFORMATION SHARING**

### **17.1. Records Relevant to Operation of CAISO Controlled Grid.**

The CAISO shall keep such records as may be necessary for the efficient operation of the CAISO Controlled Grid and shall make appropriate records available to a Participating TO, upon request. The CAISO shall maintain for not less than five (5) years: (1) a record of its operating orders and (2) a record of the contents of, and changes to, the CAISO Register.

### **17.2. Participating TO Records and Information Sharing.**

**17.2.1 Existing Maintenance Standards.** Each Participating TO shall provide to the CAISO, as set forth in Appendix C hereto: (1) the Participating TO's standards for inspection, maintenance, repair, and replacement of its facilities under the

CAISO's Operational Control; and (2) information, notices, or reports regarding the Participating TO's compliance with the inspection, maintenance, repair, and replacement standards set forth in Appendix C hereto.

**17.2.2 Other Records.** Each Participating TO shall provide to the CAISO and maintain current data, records, and drawings describing the physical and electrical properties of the facilities under the CAISO's Operational Control, which records shall be shared with the CAISO under reasonable guidelines and procedures to be specified by the CAISO.

**17.2.3 Required Reports.** Pursuant to this Agreement and the provisions of the CAISO Tariff, each Participating TO shall provide to the CAISO timely information, notices, or reports regarding matters of mutual concern, including:

- i. System Emergencies, Forced Outages, and other incidents affecting the CAISO Controlled Grid;
- ii. Maintenance Outage requests, including yearly forecasts required by Section 9.3.6 of the CAISO Tariff; and
- iii. System planning studies, including studies prepared in connection with interconnections to the CAISO Controlled Grid or any transmission facility enhancement or expansion affecting the CAISO Controlled Grid.

**17.2.4 Other Reports.** The CAISO may, in accordance with the provisions of this Agreement and Appendices hereto, upon reasonable notice to the Participating TO, request that the Participating TO provide the CAISO with such information or reports as are necessary for the operation of the CAISO Controlled Grid. The Participating TO shall make all such information or reports available to the CAISO



in the manner and time prescribed by this Agreement or Appendices hereto or, if no specific requirements are so prescribed, within a reasonable time and in a form to be specified by the CAISO.

**17.2.5 Other Market Participant Information.** At the request of the CAISO, a Participating TO shall provide the CAISO with non-confidential information obtained by the Participating TO from other Market Participants pursuant to contracts between the Participating TO and such other Market Participants. Such requests shall be limited to information that is reasonably necessary for the operation of the CAISO Controlled Grid.

### **17.3. CAISO System Studies and Operating Procedures.**

**17.3.1 System Studies and Grid Stability Analyses.** The CAISO, in coordination with Participating TOs, shall perform system operating studies or grid stability analyses to evaluate forecasted changes in grid conditions that could affect its ability to ensure compliance with the Applicable Reliability Criteria. The results and reports from such studies shall be exchanged between the CAISO and the Participating TOs. Study results and conclusions shall generally be assessed annually, and shall be updated as necessary, based on changing grid and local area conditions.

**17.3.2 Grid Conditions Affecting Regulations, Permits and Licenses.** The CAISO shall promulgate and maintain Operating Procedures to ensure that impaired or potentially degraded grid conditions are assessed and immediately communicated to the Participating TOs for operability determinations required by applicable regulations, permits, or licenses, such as NRC operating licenses for nuclear generating units.

#### **17.4. Significant Incident.**

**17.4.1 Risk of Significant Incident.** Any Party shall timely notify all other Parties if it becomes aware of the risk of significant incident, including extreme temperatures, storms, floods, fires, earthquakes, earth slides, sabotage, civil unrest, equipment outage limitations, etc., that affect the CAISO Controlled Grid. The Parties shall provide information that the reporting Party reasonably deems appropriate and necessary for the other Parties to prepare for the occurrence, in accordance with Good Utility Practice.

**17.4.2 Occurrence of Significant Incident.** Any Party shall timely notify all other Parties if it becomes aware that a significant incident affecting the CAISO Controlled Grid has occurred. Subsequent to notification, each Party shall make available to the CAISO all relevant data related to the occurrence of the significant incident. Such data shall be sufficient to accommodate any reporting or analysis necessary for the Parties to meet their obligations under this Agreement.

#### **17.5. Review of Information and Record-Related Policies.**

The CAISO shall periodically review the requirements of this Section 17 and shall, consistent with reliability and regulatory needs, other provisions of this Agreement, and Appendices hereto, seek to standardize reasonable record keeping, reporting, and information sharing requirements.

### **18. GRANTING RIGHTS-OF-ACCESS TO FACILITIES**

#### **18.1. Equipment Installation.**

In order to meet its obligations under this Agreement, a Party that owns, rents, or leases equipment (the equipment owner) may require installation of such equipment on

property owned by another Party (the property owner), provided that the property is being used for an electric utility purpose and that the property owner shall not be required to do so if it would thereby be prevented from performing its own obligations or exercising its rights under this Agreement.

**18.1.1 Free Access.** The property owner shall grant to the equipment owner free of charge reasonable installation rights and rights of access to accommodate equipment inspection, repair, upgrading, or removal for the purposes of this Agreement, subject to the property owner's reasonable safety, operational, and future expansion needs.

**18.1.2 Notice.** The equipment owner (whether CAISO or Participating TO) shall provide reasonable notice to the property owner when requesting access for site assessment, coordinating equipment installation, or other relevant purposes.

**18.1.3 Removal of Installed Equipment.** Following reasonable notice, the equipment owner shall be required, at its own expense, to remove or relocate equipment, at the request of the property owner, provided that the equipment owner shall not be required to do so if it would thereby be prevented from performing its obligations or exercising its rights under this Agreement.

**18.1.4 Costs.** The equipment owner shall repair at its own expense any property damage it causes in exercising its rights and shall reimburse the property owner for any other costs that it is required to incur to accommodate the equipment owner's exercise of its rights under this Section 18.1.

## **18.2. Rights to Assets.**

The Parties shall not interfere with each other's assets, without prior agreement.

## **18.3. Inspection of Facilities.**

In order to meet their respective obligations under this Agreement, any Party may view or inspect facilities owned by another Party. Provided that reasonable notice is given, a Party shall not unreasonably deny access to relevant facilities for viewing or inspection by the requesting Party.

**19. [INTENTIONALLY LEFT BLANK]**

**20. TRAINING**

**20.1. Staffing and Training to Meet Obligations.**

Each Party shall make its own arrangements for the engagement of all staff and labor necessary to perform its obligations hereunder and for their payment. Each Party shall employ (or cause to be employed) only persons who are appropriately qualified, skilled, and experienced in their respective trades or occupations. CAISO employees and contractors shall abide by the CAISO Code of Conduct contained in the CAISO Bylaws and approved by FERC.

**20.2. Technical Training.**

The CAISO and the Participating TOs shall respond to reasonable requests for support and provide relevant technical training to each other's employees to support the safe, reliable, and efficient operation of the CAISO Controlled Grid and to comply with any NERC or WECC operator certification or training requirements. Examples of such technical training include, but are not limited to: (1) the theory or operation of new or modified equipment (e.g., control systems, Remedial Action Schemes, protective relays); (2) computer and applicator programs; and (3) CAISO (or Participating TO) requirements. The Parties shall enter into agreements regarding the timing, term, locations, and cost allocation for the training.

## **21. OTHER SUPPORT SYSTEMS REQUIREMENTS**

### **21.1. Related Systems.**

The Parties shall each own, maintain, and operate equipment, other than those facilities described in the CAISO Register, which is necessary to meet their specific obligations under this Agreement.

### **21.2. Lease or Rental of Equipment by the CAISO.**

Under certain circumstances, it may be prudent for the CAISO to lease or rent equipment owned by a Participating TO, (e.g., EMS/SCADA, metering, telemetry, and communications systems), instead of installing its own equipment. In such case, the CAISO and the Participating TO shall mutually determine whether the CAISO shall lease or rent the Participating TO's equipment. The CAISO and the Participating TO shall enter into a written agreement specifying all the terms and conditions governing the lease or rental, including its term, equipment specifications, maintenance, availability, liability, interference mitigation, and payment terms.

## **22. LIABILITY**

### **22.1. Liability for Damages.**

Except as provided for in Section 13.3.14 of the CAISO Tariff and subject to Section 22.4, no Party to this Agreement shall be liable to any other Party for any losses, damages, claims, liability, costs, or expenses (including legal expenses) arising from the performance or non-performance of its obligations under this Agreement except to the extent that its grossly negligent performance of this Agreement (including intentional breach) results directly in physical damage to property owned, operated by,

or under the operational control of any of the other Parties or in the death or injury of any person.

**22.2. Exclusion of Certain Types of Loss.**

No Party shall be liable to any other party under any circumstances whatsoever for any consequential or indirect financial loss (including but not limited to loss of profit, loss of earnings or revenue, loss of use, loss of contract, or loss of goodwill) resulting from physical damage to property for which a Party may be liable under Section 22.1.

**22.3. CAISO's Insurance.**

The CAISO shall maintain insurance policies covering part or all of its liability under this Agreement with such insurance companies and containing such policy limits and deductible amounts as shall be determined by the CAISO Governing Board from time to time. The CAISO shall provide all Participating TOs with details of all insurance policies maintained by it pursuant to this Section 22 and shall have them named as additional insureds to the extent of their insurable interest.

**22.4. Participating TOs Indemnity.**

Each Participating TO shall indemnify the CAISO and hold it harmless against all losses, damages, claims, liability, costs, or expenses (including legal expenses) arising from third party claims due to any act or omission of that Participating TO except to the extent that they result from intentional wrongdoing or gross negligence on the part of the CAISO or of its officers, directors, or employees. The CAISO shall give written notice of any third party claims against which it is entitled to be indemnified under this Section to the Participating TOs concerned promptly after becoming aware of them. The Participating TOs who have acknowledged their obligation to provide a full indemnity

shall be entitled to control any litigation in relation to such third party claims (including settlement and other negotiations) and the CAISO shall, subject to its right to be indemnified against any resulting costs, cooperate fully with the Participating TOs in defense of such claims.

## **23. UNCONTROLLABLE FORCES**

### **23.1. Occurrences of Uncontrollable Forces.**

No Party will be considered in default as to any obligation under this Agreement if prevented from fulfilling the obligation due to the occurrence of an Uncontrollable Force.

### **23.2. Obligations in the Event of an Uncontrollable Force.**

In the event of the occurrence of an Uncontrollable Force, which prevents a Party from performing any of its obligations under this Agreement, such Party shall:

(1) immediately notify the other Parties of such Uncontrollable Force with such notice to be confirmed in writing as soon as reasonably practicable; (2) not be entitled to suspend performance of its obligations under this Agreement to any greater extent or for any longer duration than is required by the Uncontrollable Force; (3) use its best efforts to mitigate the effects of such Uncontrollable Force, remedy its inability to perform, and resume full performance of its obligations hereunder; (4) keep the other Parties apprised of such efforts on a continual basis; and (5) provide written notice of the resumption of performance hereunder. Notwithstanding any of the foregoing, the settlement of any strike, lockout, or labor dispute constituting an Uncontrollable Force shall be within the sole discretion of the Party to this Agreement involved in such strike, lockout, or labor dispute and the requirement that a Party must use its best efforts to remedy the cause of the Uncontrollable Force and/or mitigate its effects and resume full

performance hereunder shall not apply to strikes, lockouts, or labor disputes.

## **24. ASSIGNMENTS AND CONVEYANCES**

No Party may assign its rights or transfer its obligations under this Agreement except, in the case of a Participating TO, pursuant to Section 4.4.1.

## **25. CAISO ENFORCEMENT**

In addition to its other rights and remedies under this Agreement, the CAISO may if it sees fit initiate regulatory proceedings seeking the imposition of sanctions against any Participating TO who commits a material breach of its obligations under this Agreement.

## **26. MISCELLANEOUS**

### **26.1. Notices.**

Any notice, demand, or request in accordance with this Agreement, unless otherwise provided in this Agreement, shall be in writing and shall be deemed properly served, given, or made: (1) upon delivery if delivered in person; (2) five (5) days after deposit in the mail, if sent by first class United States mail, postage prepaid; (3) upon receipt of confirmation by return electronic facsimile if sent by facsimile; (4) upon receipt of confirmation by return e-mail if sent by e-mail, or (5) upon delivery if delivered by prepaid commercial courier service. Each Party shall provide to the CAISO a designation of the persons specified to receive notice on its behalf pursuant to this Agreement, and the CAISO shall post a list of these contacts for notices on the CAISO Website. Any Party may at any time, by notice to the CAISO, change the designation or address of the person specified to receive notice on its behalf, and the CAISO shall make this change in the list of contacts for notices posted on the CAISO Website. Any



notice of a routine character in connection with service under this Agreement or in connection with the operation of facilities shall be given in such a manner as the Parties may determine from time to time, unless otherwise provided in this Agreement.

## **26.2. Non-Waiver.**

Any waiver at any time by any Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, shall not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this Agreement. Any delay short of the statutory period of limitations in asserting or enforcing any right shall not constitute or be deemed a waiver.

## **26.3. Confidentiality.**

26.3.1 **CAISO.** The CAISO shall maintain the confidentiality of all of the documents, materials, data, or information ("Data") provided to it by any other Party that reflects or contains: (a) Data treated as confidential or commercially sensitive under the confidentiality provisions of Section 20 of the CAISO Tariff; (b) Critical Energy Infrastructure Information, as defined in Section 388.113(c)(1) of the FERC's regulations; (c) technical information and materials that constitute valuable, confidential, and proprietary information, know-how, and trade secrets belonging to a Party, including, but not limited to, information relating to drawings, maps, reports, specifications, and records and/or software, data, computer models, and related documentation; or (d) Data that was previously public information but that was removed from public access in accordance with FERC's policy statement issued on October 11, 2001 in Docket No. PL02-1-000 in response to the September 11, 2001 terrorist attacks.

In order to be subject to the confidentiality protections of this Section 26.3, Data provided by a Party to the CAISO after January 1, 2005 which is to be accorded confidential treatment, as set forth above, shall be marked as "Confidential Data." Such a marking requirement, however, shall not be applicable to the Data provided by a Party to the CAISO prior to January 1, 2005 so long as the Data qualifies for confidential treatment hereunder. Notwithstanding the foregoing, the CAISO shall not keep confidential: (1) information that is explicitly subject to data exchange through the CAISO Website pursuant to Section 6 of the CAISO Tariff; (2) information that the CAISO or the Party providing the information is required to disclose pursuant to this Agreement, the CAISO Tariff, or applicable regulatory requirements (provided that the CAISO shall comply with any applicable limits on such disclosure); or (3) the information becomes available to the public on a non-confidential basis (other than as a result of the CAISO's breach of this Agreement).

**26.3.2 Other Parties.** No Party shall have a right hereunder to receive from the CAISO or to review any documents, data, or other information of another Party to the extent such documents, data, or information are required to be kept confidential in accordance with Section 26.3.1 above, provided, however, that a Party may receive and review any composite documents, data, and other information that may be developed based upon such confidential documents, data, or information, if the composite document does not disclose any individual Party's confidential data or information.

**26.3.3 Disclosure.** Notwithstanding anything in this Section 26.3 to the contrary, if the CAISO is required by applicable laws or regulations, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required

to be maintained in confidence pursuant to this Section 26.3, the CAISO may disclose such information; provided, however, that as soon as the CAISO learns of the disclosure requirement and prior to making such disclosure, the CAISO shall notify the affected Party or Parties of the requirement and the terms thereof. The affected Party or Parties may, at their sole discretion and own costs, direct any challenge to or defense against the disclosure requirement and the CAISO shall cooperate with such affected Party or Parties to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. The CAISO shall cooperate with the affected Parties to obtain proprietary or confidential treatment of confidential information by the person to whom such information is disclosed prior to any such disclosure.

#### **26.4. Third Party Beneficiaries.**

The Parties do not intend to create rights in, or to grant remedies to, any third party as a beneficiary of this Agreement or of any duty, covenant, obligation, or undertaking established hereunder.

#### **26.5. Relationship of the Parties.**

The covenants, obligations, rights, and liabilities of the Parties under this Agreement are intended to be several and not joint or collective, and nothing contained herein shall ever be construed to create an association, joint venture, trust, or partnership, or to impose a trust or partnership covenant, obligation, or liability on, or with regard to, any of the Parties. Each Party shall be individually responsible for its own covenants, obligations, and liabilities under this Agreement. No Party or group of Parties shall be under the control of or shall be deemed to control any other Party or Parties. No Party shall be the agent of or have the right or power to bind any other

Party without its written consent, except as expressly provided for in this Agreement.

**26.6. Titles.**

The captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

**26.7. Severability.**

If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition shall remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect and the Parties shall be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.

**26.8. Preservation of Obligations.**

Upon termination of this Agreement, all unsatisfied obligations of each Party shall be preserved until satisfied.

**26.9. Governing Law.**

This Agreement shall be interpreted, governed by, and construed under the laws of the State of California, without regard to the principles of conflict of laws thereof, or

the laws of the United States, as applicable, as if executed and to be performed wholly within the State of California.

**26.10. Construction of Agreement.**

Ambiguities or uncertainties in the wording of this Agreement shall not be construed for or against any Party, but shall be construed in a manner that most accurately reflects the purpose of this Agreement and the nature of the rights and obligations of the Parties with respect to the matter being construed.

**26.11. Amendment.**

This Agreement may be modified: (1) by mutual agreement of the Parties, subject to approval by FERC; (2) through the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff; or (3) upon issuance of an order by FERC.

**26.12. Appendices Incorporated.**

The several appendices to this Agreement, as may be revised from time to time, are attached to this Agreement and are incorporated by reference as if herein fully set forth.

**26.13. Counterparts.**

This Agreement may be executed in one or more counterparts, which may be executed at different times. Each counterpart, which shall include applicable individual Appendices A, B, C, D, and E, shall constitute an original, but all such counterparts together shall constitute one and the same instrument.

**26.14 Consistency with Federal Laws and Regulations**

26.14.1 **No Violation of Law.** Nothing in this Agreement shall compel any Party to: (1) violate any federal statute or regulation; or (2) in the case of a

federal agency, to exceed its statutory authority, as defined by any applicable federal statute, or regulation or order lawfully promulgated thereunder. No Party shall incur any liability by failing to comply with a provision of this Agreement that is inapplicable to it by reason of being inconsistent with any federal statute, or regulation or order lawfully promulgated thereunder; provided, however, that such Party shall use its best efforts to comply with this Agreement to the extent that applicable federal laws, and regulations and orders lawfully promulgated thereunder, permit it to do so.

If Western issues or revises any federal regulation or order with the intent or effect of limiting, impairing, or excusing any obligation of Western under this Agreement, then unless Western's action was expressly directed by Congress, any Party, by giving thirty days' advance written notice to the other Parties, may require Western to withdraw from this Agreement, notwithstanding any other notice period in Section 3.3.1. If such notice is given, the CAISO and Western promptly shall meet to develop arrangements needed to comply with Western's obligation under Section 3.3.3 concerning non-impairment of CAISO Operational Control responsibilities.

26.14.2      **Federal Entity Indemnity.** No provision of this Agreement shall require any Participating TO to give an indemnity to Western or for Western to give an indemnity to any Participating TO. If any provision of this Agreement requiring Western to give an indemnity to the CAISO or the CAISO to impose a sanction on Western is unenforceable against a federal entity, the affected Party shall submit to the Secretary of Energy or other appropriate Departmental Secretary a report of any circumstances that would, but for this provision, have rendered a federal entity liable to indemnify any person or incur a sanction and may request the Secretary of Energy or

other appropriate Departmental Secretary to take such steps as are necessary to give effect to any provisions of this Agreement that are not enforceable against the federal entity.

26.14.3        **Recovery for Unenforceable Indemnity.** To the extent that a Party suffers any loss as a result of being unable to enforce any indemnity as a result of such enforcement being in violation of Section 26.14.2, it shall be entitled to seek recovery of such loss through its TO Tariff or through the CAISO Tariff, as applicable.

**27. SIGNATURE PAGE**

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**California Independent System Operator** Corporation has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of September, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendix E

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

**250 Outcropping Way  
Folsom, California 95630**

**by:** \_\_\_\_\_

**Eric Schmitt**  
Vice President, Operations



**28. SIGNATURE PAGE**

**PACIFIC GAS AND ELECTRIC COMPANY**

**Pacific Gas and Electric Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10th day of September, 2019 and thereby incorporates the following Appendices in this Agreement:

Appendix A (PG&E)

Appendix B (PG&E)

Appendix C

Appendix D

Appendix E (Diablo Canyon)

Appendix F

**PACIFIC GAS AND ELECTRIC COMPANY**  
**77 Beale Street**  
**San Francisco, California 94105**

by: \_\_\_\_\_

**Michael Lewis**  
**Senior Vice President, Electric Operations**

**29. SIGNATURE PAGE**

**SAN DIEGO GAS & ELECTRIC COMPANY**

**San Diego Gas & Electric Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ and thereby incorporates the following Appendices in this Agreement:

Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

**SAN DIEGO GAS & ELECTRIC COMPANY  
8330 Century Park Court  
San Diego, California 92123**

by: \_\_\_\_\_

**John Jenkins  
Vice President - Electric System Operations  
San Diego Gas & Electric**

**30. SIGNATURE PAGE**

**SOUTHERN CALIFORNIA EDISON COMPANY**

**Southern California Edison Company** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 31st day of March, 2014 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Edison)

Appendix B (Edison)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

**SOUTHERN CALIFORNIA EDISON COMPANY**  
2244 Walnut Grove Avenue  
Rosemead, California 91770

by: \_\_\_\_\_

**Kevin Cini**  
**Vice President, Major Projects Organization and Engineering**  
**and Technical Services**  
**Erik Takayesu**  
**Vice President, Transmission, Substation & Operations**

**31. SIGNATURE PAGE**

**CITY OF VERNON**

**CITY OF VERNON** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 8<sup>th</sup> day of August, 2006 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Vernon)

Appendix B (Vernon)

Appendix C

Appendix D

Appendix E

Appendix F

**CITY OF VERNON**

By: \_\_\_\_\_  
MELISSA YBARRALEONIS C. MALBURG, Mayor

ATTEST:

\_\_\_\_\_  
LISA POPE  
BRUCE V. MALKENHORST, JR.  
~~Acting~~ City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_

| HEMA PATEL, Jeff Harrison, Chief Assistant City Attorney

**32. SIGNATURE PAGE**

**CITY OF ANAHEIM**

**CITY OF ANAHEIM** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 2006 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Anaheim)

Appendix B (Anaheim)

Appendix C

Appendix D

Appendix F

**CITY OF ANAHEIM**

By: \_\_\_\_\_  
Dukku Lee  
Public Utilities General Manager

ATTEST:

\_\_\_\_\_  
Theresa Bass, City Clerk

APPROVED AS TO FORM:  
Anaheim City Attorney's Office

\_\_\_\_\_  
Alison M. Kott  
Assistant City Attorney

**33. SIGNATURE PAGE**

**CITY OF AZUSA**

**CITY OF AZUSA** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 2006 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Azusa)

Appendix B (Azusa)

Appendix C

Appendix D

Appendix F

**CITY OF AZUSA**

By: \_\_\_\_\_

Diane Chagnon  
Mayor

**34. SIGNATURE PAGE**

**CITY OF BANNING**

**CITY OF BANNING** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ and thereby incorporates the following Appendices in this Agreement:

Appendix A (Banning)

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF BANNING**

By: \_\_\_\_\_  
Doug Schuze  
City Manager

ATTEST:

\_\_\_\_\_  
Sonja De La Fuente, Deputy City Clerk  
City of Banning

APPROVED AS TO FORM:

\_\_\_\_\_  
Margaret Mc Naul, Utility FERC Attorney  
Thompson Coburn LLP



**35. SIGNATURE PAGE**

**CITY OF RIVERSIDE**

**CITY OF RIVERSIDE** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ and thereby incorporates the following Appendices in this Agreement:

Appendix A (Riverside)

Appendix B (Riverside)

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF RIVERSIDE  
3900 Main Street, 4<sup>th</sup> Floor  
Riverside, California 92522**

By: \_\_\_\_\_  
Al Zelinka, City Manager

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
Assistant City Attorney

**36. SIGNATURE PAGE**

**DATC PATH 15, LLC**

**DATC PATH 15, LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 14<sup>th</sup> \_\_\_\_\_ day of ~~June~~ \_\_\_\_\_, ~~2018-2020~~ and thereby incorporates the following Appendices in this Agreement:

Appendix A (DATC Path 15)

Appendix C

Appendix D

Appendix F

**DATC Path 15, LLC**  
**550 ~~South Caldwell Street, Tryon St.~~**  
**Charlotte, NC 28202**

By: \_\_\_\_\_  
~~Christopher D. Jones~~ George C. Dawe  
President

**37. SIGNATURE PAGE**

**WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA REGION**

**WESTERN AREA POWER ADMINISTRATION, SIERRA NEVADA**

**REGION** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 2006 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Western)

Appendix C

Appendix D

Appendix F

**Western Area Power Administration, Sierra Nevada Region  
Sierra Nevada Region  
114 Parkshore Drive  
Folsom, CA 95630-4710**

By: \_\_\_\_\_

James D. Keselburg  
Regional Manager

**38. SIGNATURE PAGE**

**CITY OF PASADENA**

**CITY OF PASADENA** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_ day of \_\_\_\_\_, 2012, and thereby incorporates the following Appendices in this Agreement:

Appendix A (Pasadena)

Appendix B (Pasadena)

Appendix C

Appendix D

**City of Pasadena Water and Power Department  
150 S. Los Robles, Suite 200  
Pasadena, CA 91101**

by: \_\_\_\_\_

Phyllis E. Currie, General Manager Water and Power

APPROVED AS TO FORM:

by: \_\_\_\_\_

Deputy City Attorney

**39. SIGNATURE PAGE**

**TRANS BAY CABLE LLC**

**TRANS BAY CABLE LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 21<sup>st</sup> ~~2<sup>nd</sup>~~ day of February ~~August~~, 2006-2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Trans Bay Cable LLC)

Appendix C

Appendix D

Appendix F

**Trans Bay Cable LLC**

1 Letterman Drive, Suite #C5-100

~~c/o Babcock & Brown LP~~

~~2 Harrison Street, 6<sup>th</sup> Floor~~

San Francisco, CA 9412994105

Tel: (415) 291-2300542-1515

Fax: (415) 291-2275267-1500

By: \_\_\_\_\_

Kerry Hattevik ~~David Parquet~~

~~Vice~~ President

Trans Bay Cable LLC

**40. SIGNATURE PAGE**

**STARTRANS IO, L.L.C.**

**STARTRANS IO, L.L.C.** ("Startrans IO") has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_\_ day of \_\_\_\_\_, 2008 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Startrans IO)

Appendix C

Appendix D

Appendix F

**STARTRANS IO, L.L.C.**

By: \_\_\_\_\_

E.A. Kratzman III  
Chief Operating Officer  
~~Madison Grose~~  
~~Vice Chairman and Senior~~  
~~Managing Director~~

**41. SIGNATURE PAGE**

**CITIZENS SUNRISE TRANSMISSION LLC**

**Citizens Sunrise Transmission LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITIZENS SUNRISE TRANSMISSION LLC**

**88 Black Falcon Avenue  
Center Lobby, Suite 342  
Boston, Massachusetts 02210**

by:\_\_\_\_\_

**Peter F. Smith**  
Chief Executive Officer

**42. SIGNATURE PAGE**

**CITY OF COLTON**

**City of Colton** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITY OF COLTON**

650 N. La Cadena Drive  
Colton, CA 92324

by: \_\_\_\_\_

**David X. Kolk**  
Electric Utility Director



**43. SIGNATURE PAGE**

**VALLEY ELECTRIC ASSOCIATION, INC**

**Valley Electric Association, Inc.** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_\_ day of December, 20\_\_\_\_, and thereby incorporates the following

Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**VALLEY ELECTRIC ASSOCIATION, INC.**

P.O. Box 237

Pahrump, NV 89041

**By:** \_\_\_\_\_

Steve Morrison

Chief Financial Officer

**44. SIGNATURE PAGE**

**GRIDLIANCE WEST LLC**

**GridLiance West LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this 10<sup>th</sup> day of September, 2019, and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

**GRIDLIANCE WEST LLC**

201 E John Carpenter Fwy, Suite 900  
Irving, TX 75062 ~~N. LaSalle Street, Suite 420~~  
~~Chicago, Illinois 60602~~

**By:** \_\_\_\_\_  
Justin M. Campbell, IV  
President

**45. SIGNATURE PAGE**

**CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC**

**Citizens Sycamore-Penasquitos Transmission LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**CITIZENS SYCAMORE-PENASQUITOS TRANSMISSION LLC**

**88 Black Falcon Avenue  
Center Lobby, Suite 342  
Boston, Massachusetts 02210**

by: \_\_\_\_\_

**Peter F. Smith**  
Chief Executive Officer

**46. SIGNATURE PAGE**

**HORIZON WEST TRANSMISSION, LLC**

**Horizon West Transmission, LLC** has caused this Transmission Control Agreement ~~to be~~ executed by its duly authorized representative on this ~~10<sup>th</sup>~~ \_\_\_\_\_ day of ~~September~~ \_\_\_\_\_, ~~2019-2020~~ and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

Appendix F

**HORIZON WEST TRANSMISSION, LLC**

**address**

700 Universe Blvd.  
Juno Beach, FL 33408

by: \_\_\_\_\_

~~Brian Duncan~~Eric Gleason

President of Horizon West Transmission

**47. SIGNATURE PAGE**

**DESERTLINK, LLC**

**DesertLink, LLC** has caused this Transmission Control Agreement to be executed by its duly authorized representative on this \_\_\_\_\_ day of \_\_\_\_\_, 2020 and thereby incorporates the following Appendices in this Agreement:

Appendix A (DesertLink)

Appendix C

Appendix D

Appendix F

**DESERTLINK, LLC**

16150 Main Circle Dr., Suite 310  
Chesterfield, Missouri 63017

by: \_\_\_\_\_

**Mark D. Milburn**  
Vice President

**AMENDED AND RESTATED TRANSMISSION CONTROL AGREEMENT**

**APPENDIX A**

**Facilities and Entitlements**

**(The Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO were submitted by the CAISO on behalf of the Transmission Owners on March 31, 1997– any modifications are attached as follows)**

## **Modification of Appendix A1**

### **Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO**

**(submitted by the CAISO on behalf of Pacific Gas and Electric Company  
Transmission Owner)**

The diagrams of transmission lines and associated facilities placed under the Operational Control of the CAISO submitted by the CAISO on behalf of PG&E on March 31, 1997 are amended as follows.

#### Item 1: Port of Oakland 115 kV Facilities

Operational Control of the transmission facilities, shown on operating diagram, East Bay Region (East Bay Division), Sheet No. 1, serving the Port of Oakland and Davis 115 kV (USN) is not to be transferred to the CAISO. These are special facilities funded by and connected solely to a customer's substation and their operation is not necessary for Operational Control by the CAISO pursuant to the specifications of Section 4.1.1 of the TCA.

As of the date of execution of the TCA, the CAISO and PG&E are discussing further modifications to the diagrams of transmission lines and facilities placed under the control of the CAISO. A new version of the diagrams is to be filed with FERC prior to April 1, 1998. This subsequent version of the diagrams will reflect all modifications (including those described herein).

## APPENDIX A2

### List of Entitlements Being Placed Under CAISO Operational Control

(Includes only those where PG&E is a service rights-holder)

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
1.	PacifiCorp, CAISO	PG&E Original Rate Schedule FERC No. 239	Transmission Exchange Agreement	12/31/2027 or per Section 4.2	Both entitlement and encumbrance. PG&E receives 800 MW north-to-south and 612.5 MW south-to-north transmission service on PacifiCorp's owned share of Malin–Round Mountain No. 2 500 kV line.
2.	SCE, NorthWest ern, NV Energy	WECC Unscheduled Flow Mitigation Plan – PG&E Rate Schedule FERC No. 221	Operation of control facilities to mitigate loop flows	Evergreen, or on notice	No transmission services provided, but classified as an entitlement since loop flow is reduced or an encumbrance if PG&E is asked to cut.
3.	TANC, WAPA, and PacifiCorp	Owners Coordinated Operations Agreement – PG&E Rate Schedule FERC No. 229	Transmission system coordination, curtailment sharing, rights allocation, scheduling	1/1/2043, or on two years' notice, or earlier if other agreements terminate	Both entitlement and encumbrance
4.	CDWR	PG&E Rate Schedule FERC No. 245	Contract for Sale of Interest In and Operation of Midway-Wheeler Ridge	Pursuant to agreement by the Parties	<ul style="list-style-type: none"> <li>• <u>The Midway-Wheeler Ridge 230 kV lines #1 and #2 have a combined rating of 608 MW under normal operating conditions. Of this amount CDWR owns 456 MW and PG&amp;E owns 152 MW. During emergency conditions with only one line available the remaining line is rated 367 MW. Of this amount CDWR owns 275.25 MW and PG&amp;E owns 91.75 MW.</u></li> <li>• <u>Either Party may transmit power over any unused portion of the other Party's interest in the available line capability.</u></li> <li>• <u>Section 5.4 Scheduled Outages: PG&amp;E, the operator of the Midway-Wheeler Ridge 230 kV lines, shall give CDWR reasonable advance notice, which shall not be less than 3 days, unless otherwise agreed by the Parties' dispatchers, of any proposed schedule outage and its estimated duration.</u></li> <li>• <u>Section 5.5 Jeopardy: If at any time continuity of service within PG&amp;E's service territory is being jeopardized by flows of electric power over the Midway-Wheeler Ridge 230 kV lines, as determined by PG&amp;E in its sole judgment, PG&amp;E may request that CDWR curtail flows of electric power over the transmission system for delivery to CDWR's Loads to the extent necessary to eliminate or</u></li> </ul>



				<p><u>avoid such jeopardy, and CDWR shall comply with such request; provided, however, that PG&amp;E may only request the curtailment of such flows after it has taken all reasonable efforts to eliminate or avoid such jeopardy by any or all of the following means, as appropriate to the situation, to the extent that such means reduce or eliminate the jeopardy:</u></p> <ul style="list-style-type: none"><li><u>(i) Discontinuing service to customers which are served under an interruptible transmission service schedule;</u></li><li><u>(ii) Starting up, or increasing the loading of, any generating unit, including combustion turbine peaking units, which is available to PG&amp;E;</u></li><li><u>(iii) Purchasing power from other utilities;</u></li><li><u>(iv) Returning to service those generating units and transmission facilities which are out of service at the time of such jeopardy and which can reasonably be returned to service;</u></li><li><u>(v) Obtaining emergency service under agreements with CDWR and other utilities which are in effect at that time; and provided further that until such jeopardy is eliminated or avoided, PG&amp;E shall in no event be entitled to the use of more than 152 MW of the Midway-Wheeler Ridge 230 kV lines without the consent of CDWR.</u></li></ul> <p><u>Section 5.3 Connection of PGandE's Loads or Facilities: PGandE may connect a new load or facility to the Transmission System; provided that PGandE shall not connect a new load or facility to the Transmission System if such connection would cause a hazard to life or property, or jeopardize the operational integrity, safety or reliability of the Transmission System. At least 180 days, or a shorter period if practicable in the Parties' judgment, prior to connecting a new load or facility to the Transmission System, PGandE shall provide DWR written notice of such proposed connection.</u></p> <p><u>Section 6.3.1 Either Party may propose to the other Party Betterments or Extraordinary Work to the Transmission System. Costs of such Betterments or Extraordinary Work shall be shared in proportion to the associated benefits to each Party. The Parties shall determine if any adjustment to their relative ownership interests in the Transmission System should be made as a result of any Betterment. Such determination of benefits and adjustments to ownership interests shall be agreed to prior to commencing work on the Betterments or Extraordinary Work.</u><del>As set forth in the Agreement between the parties, including but not limited to, Section 5.1 of the Agreement, each party has limited right to transmit power over the unused capacity on the other party's share.</del></p>
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## Supplement To PG&E's Appendix A

### Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), the transmission system<sup>1</sup> Pacific Gas and Electric Company (PG&E) is placing under the California Independent System Operator's Operational Control will meet the Applicable Reliability Criteria in 1998,<sup>2</sup> except (1) for the transmission facilities comprising Path 15, which do not meet the Western Systems Coordinating Council's (WSCC) Reliability Criteria for Transmission Planning with a simultaneous outage of the Los Banos-Gates and Los Banos-Midway 500 kV lines (for south-to-north power flow exceeding 2500 MW on Path 15),<sup>3</sup> and (2) with respect to potential problems identified in PG&E's annual assessment of its reliability performance in accordance with Applicable Reliability Criteria, performed with participation from the ISO and other stakeholders; as a result of this process, PG&E has been developing solutions to mitigate the identified potential problems and submitting them to the ISO for approval.

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<sup>1</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>2</sup> Based upon PG&E's substation and system load forecasts for study year 1998, historically typical generation dispatch and the Applicable Reliability Criteria, including the current applicable WSCC Reliability Criteria for Transmission Planning issued in March 1997, the PG&E Local Reliability as stated in the 1997 PG&E Transmission Planning Handbook Criteria (submitted to the California ISO Transmission Planning, in writing, on October 20, 1997), and the NERC Reliability Performance Criteria in effect at the time PG&E was assessing its system (as of June 1, 1997). PG&E may not meet the WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high.

<sup>3</sup> The ISO will operate Path 15 so as to maintain system reliability. In accepting this notice from PG&E, the ISO agrees to work with PG&E and the WSCC to achieve a resolution respecting the WSCC long-term path rating limit for Path 15, consistent with WSCC requirements. Pending any revision to the WSCC long-term path rating limit for Path 15, the ISO will continue to operate Path 15 at the existing WSCC long-term path rating limit unless, in the judgment of the ISO:

(a) the operating limit must be reduced on a short-term (e.g., seasonal) basis to maintain system reliability, taking into account factors such as the WSCC guidelines, determination of credible outages and the Operating Capability Study Group (OCSG) study process; or

(b) the operating limit must be reduced on a real-time basis to maintain system reliability.

In determining whether the operating limit of Path 15 must be changed to maintain system reliability, the ISO shall, to the extent possible, work with the WSCC and the PTOs to reach consensus as to any new interim operating limit.

Pursuant to Section 4.1.5(i), PG&E does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of PG&E utility service pursuant to AB 1890. However, PG&E can't warrant that these right of way or franchise agreements will provide necessary authority for ISO entry or physical use of such rights apart from PG&E's rights pursuant to its physical ownership and operation of transmission facilities.

**APPENDIX A.2: EDISON'S CONTRACT ENTITLEMENTS**

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
21.	City-Edison Pacific Intertie D-C Transmission Facilities Agreement	LADWP	44448	3/31/2041 or sooner by mutual agreement of the parties.	<ul style="list-style-type: none"> <li>Edison owns 50% of the D-C transmission line and Sylmar DC convertor facility.</li> </ul>
2.	Pasadena Interconnection Agreement	Pasadena	484	By Pasadena upon 24 months advance written notice; or by SCE upon default by Pasadena.	<ul style="list-style-type: none"> <li>Goodrich-Gould and Goodrich-Laguna Bell 220 kV transmission lines interconnect Edison's system with Pasadena's system at Pasadena's T.M. Goodrich Substation.</li> <li>Edison maintains and operates T.M. Goodrich 220 kV Substation.</li> </ul>
33.	Victorville-Lugo Interconnection Agreement	LADWP	51	11/20/20549, or sooner by mutual agreement.	<ul style="list-style-type: none"> <li>1950-2400 MW towards Edison, 900 MW towards LADWP. Transfer capability of the interconnection is established through joint technical studies.</li> </ul>
4.	City-Edison Sylmar Interconnection Agreement	LADWP	307	On 5 years advance written notice by either party any time after the termination of the City-Edison Pacific Intertie DC Transmission Facilities Agreement.	<ul style="list-style-type: none"> <li>Pardee Sylmar No. #1&amp;2, Gould-Sylmar and Eagle Rock-Sylmar 220 kV transmission line interconnections at Sylmar including circuit breakers and busses. Lines have been re-configured from arrangement described in contract.</li> <li>Edison owns one of the three regulating transformers at Sylmar.</li> </ul>
5.	City-Edison Owens Valley Interconnection and interchange Agreement	LADWP	50	On 12 months advance written notice by either party.	<ul style="list-style-type: none"> <li>The Control-Haiwee-Inyokern and the Control-Coso-Haiwee-Inyokern 115 kV lines normally operate open at LADWP's Haiwee Substation. At the request of either party and by mutual agreement, LADWP's and Edison's respective systems interconnected at LADWP's Haiwee 115 kV Substation.</li> </ul>
6.	City-Edison 400,000 kVA Interconnection Agreement (Velasco)	LADWP	215	On 3 year advance written notice by either party.	<ul style="list-style-type: none"> <li>Edison's portion of the normally open Laguna Bell-Velasco 230 kV transmission line from Laguna Bell to the point where ownership changes.</li> </ul>

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
7.	Edison-Los Angeles Inyo Interconnection Agreement	LADWP	306	On 5 year advance written notice by either party or by mutual agreement.	<ul style="list-style-type: none"> <li>Inyo 230/115 kV Substation, Inyo Phase Shifter, Control-Inyo 115 kV transmission line and 230 kV tap to LADWP's Owens Gorge-Rinaldi 230 kV transmission line.</li> </ul>
8.	Amended and Restated IID-Edison Mirage 230 kV Interconnection Agreement	IID	314	On one year advance notice but not prior to the termination date of the IID-Edison Transmission Service Agreement for Alternate Resources.	<ul style="list-style-type: none"> <li>Edison's interconnection with IID at Mirage and the point of interconnection on the Devers – Coachella Valley line.</li> </ul>
9.	Navajo Interconnection Principles	USA, APS, SRP, NPC, LADWP, TGE	76	5 years from the effective date of 1973, with the termination date of 5/20/2023.	<ul style="list-style-type: none"> <li>Generation principles for emergency service.</li> </ul>
10.	Edison – Navajo Transmission Agreement	USA, APS, SRP, NPC, LADWP, TGE	264	Effective until 5/21/2023, as of 5/5/2016	<ul style="list-style-type: none"> <li>In the event of a contingency in the Navajo-McCullough or Moenkopi-Eldorado transmission lines, Edison and the Navajo participants provide each other emergency transmission service without a charge. As part of the APS-SCE Expiration Agreement, on 5/6/2016, APS and SCE executed the Assignment and Assumption Agreement which provides for SCE Assigned to Arizona and Arizona to accept such assignment and assuming all Edison's, title and interest in and to the Navajo Transmission Agreement as they relate to the Arizona Transmission System.</li> </ul>

	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
11.	ANPP High Voltage Switchyard Participation Agreement	APS, SRP, PSNM, EPE, SCPPA, LADWP	320	8/20/2031	<ul style="list-style-type: none"> <li>Edison has 20.30% undivided ownership interest as a tenant-in-common in the ANPP High Voltage Switchyard.</li> <li>Edison has rights to transmit through the ANPP High Voltage Switchyard up to its 15.8% share of generation from ANPP, or a substitute equal amount, plus any other generation up to the extent of its transmission rights in the Palo Verde-Devers 500 kV Transmission Line</li> <li>Edison has additional rights to use any unused capacity in the ANPP High Voltage Switchyard, provided that any over subscription shall be subject to proration of the remaining capacity based on switchyard ownership.</li> </ul>
<del>12.</del>	<del>Mutual Assistance Transmission Agreement</del>	<del>HD, APS, SDG&amp;E</del>	<del>1174</del>	<del>4/12/2034 or sooner by mutual agreement of the parties. A party may withdraw from this agreement upon giving 5 years advance written notice to the other parties. SDG&amp;E Provided it's Termination notice on January 17, 2013.</del>	<del>In the event of a contingency in the Colorado River-Palo Verde 50 kV line, Palo Verde-North Gila-Imperial Valley transmission lines, participants to share the available capacity based on predetermined operating procedures set out in a separate operating bulletin.</del>
123	Midway Interconnection Agreement	PG&E	477	Upon one (1) year advance written notice by either party, but not prior to 1/1/2012.	<ul style="list-style-type: none"> <li>Edison's ownership of the Midway Interconnection: <ul style="list-style-type: none"> <li>Midway-Vincent No. 1 500kV line</li> <li>Midway-Vincent No. 2 500 kV line</li> <li>Midway-Whirlwind Substation to M53,T1</li> </ul> </li> </ul> <p>Note: The former Midway-Vincent No.3 500 kV line was looped into SCE's Whirlwind Substation forming the Midway-Whirlwind and Vincent-Whirlwind 500 kV line No.3.</p>
	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	

					<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
143	Amended and Restated Eldorado Co-Tenancy and Operating Agreement	NV Energy and LADWP	44424	12/31/2046 unless <u>extended in accordance with Pursuant to Section 25.8 of the Agreement.</u>	<ul style="list-style-type: none"> <li>Eldorado-Mohave 500 kV Line: 530 MW</li> <li>Eldorado-Mead 220 kV Lines No. 1&amp;2: 624 MW</li> <li>Eldorado 500/220 kV No.3 AA and No.4 AA Transformer Banks:669 MW.</li> </ul>
154	WAPA-Edison Contract for 161-kV Interconnection and Operation, Maintenance and Replacement at Blythe Substation	WAPA	482	Midnight 9/30, 2028 or sooner by 1 year advance written notice by either party.	<ul style="list-style-type: none"> <li>WAPA's Blythe 161 kV Substation, and Edison's Eagle Mountain-Blythe 161 kV transmission line. System to System interconnection agreement.</li> </ul>
		<del>_____</del>	324	<del>Terminated as of 2015.</del>	<ul style="list-style-type: none"> <li><del>Edison's share of SONGS switchyard with termination of its 220 kV transmission lines: <ul style="list-style-type: none"> <li><del>Santiago-SONGS No. 1 &amp; No. 2 220 kV lines</del></li> <li><del>Santiago-SONGS 220 kV line. Serrano, and</del></li> <li><del>Chino-SONGS 220 kV line.</del></li> </ul> </del></li> </ul>
16.	<del>District-Edison 1987 Service and Interchange Agreement</del>	<del>-MWD</del>	443	<del>Co-extensive with the term of District's Hoover Contract, provided that either Party shall have the right to terminate this Agreement upon not less than 5 (five) years' notice of such termination given in writing to the other Party</del>	<ul style="list-style-type: none"> <li><del>Transmission is owned by District, but is in CAISO Balancing Authority Area. If not in use by District, or the United States under existing contracts, District's Transmission System is available to transmit any electric energy to which Edison may be entitled.</del></li> <li><del>Up to 320 MW is required to supply District's Colorado River Aqueduct pump load.</del></li> <li><del>District's Transmission Line is operated by the District as directed by Edison.</del></li> </ul>
				<del>Terminated as of 7/6/2016.</del>	

	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
175	Edison-Arizona Transmission Agreement	APS	505	On 3 year advance written notice by either Party.	<ul style="list-style-type: none"> <li>This Interconnection Agreement is to connect APS and SCE's respective system through the Eldorado-Moenkopi 500 kV Transmission Line in Colorado River at the Willow Beach.</li> </ul>
18.	<del>Mead Interconnection Agreement</del>	<del>WAPA</del>	308	5/31/2017	<ul style="list-style-type: none"> <li><del>Edison has rights to transmit its Hoover power</del></li> <li><del>Edison's facilities include Eldorado-Mead 220 kV #1 and 2 transmission lines.</del></li> <li><del>Edison may request additional firm transmission service rights through Mead Substation subject to availability as determined by WAPA.</del></li> <li><del></del></li> </ul>
19.	<del>Agreement for Mitigation of Major Loop Flow</del>	<del>PacifiCorp, PG&amp;E, SCE</del>	<del>Pacificorp R/S # 298</del>	2/12/2020	<ul style="list-style-type: none"> <li><del>PacifiCorp to operate Phase Shifting Transformers managed by Peak Reliability, on the Sigurd-Glen Canyon and Pinto-Four Corners Transmission Lines in accord with contract.</del></li> </ul>



## Supplement to Edison Appendix A

### Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), Southern California Edison Company (Edison) is providing notice its transmission system<sup>14</sup> being placed under the California Independent System Operator's (ISO) Operational Control will meet the Applicable Reliability Criteria in 1998,<sup>25</sup> except as noted in its bulk power program and described herein. Edison's transmission system has been developed in accordance with NERC and WSCC's reliability criteria. WSCC's most recent Log of System Performance Recommendations, dated April 15, 1997, does not show any instances where Edison's transmission system does not meet NERC and WSCC reliability criteria, absent approved exemptions.

Pursuant to Section 4.1.5 (i), Edison does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of Edison's utility service pursuant to AB 1890. However, Edison can't warrant that these right of way or franchise agreements will provide necessary authority for ISO entry or physical use of such rights apart from Edison's rights pursuant to its physical ownership and operation of transmission facilities.

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<sup>1</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>2</sup> Edison's most recent assessment is based on Edison's substation and system load forecasts for study year 1998 and criteria in effect as of September 1, 1997. Edison meets WSCC's reliability criteria except for WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high. Assessments of Edison's transmission system using NERC Planning Standards and Guides, released September 16, 1997 will be performed in accordance with the ISO's coordinated transmission planning process as provided for in the ISO Tariff, Section 3.2.2. and under schedules adopted in that process.

## **Modification of Appendix A1**

### **Diagrams of Transmission Lines and Associated Facilities Placed Under the Operational Control of the CAISO**

**(submitted by the CAISO on behalf of San Diego Gas & Electric Company  
Transmission Owner)**

The diagrams of transmission lines and associated facilities placed under the Operational Control of the CAISO submitted by the CAISO on behalf of SDG&E are amended as follows.

Item 1: Imperial Valley Switchyard 230kV Breakers Nos. 4132 and 5132 shown in the diagram as non-SDG&E facilities should be shown as SDG&E owned. Furthermore, these breakers are being placed under the Operational Control of the CAISO.

## APPENDIX A.2: SDG&E'S CONTRACT ENTITLEMENTS

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
79-017	IID-SDG&E Interconnection and Exchange Agreement	IID	065	June 24, 2051 (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by IID of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, IID and SDG&E to provide each other emergency capacity and energy.
78-007	CFE-SDG&E Interconnection and Exchange Agreement	CFE		12 month notice (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by CFE of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, CFE and SDG&E to provide each other emergency capacity and energy.
81-005	Palo Verde-North Gila Line ANPP High Voltage Switchyard Interconnection Agreement	APS, IID, PNM, SRP, El Paso, SCE, SCPPA	063	July 31, 2031.	The parties are obligated to provide mutual switchyard assistance during emergencies to the extent possible. However, in the event that the capacity of the ANPP Switchyard is insufficient to accommodate all requests, the rights of the ANPP Switchyard Participants shall take precedence in all allocations.
81-050	IID-SDG&E California Transmission System Participation Agreement	IID		June 24, 2051.	SDG&E and IID schedule power and energy over the California Transmission System for their respective accounts at the Yuma (North Gila ) 500 kV Switchyard for delivery to the 500 kV breaker yard of the Imperial Valley in the following percentages of operating capacity: SDG&E -- 85.64%; and IID -- 14.36%.
78-003	APS-SDG&E Arizona Transmission System Participation Agreement	APS		July 31, 2031.	SDG&E, APS, and IID schedule power and energy over the Arizona Transmission System for their respective accounts at the Palo Verde Switchyard for delivery at the Yuma (North Gila) 500 kV Switchyard in the following percentages of operating capacity: APS -- 11%; SDG&E -- 76.22%; IID -- 12.78%.
	The Funding Agreement For The Development Of A Satellite Switchyard	Funding Agreement: Salt River Project	SCE FERC Rate	July 31, 2031.	The Funding Agreement provides that the owners of the North Gila and Kyrene transmission lines will act in good faith to negotiation agreements with respect to the loop in of these lines at the ANPP Satellite

	<p>To The ANPP High Voltage Switchyard Between Participating Interconnectors and Salt River Project Agricultural Improvement and Power District (Funding Agreement) incorporates the Memorandum of Understanding Between Arizona Public Service Company, San Diego Gas &amp; Electric Company, Imperial Irrigation District, and Salt River Project Agricultural Improvement and Power District Incorporated (MOU)</p>	<p>Agricultural Improvement and Power District, Department of Water and Power of the City of Los Angeles, Southern California Edison Company, Duke Energy Maricopa, LLC, Gila Bend Power Partners, LLC, Harquahala Generating Company, LLC, Mesquite Power, LLC, Pinnacle West Energy Corporation, and NRG Mextrans, Inc.</p> <p>MOU: SDG&amp;E, APS, IID, and SRP</p>	<p>Schedule 420</p>		<p>Switchyard (Hassayampa) on terms and conditions satisfactory to the ANPP High Voltage Switchyard Participants consistent with the MOU. Under the MOU, SDG&amp;E retains ownership and control over the facilities associated with the loop-in of the Palo Verde-North Gila line in Hassayampa so as to ensure the unobstructed transfer of capacity and energy through Hassayampa equal to the capability of the existing Palo Verde-North Gila line.</p>
	<p>SDG&amp;E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease</p>	<p>SDG&amp;E, Citizens Sunrise Transmission LLC</p>			<p>SDG&amp;E is solely entitled to decide upon, develop, design, engineer, procure, construct, commission, own, operate, maintain, and finance any upgrades to all or any portion of the Sunrise Powerlink Project ("Sunrise Powerlink") of the Sunrise Powerlink for purposes of increasing the Transfer Capability of all or any portion of the Sunrise Powerlink. SDG&amp;E shall be solely responsible to pay the costs of such upgrades. Citizens agrees that it will not oppose any upgrades proposed by SDG&amp;E. SDG&amp;E shall be solely entitled to determine whether any additional capital investment is needed for replacement or renewal of facilities of the Sunrise Powerlink resulting in no increases in the Transfer Capability of the Sunrise Powerlink, and if so, the timeframe for the same. SDG&amp;E shall be solely entitled to itself undertake or undertake by way of contracts with others to develop, design, engineer, procure, construct, commission, own, operate, maintain, and finance such replacement or renewals of the facilities of the Sunrise Powerlink. SDG&amp;E shall be responsible for all costs of such replacement or renewal. Subject to the CAISO Tariff and rules governing interconnection, as between SDG&amp;E and Citizens, SDG&amp;E will be the</p>

				<p>interconnection agent for the Sunrise Powerlink. In particular, SDG&amp;E will process all requests for interconnection to the Sunrise Powerlink, SDG&amp;E will develop, design, engineer, procure, construct, commission, own, operate, maintain, and arrange funding for such interconnection facilities, including all substations and switchyards connected to the Sunrise Powerlink, and SDG&amp;E will retain all ownership and Transfer Capability interests in such interconnection facilities.</p>
	<p>SDG&amp;E-Citizens Sycamore-Penasquitos Transmission LLC Development and Coordination Agreement/Transfer Capability Lease</p>	<p>SDG&amp;E-Citizens Sycamore-Penasquitos Transmission LLC</p>		<p>SDG&amp;E shall be solely entitled to decide upon, develop, design, engineer, procure, construct, commission, own, operate, maintain and finance any upgrades to all or any portion of the Project after the Commercial Operation Date for purposes of increasing the Transfer Capability of all or any portion of the Project. SDG&amp;E shall be solely responsible to pay the costs of such upgrades. Citizens Sycamore-Penasquitos Transmission agrees that it will not oppose any upgrades sought before any Governmental Authority, System Operator, or Balancing Authority by SDG&amp;E.</p> <p>SDG&amp;E shall be solely entitled to determine whether any additional capital investment is needed for replacement or renewal of facilities of the Project resulting in no increases in the Transfer Capability of the Project, and if so, the timeframe for the same. SDG&amp;E shall be solely entitled to itself undertake or undertake by way of contracts with others to develop, design, engineer, procure, construct, commission, own, operate, maintain and finance such replacement or renewals of the facilities of the Project. SDG&amp;E shall be responsible for all costs of such replacement or renewal.</p> <p>Subject to the CAISO Agreement and rules governing interconnection, as between SDG&amp;E and Citizens Sycamore-Penasquitos Transmission, SDG&amp;E will be the interconnection agent for the Project and on behalf of Citizens Sycamore-Penasquitos Transmission with respect to the Citizens Transfer Capability. In particular, SDG&amp;E will process all requests for interconnection to the Project, SDG&amp;E will develop, design, engineer, procure, construct, commission, own, operate, maintain, and arrange funding for such interconnection facilities, including all substations and switchyards connected to the Project, and SDG&amp;E will retain all ownership and Transfer Capability interests in such interconnection facilities.</p>

## Supplement To SDG&E's Appendix A

### Notices Pursuant to Section 4.1.5

Pursuant to the Transmission Control Agreement Section 4.1.5 (iii), the transmission system<sup>6</sup> of San Diego Gas & Electric Company (SDG&E) is placing under the California Independent System Operator's Operational Control meets the Applicable Reliability Criteria,<sup>7</sup> with the following exceptions: (1) SDG&E has not yet re-assessed its system performance for any reliability criteria added or modified by the new North American Electric Reliability Council (NERC) Planning Standards and Guides, released in September, 1997;<sup>8</sup> (2) SDG&E has also not yet re-assessed its system performance for the revised simultaneous generator outage criteria which was approved by the WSCC Board of Trustees on October 27, 1997.<sup>9</sup>

Pursuant to Section 4.1.5(i), SDG&E does not believe that transfer of Operational Control is inconsistent with any of its franchise or right of way agreements to the extent that ISO Operational Control is implemented as part of SDG&E utility service pursuant to AB 1890. However, SDG&E cannot warrant that these right-of-way or franchise agreements will provide necessary authority for ISO entry or physical use of such rights apart from SDG&E's rights, pursuant to its physical ownership and operation of transmission facilities.

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<sup>6</sup> Including upgrades and operational plans for the transmission lines and associated facilities.

<sup>7</sup> Based upon studies with SDG&E's forecast peak 1998 system loads and the Applicable Reliability Criteria, including the WSCC Reliability Criteria for Transmission Planning and WSCC Minimum Operating Reliability Criteria dated March 1997, and the SDG&E Local Reliability Criteria as submitted to the California ISO by letter dated December 15, 1997.

<sup>8</sup> Assessments of SDG&E's transmission system using NERC Planning Standards and Guides, released September 16, 1997 will be performed in accordance with the ISO's coordinated transmission planning process as provided for in the ISO Tariff, Section 3.2.2 and under schedules adopted in that process.

<sup>9</sup> The revised criteria will be cooperatively assessed by SDG&E and the ISO as soon as possible but not later than May 1, 1998. SDG&E also may not meet the WSCC's Disturbance Performance level 'D' (e.g. outage of three or more circuits on a right-of-way, an entire substation or an entire generating plant including switchyard), where the risk of such an outage occurring is considered very small and the costs of upgrades very high.

**APPENDIX A.2: CITY OF VERNON  
TRANSMISSION ENTITLEMENTS**

<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT-TITLE</b>	<b>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Laguna Bell	Vernon, Edison	Bi-Directional	Edison-Vernon Mead FTS	207	(1) See Notes	26 MW
2. Victorville-Lugo Midpoint-Laguna Bell	Vernon, Edison	Bi-Directional	Edison-Vernon Victorville-Lugo Midpoint FTS	1154	(2) See Notes	11 MW
3. Adelanto-Victorville/Lugo Midpoint (3a)	Vernon, Los Angeles	Bi-Directional	Los Angeles-Vernon Adelanto-Victorville/Lugo FTS		(3b) See Notes	81 MW

Summary - Details are in each agreement

## APPENDIX A.2: CITY OF VERNON'S CONTRACT ENTITLEMENTS

### Notes:

- (1) Contract Termination: Upon termination of Vernon's Hoover Power Sales contract with WAPA; or 12/31/2007 based on proper notice from Vernon to Edison.
- (2) Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or 12/31/2007 based on proper notice from Vernon to Edison.
- (3a) DWP No. 10396.
- (3b) Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or four years prior written notice by either party.



POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
<del>3. North to South on COTP South to North on COTP</del>	<del>Vernon, PG&amp;E, TANC, WAPA, City of Shasta Lake, Carmichael Water District, San Juan Suburban Water District, CDWR (Operating Agent- Western (SNR)) (7)</del>		<del>COTP Interim Participation Agreement.</del>		<del>Upon execution of a superseding long-term participation agreement or upon a unanimous decision by the executing parties to terminate this Agreement.</del>	<del>121 MW N-S 92 MW S-N</del>
<del>4. Sylmar-Midway (After 12/31/2007)</del>	<del>Vernon, Edison</del>	<del>Bi-Directional</del>	<del>Edison-Vernon PDCI/COTP FTS</del>	<del>272</del>	<del>(1) See Notes</del>	<del>93 MW</del>
<del>5. Sylmar-Laguna Bell Through midnight December 31, 2002. After midnight December 31, 2002.</del>	<del>Vernon, Edison</del>	<del>Bi-Directional</del>	<del>Edison-Vernon PDCI/COTP FTS</del>	<del>272</del>	<del>(1) See Notes</del>	<del>93 MW 60 MW</del>
<del>6. Midway-Laguna Bell (After 12/31/2007)</del>	<del>Vernon, Edison</del>	<del>Bi-Directional</del>	<del>Edison-Vernon PDCI/COTP FTS</del>	<del>272</del>	<del>(1) See Notes</del>	<del>60 MW</del>
<del>7. Mead-Laguna Bell</del>	<del>Vernon, Edison</del>	<del>Bi-Directional</del>	<del>Edison-Vernon Mead FTS</del>	<del>207</del>	<del>(2) See Notes</del>	<del>26 MW</del>

POINT-OF-RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
8. Victorville-Luge Midpoint-Laguna Bell  Note: Service is reduced to 11 MW on 1/1/2003, unless Vernon elects by 10/1/2002 to extend up to an additional 64 MW of service.	Vernon, Edison	Bi-Directional	Edison-Vernon Victorville-Luge Midpoint-FTS	154	(3) See Notes	75 MW
9. Adelanto-Victorville/Luge Midpoint (4a)	Vernon, Los Angeles	Bi-Directional	Los Angeles-Vernon Adelanto-Victorville/Luge FTS		(4b) See Notes	75/81 MW (8)
10. NOB-Sylmar-Midway Midway-Sylmar-NOB (6)	Vernon, PG&E	Bi-Directional	Transmission Service Exchange Agreement Between PG&E and the City of Vernon	148	(5) See Notes	93 MW N-S 82 MW S-N

Summary—Details are in each Agreement.

**APPENDIX A.2: CITY OF VERNON'S CONTRACT ENTITLEMENTS**

**Notes:**

- (1) ~~Contract Termination: Upon termination of Vernon's ownership of a portion of the COTP entitlement.~~
- (2) ~~Contract Termination: Upon termination of Vernon's Hoover Power Sales contract with WAPA; or 12/31/2007 based on proper notice from Vernon to Edison.~~
- (3) ~~Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or 12/31/2007 based on proper notice from Vernon to Edison.~~
- (4a) ~~DWP No. 10396.~~
- (4b) ~~Contract Termination: Upon permanent removal from operation of the Mead-Adelanto 500 kV Transmission Project; or four years prior written notice by either party.~~

- ~~(5) Contract Termination: 1. This Agreement may be terminated on July 31, 2007:
  - ~~A. By PG&E with one year notice to Vernon, if PG&E has not retained for the remaining term of this Agreement at least a 659 MW transmission entitlement in DC Line at NOB.~~
  - ~~B. By Vernon, if PG&E's entitlement in the DC Line after July 2007 results in an arrangement for the operation of DC Line as to reduce transmission capability.~~
  - ~~C. If the DC Line or COTP facilities are retired.~~~~
- ~~2. In the event City elects to participate in an alternative project that provides City with transmission capability between the Southern Terminus of COTP and Edison's system, City may terminate this Agreement by written notice to PG&E at least five (5) years in advance of such termination.~~
- ~~3. Otherwise, the Agreement remains in effect until September 2042.~~

## APPENDIX A.2: CITY OF VERNON'S CONTRACT ENTITLEMENTS

### Notes: (continued)

~~(6) Transfer capability at Sylmar: In accordance with Section 7.2 of the PG&E-Vernon Transmission Service Exchange Agreement and Section 6.1 of the Edison-Vernon Firm Transmission Service Agreement, Vernon receives the following transmission services:~~

- ~~a) 93 MW from NOB to Sylmar.~~
- ~~b) 82 MW from Sylmar to NOB.~~
- ~~c) 93 MW from Sylmar to Laguna Bell (60 MW after midnight December 31, 2002).~~
- ~~d) 93 MW from Laguna Bell to Sylmar (60 MW after midnight December 31, 2002).~~
- ~~e) 60 MW to Sylmar through the regulating transformers.~~
- ~~f) 53 MW from Sylmar through the regulating transformers.~~
- ~~g) 93 MW from Sylmar to Midway, after 12/31/2007.~~
- ~~h) 93 MW from Midway to Sylmar, after 12/31/2007.~~

~~(7) For information only.~~

~~(8) Effective July 1, 2002, Vernon's Entitlement on the Adelanto-Victorville/Lugo line increases from 75 MW to 81 MW.~~

**APPENDIX A: CITY OF ANAHEIM  
TRANSMISSION ENTITLEMENTS**

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Termination</b>	<b>Contract Amount</b>
1	IPP-Adelanto Switching Station	Anaheim-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	424 MW (N-S) 247 MW (S-N)
2	Marketplace Substation-Adelanto	Anaheim-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	118 MW
	Marketplace Substation-McCullough	"	"	"		"	159 MW
3	Westwing-Mead 500 kV	Anaheim-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	70 MW
	Marketplace-Mead 500 kV	"	"	"		"	155 MW
	Mead 500 kV-Mead 230 kV	"	"	"		"	110 MW
	Marketplace Substation-McCullough	"	"	"		"	103 MW
4	Adelanto-Victorville/Lugo	Anaheim-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agreement		See Note 1	110 MW
5	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Base Capacity Transmission Service Agreement		See Note 2	238 MW
6	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Additional Capacity Transmission Service Agreement		See Note 3	185 MW
7	IPP-Mona Substation	Anaheim-LADWP	West-East	Northern Transmission System Agreement		See Note 4	235 MW
	Mona Substation-IPP	"	East-West	"		"	257 MW
	IPP-Gonder Substation	"	East-West	"		"	36 MW
	Gonder Substation-IPP	"	West-East	"		"	23 MW

**Notes**

1. Agreement terminates on: (i) removal of Mead-Adelanto Project from Service; or (ii) removal of Los Angeles-SCE interconnection at Victorville/Lugo.
2. Agreement terminates on: (i) June 15, 2027; or (ii) the date Anaheim interconnects at Adelanto Switching Station.
3. Agreement terminates on: (i) June 15, 2027; (ii) the date Anaheim interconnects at Adelanto Switching Station; or (iii) 5-year's notice by LADWP.
4. Agreement terminates on: (i) termination of LADWP's rights to the Northern Transmission System; or (ii) termination of the IPP Additional Capacity Transmission Service Agreement.

**APPENDIX A: CITY OF AZUSA  
CITY OF AZUSA'S TRANSMISSION ENTITLEMENTS**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
1. Mead-Adelanto Project (MAP)	SCPPA, MSR, Vernon	Bi-Directional	<ul style="list-style-type: none"> <li>- MAP Joint Ownership Agreement.</li> <li>- Adelanto Switching Station Interconnection Agreement.</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement.</li> </ul>		As agreed to by the owners and approved by the Project Coordinating Committee.	19 MW

**CITY OF AZUSA'S TRANSMISSION ENTITLEMENTS**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
2. Mead-Phoenix Project (MPP)          a) Westwing-Mead b) Mead Substation c) Mead-Marketplace	SCPPA, MSR, Vernon, SRP, APS	          Bi-Directional Bi-Directional Bi-Directional	<ul style="list-style-type: none"> <li>- MPP Joint Ownership Agreement</li> <li>- Westwing Substation Interconnection Agreement</li> <li>- Mead Interconnection Agreement</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement.</li> </ul>		As agreed to by the owners and approved by the Project Management Committee.	          4 MW 0 MW 4 MW
3. Mead - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Hoover FTS	372	(1) See Notes	4 MW
4. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Palo Verde Nuclear Generating Station FTS	373	(2) See Notes	4 MW
5. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Pasadena FTS	374	(3) See Notes	14 MW

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
6. Mead - Rio Hondo	Azusa, Edison	Bi-Directional	Edison-Azusa Sylmar FTS	375	(4) See Notes	8 MW
7. Victorville-Lugo - Adelanto	Azusa, Los Angeles	Bi-Directional	Los Angeles - Azusa Adelanto-Victorville/Lugo FTS	DWP No. 10345	(5) See Notes	19 MW

Summary- details are in each agreement.

**NOTES:**

- (1) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement or termination of Electric Service Contract, provided that the termination of FTS Agreement shall not occur prior to January 1, 2003.
- (2) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement, termination of Azusa's entitlement to PVNGS, or termination of the Arizona Nuclear Power Project Participation, provided that the termination of the FTS Agreement shall not occur prior to January 1, 2003.
- (3) Contract Termination: Upon written agreement between the Parties to terminate the FTS Agreement or termination of City's ownership in San Juan Unit 3, provided that termination of this Transmission Service Agreement shall not occur prior to January 1, 2003.
- (4) Contract Termination: Same as (3)
- (5) Contract Termination: This agreement shall be terminated upon the earlier of: (i) four years prior written notice by either Party, which notice shall not be given before one year after the Date of Firm Operation; (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the point of interconnection on the Victorville-Lugo transmission line is permanently removed from service; (iv) the in-service date of the Adelanto-Lugo transmission line, as such date is defined pursuant to the agreements relating thereto; (v) a date determined pursuant to Section 4.3 of the agreement; or (vi) a date mutually agreed upon by the Parties.



## APPENDIX A: CITY OF BANNING TRANSMISSION ENTITLEMENTS

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Termination</b>
1.	Marketplace Substation-Adelanto	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		Oct 31, 2030
2.	Westwing-Mead-Marketplace 500 kV	Banning-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030
3.	Marketplace-McCullough 500 kV	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030
4.	Adelanto-Victorville/Lugo	Banning-LADWP	To Victorville	Adelanto-Victorville/Lugo Firm Transmission Service Agreement		See Note 1
5.	Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement		See Note 2
6.	Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Sylmar Firm Transmission Service Agreement		See Note 3
7.	Mead 230 kV-Devers 115 kV	Banning-SCE	To Devers	Hoover Firm Transmission Service Agreement		See Note 4

### **Notes**

1. Agreement terminates on: (i) 4-years written notice by either party; or (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the point of interconnection on the Victorville/Lugo line is permanently removed from service; (iv) the in-service date of the Adelanto-Lugo transmission line, as such date is defined pursuant to the agreements relating thereto.
2. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest in Palo Verde Nuclear Generating Station Unit 2; or (iii) unacceptable FERC modification.
3. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest San Juan Unit 3; or (iii) unacceptable FERC modification.
4. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of the Electric Service Contract between Western and Banning; or (iii) unacceptable FERC modification.

## APPENDIX A: CITY OF RIVERSIDE TRANSMISSION ENTITLEMENTS

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Termination</b>
1.	IPP-Adelanto Switching Station	Riverside-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27
2.	Marketplace Substation-Adelanto	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30
3.	Westwing-Mead-Marketplace 500 kV	Riverside-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30
4.	Marketplace-McCullough 500 kV	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		31-Oct-30 31-Oct-30
5.	Adelanto-Victorville/Lugo	Riverside-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agmt		See Note 1
6.	Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Base Capacity Transmission Service Agreement		See Note 2
7.	Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Additional Capacity Transmission Service Agreement		See Note 3
8.	IPP-Mona Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4
9.	IPP-Gonder Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4
10.	Mead 230 kV-Vista	Riverside-SCE	To Vista	Hoover Firm Transmission Service Agreement		See Note 6
11.	Lugo/Victorville-Vista	Riverside-SCE	To Vista	Intermountain Power Project Firm Transmission Service Agreement		See Note 7
12.	Lugo/Victorville-Vista	Riverside-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agmt.		See Note 8

### Notes

1. Agreement terminates on: (i) removal of Mead-Adelanto Project from Service; or (ii) removal of Los Angeles-SCE interconnection at Victorville/Lugo.
2. Agreement terminates on: (i) June 15, 2027; or (ii) the date Riverside interconnects at Adelanto Switching Station.
3. Agreement terminates on: (i) June 15, 2027; (ii) the date Riverside interconnects at Adelanto Switching Station; or (iii) 5-year's notice by LADWP.
4. Agreement terminates on: (i) termination of LADWP's rights to the Northern Transmission System; or (ii) termination of the IPP Additional Capacity Agreement.
5. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Boulder Canyon Project (Hoover); or (iii) unacceptable FERC modification.
6. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Intermountain Power Project; or (iii) unacceptable FERC modification.
7. Agreement terminates on: (i) six months notice by Riverside; (ii) termination of Riverside's interest in the Palo Verde Nuclear Generating Station; or (iii) unacceptable FERC modification.

**Appendix A**  
**DATC Path 15, LLC**  
**Transmission Entitlements**

Path 15 Project Facilities

DATC Path 15, LLC is a participant in the Path 15 Upgrade Project, which will consist of a new, single, 83-mile, 500-kilovolt (kV) transmission line and associated substation facilities extending between the PG&E Los Banos Substation in the California Central Valley (the northern terminus of the Project) and the Gates Substation (the southern terminus of the Project), including modifications at the substations to connect the line as well as reconfigurations to the Gates – Midway 230-kV line and the 115 kV line north of Midway. Voltage support facilities will also be added at the Los Banos and Gates Substations as part of the Project. DATC Path 15, LLC will own Entitlements to certain capacity on the Path 15 Project Facilities.

DATC Path 15, LLC will provide the funding for the development of the Transmission Line and Land acquisition for the Path 15 Upgrade Project (Project), as well as funding for the ongoing operation and maintenance of the transmission line and will, as a result, be granted Entitlements to capacity on the Path 15 Upgrade Project.

Under the terms of the Letter Agreement (LA) approved by the Federal Energy Regulatory Commission and under the provisions of the Construction and Coordination Agreement (CCA) entered into by the Path 15 Upgrade Project participants, each participant will receive an allocation of Entitlement and the associated Transmission System Rights in the Project proportional to each party's contribution to the Project (save for a specified allocation to Western Area Power Administration – Sierra Nevada Region ("WAPA-SNR") that shall be no less than 10% of the Project). The initial allocation of Entitlements to DATC Path 15, LLC is as follows:

Allocation	72%
Capacity	1,080 MW (Based on an estimate of 1,500 MW)

The LA and CCA further provide that a final allocation of Entitlements will be determined based on the ratio of the contribution made by DATC Path 15, LLC to the Project relative to the contributions of other Project participants. Each Path 15 Upgrade Project participant will provide the Coordination Committee and the other Parties with a final accounting of the Project Costs within 180 days after the commencement of the commercial operations to determine the final allocation of Entitlements pursuant to the provisions of the LA and Section 15.4 of the CCA. DATC Path 15, LLC shall also provide a copy of the final accounting to the CAISO. The allocation of Entitlements set forth in this Appendix A is a preliminary estimate of the Entitlements to be granted to DATC Path 15, LLC and will be amended following a final accounting for the Project, if applicable.

**Appendix A**  
**Western Area Power Administration, Sierra Nevada Region**  
**Transmission Rights and Interests**

Path 15 Project Facilities

Western is a participant in the Path 15 Upgrade Project, which will consist of a new, single, 83-mile, 500-kilovolt (kV) transmission line and associated substation facilities extending between the PG&E Los Banos Substation in the California Central Valley (the northern terminus of the Project) and the Gates Substation (the southern terminus of the Project), including modifications at the substations to connect the line as well as reconfigurations to the Gates – Midway 230-kV line and the 115 kV line north of Midway. Voltage support facilities will also be added at the Los Banos and Gates Substations as part of the Project. Western will own the portion of the Path 15 Project Facilities consisting of the 500 kV transmission line between the Los Banos and Gates Substations.

Under the terms of the Letter Agreement (LA) approved by the Federal Energy Regulatory Commission and under the provisions of the Construction and Coordination Agreement (CCA) entered into by the Path 15 Upgrade Project participants, each participant will receive an allocation of “Transmission System Rights” in the Project. Western’s allocation of Transmission System Rights under the LA and CCA is as follows:

Allocation	10%
Capacity	150 MW (Based on an estimate of 1,500 MW)

Western is turning over to CAISO Operational Control all of its rights and interests in both its ownership of the Project facilities and its contract Transmission System Rights.

## APPENDIX A: CITY OF PASADENA TRANSMISSION ENTITLEMENTS

Ref	Point of Receipt-Delivery (see note 2)	Parties	Direction	Contract Title	FERC No.	Contract Termination	Contract Amount
B1.	IPP - Adelanto Switching Station	Pasadena-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	141 MW
B2.	Mead - Marketplace - Adelanto	Pasadena-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	75 MW
B3.a	Westwing – Mead 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	33 MW
B3.b	Mead 500 kV - Marketplace 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	60 MW
B3.c	Mead 500 kV - Mead 230 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	25 MW
B4.	Marketplace 500 - McCullough 500 kV	Pasadena-SCPPA	Bi-directional	Mead-Phoenix and Mead-Adelanto Project Transmission Service Contracts		31-Oct-30	135 MW
B5.	Adelanto - Victorville	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
B6.a	IPP - Mona Substation	Pasadena-LADWP - Utah Participants	Bi-directional	IPP Excess Power Sales Sales Agreement		15-Jun-27	104 MW [Note 3]
B6.b	IPP - Gonder Substation	Pasadena-LADWP - Utah Participants	Bi-directional	IPP Excess Power Sales Sales Agreement		15-Jun-27	16 MW [Note 3]
B8.a	Adelanto - Sylmar	Pasadena-LADWP	Bi-directional	IPP Transmission Service Agreement 14443		15-Jun-27	141 MW [Note 2]
B8.b	Adelanto - Sylmar	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW [Note 2]
B9.	Victorville – Sylmar	Pasadena-LADWP	Bi-directional	Victorville-Sylmar Transmission Service Agreement 14444		Note 1	26 MW [Note 1, Note 2]
B10.	Mead –McCullough	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
B11.	McCullough - Victorville	Pasadena-LADWP	Bi-directional	Hoover Transmission Service Agreement 14442		30-Sep 17	26 MW
C1.	Nevada Oregon Border - Sylmar	Pasadena-LADWP	Bi-directional	Pacific Intertie D-C Transmission Facilities Agreement		14-Apr-41	N-S 72 MW S-N 69 MW [Note 2]
C2.	McCullough – Victorville	Pasadena-LADWP	Bi-directional	McCullough Victorville Line 2 Transmission Agreement 10463		31-May-30	26 MW

### Notes

- 1 This contract is coterminous with the McCullough Victorville Line 2 Transmission Agreement.
- 2 Deliveries to Sylmar point of delivery are at the SCE/CAISO side of the 230kV bus.
- 3 The contract amount is subject to change by the terms of the contract.

**Appendix A**  
**Trans Bay Cable, LLC**  
**Transmission Facilities and Entitlements**

**Trans Bay Cable Project Facilities**

Trans Bay Cable LLC (TBC) will develop, finance and construct a high voltage, direct current transmission line of approximately fifty-five miles in length and associated facilities to establish a direct connection between Pacific Gas and Electric Company's (PG&E's) Pittsburg Substation located at a site adjacent to the City of Pittsburg, California in Contra Costa County to PG&E's Potrero Substation within the City of San Francisco (the Project). The transmission line will consist of an approximately 7,000-ton bundled cable consisting of a transmission cable, a fiber optic communications cable and a metallic return. The underwater portion of the transmission line will be laid by a ship or barge with special equipment in a single trench underneath San Francisco Bay. The remaining length of the transmission line (most likely a few hundred yards at either end of the line) will be buried underground, either through directional drilling or laid in a trench. In addition, the Project will involve the construction of two converter stations near each of the PG&E Substations to convert the alternating current received at the Pittsburg Substation to direct current and then back to alternating current at the Potrero Substation.

In accordance with the TCA and the TO Tariff, TBC will transfer the Project to CAISO Operational Control at the time the Project enters service.

**APPENDIX A: STARTRANS IO, L.L.C.**

**TRANSMISSION ENTITLEMENTS**

<b>POINT OF RECEIPT-DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT-TITLE</b>	<b>FER C</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Adelanto Project (MAP)	SCPPA, <del>MSRLADWP</del> , Startrans IO (Operating Agent-LA)	Bi-Directional	<ul style="list-style-type: none"> <li>- MAP Joint Ownership Agreement</li> <li>- Adelanto Switching Station Interconnection Agreement</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement</li> </ul>		As agreed to by the owners and approved by the Project Coordinating Committee.	81 MW
2. Mead-Phoenix Project (MPP)	SCPPA, <del>MSRLADWP</del> , Startrans IO, SRP, APR (Operating Managers – SRP, Western (DSW))		<ul style="list-style-type: none"> <li>- MPP Joint Ownership Agreement</li> <li>- Westwing Substation Interconnection Agreement.</li> <li>- Mead Interconnection Agreement</li> <li>- Marketplace-McCullough 500 kV Interconnection Agreement</li> </ul>		As agreed to by the owners and approved by the Project Management Committee.	
a) Westwing-Mead		Bi-Directional				28 MW
b) Mead Substation		Bi-Directional				47 MW
c) Mead-Marketplace		Bi-Directional				75 MW

**Appendix A**  
**Citizens Sunrise Transmission LLC**  
**Transmission Entitlement**

San Diego Gas & Electric Company (“SDG&E”) and Citizens Energy Corporation (“Citizens Energy”) have agreed in their Development and Coordination Agreement of May 9, 2009 (“DCA”), as amended December 21, 2011, that Citizens Energy would have an opportunity to obtain an interest in the Sunrise Powerlink Project (“Sunrise Powerlink”), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease 50% of the transfer capability of the 500 kV segment of the Sunrise Powerlink located in Imperial County, California for 30 years (the “Border-East Line”). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option on or before the scheduled date of commercial operation of the Sunrise Powerlink, (2) to pay SDG&E certain associated costs (one half of the actual cost of construction and development of the Border-East Line), and (3) to assume all operating costs related to its interest in the Border-East Line. Citizens Energy is further obligated to turn over operational control of its interest in the Border-East Line to the CAISO. Prior to exercising its option under the DCA, Citizens Energy will finalize its rights set forth in a Transfer Capability Lease as provided for in the DCA and will assign and transfer all of its rights and obligations thereunder, and all of the regulatory approvals it has obtained to date, to Citizens Sunrise Transmission LLC.



**Appendix A-2: Citizens Sunrise Transmission, LLC  
Entitlements**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount	
Imperial Valley Substation*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011	NA	2012	2042	NA	
Suncrest Substation/Sycamore Canyon Substations*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011	NA	2012	2042	NA	
* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation only to the San Diego County/Imperial County Border								

**APPENDIX A: CITY OF COLTON  
TRANSMISSION ENTITLEMENTS**

<b>REF #</b>	<b>POINT-OF-RECEIPT DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT TITLE</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1	Marketplace-Adelanto	Colton-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract	None	See note 1	23 MW
2	Westwing-Mead-Marketplace	Colton-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract	None	See note 2	4 MW
3	Marketplace-McCullough	Colton-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract	None	See note 3	33 MW
				Mead-Phoenix Project Transmission Service Contract			
4	Adelanto-Lugo/Victorville	Colton-LADWP	Bi-directional	Adelanto-Lugo/Victorville Firm Transmission Service Agreement	None	See Note 4	23 MW
5	Devers-Vista	Colton-SCE	To Vista	1995 San Juan Unit 3 Firm Transmission Service Agreement	365	See Note 5	14.043 MW
6	Mead-Vista	Colton-SCE	To Vista	Hoover Firm Transmission Service Agreement	361	See Note 6	3 MW
7	Lugo/Victorville-Vista	Colton-SCE	To Vista	Pasadena Firm Transmission Service Agreement	363	See Note 7	18 MW
8	Lugo/Victorville-Vista	Colton-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement	362	See Note 8	3 MW

**Notes:**

1. Agreement terminates on: (i) October 31, 2030; or (ii) such later date as all bonds used to finance the project have been paid or provisions for their payment have been made.
2. Agreement terminates on: (i) October 31, 2030; or (ii) such later date as all bonds used to finance the project have been paid or provisions for such payment has been made.
3. Agreement terminates concurrent with termination of the agreements referred to in notes 1 and 2 above.
4. Agreement terminates on: (i) four year notice by either party; (ii) the date of retirement of the Mead-Adelanto Project; (iii) the date the Lugo-Victorville point of interconnection is permanently removed from service; (iv) the in-service date of a new transmission line interconnecting LADWP's Adelanto Switching Station and SCE's Lugo Substation; or (v) upon 30 days notice if Colton elects to terminate the agreement following a change in the rate for transmission service charged by LADWP.
5. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in San Juan Generating Station Unit 3; or (iii) unacceptable FERC modification.
6. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Electric Service Contract providing for Colton's interest in the Boulder Canyon Project (Hoover); or (iii) unacceptable FERC modification.
7. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in San Juan Generating Station Unit 3; or (iii) unacceptable FERC modification.
8. Agreement terminates on: (i) one year notice by Colton; (ii) termination of Colton's interest in the Palo Verde Nuclear Generating Station; (iii) termination of the Arizona Nuclear Power Project Participation Agreement; or (iv) unacceptable FERC modification.

**Appendix A**  
**Valley Electric Association, Inc.**  
**Transmission Facilities and Entitlements**

Valley Electric Association, Inc. (“Valley Electric”) transferred operational control of its entitlements to the 230 kV and 138kV transmission facilities located in its service area to the CAISO, effective at 0100 hours on January 3, 2013. Valley Electric has agreed to sell its interest in the 230 kV transmission facilities to GridLiance West LLC (“GridLiance West”) and, upon transfer, the 230 kV transmission facilities shall become transmission facilities of GridLiance West that will remain under CAISO operational control.

Valley Electric has an entitlement to transfer capability at the Mead substation (“Mead Rights”) pursuant to an agreement between Valley Electric and the Western Area Power Administration – Desert Southwest Region (Western DSR). In connection with its sale of the 230 kV transmission facilities to GridLiance West, Valley Electric intends to assign its Entitlement to the Mead Rights to GridLiance West. Upon assignment, the Mead Rights shall become an Entitlement of GridLiance West and will remain under CAISO operational control.

In addition, Valley Electric has the exclusive entitlement and obligation to operate, use and maintain the 138 kV transmission facilities and future 138 kV transmission facilities located in its service area, which are owned by its wholly owned subsidiary, Valley Electric Transmission Association, LLC (“VETA”).

<b>POINT-OF-RECEIPT DELIVERY</b>	<b>PARTIES</b>	<b>DIRECTION</b>	<b>CONTRACT TITLE</b>	<b>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
VETA 138 kV Transmission Facilities	Valley Electric VETA	Exclusive Bi-Directional Use of all VETA Transmission Facilities	Use and Entitlement Agreement, dated September 11, 2012	N/A	Subject to Transmission Control Agreement	All capacity represented in the CAISO network model

**Appendix A  
GridLiance West LLC  
Transmission Facilities Entitlements**

The GridLiance West LLC transmission assets and associated facilities comprise: (1) 230 kV transmission facilities running from an interconnection point at Nevada Power Company’s Northwest Substation 4.35 miles to ~~Valley Electric~~GridLiance West’s Desert View Switch Station; (2) 38.43 miles of 230 kV transmission line running from Desert View Switch Station to ~~Valley Electric~~GridLiance’s Innovation Substation; (3) 36.66 miles of 230 kV transmission line running from ~~Valley Electric~~GridLiance West’s Pahrump Substation to ~~Valley Electric~~GridLiance West’s Innovation Substation; (4) 72 miles of 230 kV transmission line running from Pahrump Substation to GridLiance West’s Sloan Canyon Switch Station, ~~(45) 85.5~~13.6 miles of 230 kV transmission lines running from Western-DSR’s Mead Substation to GridLiance West’s~~Valley Electric’s Pahrump Substation~~ Sloan Canyon Switch Station; (6) 3 miles of 230 kV transmission line running from GridLiance West’s Sloan Canyon Switch Station to ~~Southern~~Southern California Edison’s Eldorado Substation and ~~and~~ (57) equipment related to the transmission lines listed above, which includes 230 kV equipment in the Pahrump Substation, Innovation Substation, Sloan Canyon Switch and Desert View Switch Station.

POINT-OF-RECEIPT DELIVERY	PARTIES	DIRECTION	CONTRACT TITLE	CONTRACT TERMINATION	CONTRACT AMOUNT
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Mead Substation	Western DSR	Bi Directional	Contract No. <u>18-DSR-1282494 PAQ 10569</u>	September 30, <u>20172048</u>	<u>Each Party shall be entitled to transfer capacity and energy between themselves and other third parties at Mead Substation up to the capability of the Mead Substation 230-kV interconnection facilities, as determined by WAPA286 MW (normal) 382 MW (emergency)</u>  <u>* Based on facility ratings in accordance with contract Section 13.3</u>
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**Appendix A**  
**Citizens Sycamore-Penasquitos Transmission LLC**  
**Transmission Entitlement**

San Diego Gas & Electric Company (“SDG&E”) and Citizens Energy Corporation (“Citizens Energy”) have agreed in their Development, Coordination, and Option Agreement of November 9, 2017 (“DCOA”), that Citizens Energy would have an opportunity to obtain an interest in the Sycamore to Penasquitos 230 kV Transmission Project (“Sycamore-Penasquitos Project”), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease approximately 12.92% of the transfer capability rights in an underground segment of the Sycamore-Penasquitos Project, located in San Diego County, California, for 30 years (“Underground Segment B”). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option no later than the Target Closing Date, as that term is defined within the DCOA, (2) to pay SDG&E \$27 million in the form of prepaid rent, and (3) to assume all operating costs related to its interest in the Underground Segment B. Citizens Energy is further obligated to turn over operational control of its interest in the Underground Segment B to the CAISO. While Citizens Energy executed the DOCA with SDG&E, Citizens Energy will assign and transfer all of its rights and obligations under the DOCA and all of the regulatory approvals it has obtained to its wholly owned subsidiary, Citizens Sycamore-Penasquitos Transmission LLC.

<b>Appendix A-2: Citizens Sycamore-Penasquitos Transmission, LLC</b>							
<b>Entitlements</b>							
Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Sycamore Canyon Substation*	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017	NA	2018	2048	NA
Peñasquitos Substation *	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017	NA	2018	2048	NA
* Citizens Sycamore-Penasquitos Transmission's interest are limited to the underground segment of the transmission line between the referenced substations.							

**Appendix A**  
**Horizon West Transmission, LLC**  
**Transmission Facilities**

**Horizon West Transmission Project Facilities**

Horizon West Transmission, LLC transmission lines and associated facilities will consist of a +300/-100 MVAR SVC substation including a one mile underground 230 kV transmission line interconnecting to SDG&E's Suncrest Substation 230 kV bus, located in San Diego County.

In accordance with the TCA and the TO Tariff, Horizon West Transmission, LLC. will transfer the transmission lines and associated facilities to CAISO Operational Control at the time the transmission lines and associated facilities enters service.



**Appendix A**  
**DesertLink, LLC**  
**Transmission Facilities**

**DesertLink Transmission Project Facilities**

The DesertLink project facilities consist of a 500 kV transmission line between the SCE majority-owned Eldorado 500 kV substation and NV Energy owned Harry Allen 500 kV substation and associated facilities including series compensation equipment located at the NV Energy owned Crystal substation, all located in Clark County, Nevada.

**TRANSMISSION CONTROL AGREEMENT**

**APPENDIX B**

**Encumbrances**

## **PG&E APPENDIX B**

### List of Encumbrances on Lines, Facilities, and Entitlements Being Placed Under CAISO Operational Control (per TCA Appendix A1 & A2)<sup>10</sup>

(Includes only those where PG&E is a service provider)

Abbreviations Used:	CDWR	= California Department of Water Resources
	SCE	= Southern California Edison Company
	SDG&E	= San Diego Gas & Electric Company
	TANC	= Transmission Agency of Northern California
	WAPA	= Western Area Power Administration

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<sup>10</sup> The treatment of current rights, including scheduling priorities, relating to the listed Encumbrances are set forth in the operating instructions submitted by the PTO in accordance with the CAISO Tariff and the TCA.

<b>Ref. #</b>	<b>Entities</b>	<b>Contract / Rate Schedule #</b>	<b>Nature of Contract</b>	<b>Termination</b>	<b>Comments</b>
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1.	CDWR	PG&E Rate Schedule FERC No. 245	Contract for Sale of Interest In and Operation of Midway-Wheeler Ridge Transmission System	Pursuant to agreement by the parties.	<ul style="list-style-type: none"> <li>• <u>The Midway-Wheeler Ridge 230 kV lines #1 and #2 have a combined rating of 608 MW under normal operating conditions. Of this amount CDWR owns 456 MW and PG&amp;E owns 152 MW. During emergency conditions with only one line available the remaining line is rated 367 MW. Of this amount CDWR owns 275.25 MW and PG&amp;E owns 91.75 MW.</u></li> <li>• <u>Either Party may transmit power over any unused portion of the other Party's interest in the available line capability.</u></li> <li>• <u>Section 5.4 Scheduled Outages: PG&amp;E, the operator of the Midway-Wheeler Ridge 230 kV lines, shall give CDWR reasonable advance notice, which shall not be less than 3 days, unless otherwise agreed by the Parties' dispatchers, of any proposed schedule outage and its estimated duration.</u></li> <li>• <u>Section 5.5 Jeopardy: If at any time continuity of service within PG&amp;E's service territory is being jeopardized by flows of electric power over the Midway-Wheeler Ridge 230 kV lines, as determined by PG&amp;E in its sole judgment, PG&amp;E may request that CDWR curtail flows of electric power over the transmission system for delivery to CDWR's Loads to the extent necessary to eliminate or avoid such jeopardy, and CDWR shall comply with such request; provided, however, that PG&amp;E may only request the curtailment of such flows after it has taken all reasonable efforts to eliminate or avoid such jeopardy by any or all of the following means, as appropriate to the situation, to the extent that such means reduce or eliminate the jeopardy:</u> <ul style="list-style-type: none"> <li><u>(vi) Discontinuing service to customers which are served under an interruptible transmission service schedule;</u></li> <li><u>(vii) Starting up, or increasing the loading of, any generating unit, including combustion turbine peaking units, which is available to PG&amp;E;</u></li> <li><u>(viii) Purchasing power from other utilities;</u></li> <li><u>(ix) Returning to service those generating units and transmission facilities which are out of service at the time of such jeopardy and which can reasonably be returned to service;</u></li> <li><u>(x) Obtaining emergency service under agreements with CDWR and other utilities which are in effect at that time; and provided further that until such jeopardy is eliminated or avoided, PG&amp;E shall in no event be entitled to the use of more than 152 MW of the Midway-Wheeler Ridge 230 kV lines without the consent of CDWR.</u></li> </ul> </li> </ul> <p><u>Section 5.3 Connection of PGandE's Loads or Facilities: PGandE may connect a new load or facility to the Transmission System; provided that PGandE shall not connect a new load or facility to the</u></p>
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Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
					<p><u>Transmission System if such connection would cause a hazard to life or property, or jeopardize the operational integrity, safety or reliability of the Transmission System. At least 180 days, or a shorter period if practicable in the Parties' judgment, prior to connecting a new load or facility to the Transmission System, PGandE shall provide DWR written notice of such proposed connection.</u></p> <p><u>Section 6.3.1 Either Party may propose to the other Party Betterments or Extraordinary Work to the Transmission System. Costs of such Betterments or Extraordinary Work shall be shared in proportion to the associated benefits to each Party. The Parties shall determine if any adjustment to their relative ownership interests in the Transmission System should be made as a result of any Betterment. Such determination of benefits and adjustments to ownership interests shall be agreed to prior to commencing work on the Betterments or Extraordinary Work.</u></p> <p><del>As set forth in the Agreement between the parties, including but not limited to, Section 5.1 of the Agreement, each party has limited right to transmit power over the unused capacity on the other party's share.</del></p>

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2.	NCPA, CSC, CDWR	Castle Rock- Lakeville CoTenancy Agreement – PG&E Rate Schedule FERC No. 139	Transmission facilities maintenance	Evergreen, or 1 year notice after 1/1/2015	
3.	Path 15 Operating Instructio ns		Implements curtailment priorities consistent with various Existing Transmission Contracts.	Upon request by PG&E, subject to FERC acceptance.	See Exhibit B-1 to this Appendix B to the TCA
4.	Puget Sound Power & Light	Capacity and Energy Exchange – PG&E Rate Schedule FERC No. 140	Power exchanges	Terminates on 5 years' advance notice.	

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
5.	Santa Clara (City of)	Mokelumne Settlement and Grizzly Development Agreement – PG&E Rate Schedule FERC No. 248	Transmission, power sales	1/1/2034	
6.	SCE, NorthWestern, NV Energy	WECC Unscheduled Flow Mitigation Plan – PG&E Rate Schedule FERC No. 221	Operation of control facilities to mitigate loop flows	Evergreen, or on notice	No transmission services provided, but classified as an entitlement since loop flow is reduced or an encumbrance if PG&E is asked to cut.
7.	TANC, WAPA, and PacifiCorp	Owners Coordinated Operations Agreement – PG&E Rate Schedule FERC No. 229	Transmission system coordination, curtailment sharing, rights allocation, scheduling.	1/1/2043, or on two years' notice, or earlier if other agreements terminate	Both entitlement and encumbrance



Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
8.	TANC and other COTP Participants	COTP Interconnection Rate Schedule – PG&E Rate Schedule FERC No. 144	Interconnection	Upon termination of COTP	
9.	TANC	Midway Transmission Service / South of Tesla Principles – PGE& Rate Schedule FERC No. 143	Transmission, curtailment priority mitigation,* replacement power	Same as the COTP Interim Participation Agreement, subject to exception	

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\* Includes use of PG&E's DC Intertie or PDCI for pre-specified mitigation of curtailments over Path 15.

Ref.#	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
10.	WAPA	New Melones – Contract No. 8-07-20-P0004 – PG&E Rate Schedule FERC No. 60	Transmission	6/1/2032	Per WAPA, commercial operation date for New Melones was 6/1/82
11.	PacifiCorp , CAISO	PG&E Rate Schedule FERC No. 239	Transmission Exchange Agreement	12/31/2027 or per Section 4.2	Through an exchange, (1) PG&E provides PacifiCorp 800 MW of transmission capacity north to south and 612 MW south to north on PG&E's portion of the 500-kV No. 2 Line between the Round Mountain substation and Indian Spring and (2) PacifiCorp provides PG&E 800 MW of transmission capacity north to south and 612 MW south to north on PacifiCorp's portion of the 500-kV No. 2 Line between Indian Spring and the Malin substation.

**Lien Mortgage**

The lien of the First and Refunding Mortgage dated December 1, 1920 between PG&E and BNY Western Trust Company, as trustee, as amended and supplemented and in effect of the date hereof (the "PG&E Mortgage"). The transfer of Operational Control to the CAISO pursuant to this Agreement shall in no event be deemed to be a lien or charge on the PG&E Property which would be prior to the lien of the PG&E Mortgage; however, no consent of the trustee under the PG&E Mortgage is require to consummate the transfer of Operational Control to the CAISO pursuant to this Agreement.

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**EXHIBIT B-1  
(TO PG&E APPENDIX B)**

**Path 15 Curtailment Instructions  
For Existing Encumbrances Across the Path 15 Interface**

**Purpose and Objective**

Path 15 Curtailment Instructions provide direction to the CAISO regarding the management of Congestion on Path 15 and are submitted to the CAISO, as part of the Transmission Rights and Transmission Curtailment (TRTC) Instructions, by PG&E as the Responsible PTO for the Existing Transmission Contract (ETC) rights on the path.

These instructions are to be administered and adhered to by the CAISO except when the CAISO determines that system reliability requires that other steps be taken. The CAISO is solely responsible for continued system reliability and must unilaterally take all steps necessary to preserve the system in times of emergency.

## TCA APPENDIX B: EDISON'S CONTRACT ENCUMBRANCES

### Notes:

The following is an additional encumbrance that does not fit into the format for existing contract encumbrances. The additional encumbrance is:

- The lien of the Trust Indenture dated as of October 1, 1923, between Edison and Harris Trust and Savings Bank and Pacific-Southwest Trust & Savings Bank (D. G. Donovan, successor trustee), as trustees ("the Edison Indenture"). The transfer of Operational Control to the CAISO pursuant to this Agreement (i) does not require any consent from the trustees under the Edison Indenture, (ii) shall not be deemed to create any lien or charge on the Edison Transmission Assets that would be prior to the lien of the Edison Indenture, and (iii) shall not otherwise impair the lien of the Edison Indenture.
- The treatment of current rights, including scheduling priorities, relating to the listed Encumbrances are set forth in the operating instructions submitted by the PTO in accordance with the CAISO Tariff and the TCA.

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
1.	<del>Devers-- Vista</del>	<del>Colton</del>	<del>To Vista</del>	<del>1995 San Juan Unit 3 Firm Transmission Service Agreement</del>	<del>365</del>	<del>Earlier of termination of Colton's interest in San Juan Unit 3 or Colton's 1-year notice given after 1/1/03.</del>	<del>14.043 MW</del>
2.	<del>Julian Hinds-- Vincent</del>	<del>MWD</del>	<del>Bi-dir.</del>	<del>District-Edison 1987 Service and Interchange Agreement</del>	<del>443</del>	<del>Coterminous with the term of District's Hoover Contract, provided that either Party shall have the right to terminate this Agreement upon not less than five years' notice of such termination given in writing to the</del>	<del>110 MW</del>

						other party-	
	<b>POINT OF RECEIPT- DELIVERY</b>	<b>PARTIES</b>	<b>DIR.</b>	<b>CONTRACT TITLE</b>	<b>FERC No.</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
						Terminated as of 12/31/2004.	
13	Eldorado / Mohave - Lugo	LADWP	Bi-dir.	Lugo-Victorville - Interconnection Agreement	51	<u>11/20/2019, or sooner by mutual agreement. Shall remain in effect for 40 years after its Effective Date or sooner by mutual agreement. Expected Termination is 11/20/2059</u>	Edison is required to provide capacity to LADWP equal to the product of LA's Capacity Share and the deemed capacity of the transmission system consisting of Lugo-Mohave-Eldorado, Mohave-, Eldorado-Lugo, - McCullough, McCullough-Victorville lines, and Victorville-500 kV transmission lines.
	<u>POINT OF RECEIPT- DELIVERY</u>	<u>PARTIES</u>	<u>DIR.</u>	<u>CONTRACT TITLE</u>	<u>FERC No.</u>	<u>CONTRACT TERMINATION</u>	<u>CONTRACT AMOUNT</u>
42	Moenkopi - Eldorado	USA, APS, SRP, NPC, LADWP, TGE	Bi-dir.	Edison - Navajo Transmission Agreement	264	This Agreement will remain in effect til 5/21/2023.	In the event of a contingency in the Navajo-McCullough or Eldorado-Moenkopi transmission lines, Edison and the Navajo participants provide each other emergency service transmission rights without a charge.

53	Eldorado-Mohave –	LADWP, and NV Energy	to Eldorado	Amended and Restated Eldorado System Co-Tenancy and Operating Agreement;	424.5 <del>425</del> 13.7	12/31/2046 unless extended pursuant to Section 25.8 of the Agreement.	Capacity Entitlement. For curtailments are: LADWP-716 MW; NV Energy 334 MW. <u>SCE 530 MW.</u>
	<del>POINT OF RECEIPT-DELIVERY</del>	<del>PARTIES</del>	<del>DIR.</del>	<del>CONTRACT TITLE</del>	<del>FERC No.</del>	<del>CONTRACT TERMINATION</del>	<del>CONTRACT AMOUNT</del>
46	Eldorado - Mead	<u>LADWP and LA DWP and NV Energy</u>	to Eldorado	Amended and Restated Eldorado System Co-Tenancy and Operating Agreement;	424.13.7, <del>425</del>	12/31/ <del>2012-2046</del> unless extended pursuant to <u>Section 25.8 of the Agreement</u> <del>by agreement of all parties.</del>	If Eldorado-Mead lines are curtailed, line capacity is allocated pro rata in proportion to the following Capacity Entitlements: NV Energy 301 MW; LADWP 215 MW; SCE 624 MW.
7	<del>Mead-Mohave</del>	<del>NPC</del>	<del>To Mohave</del>	<del>Amended and Restated Agreement for Additional NPC Connection to Mohave Project</del>	<del>426</del>	<del>Co-terminous with the Eldorado System Conveyance and Co-Tenancy Agreement.</del>	<del>Up to 222 MW of Back-up transmission service through the Eldorado system and Mohave 500-kV switchyard.</del>
8	<del>Mead-CAISO Grid Take-Out Point serving Banning</del>	<del>Banning</del>	<del>E-W</del>	<del>Hoover Firm Transmission Service Agreement</del>	<del>378</del>	<del>Earliest effective date of: written agreement of the Parties; Banning's 1-year notice given after 1/1/2002; or termination of the Electric Service Contract between Western (WAPA) and City.</del>	<del>2 MW</del>
9	<del>Mead-Rio</del>	<del>Azusa</del>	<del>Bi-dir</del>	<del>Sylmar Firm Transmission</del>	<del>375</del>	<del>Earliest effective date of: written agreement of the Parties; Azusa's 1-</del>	<del>8 MW</del>

	Hondo			Service Agreement		year notice given after 1/1/2002; or termination of Azusa's interest in San Juan Unit #3.	
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	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
<del>10</del>	<del>Mead - Rio Honda</del>	Azusa	E-W	Hoover Firm Transmission Service Agreement	372	Earliest effective date of: written agreement of the Parties; Azusa's 1-year notice given after 1/1/2002; or termination of the Electric Service Contract between Western (WAPA) and City.	4 MW
<del>11</del>	<del>Mead - Vista</del>	Colton	E-W	Hoover Firm Transmission Service Agreement	361	Earliest effective date of: written agreement of the Parties; Colton's 1-year notice given after 1/1/2002; or termination of the Electric Service Contract between Western (WAPA) and City.	3 MW
5.	<u>Eldorado 500.220 KV Transformers</u>	<u>LADWP and NV Energy</u>	<u>To Eldorado</u>	<u>Amended and Restated Eldorado System Co-Tenancy and Operating Agreement</u>	<u>424.13.7</u>	<u>12/31/2046 unless extended pursuant to Section 25.8 of the Agreement</u>	<u>Capacity Entitlement. For curtailments are: LADWP-159 MW, NV Energy 222 MW, SCE 669</u>
<del>12</del> 6.	<del>Mead - Riverside</del>	Riverside	E-W	Hoover Firm Transmission Service Agreement	390	Earliest effective date of: written agreement of the Parties; 180 days notice by Riverside; or termination of the Electric Service Contract between Western (WAPA) and City. <u>Expected Termination Date is 9/30/2067</u>	30 MW
<del>13</del> 7.	<del>Mead - Laguna Bell</del>	Vernon	Bi-dir	Mead Firm Transmission Service Agreement	207	Earlier of: effective date of written agreement to terminate; or termination of Vernon's allocation to capacity and energy from Hoover Power Plant without a successor allocation of capacity and energy; or the date which is eight (8) months following advance written notice by Vernon to Edison, or if Edison	26 MW



					agrees, on lesser notice.	
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	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
14	<del>Mead - Mountain Center</del>	AEP CO	E-W	<del>Firm Transmission Service Agreement</del>	131	<del>Earliest of: 7/1/2021; 10 years advance written notice by either Party*; by AEP CO upon eight (8) months advance written notice to Edison, or if Edison agrees, on lesser notice; or termination of the Load Control Agreement.  *(Such notice tendered by SCE on 7/10/2008, to terminate agreement on 7/10/2018)</del>	10 MW
15	Devers-Palo Verde -	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date on which Colorado River-Palo Verde 500 kV line is permanently removed from service, or (2) upon 12 months prior written notice by LADWP (which may be extended by Edison for an additional period not to exceed 24 months).	368 MW
16	Sylmar - Devers	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date when Colorado River-Palo Verde 500 kV line is permanently removed from service, or (2) upon 12 months' prior written notice by LADWP made within 12 months of full commercial operation of the Green Path North Project and prior to 1/1/2025.	368 MW

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
17	<del>Devers-Palo Verde</del> <del>Devers-Valley</del> <del>Valley-Serrano</del> <del>Serrano-SONGS</del>	<del>IID, APS, SDG&amp;E</del>	<del>Bi-Dir.</del>	<del>Mutual Assistance Transmission Agreement</del>	<del>174</del>	<del>4/12/2034 or sooner by mutual agreement of the parties. A party may withdraw from this agreement upon giving 5 years advance written notice to the other parties.</del>	<del>In the event of a contingency in the Devers-Palo Verde, Palo Verde-North Gila-Imperial Valley transmission lines, participants to share the available capacity based on predetermined operating procedures set out in an operating bulletin.</del>
18	Lugo-Victorville - Vista	Riverside	To Vista	Intermountain Power Project Firm Transmission Service Agreement	391	180 day notice by Riverside or IPP Participation termination	156 MW
19	Lugo-Victorville Rio Hondo	Azusa	To Rio Hondo	PVNGS Firm Transmission Service Agreement	373	Earliest of: Azusa's 1-year notice given after 1/1/02, termination of PVNGS entitlement, or termination of PVNGS participation.	4 MW
20	Lugo Victorville - CAISO Grid Take Out Point serving Banning	Banning	To Banning	PVNGS Firm Transmission Service Agreement	379	Earliest of: Banning's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	3 MW
21	Lugo Victorville - Vista	Colton	To Vista	PVNGS Firm Transmission Service Agreement	362	Earliest of: Colton's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	3 MW

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
<del>22</del> <u>14</u>	Lugo Victorville - Vista	Riverside	To Vista	PVNGS Firm Transmission Service Agreement	392	Earliest of: Riverside's 1-year notice given after 1/1/02, or termination of PVNGS entitlement, or termination of PVNGS participation.	12 MW
<del>23</del> <u>15</u>	Lugo Victorville - Laguna Bell	Vernon	Bi-directional	Lugo-Victorville- Firm Transmission Service	360	Earlier of: permanent removal of Mead-Adelanto Project from service; or upon eight (8) months advance written notice by Vernon to Edison, or if Edison agrees, on lesser notice.	11 MW
<del>24</del>	Lugo - Victorville- CAISO Grid Take-Out Point serving Banning	Banning	Bi-directional	Sylmar Firm Transmission Service Agreement	380	Earliest of Banning's 1-year notice given after 1/1/02, or termination of Banning's interest in San Juan #3.	5 MW
<del>25</del>	Lugo - Victorville- Rio Hondo	Azusa	to Rio Hondo	Pasadena FTS	374	Earliest of Azusa's 1-year notice given after 1/1/02, or termination of ownership in San Juan #3.	14 MW
<del>26</del>	Lugo - Victorville- Vista	Colton	to Vista	Pasadena FTS	363	Earliest of Colton's 1-year notice given after 1/1/02, or termination of ownership in San Juan #3.	18 MW
<del>27</del> <u>16</u>	Hoover - Mead	WAPA	Bi-directional	Lease of two SCE owned 220-kV Transmission Lines Between Hoover Power Plant and Mead Substation	304	9/30/2017 or upon 3-years' notice by WAPA; WAPA entitled to renew through life of Hoover.	Entire Transmission line capacity leased to WAPA.

## **SDG&E APPENDIX B**

### **SDG&E'S ENCUMBRANCES**

#### **I. Local Furnishing Transmission System Encumbrances**

The CAISO shall exercise Operational Control over SDG&E's Local Furnishing Transmission System consistent with the following Encumbrances in accordance with the Local Furnishing Bonds Operating Procedures that SDG&E has provided the CAISO:

- A. Section 9600(a)(6) of the California Public Utilities Code provides that Participating TOs shall not be compelled to violate restrictions applicable to facilities financed with tax-exempt bonds or contractual restrictions and covenants regarding use of transmission facilities existing as of December 20, 1995.

SDG&E's transmission facilities and other electric properties are financed in part with the proceeds of Local Furnishing Bonds. Prior to December 20, 1995, pursuant to provisions of the loan agreements, engineering certificates, and tax certificates and agreements associated with outstanding Local Furnishing Bonds issued for its benefit, SDG&E has covenanted not to take or permit any action that would jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued for its benefit. Accordingly, notwithstanding anything to the contrary contained in the Agreement, including SDG&E's agreement to be bound by the terms of the Restated and Amended CAISO Tariff and the Restated and Amended TO Tariff, SDG&E may not take (nor may SDG&E allow the CAISO to take) any action that would jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued or to be issued for its benefit, including (without limitation) the actions specified below.

- B. Absent an approving written opinion of nationally recognized bond counsel selected by SDG&E, taking into account the adjustments outlined in paragraph C below, SDG&E will not operate its facilities (or allow its facilities to be operated) so as to cause or permit a cumulative annual net outbound flow of electric energy during any calendar year from the points of interconnection between (i) SDG&E's wholly-owned electric distribution facilities or SDG&E's wholly-owned electric transmission facilities which are directly connected to SDG&E's wholly-owned electric distribution facilities (the "Local T/D System"), and (ii) other electric utility properties. As of December 15, 2016, these interconnection points include:

1. the point at the International Border where SDG&E's wholly-owned interest in 230kV TL 23040 (Otay Mesa – Tijuana I) connects with CFE's ownership interest in TL 23040;
  2. the set of points at the San Onofre Nuclear Generating Station ("SONGS") switchyard bus where SDG&E's wholly-owned transmission facilities interconnect with facilities owned (in whole or in part) by Southern California Edison Company ("SCE");
  3. the point where SDG&E's wholly-owned 500kV TL 50004 (Imperial Valley – East County) interconnects with the Imperial Valley Substation facilities owned in part by Imperial Irrigation District ("IID");
  4. the point where SDG&E's wholly-owned 500kV TL 50005 (Imperial Valley – Ocotillo) connects to the Imperial Valley Substation facilities owned in part by IID
  5. the point at the San Diego/Imperial County border where SDG&E's ownership interest in a 2.5 mile-long radial distribution line intersects with IID's ownership interest in that same distribution line;
  6. the points at the Riverside/Orange County border and the Riverside/San Diego County border where SDG&E's ownership interest in several isolated distribution lines interconnect with SCE's ownership interest in those same distribution lines; and,
  7. the point where SDG&E's wholly-owned Narrows Substation interconnects with transmission facilities owned in whole or in part by IID.
- C. For purposes of paragraph B, net flows of electric energy shall be calculated after taking into account the following adjustments:
1. Treating as a deemed outbound flow (or as a reduction in inbound flow) SDG&E's share as owner or lessee of electric energy generated at facilities which are not connected directly to the Local T/D System ("Owned/Leased Remote SDG&E Generating Units").

- i. As of December 15, 2016, Owned/Leased Remote SDG&E Generating Units consist of only SDG&E's 480 MW Desert Star Energy Center.
2. Excluding outbound flows (or reductions in inbound flows) attributable to or caused by wheeling of electric energy generated by independent power projects
  - i. which interconnect directly to the Local T/D System, and
  - ii. with bilateral contracts to sell the electric energy output at wholesale to electric utilities other than SDG&E.
3. Excluding outbound flows (or reductions in inbound flows) attributable to or caused by wholesale sales of excess electric energy from SDG&E's available generating units to the extent generation of that electric energy is required pursuant to federal or state regulations, rules, orders, decisions or mandatory protocols, but only if the total amount of electric energy supplied by SDG&E to its retail customers who receive both electric energy delivery service and electric energy supply service from SDG&E ("Native Load Customers") during the calendar year equals or exceeds
  - i. the total amount of SDG&E's share of electric energy generated during the calendar year by facilities which are either owned, leased, or controlled by or for the benefit of SDG&E, reduced by
  - ii. the sum of:
    - (a) assumed line losses, based on the most recent long-term demand forecast adopted by the California Energy Commission (as of December 16, 2010, 6.4% of electric energy delivered to SDG&E's retail customers);
    - (b) a pro rata share of electric energy actually produced by SDG&E's available generating units and allocable to CPUC-mandated reserves (15% as of July 1, 2011)];
    - (c) electric energy actually produced by SDG&E's available generating units pursuant to least-cost, best-fit orders of the CPUC and/or the CAISO; and

(d) electric energy actually produced by SDG&E's available generating units which exceeds the requirements of SDG&E's Native Load Customers due to SDG&E's inability to reduce generation from peak levels during off-peak periods.

- D. SDG&E will not operate its facilities (or allow its facilities to be operated) so as to curtail delivery of electric energy to its Native Load Customers involuntarily in order to provide electric energy to customers outside of its electric service territory in San Diego and Orange Counties, unless such curtailment is necessitated by the failure of facilities either partially or wholly owned by SDG&E.
- E. Upon SDG&E's receipt of a written request from the CAISO to take (or to refrain from taking) any action that SDG&E believes might jeopardize the tax-exempt status of interest on Local Furnishing Bonds issued for its benefit, SDG&E in good faith shall promptly seek to obtain an opinion (of the type generally regarded in the municipal bond market as unqualified) from a nationally recognized bond counsel selected by SDG&E that the requested action (or inaction) will not adversely affect such tax-exempt status. Examples of actions the CAISO might request SDG&E to take (or refrain from taking) might include
1. closing (or refraining from opening) switches to allow electric energy to flow out of the Local T/D System,
  2. closing (or refraining from opening) switches to allow electric energy from local generating units to flow into the Local T/D System,
  3. acquiring or constructing new electric utility facilities or improving existing electric utility facilities,
  4. generating electric energy or refraining from generating electric energy at resources which are directly or indirectly under SDG&E's control, or
  5. bringing transmission or generation facilities or resources into service (or withholding transmission or generation facilities or resources from service).

Until the opinion of bond counsel described above is obtained, SDG&E shall not be required to take (or to refrain from taking) the specified action, and the CAISO shall exercise its Operational



Control consistent with such limitation.

- F. If SDG&E has been unable to obtain the unqualified opinion of bond counsel described in paragraph E above, upon written request by an entity eligible to file an application under Section 211 of the Federal Power Act ("FPA") (or the CAISO acting as its agent) (collectively, the "Eligible Entity"), SDG&E in good faith shall promptly seek to obtain a ruling from the Internal Revenue Service that the requested action (or inaction) will not adversely affect the tax-exempt status of interest on Local Furnishing Bonds issued for the benefit of SDG&E. If such a ruling cannot be obtained, SDG&E will not object to an Eligible Entity seeking an order under Section 211 of the FPA with respect to the requested action (or inaction). Until such a ruling is obtained from the Federal Energy Regulatory Commission, and such ruling has become final and non-appealable, SDG&E shall not be required to take (or to refrain from taking) the specified action, and the CAISO shall exercise its Operational Control consistent with such limitation.

## **II. Mortgage Lien**

The CAISO shall acknowledge the mortgage lien set forth below:

- A. The lien of the Mortgage and Deed of Trust dated July 1, 1940 between San Diego Gas & Electric Company and The Bank of California, as trustee, as amended and supplemented and in effect on the date hereof (the "SDG&E Mortgage"). The transfer of Operational Control to the CAISO pursuant to this Agreement shall in no event be deemed to be a lien or charge on the property subject to the SDG&E Mortgage which would be prior to the lien of the SDG&E Mortgage; however, no consent of the trustee under the SDG&E Mortgage is required to consummate the transfer of Operational Control to the CAISO pursuant to this Agreement.

## **III. SDG&E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease**

- A. San Diego Gas & Electric Company ("SDG&E") and Citizens Energy Corporation ("Citizens Energy") have agreed in their Development and Coordination Agreement of May 9, 2009 ("DCA"), as amended December 21, 2011, that Citizens Energy would have an opportunity to obtain an interest in the Sunrise Powerlink Project ("Sunrise Powerlink"), currently being constructed and developed by SDG&E. Specifically, Citizens Energy has an option to lease 50% of the transfer capability of the 500 kV segment of the Sunrise Powerlink located in Imperial County, California for 30 years (the "Border-East Line"). To perfect its interest, Citizens Energy is obligated, among other things, (1) to exercise its option on or before the scheduled date of commercial operation of the Sunrise

Powerlink, (2) to pay SDG&E certain associated costs (one half of the actual cost of construction and development of the Border-East Line), and (3) to assume all operating costs related to its interest in the Border-East Line. Citizens Energy is further obligated to turn over operational control of its interest in the Border-East Line to the CAISO. Prior to exercising its option under the DCA, Citizens Energy will finalize its rights set forth in a Transfer Capability Lease (collectively, the "Lease") as provided for in the DCA and will assign and transfer all of its rights and obligations thereunder, and all of the regulatory approvals it has obtained to date, to Citizens Sunrise Transmission LLC.

***IV. SDG&E-Citizens Sycamore-Penasquitos  
Transmission LLC Development and Coordination  
Agreement/Transfer Capability Lease Capability  
Lease***

- A. SDG&E and Citizens Energy have agreed in their Development, Coordination, and Option Agreement on November 9, 2017, as amended on April 10, 2018, that Citizens Energy would have an opportunity to obtain an interest in the Sycamore-Penasquitos Project, currently being constructed and developed by SDG&E. Specifically, the DCOA provides Citizens Energy with an option to lease approximately 12.92 percent of the transfer capability in an underground segment of the Sycamore to Penasquitos 230 kV transmission project located in San Diego County for 30 years ("Underground Segment B"). To perfect its interest, Citizens Energy is obliged, among other things, (1) to exercise its option in accordance with the DCOA, (2) to pay SDG&E \$27 million in the form of prepaid rent, and (3) to assume all operating costs related to its interest in the Underground Segment B of the Sycamore-Penasquitos Project. Citizens Energy is further obligated to turn over operational control of its interest in Underground Segment B to the CAISO. While Citizens Energy executed the DCOA with SDG&E, Citizens Energy will assign and transfer all of its rights and obligations under the DCOA and all of the regulatory approvals it has obtained to date to Citizens Sycamore-Penasquitos Transmission LLC ("CSPT").

## APPENDIX B.2

### SDG&E's List of Contract Encumbrances<sup>1/2</sup>

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
79-017	IID-SDG&E Interconnection and Exchange Agreement	IID	065	June 24, 2051 (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by IID of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, IID and SDG&E to provide each other emergency capacity and energy without charge.
78-007	CFE-SDG&E Interconnection and Exchange Agreement	CFE		12 month notice (schedule pertaining to emergency capacity/energy services is expected to be terminated upon execution by CFE of the CAISO's Balancing Authority Area Agreement).	Should a contingency occur due to loss or interruption of generating or transmission capabilities on either party's electric system, CFE and SDG&E to provide each other emergency capacity and energy.
81-005	Palo Verde-North Gila Line ANPP High Voltage Switchyard Interconnection Agreement	APS, IID, PNM, SRP, El Paso, SCE, SCPPA	063	July 31, 2031	In the event that the capacity of the ANPP Switchyard is insufficient to accommodate all requests, the rights of the ANPP Switchyard Participants shall take precedence in all allocations.

<sup>1</sup> An additional encumbrance pertaining to Local Furnishing Bonds that does not fit into the format for existing contract encumbrances is set forth in Section I of this SDG&E App. B.

<sup>2</sup> An additional encumbrance pertaining to SDG&E's lien of Mortgage and Deed of Trust that does not fit into the format for existing contract encumbrances is set forth in Section II of this SDG&E App. B.

CONTRACT NUMBER	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
81-050	IID-SDG&E Transmission System Participation Agreement	IID		June 24, 2051	SDG&E and IID schedule power and energy over the California Transmission System for their respective accounts at the Yuma (North Gila) 500kV Switchyard for delivery to the 500 kV breaker yard of the Imperial Valley in the following percentages of operating capacity: SDG&E -- 85.64%; and IID -- 14.36%.
78-003	APS-SDG&E Transmission System Participation Agreement	APS		July 31, 2031	SDG&E, APS, and IID schedule power and energy over the Arizona Transmission System for their respective accounts at the Palo Verde Switchyard for delivery at the Yuma (North Gila) 500 kV Switchyard in the following percentages of operating capacity: APS -- 11%; SDG&E -- 76.22%; IID -- 12.78%.
QFD000.016	Power Sale Agreement between SDG&E-City of Escondido for the Rincon Indian Reservation	City of Escondido	76	Agreement to be terminated effective upon FERC acceptance of Notice of Termination.	Obligates SDG&E to sell and deliver electricity at stated prices to the City of Escondido for resale to the United States Indian Services at the Rincon Indian Reservation.

**Appendix B: Citizens Sunrise Transmission, LLC  
Encumbrances**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Imperial Valley Substation*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Transmission Control Agreement, SDG&E Appendix B, SDG&E's Encumbrances, Local Furnishing Transmission System Encumbrances	NA	2012	2042	NA
Suncrest Substation/ Sycamore Canyon Substations*	SDG&E and Citizens Sunrise Transmission, LLC	Bidirectional	Transmission Control Agreement, SDG&E Appendix B, SDG&E's Encumbrances, Local Furnishing Transmission System Encumbrances	NA	2012	2042	NA
* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation							
only to the San Diego County/Imperial County Border							

**Appendix B: Citizens Sycamore-Penasquitos Transmission, LLC  
Encumbrances**

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Start Date	Contract Termination	Contract Amount
Sycamore Canyon Substation*	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017, SDG&E Appendix B, SDG&E's Local Encumbrances, Local Furnishing	NA	2018	2048	NA
Peñasquitos Substation *	SDG&E and Citizens Sycamore-Penasquitos Transmission, LLC	Bidirectional	Development, Coordination, and Option Agreement of November 9, 2017, SDG&E Appendix B, SDG&E's Local Encumbrances, Local Furnishing	NA	2018	2048	NA
* Citizens Sycamore-Penasquitos Transmission's interest are limited to the underground segment of the transmission line between the referenced substations.							

# TRANSMISSION CONTROL AGREEMENT

## APPENDIX C

### CAISO TRANSMISSION MAINTENANCE STANDARDS

#### TABLE OF CONTENTS

1. DEFINITIONS
2. INTRODUCTION
- 2.1. OBJECTIVE
- 2.2. AVAILABILITY
- 2.3. MAINTENANCE DOCUMENTATION REQUIREMENTS
- 2.4. AVAILABILITY DATA STANDARDS
3. FACILITIES COVERED BY THESE CAISO TRANSMISSION MAINTENANCE STANDARDS
4. AVAILABILITY MEASURES
  - 4.1. CALCULATION OF AVAILABILITY MEASURES FOR INDIVIDUAL TRANSMISSION LINE CIRCUITS
    - 4.1.1. FREQUENCY AND DURATION
    - 4.1.2. CAPPING FORCED OUTAGE(IMS) DURATIONS
    - 4.1.3. EXCLUDED OUTAGES(IMS)
  - 4.2. AVAILABILITY MEASURE TARGETS
    - 4.2.1. CALCULATIONS OF ANNUAL AVAILABILITY MEASURES INDICES FOR INDIVIDUAL VOLTAGE CLASSES
    - 4.2.2. DEVELOPMENT OF LIMITS FOR CONTROL CHARTS
      - 4.2.2.1. CENTER CONTROL LINES (CLs)
      - 4.2.2.2. UCLs, LCLs, UWLs AND LWLs
    - 4.2.3. EVALUATION OF AVAILABILITY MEASURES PERFORMANCE  
TABLE 4.2.1 PERFORMANCE INDICATIONS PROVIDED BY CONTROL CHART TESTS
  - 4.3. AVAILABILITY REPORTING
5. MAINTENANCE PRACTICES
  - 5.1. INTRODUCTION
  - 5.2. PREPARATION OF MAINTENANCE PRACTICES
    - 5.2.1. TRANSMISSION LINE CIRCUIT MAINTENANCE
      - 5.2.1.1. OVERHEAD TRANSMISSION LINES
      - 5.2.1.2. UNDERGROUND TRANSMISSION LINES
    - 5.2.2. STATION MAINTENANCE
    - 5.2.3. DESCRIPTIONS OF MAINTENANCE PRACTICES
  - 5.3. REVIEW AND ADOPTION OF MAINTENANCE PRACTICES
    - 5.3.1. INITIAL ADOPTION OF MAINTENANCE PRACTICES
    - 5.3.2. AMENDMENTS TO THE MAINTENANCE PRACTICES
      - 5.3.2.1. AMENDMENTS PROPOSED BY THE CAISO
      - 5.3.2.2. AMENDMENTS PROPOSED BY A PTO
    - 5.3.3. DISPOSITION OF RECOMMENDATIONS
      - 5.3.3.1.
      - 5.3.3.2.
      - 5.3.3.3.
  - 5.4. QUALIFICATIONS OF PERSONNEL
6. MAINTENANCE RECORD KEEPING AND REPORTING
  - 6.1. PTO MAINTENANCE RECORD KEEPING
  - 6.2. PTO MAINTENANCE REPORTING
  - 6.3. CAISO VISIT TO PTO'S TRANSMISSION FACILITIES

- 7. CAISO AND TRANSMISSION MAINTENANCE COORDINATION COMMITTEE
- 8. REVISION OF CAISO TRANSMISSION MAINTENANCE STANDARDS AND MAINTENANCE PROCEDURES
  - 8.1. REVISIONS TO CAISO TRANSMISSION MAINTENANCE STANDARDS
  - 8.2. REVISIONS TO AND DEVIATIONS FROM MAINTENANCE PROCEDURES
- 9. INCENTIVES AND PENALTIES
  - 9.1 DEVELOPMENT OF A FORMAL PROGRAM
  - 9.2 ADOPTION OF A FORMAL PROGRAM .....
  - 9.3 IMPOSITION OF PENALTIES IN THE ABSENCE OF A FORMAL PROGRAM
  - 9.4 NO WAIVER .....
  - 9.5 LIMITATIONS ON APPLICABILITY TO NEW PTOS .....
- 10. COMPLIANCE WITH OTHER REGULATIONS/LAWS
  - 10.1 SAFETY
- 11. DISPUTE RESOLUTION



## 1. DEFINITIONS<sup>1</sup>

Availability - A measure of time a Transmission Line Circuit under CAISO Operational Control is capable of providing service, whether or not it actually is in service.

Availability Measures - Within each Voltage Class in a calendar year: 1) the average Forced Outage<sup>(IMS)</sup> frequency for all Transmission Line Circuits, 2) the average accumulated Forced Outage<sup>(IMS)</sup> duration for only those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>, and 3) the proportion of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup>.

Availability Measure Targets - The Availability performance goals jointly established by the CAISO and a PTO for that PTO's Transmission Facilities.

Forced Outage<sup>(IMS)</sup> – An event that occurs when a Transmission Facility is in an Outage<sup>(IMS)</sup> condition for which there is no Scheduled Outage<sup>(IMS)</sup> request in effect.

CAISO Transmission Maintenance Standards - The Maintenance standards set forth in this Appendix C.

Maintenance - Maintenance as used herein, unless otherwise noted, encompasses inspection, assessment, maintenance, repair and replacement activities performed with respect to Transmission Facilities.

Maintenance Practices - A confidential description of methods used by a PTO, and adopted by the CAISO, for the Maintenance of that PTO's Transmission Facilities.

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<sup>1</sup> A term followed by the superscript "(IMS)" denotes a term which has a special, unique definition in this Appendix C.

Maintenance Procedures – Documents developed by the Transmission Maintenance Coordination Committee for use by the CAISO and the PTOs to facilitate compliance with the CAISO Transmission Maintenance Standards. These documents shall serve as guidelines only.

Outage<sup>(IMS)</sup> - Any interruption of the flow of power in a Transmission Line Circuit between any terminals under CAISO Operational Control.

PTO - A Participating TO as defined in Appendix D of the Transmission Control Agreement.

Scheduled Outage<sup>(IMS)</sup> - The removal from service of Transmission Facilities in accordance with the requirements of Section 7.1 of the Transmission Control Agreement and the applicable provisions of the CAISO Tariff and CAISO Protocols.

Station – Type of Transmission Facility used for such purposes as line termination, voltage transformation, voltage conversion, stabilization, or switching.

Transmission Facilities - All equipment and components transferred by a PTO to the CAISO for Operational Control, pursuant to the Transmission Control Agreement, such as overhead and underground transmission lines, Stations, and associated facilities.

Transmission Line Circuit - The continuous set of transmission conductors, under the CAISO Operational Control, located primarily outside of a Station, and apparatus terminating at interrupting devices, which would be isolated from the transmission system following a fault on such equipment.



Transmission Maintenance Standards. The effectiveness of each PTO's Maintenance Practices will be gauged through the Availability performance monitoring system. Each PTO's adherence to its Maintenance Practices will be assessed through a CAISO review.

In developing these CAISO Transmission Maintenance Standards, both the CAISO Maintenance Standards Task Force and TMCC determined that it is impractical to develop and/or impose on the PTOs a single uniform set of prescriptive practices delineating conditions or time-based schedules for various Maintenance activities that account for the myriad of equipment, operating conditions, and environmental conditions within the CAISO Controlled Grid. For this reason, these CAISO Transmission Maintenance Standards provide requirements for the PTOs in preparing their respective Maintenance Practices.

## **2.1. OBJECTIVE**

This Appendix C provides for a high quality, safe, and reliable CAISO Controlled Grid by meeting the following objectives:

- Ensuring that the Availability performance levels inherent to the Transmission Facilities are maintained,
- Restoring Availability to the levels inherent to the Transmission Facilities when degradation has occurred,
- Economically extending the useful life of the Transmission Facilities while maintaining inherent levels of Availability, and
- Achieving the aforementioned objectives at a minimum reasonable total cost for Maintenance with the intent of minimizing customer impacts.

## 2.2. AVAILABILITY

CAISO Controlled Grid reliability is a function of a complex set of variables, including accessibility of alternative paths to serve Load, Generating Unit availability, Load forecasting and resource planning; speed, sophistication and coordination of protection systems; and the Availability of Transmission Line Circuits owned by the PTOs. Availability Measures have been chosen as the principal determinant of each PTO's Maintenance effectiveness.

When using Availability Measures as a general gauge of Maintenance effectiveness, several things must be considered to avoid misinterpreting performance. Availability is a function of several variables, including Transmission Facility Maintenance, initial design, extreme exposure, capital improvements, and improvements in restoration practices. These factors should be taken into account when assessing Availability Measures and Maintenance effectiveness. It is important to consider that Maintenance is one of many variables that impact changes in Availability. For example, certain Forced Outages<sup>(IMS)</sup> that impact Availability may be due to events that generally cannot be controlled by Maintenance.

If Availability Measures are either improving or declining, it is important to investigate the cause(s) and any trends that are causing change before drawing conclusions. If Maintenance is being performed by a PTO consistent with Good Utility Practice, increasing Maintenance activities by a significant order may not result in a corresponding increase in Availability and if Maintenance is not performed consistent with Good Utility Practice, Availability may decline. Thus, while Maintenance is important to ensure Availability, unless a PTO fails to perform Maintenance on a basis consistent with Good Utility Practice, significant increases in Maintenance activities will generally not lead to substantial improvements in Availability and associated CAISO Controlled Grid reliability.

A variety of techniques can be used to monitor Maintenance effectiveness. However, techniques that do not account for random variations in processes have severe limitations in that they may yield inconsistent and/or erroneous assessments of Maintenance effectiveness. To account for random/chance variations while enabling monitoring for shifts and trends, control charts have been widely accepted and utilized. Control charts are statistically based graphs which illustrate both an expected range of performance for a particular process based on historical data, and discrete measures of recent performance. The relative positions of these discrete measures of recent performance and their relationship to the expected range of performance are used to gauge Maintenance effectiveness.

To enhance the use of Availability Measures as a gauge of Maintenance effectiveness, it is necessary to exclude certain types of Outages<sup>(IMS)</sup>. These excluded Outages<sup>(IMS)</sup>, as set forth in more detail in Section 4.1.3 of this Appendix C, are:

- Scheduled Outages<sup>(IMS)</sup>;
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures;
- Forced Outages<sup>(IMS)</sup> caused by events originating outside the PTO’s system;  
or
- Forced Outages<sup>(IMS)</sup> demonstrated to have been caused by earthquakes.

Additionally, as described in Section 4.1.2 of this Appendix C, the Forced Outage<sup>(IMS)</sup> duration used to calculate the Availability control charts has been capped at 72 hours so that excessively long Forced Outages<sup>(IMS)</sup> do not skew the data as to detract from the meaningfulness and interpretation of the control charts for accumulated Forced Outage<sup>(IMS)</sup> duration. This is not to say that an excessively long Forced Outage<sup>(IMS)</sup> is not a concern. Rather, such Forced

Outages<sup>(IMS)</sup> should be investigated to assess the reasons for their extended duration.

Establishing Availability Measures requires each PTO to use separate control charts for each Voltage Class. Existing Forced Outage<sup>(IMS)</sup> data contains significant differences in the Availability between Voltage Classes and between PTOs. These differences may be attributable to factors such as the uniqueness of operating environments, Transmission Facility designs, and PTO operating policies. Regardless of the cause of these differences, review of the Forced Outage<sup>(IMS)</sup> data makes it eminently apparent that differences are such that no single set of control chart parameters for a particular Voltage Class could be applied to all PTOs.

Three types of control charts are utilized to provide a complete representation of historical Availability Measures, and to provide a benchmark against which future Availability Measures can be gauged. The three types of control charts for each PTO and Voltage Class are:

- The annual average Forced Outage<sup>(IMS)</sup> frequency for all Transmission Line Circuits;
- The annual average accumulated Forced Outage<sup>(IMS)</sup> duration for those Transmission Line Circuits which experience Forced Outages<sup>(IMS)</sup>; and
- The annual proportion of Transmission Line Circuits that experienced no Forced Outages<sup>(IMS)</sup>.

These three control charts assist the CAISO and PTOs in assessing the Maintenance effectiveness of each Voltage Class over time. To accommodate this process on a cumulative basis, data is made available to the CAISO by each PTO at the beginning of each new calendar year to assess past calendar years.

### **2.3. MAINTENANCE DOCUMENTATION REQUIREMENTS**

Two specific requirements regarding Maintenance documentation are incorporated into these CAISO Transmission Maintenance Standards. First, these standards require that each PTO develop and submit a description of its Maintenance Practices to the CAISO. Second, these standards require that each PTO retain Maintenance records as set forth in Section 6.1 of this Appendix C and make those records available to the CAISO as set forth in the Maintenance Procedures, in order to demonstrate compliance with each element of its Maintenance Practices.

### **2.4. AVAILABILITY DATA STANDARDS**

To facilitate processing Forced Outage<sup>(IMS)</sup> data for the Availability Measures, and to enable consistent and equitable interpretation of PTO Maintenance records by the CAISO, these standards address the need for data recording and reporting. The TMCC has also developed standardized formats for transmitting Forced Outage<sup>(IMS)</sup> data to the CAISO for the Availability Measures. These standard formats are provided in the Maintenance Procedures. To facilitate review of the data by the CAISO, the TMCC has developed a standard Availability Measures reporting system detailed in the Maintenance Procedures and in Section 4 of this Appendix C. This system will provide for consistent gathering of information that can be used as the basis for analyzing Availability Measures trends.

## **3. FACILITIES COVERED BY THESE CAISO TRANSMISSION MAINTENANCE STANDARDS**

The CAISO Transmission Maintenance Standards set forth in this Appendix C shall apply to all Transmission Facilities. Each PTO shall maintain its Transmission Facilities in accordance with its Maintenance Practices as adopted



by the CAISO in accordance with these CAISO Transmission Maintenance Standards.

#### **4. AVAILABILITY MEASURES**

##### **4.1. CALCULATION OF AVAILABILITY MEASURES FOR INDIVIDUAL TRANSMISSION LINE CIRCUITS**

###### **4.1.1 FREQUENCY AND DURATION**

The calculation of the Availability Measures will be performed utilizing Forced Outage<sup>(IMS)</sup> data through December 31st of each calendar year. Separate Forced Outage<sup>(IMS)</sup> frequency and accumulated Forced Outage<sup>(IMS)</sup> duration Availability Measures shall be calculated as follows for each Transmission Line Circuit under CAISO Operational Control within each Voltage Class. The calculations shall be performed annually for each of the Transmission Line Circuits utilizing all appropriate Forced Outage<sup>(IMS)</sup> data for the calendar year in question.

###### Forced Outage<sup>(IMS)</sup> Frequency:

The Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) of the  $i^{\text{th}}$  Transmission Line Circuit shall equal the total number of Forced Outages<sup>(IMS)</sup> that occurred on the  $i^{\text{th}}$  Transmission Line Circuit during the calendar year “k”. See Notes 1 and 2.

###### **NOTES:**

1. Multiple momentary Forced Outages<sup>(IMS)</sup> on the same Transmission Line Circuit in the span of a single minute shall be treated as a single Forced Outage<sup>(IMS)</sup> with a duration of one minute. When the operation of a Transmission Line Circuit is restored following a Forced Outage<sup>(IMS)</sup> and the Transmission Line Circuit remains operational for a period exceeding one minute, i.e., 61 seconds or more, followed by another Forced Outage<sup>(IMS)</sup>, then these should be counted as two Forced Outages<sup>(IMS)</sup>. Multiple Forced Outages<sup>(IMS)</sup> occurring as a result of a single event should be handled as multiple Forced Outages<sup>(IMS)</sup> only if subsequent operation of the Transmission Line Circuit between events exceeds one minute. Otherwise they shall be considered one continuous Forced Outage<sup>(IMS)</sup>.
2. If a Transmission Line Circuit, e.g., a new Transmission Line Circuit, is only in service for a portion of a calendar year, the Forced Outage<sup>(IMS)</sup> frequency and accumulated duration data shall be treated as if the Transmission Line Circuit had been in service for the entire calendar year, i.e., the Forced Outage<sup>(IMS)</sup> data for that Transmission Line Circuit shall be handled the same as those for any other Transmission Line Circuit.

Accumulated Forced Outage<sup>(IMS)</sup> Duration:

The accumulated Forced Outage<sup>(IMS)</sup> duration in minutes shall be calculated as follows for each of the Transmission Line Circuits having a Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) greater than zero for the calendar year “k”:

$$d_{ik} = \sum_{j=1}^{f_{ik}} o_{ijk}$$

where

$d_{ik}$  = accumulated duration of Forced Outages<sup>(IMS)</sup> (total number of Forced Outage<sup>(IMS)</sup> minutes) for the “i<sup>th</sup>” Transmission Line Circuit having a Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) greater than zero for the calendar year “k”.

$f_{ik}$  = Forced Outage<sup>(IMS)</sup> frequency as defined above for calendar year “k”.

$o_{ijk}$  = duration in minutes of the “j<sup>th</sup>” Forced Outage<sup>(IMS)</sup> which occurred during the “k<sup>th</sup>” calendar year for the “i<sup>th</sup>” Transmission Line Circuit. See Notes 1 and 2.

The durations of extended Forced Outages<sup>(IMS)</sup> shall be capped as described in Section 4.1.2 of this Appendix C for the purposes of calculating the Availability Measures. In addition, certain types of Outages<sup>(IMS)</sup> shall be excluded from the calculations of the Availability Measures as described in Section 4.1.3 of this Appendix C.

If a PTO makes changes to its Transmission Line Circuit identification, configuration, or Forced Outage<sup>(IMS)</sup> data reporting schemes, the PTO shall notify the CAISO at the time of the change. In its annual report to the CAISO, the PTO shall provide recommendations regarding if and how the Availability Measures and Availability Measure Targets should be modified to ensure that they (1) remain consistent with the modified Transmission Line Circuit identification or

Forced Outage<sup>(IMS)</sup> data reporting scheme, and (2) provide an appropriate gauge of Availability.

#### **4.1.2. CAPPING FORCED OUTAGE<sup>(IMS)</sup> DURATIONS**

The duration of each Forced Outage<sup>(IMS)</sup> which exceeds 72 hours (4320 minutes) shall be capped at 4320 minutes for the purpose of calculating the accumulated Forced Outage<sup>(IMS)</sup> duration.

#### **4.1.3. EXCLUDED OUTAGES <sup>(IMS)</sup>**

The following types of Outages<sup>(IMS)</sup> shall be excluded from the calculation of the Availability Measures and the Availability Measure Targets:

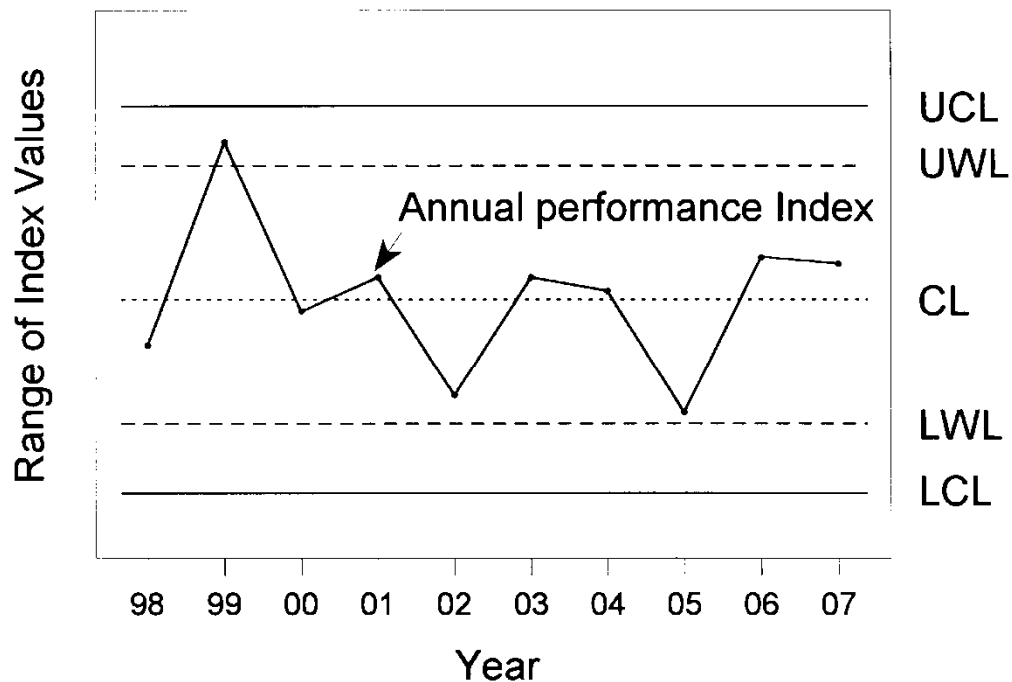
- Scheduled Outages<sup>(IMS)</sup>
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures.
- Forced Outages<sup>(IMS)</sup> which: (1) were caused by events outside the PTO’s system including Outages<sup>(IMS)</sup> which originate in other TO systems, other electric utility systems, or customer equipment, or (2) are Outages<sup>(IMS)</sup> which can be demonstrated to have been caused by earthquakes.

#### **4.2. AVAILABILITY MEASURE TARGETS**

The Availability Measure Targets described herein shall be phased in over a period of five calendar years beginning on the date a Transmission Owner becomes a PTO in accordance with the provisions of the Transmission Control Agreement. The adequacy of each PTO’s Availability Measures shall be monitored through the use of charts. These charts, called control charts as shown in Figure 4.2.1, are defined by a horizontal axis with a scale of calendar years and a vertical axis with a scale describing the expected range of

magnitudes of the index in question. Annual performance indices shall be plotted on these charts and a series of tests may then be performed to assess the stability of annual performance, shifts in performance and longer-term performance trends.

Control charts for each of the following indices shall be developed and utilized to monitor Availability Measures for each Voltage Class within each PTO's system:



**Figure 4.2.1 Sample Control Chart**

- Index 1: Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits.
- Index 2: Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>.

- Index 3: Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>.

The control charts incorporate a center control line (CL), upper and lower control limits (UCL and LCL, respectively), and upper and lower warning limits (UWL and LWL, respectively). The CL represents the average annual historical performance for a period prior to the current calendar year. The UCL and LCL define a range of expected performance extending above and below the CL. For the annual proportion of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup>, the limits are based on standard control chart techniques for binomial proportion data. For the other two indices, bootstrap resampling techniques are used to determine empirical UCL and LCL at 99.75% and 0.25% percentile values, respectively, for means from the historical data. The bootstrap procedure is described in Section 4.2.2 of this Appendix C. Similarly, the UWL and LWL define a range of performance intending to cover the percentiles from 2.5% to 97.5%. The bootstrap algorithm is also used to determine these values. Thus, the UCL and LCL will contain about 99.5% of resampling means from the Voltage Class of interest. UWL and LWL will contain about 95% of the resampling means. These limits coincide with the usual choices for control charts when the means are approximately normal. Bootstrap estimation procedures are used here since the sampling means do not follow the normal distribution model. The bootstrap estimation procedures ensure consistent control chart limits by using a starting base number (“seed”) for its random number generator. Accuracy or reduced variances in the control chart limits are attained by using the average control chart limits generated from applying ten repetitions or cycles of the bootstrap sampling method. Collectively, the CL, UCL, LCL, UWL and LWL provide reference values for use in evaluating performance as described in Section 4.2.3 of this Appendix C.

For the special case where there is a Voltage Class with only one Transmission Line Circuit, individual and moving range control charts should be

used for Index 1 and 2. The method used herein for calculating Index 3 is not applicable for those Voltage Classes containing less than six Transmission Line Circuits. The Maintenance Procedures will be used by the PTOs to calculate Index 1, 2, or 3 where the methods provided herein do not apply. More information on the individual and moving range control charts can be found in the user manuals of the statistical software recommended by the TMCC and approved by the CAISO Governing Board for use in creating the control charts.

#### **4.2.1. CALCULATIONS OF ANNUAL AVAILABILITY MEASURES INDICES FOR INDIVIDUAL VOLTAGE CLASSES**

Separate annual Availability Measures indices shall be calculated for each Voltage Class and each PTO as described below by utilizing the calculations discussed in Section 4.1 of this Appendix C.

Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits (Index 1):

$$F_{vc,k} = \frac{1}{N_k} \sum_{i=1}^{N_k} f_{ik}$$

where

$F_{vc,k}$  = frequency index for the Voltage Class, vc, (units = Forced Outages<sup>(IMS)</sup> / Transmission Line Circuit). The frequency index equals the average (mean) number of Forced Outages<sup>(IMS)</sup> for all Transmission Line Circuits within a Voltage Class for the calendar year “k”.

$N_k$  = number of Transmission Line Circuits in Voltage Class in calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$f_{ik}$  = frequency of Forced Outages<sup>(IMS)</sup> for the “i<sup>th</sup>” Transmission Line Circuit as calculated in accordance with Section 4.1.1 of this Appendix C for calendar year “k”.

Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> (Index 2):

$$D_{vc,k} = \frac{1}{N_{o,k}} \sum_{i=1}^{N_{o,k}} d_{ik}$$

where

$D_{vc,k}$  = duration index for the Voltage Class (units = minutes/Transmission Line Circuit). The duration index equals the average accumulated duration of Forced Outages<sup>(IMS)</sup> for all Transmission Line Circuits within a Voltage Class which experienced Forced Outages<sup>(IMS)</sup> during the calendar year “k”.

$N_{o,k}$  = number of Transmission Line Circuits in the Voltage Class for which the Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) as calculated in accordance with Section 4.1.1 of this Appendix C is greater than zero for the calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$d_{ik}$  = accumulated duration of Forced Outages<sup>(IMS)</sup> for the “i<sup>th</sup>” Transmission Line Circuit having a Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) greater than zero for calendar year “k” as calculated in accordance with Section 4.1.1 of this Appendix C.

Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup> (Index 3):

$$P_{vc,k} = \frac{N_k - N_{o,k}}{N_k}$$

where

$P_{vc,k}$  = index for the proportion of Transmission Line Circuits for the Voltage Class with no Forced Outages<sup>(IMS)</sup> for the calendar year “k”.

$N_k$  = number of Transmission Line Circuits in Voltage Class for calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

$N_{o,k}$  = number of Transmission Line Circuits in the Voltage Class for which the Forced Outage<sup>(IMS)</sup> frequency Availability Measure ( $f_{ik}$ ) as calculated in accordance with Section 4.1.1 of this Appendix C is greater than zero for the calendar year “k”. See Note 2, Section 4.1.1 of this Appendix C.

#### **4.2.2. DEVELOPMENT OF LIMITS FOR CONTROL CHARTS**

The CL, UCL, LCL, UWL and LWL for the three control charts (Annual Average Forced Outage<sup>(IMS)</sup> Frequency for All Transmission Line Circuits; Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>; and Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>) on which the annual Availability Measures indices are to be plotted shall be calculated as described below. The CL, UCL, LCL, UWL and LWL for each of the three control charts shall be determined using continuously recorded Forced Outage<sup>(IMS)</sup> data for the ten calendar year period immediately preceding the date a Transmission Owner becomes a PTO in accordance with the provisions of the Transmission Control Agreement.

In the event that a PTO does not have reliable, continuously recorded Forced Outage<sup>(IMS)</sup> data for this 10 calendar year period, that PTO may determine the control chart limits using data for a shorter period. However, if data for a shorter period are to be used, that PTO shall prepare a brief report to the CAISO providing reasonable justification for this modification. This report shall be submitted to the CAISO within 90 days after the date a TO becomes a PTO in accordance with the provisions of the Transmission Control Agreement.

The CAISO shall periodically review the control chart limits and recommend appropriate modifications to each PTO in accordance with this Appendix C.

##### **4.2.2.1. CENTER CONTROL LINES (CLs)**



The calculation of the CLs for each of the three control charts is similar to the calculation of the annual Availability Measures indices described in Section 4.2.1 of this Appendix C except that the time period is expanded from a single calendar year to ten calendar years, unless a shorter period is justified by a PTO, for the period preceding the date a TO becomes a PTO in accordance with the provisions of the Transmission Control Agreement. To account for this change, a count of Transmission Line Circuit years is included in the equations as shown below to enable derivation of CLs which represent average performance during a multi-year period.

CL for Annual Average Transmission Line Circuit Forced Outage<sup>(IMS)</sup>

Frequency

$$CL_{fvc} = \sum_{k=1}^Y \sum_{i=1}^{N_k} f_{ik} / \left( \sum_{k=1}^Y N_k \right)$$

where

$CL_{fvc}$  = center control line value for the Forced Outage<sup>(IMS)</sup>

frequencies for each of the Transmission Line Circuits in the Voltage Class for “Y” calendar years prior to the date a TO becomes a PTO.

Y = number of calendar years prior to the date a TO becomes a PTO for which the PTO has reliable, continuously recorded Forced Outage<sup>(IMS)</sup> data. Y=10 is preferred.

CL for Annual Average Accumulated Forced Outage<sup>(IMS)</sup> Duration for those Transmission Line Circuits with Forced Outages<sup>(IMS)</sup>

$$CL_{dvc} = \sum_{k=1}^Y \sum_{i=1}^{N_{o,k}} d_{ik} / \left( \sum_{k=1}^Y N_{o,k} \right)$$

where

$CL_{dvc}$  = center control line value for accumulated Forced Outage<sup>(IMS)</sup>

duration for each of the Transmission Line Circuits in the Voltage Class for “Y”

calendar years prior to the date a TO becomes a PTO in which the Forced Outage<sup>(IMS)</sup> frequency ( $f_{ik}$ ) was greater than zero.

CL for Annual Proportion of Transmission Line Circuits with No Forced Outages<sup>(IMS)</sup>

$$CL_{Pvc} = \frac{\sum_{k=1}^Y (N_k - N_{o,k})}{\sum_{k=1}^Y N_k}$$

where

$CL_{Pvc}$  = center control line value for the proportion of Transmission Line Circuits in the Voltage Class with no Forced Outages<sup>(IMS)</sup> for “Y” calendar years prior to the date a TO becomes a PTO.

**4.2.2.2. UCLs, LCLs, UWLs AND LWLs**

**UCLs, LCLs, UWLs and LWLs for Index 1 and 2 for Voltage Classes Containing Four or More Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> for Five or More Calendar Years**

The UCLs, UWLs, LWLs, and LCLs for the control charts for each Voltage Class containing four or more Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> shall be determined by bootstrap resampling methods as follows: The available historical data for Index 1 and 2 will each be entered into columns. A “seed” is then selected prior to beginning the sampling process. The CAISO assigns a number for the “seed” prior to each calendar year’s development of the control charts. The “seed” allows the user to start the sampling in the same place and get the same results provided the data order hasn’t changed. For Index 1, sampling with replacement will occur for the median number of Transmission Line Circuits per calendar year in a Voltage Class for the time period being evaluated. A sample, the size of which is the median number of all Transmission Line Circuits for the period being evaluated, is taken from the

column of actual frequency values for all Transmission Line Circuits. A mean is calculated from this sample and the resulting number will be stored in a separate column. This process will be repeated 10,000 times in order to create a column of sampling means from the historical database. The column of sampling means is then ordered from the smallest to largest means. From this column percentiles are determined for a UCL (99.75), a LCL (0.25), a UWL (97.5), and a LWL (2.5). Thus, for one cycle, the limits are determined by resampling from the historical database, calculating statistics of interest, in this case means, and then estimating appropriate limits from the resampling means. Ten cycles of this same process are necessary to get ten values each of UCLs, LCLs, UWLs, and LWLs. The average for the ten values of each limit is taken to provide the UCL, LCL, UWL, and LWL values used in analyzing annual performance. The procedure is repeated for Index 2, forming means for the median number of Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> in this Voltage Class for the time period being evaluated. See **Bootstrapping - A Nonparametric Approach to Statistical Inference** (1993) by Christopher Z. Mooney and Robert D. Duval, Sage Publications with ISBN 0-8039-5381-X, and **An Introduction to the Bootstrap** (1993) by Bradley Efron and Robert J. Tibshirani, Chapman and Hall Publishing with ISBN 0-412-04231-2 for further information.

Consider an example to illustrate how the bootstrap procedure works for one cycle of the ten required. Assume that a Voltage Class has approximately 20 Transmission Line Circuits per calendar year with a history of ten calendar years. Furthermore, assume that about 15 Transmission Line Circuits per calendar year experience Forced Outages<sup>(IMS)</sup>. Therefore, there are  $10 \times 15 = 150$  Forced Outage<sup>(IMS)</sup> durations available for bootstrap sampling. Place these 150 Forced Outage<sup>(IMS)</sup> durations in a column, say "outdur," in a specified order. The order is automatically provided in the bootstrap algorithm developed by the CAISO and made available to the PTO. The bootstrap algorithm will sample 15 rows from "outdur" with replacement. That is, any row may, by chance, be sampled more than once. From these 15 values determine

the sample mean and place this in another column, say "boot". Repeat this sampling process 10,000 times adding the new means to "boot". The column "boot" now has 10,000 means from samples of size 15 from the original Forced Outage<sup>(IMS)</sup> duration data for this Voltage Class. The next step is to locate the appropriate percentiles from these means for use in determining the control chart limits for one cycle. This is accomplished by ordering the column "boot" from smallest-to-largest mean and restoring these ordered means in "boot". The percentiles which are needed are 99.75% (UCL), 97.50% (UWL), 2.50% (LWL) and 0.25% (LCL). These are easily estimated from the sorted means by finding the associated rows in the column "boot". For example, LWL will be estimated as the average of the 250th and 251st rows in column "boot". Likewise the other limits will be determined. Of course, the CL is the actual mean average for 15 Transmission Line Circuits over the ten calendar years using the formulas in Section 4.2.2.1 of this Appendix C. This example is for one cycle. Nine more cycles of this process will establish the more accurate control and warning limits necessary to evaluate a PTO's annual performance.

### **UCLs, LCLs, UWLs and LWLs for Index 1 and 2 for All Other Voltage Classes**

When data for less than four Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> are available per calendar year in a Voltage Class for fewer than five calendar years, an exhaustive enumeration of all possible selections with replacement may need to be performed. This is because the number of possible samples for bootstrap resampling will be less than the aforementioned 10,000 resampling frequency used for Voltage Classes containing four or more Transmission Line Circuits with Forced Outages<sup>(IMS)</sup> for five or more calendar years. For example, if a Voltage Class has only two Transmission Line Circuits per calendar year for five calendar years, the data base will consist of  $2 \times 5 = 10$  accumulated Forced Outage<sup>(IMS)</sup> durations assuming both Transmission Line Circuits experience one Forced Outage<sup>(IMS)</sup> or more per calendar year. Resampling two values from the column of ten yields only  $10 \times 2 = 100$  possible

means. Thus, bootstrap resampling of 10,000 would over-sample the original data  $10,000/100 = 100$  times.

For the general case, let  $M$  = the number of accumulated Forced Outage<sup>(IMS)</sup> durations (or Forced Outage<sup>(IMS)</sup> frequencies) from the historical database. If  $n$  is the median number of Transmission Line Circuits per calendar year, there are  $M \cdot n = U$  possible enumerated means for this Voltage Class. The procedure to determine the appropriate limits for a Voltage Class is to order the column containing “U” enumerated means from smallest to largest means. Then, the UCL, LCL, UWL, and LWL are determined from this vector as described above (i.e., at the 99.75, 0.25, 97.5, and 2.5 percentiles, respectively).

### **UCLs, LCLs, UWLs and LWLs for Index 3 When Number of Transmission Line Circuits is > 125**

According to standard procedures for proportion control charts for Voltage Classes where the median number of Transmission Line Circuits in service is greater than 125 for any given calendar year, the upper and lower control chart limits (UCL, LCL, UWL, and LWL) for the “k<sup>th</sup>” calendar year are determined using the normal approximation to the binomial distribution. The formulas are:

$$UCL = CL_{PVC} + 3S_{PVC,k} \qquad LCL = CL_{PVC} - 3S_{PVC,k}$$

UWL and LWL are calculated by replacing the “3” above with “2”.

and

$$S_{PVC,k} = \sqrt{CL_{PVC} (1 - CL_{PVC}) / N_k}$$

where

$S_{PVC,k}$  = standard deviation for the annual proportion of Transmission Line Circuits in the Voltage Class with no Forced Outages<sup>(IMS)</sup> for each “k<sup>th</sup>” year

of the “Y” calendar years prior to the date a TO becomes a PTO. If LCL or LWL is less than zero, they should be set to zero by default.

**UCLs, LCLs, UWLs and LWLs for Index 3 when Number of Transmission Line Circuits is less than or equal to 125 and greater than or equal to six**

The UCLs, LCLs, UWLs, and LWLs for the control charts for each Voltage Class shall be based on exact binomial probabilities for those Voltage Classes having equal to or more than six, but less than or equal to 125 median Transmission Line Circuits per calendar year. A customized macro and a statistical software package approved by the CAISO creates the proportion control charts. The macro determines the control limits and use of the exact binomial or the normal approximation to the binomial for computing the control chart limits. This macro ensures the UCL and LCL contain about 99.5% and the UWL and LWL contain about 95% of the binomial distribution. The percentile values of the UCL, UWL, LWL, and LCL are respectively 99.75%, 97.5%, 2.5%, and 0.25%.

The UCL, UWL, LWL, and LCL are calculated using the following formulas:

$$\text{UCL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{UWL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{LWL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

$$\text{LCL} = (X_1 + (P_2 - P_1)/(P_3 - P_1)) / n$$

Where

$P_1$  = A cumulative binomial probability that if not equal to the  $P_2$  value is representing the percentile value that is less than and closest to the 99.75, 97.50, 2.5, and 0.25 percentile values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_1 = 0.99529$  and is closest to the 99.75 percentile value, from the low side,  $P_1 = 0.99529$  should be used in the UCL formula).

$P_2$  = A cumulative binomial probability equal to the 0.9975, 0.9750, 0.025, and 0.0025 values used respectively in the UCL, UWL, LWL, and LCL above formulas (e.g.,  $P_2 = 0.9975$  in the UCL formula and  $= 0.025$  in the LWL formula).

$P_3$  = A cumulative binomial probability that if not equal to the  $P_2$  value is representing the percentile value that is greater than and closest to the 99.75, 97.50, 2.5, and 0.25 percentile values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_3 = 0.99796$  and is closest to the 99.75 percentile value, from the high side, then  $P_3 = 0.99796$  should be used in the UCL formula).

$X_1$  = The number of Transmission Line Circuits with no Forced Outages<sup>(IMS)</sup> associated with the  $P_1$  cumulative binomial probability values used respectively in the UCL, UWL, LWL, and LCL formulas (e.g., if  $P_1 = 0.99529$  and represents the closest percentile from below the 99.75 percentile for the case where 19 Transmission Line Circuits had no Forced Outages<sup>(IMS)</sup>, then  $X_1 = 19$  should be used in the UCL formula).

$n$  = The median number of Transmission Line Circuits that are in service in a given calendar year. This number remains the same in each of the UCL, UWL, LWL, and LCL formulas.

#### **4.2.3. EVALUATION OF AVAILABILITY MEASURES PERFORMANCE**

The control charts shall be reviewed annually by the CAISO and PTOs in order to evaluate Availability Measures performance. The annual evaluation shall consist of an examination of each of the control charts to determine if one or more of the following four tests indicate a change in performance. The four tests have been selected to enable identification of exceptional performance in an individual calendar year, shifts in longer-term performance, and trends in longer-term performance.

##### **Tests**

- **Test 1:** The index value for the current calendar year falls outside the UCL or LCL.
- **Test 2:** At least  $v_1$  consecutive annual index values fall above the CL or  $v_2$  consecutive annual index values fall below the CL. The actual values of  $v_1$  and  $v_2$  will be output from the bootstrap resampling procedures. The choices

for v1 and v2 are designed to keep the probability of these events less than one percent.

**Table 1. Values of v1 and v2 for Percentiles of the CL in Specified Ranges**

Percentile	v1	v2
35 - 39	10	5
40	10	6
41 - 43	9	6
44 - 46	8	6
47 - 48	8	7
49 - 51	7	7
52 - 53	7	8
54 - 56	6	8
57 - 59	6	9
60	6	10
61 - 65	5	10

Thus, for example, if for a particular Voltage Class the percentile of the historical CL is 55%, this Table indicates that the CL is located at the 55 percentile of all bootstrap means in the “boot” column. From Table 1, v1=6, and v2=8.

- **Test 3:** At least two out of three consecutive annual index values fall outside the UWL or LWL on the same side of the CL.
- **Test 4:** Six or more values are consecutively increasing or consecutively decreasing.



Therefore, Test 1 is designed to detect a short-term change or jump in the average level. Tests 2 and 4 are looking for long-term changes. Test 2 will detect a shift up in averages or a shift to a lower level. Test 4 is designed to detect either a trend of continuous increase in the average values or continuous decrease. Test 3 is designed to assess changes in performance during an intermediate period of three calendar years. If Test 3 is satisfied, the evidence is of a decline (or increase) in Availability over a three calendar year period. Together the four tests allow the CAISO to monitor the Availability performance of a Voltage Class for a PTO.

If none of these tests indicate that a change has occurred, performance shall be considered to be stable and consistent with past performance. If one or more of these tests indicates a change then Availability performance shall be considered as having improved or degraded relative to the performance defined by the control chart. Table 4.2.1 provides a summary of the performance indications provided by the tests. The control chart limits may be updated annually if the last calendar year's Availability performance indices did not trigger any of the four tests. If none of the four tests are triggered, the new limits will be constructed including the last calendar year's data.

The control chart limits may be modified each year to reflect the number of Transmission Line Circuits in service during that calendar year if necessary. However, it is suggested that unless the number of Transmission Line Circuits changes by more than 30% from the previous calendar year, the use of the median number of Transmission Line Circuits should continue. Consider an example; suppose after the control chart has been prepared for a Voltage Class, next calendar year's data arrives with the number of Transmission Line Circuits 30% higher than the median used in the past. New limits will be generated in order to assess the Availability performance for that calendar year.

For the special case where only one Transmission Line Circuit has a Forced Outage<sup>(IMS)</sup> in a Voltage Class during a calendar year, the assessment process for Index 2 is as follows; if Index 2 for this Transmission Line Circuit does not trigger any of the four tests, no further action is necessary. If, however, one or more of the tests are triggered, then limits for this Transmission Line Circuit for that calendar year should be recalculated based on the historical data for this Transmission Line Circuit alone using an individual and moving range control chart. The only test warranted here is Test 1. More information on the individual and moving range control charts can be found in the user manuals of the statistical software used in creating the control charts

**Table 4.2.1 Performance Indications Provided by Control Chart Tests**

Control Chart Type	Test		Performance Status Indicated by Test Results	
	Number	Results	Improvement	Degradation
Annual Average Forced Outage <sup>(IMS)</sup> Frequency	1	value is above the UCL		X
		value is below the LCL when LCL>0	X	
	2	v1 or more consecutive values above the CL		X
		v2 or more consecutive values below the CL	X	
	3	2 out of 3 values above the UWL		X
		2 out of 3 values below the LWL	X	
	4	6 consecutive values increasing		X
		6 consecutive values decreasing	X	
Annual Average Accumulated Forced Outage <sup>(IMS)</sup> Duration	1	value is above the UCL		X
		value is below the LCL when LCL>0	X	
	2	v1 or more consecutive values above the CL		X
		v2 or more consecutive values below the CL	X	
	3	2 out of 3 values above the UWL		X
		2 out of 3 values below the LWL	X	
	4	6 consecutive values increasing		X
		6 consecutive values decreasing	X	
Annual Proportion of Transmission Line Circuits with No Forced Outages <sup>(IMS)</sup>	1	value is above the UCL	X	
		value is below the LCL when LCL>0		X
	2	v1 or more consecutive values above the CL	X	
		v2 or more consecutive values below the CL		X
	3	2 out of 3 values above the UWL	X	
		2 out of 3 values below the LWL		X
	4	6 consecutively increasing values	X	
		6 consecutively decreasing values		X

### **4.3. AVAILABILITY REPORTING**

Each PTO shall submit an annual report to the CAISO within 90 days after the end of each calendar year describing its Availability Measures performance. This annual report shall be based on Forced Outage<sup>(IMS)</sup> records. All Forced Outage<sup>(IMS)</sup> records shall be submitted by each PTO to the CAISO and shall include the date, start time, end time, affected Transmission Facility, and the probable cause(s) if known.

## **5. MAINTENANCE PRACTICES**

### **5.1. INTRODUCTION**

These CAISO Transmission Maintenance Standards, as they may be periodically revised in accordance with the provisions of the Transmission Control Agreement and this Appendix C, and as they may be clarified by the Maintenance Procedures, shall be followed by each PTO in preparing, submitting, and amending its Maintenance Practices. The Maintenance Practices will provide for consideration of the criteria referenced in Section 14.1 of the TCA, including facility importance.

### **5.2. PREPARATION OF MAINTENANCE PRACTICES**

#### **5.2.1. TRANSMISSION LINE CIRCUIT MAINTENANCE**

As may be appropriate for the specific Transmission Line Circuits under the CAISO's Operational Control, each PTO's Maintenance Practices shall describe the Maintenance activities for the various attributes listed below:

##### **5.2.1.1. OVERHEAD TRANSMISSION LINES**

- Patrols and inspections, scheduled and unscheduled
- Conductor and shield wire
- Disconnects/pole-top switches
- Structure grounds
- Guys/anchors
- Insulators

- Rights-of-way
- Structures/Foundations
- Vegetation Management

#### **5.2.1.2. UNDERGROUND TRANSMISSION LINES**

- Patrols and inspections, scheduled and unscheduled
- Cable/Cable systems
- Cathodic Protection
- Fluid pumping facilities
- Terminations
- Arrestors
- Rights-of-way
- Splices
- Structures/vaults/manholes
- Vegetation Management

#### **5.2.2. STATION MAINTENANCE**

As may be appropriate for the specific Stations under the CAISO's Operational Control, each PTO's Maintenance Practices shall describe Maintenance activities for the various attributes listed below:

- Inspections, scheduled and unscheduled
- Battery systems
- Circuit breakers
- Direct Current transmission components
- Disconnect switches
- Perimeter fences and gates
- Station grounds
- Insulators/bushings/arrestors
- Reactive power components
- Protective relay systems
- Station Service equipment
- Structures/Foundations
- Transformers/regulators
- Vegetation Management

### **5.2.3. DESCRIPTIONS OF MAINTENANCE PRACTICES**

Each PTO's Maintenance Practices shall include a schedule for any time-based Maintenance activities and a description of conditions that will initiate any performance-based activities. The Maintenance Practices shall describe the Maintenance methods for each substantial type of component and shall provide any checklists/report forms, which may be required for the activity. Where appropriate, the Maintenance Practices shall provide criteria to be used to assess the condition of a Transmission Facility. Where appropriate, the Maintenance Practices shall specify condition assessment criteria and the requisite response to each condition as may be appropriate for each specific type of component or feature of the Transmission Facility.

### **5.3. REVIEW AND ADOPTION OF MAINTENANCE PRACTICES**

#### **5.3.1. INITIAL ADOPTION OF MAINTENANCE PRACTICES**

In conjunction with its application to become a PTO, each prospective PTO shall provide to the CAISO its proposed Maintenance Practices which comply with the requirements set forth in this Appendix C and Section 14.1 of the Transmission Control Agreement. This information shall provide sufficient detail for the CAISO to assess the proposed Maintenance Practices.

The CAISO shall review the proposed Maintenance Practices and may provide recommendations for an amendment. To the extent there is any disagreement between the CAISO and the prospective PTO regarding the prospective PTO's proposed Maintenance Practices, such disagreement shall be resolved by the CAISO and prospective PTO so that the CAISO and the prospective PTO will have adopted Maintenance Practices, consistent with the requirements of this Appendix C and the Transmission Control Agreement, for the prospective PTO at the time that the CAISO assumes Operational Control of the prospective PTO's Transmission Facilities. To the extent there are no recommendations, the proposed Maintenance Practices will be

adopted by the CAISO and the prospective PTO as the Maintenance Practices for that prospective PTO.

## **5.3.2. AMENDMENTS TO THE MAINTENANCE PRACTICES**

### **5.3.2.1. AMENDMENTS PROPOSED BY THE CAISO**

Each PTO shall have in place Maintenance Practices that have been adopted by the CAISO as set forth in this Appendix C. The CAISO shall periodically review each PTO's Maintenance Practices having regard to these CAISO Transmission Maintenance Standards and Maintenance Procedures. Following such a review, the CAISO may recommend an amendment to any PTO's Maintenance Practices by means of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement. The PTO may draft amended language in response to the CAISO's recommendation. If the PTO exercises its option to draft amended language to the CAISO's proposed amendment, the PTO shall so notify the CAISO within 30 days after the receipt of notice from the CAISO. The PTO will provide the CAISO with its proposed amendment language in a time frame mutually agreed upon between the PTO and the CAISO. If, after the CAISO receives the proposed amendment language from the PTO, the CAISO and the PTO are unable to agree on the language implementing the CAISO recommendation, then the provisions of Section 5.3.3.2 of this Appendix C shall apply.

### **5.3.2.2. AMENDMENTS PROPOSED BY A PTO**

Each PTO may provide to the CAISO its own recommendation for an amendment to its own Maintenance Practices, by means of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement.

## **5.3.3. DISPOSITION OF RECOMMENDATIONS**

**5.3.3.1.** If the CAISO makes a recommendation to amend the Maintenance Practices of a PTO, as contemplated in Section 5.3.2.1 of this Appendix C, that PTO shall have 30 Business Days to provide a notice to the CAISO, pursuant to

Section 26.1 of the Transmission Control Agreement, stating that it does not agree with the recommended amendment or that it intends to draft the language implementing the amendment, as set forth in Section 5.3.2.1 of this Appendix C. If the PTO does not provide such a notice, the amendment recommended by the CAISO shall be deemed adopted.

If a PTO makes a recommendation to amend its own Maintenance Practices, as contemplated in Section 5.3.2.2 of this Appendix C, the CAISO shall have 30 Business Days to provide a notice to that PTO, pursuant to Section 26.1 of the Transmission Control Agreement, that it does not concur with the recommended amendment. If the CAISO does not provide such a notice, then the recommended amendment shall be deemed adopted. Notwithstanding the foregoing, if an amendment proposed by a PTO to its own Maintenance Practices meets the objectives of Section 2.1 of this Appendix C and is submitted in accordance with the requirements in Section 5.2 of this Appendix C, the CAISO shall adopt said amendment.

If any amendment to a PTO's Maintenance Practices is adopted, the PTO will specify the transition time to implement the adopted amendment so as to ensure the CAISO and PTO are clear as to the implementation time frame where Maintenance may be performed under both sets of practices.

**5.3.3.2.** If the CAISO or a PTO makes a recommendation to amend Maintenance Practices and if the CAISO or PTO provides notice within the 30 Business Days specified in Section 5.3.3.1 of this Appendix C that the CAISO or PTO does not agree with the recommended amendment, the PTO and the CAISO shall make good faith efforts to reach a resolution relating to the recommended amendment. If, after such efforts, the PTO and the CAISO cannot reach a resolution, the pre-existing Maintenance Practices shall remain in effect. Either Party may, however, seek further redress through appropriate processes, including non-binding discussions at the TMCC and/or the dispute resolution mechanism specified in Section 15 of the Transmission Control Agreement. The PTO may also request, during the initial attempts at resolution



and at any stage of the redress processes, a deferral of the CAISO recommended amendment and the CAISO shall not unreasonably withhold its consent to such a request. Following the conclusion of any and all redress processes, the PTO's Maintenance Practices, as modified, if at all, by these processes, shall be deemed adopted by the CAISO, as the Maintenance Practices for that PTO, pursuant to the implementation time frame agreed to between the PTO and the CAISO.

**5.3.3.3.** If the CAISO determines, that prompt action is required to avoid a substantial risk to reliability of the CAISO Controlled Grid, it may direct a PTO to implement certain temporary Maintenance activities in a period of less than 30 Business Days, by issuing an advisory to the PTO to that effect, by way of a notice delivered in accordance with Section 26.1 of the Transmission Control Agreement. Any advisory issued pursuant to this Section 5.3.3.3 shall specify why implementation solely under Sections 5.3.3.1 and 5.3.3.2 of this Appendix C is not sufficient to avoid a substantial risk to reliability of the CAISO Controlled Grid, including, where a substantial risk is not imminent or clearly imminent, why prompt action is nevertheless required. The CAISO shall consult with the relevant PTO before issuing a Maintenance advisory. Upon receiving such an advisory, a PTO shall implement the temporary Maintenance activities in question, as of the date specified by the CAISO in its advisory, unless the PTO provides a notice to the CAISO, in accordance with Section 26.1 of the Transmission Control Agreement, that the PTO is unable to implement the temporary Maintenance activities as specified. Even if the PTO provides such a notice, the PTO shall use its best efforts to implement the temporary Maintenance activities as fully as possible. All Maintenance advisories shall cease to have effect 90 Business Days after issuance by the CAISO or on such earlier date as the CAISO provides in its notice. Any Maintenance advisories required to remain in effect beyond 90 Business Days shall require a recommendation process pursuant to Section 5.3.3.1 or Section 5.3.3.2 of this Appendix C.

#### **5.4. QUALIFICATIONS OF PERSONNEL**

All Maintenance of Transmission Facilities shall be performed by persons who, by reason of training, experience and instruction, are qualified to perform the task.

### **6. MAINTENANCE RECORD KEEPING AND REPORTING**

A PTO shall maintain and provide to the CAISO records of its Maintenance activities in accordance with this Section 6 of this Appendix C.

#### **6.1. PTO MAINTENANCE RECORD KEEPING**

The minimum record retention period for Transmission Facilities subject to time based scheduled intervals shall be the designated Maintenance cycle plus two years. The minimum record retention period for all other Transmission Facility Maintenance activities identified through inspection, assessment, diagnostic or another process shall be a minimum of 2 years after the date completed.

A PTO's Maintenance records shall, at a minimum, include the: 1) responsible person; 2) Maintenance date; 3) Transmission Facility; 4) findings (if any); 5) priority rating (if any); and 6) description of Maintenance activity performed.

#### **6.2. PTO MAINTENANCE REPORTING**

Each PTO will submit a Standardized Maintenance Report as outlined in the Maintenance Procedures. The CAISO will accept, at the PTO's option, a Standardized Maintenance Report in either electronic or paper form.

If a PTO retains records in a manner that includes additional information, such records may be submitted in that manner.

Each PTO shall provide to the CAISO Maintenance records as described in Section 6.1 and as set forth in the Maintenance Procedures.

### **6.3. CAISO VISIT TO PTO'S TRANSMISSION FACILITIES**

The CAISO may visit Transmission Facilities in accordance with Section 18.3 of the Transmission Control Agreement to determine if the Maintenance Practices are being followed by a PTO.

## **7. CAISO AND TRANSMISSION MAINTENANCE COORDINATION COMMITTEE**

The CAISO shall establish and convene a Transmission Maintenance Coordination Committee (TMCC). The TMCC shall develop and, if necessary, revise the Maintenance Procedures, including conveying information to and seeking input from PTOs and other interested stakeholders regarding these Maintenance Procedures and any proposed amendments or revision thereto. The TMCC will also make recommendations on the CAISO Transmission Maintenance Standards and any proposed revisions or amendments thereto. The TMCC will convey information to and seek input from the PTOs and other interested stakeholders on these CAISO Transmission Maintenance Standards and any proposed revisions or amendments thereto. The TMCC will also perform any other functions assigned in this Appendix C.

Although the role of the Transmission Maintenance Coordination Committee is advisory in nature, the CAISO will strive to achieve a consensus among committee members.

## **8. REVISION OF CAISO TRANSMISSION MAINTENANCE STANDARDS AND MAINTENANCE PROCEDURES**

### **8.1 REVISIONS TO CAISO TRANSMISSION MAINTENANCE STANDARDS**

The CAISO, PTOs, or any interested stakeholder may submit proposals to amend or revise these CAISO Transmission Maintenance Standards. All proposals shall be initially submitted to the TMCC for review in accordance with this Appendix C. Any

revisions to these CAISO Transmission Maintenance Standards shall be made only upon recommendation by the TMCC and only in accordance with the provisions and requirements of the Transmission Control Agreement and this Appendix C.

## **8.2 REVISIONS TO AND DEVIATIONS FROM MAINTENANCE PROCEDURES**

The CAISO or any PTO may submit proposals to the TMCC to amend or revise the Maintenance Procedures. Any deviations from the Maintenance Procedures should be held to a minimum and will be negotiated between the CAISO and the affected PTO.

## **9. INCENTIVES AND PENALTIES**

### **9.1 DEVELOPMENT OF A FORMAL PROGRAM**

The TMCC shall periodically investigate and report to the CAISO on the appropriateness of a formal program of incentives and penalties associated with Availability Measures. Should the TMCC ever recommend that the CAISO adopt a formal program of incentive and penalties, the formal program will only be adopted as set forth in Section 9.2 of this Appendix C.

### **9.2 ADOPTION OF A FORMAL PROGRAM**

Any formal program of incentives and penalties adopted by the CAISO in connection with matters covered in Section 14 of the Transmission Control Agreement or this Appendix C, shall be established only: 1) with respect to Availability Measures; 2) upon recommendation of the TMCC as set forth in Section 9.1 of this Appendix C; 3) by express incorporation into this Appendix C in accordance with the provisions of the Transmission Control Agreement; and 4) upon approval by the FERC. Nothing in this Appendix C shall be construed as waiving or limiting in any way the right of any party or PTO to oppose or protest any formal program of incentives and penalties filed, proposed or adopted by the CAISO and/or FERC or any portion thereof.

### **9.3 IMPOSITION OF PENALTIES IN THE ABSENCE OF A FORMAL PROGRAM**

In the absence of a formal program of incentives and penalties, the CAISO may seek FERC permission for the imposition of specific penalties on a PTO on a case-by-case basis in the event that the relevant PTO 1) exhibits significant degradation trends in Availability performance due to Maintenance, or 2) is grossly or willfully negligent with regard to Maintenance.

### **9.4 NO WAIVER**

Nothing in this Appendix C shall be construed as waiving the rights of any PTO to oppose or protest any incentive, penalty or sanction proposed by the CAISO to the FERC, the approval by FERC of any specific penalty or sanction, or the specific imposition by the CAISO of any FERC approved penalty or sanction on the PTO.

### **9.5 LIMITATIONS ON APPLICABILITY TO NEW PTOS**

For a new PTO, the Availability Measures system needs to be used and updated during a five calendar year phase in period, as set forth in Section 4.2 of this Appendix C, to be considered in connection with any formal program of incentives and penalties associated with Availability Measures.

## **10. COMPLIANCE WITH OTHER REGULATIONS/LAWS**

Each PTO shall maintain and the CAISO shall operate Transmission Facilities in accordance with Good Utility Practice, sound engineering judgment, the guidelines as outlined in the Transmission Control Agreement, and all other applicable laws and regulations.

## **10.1 SAFETY**

Each PTO shall take proper care to ensure the safety of personnel and the public in performing Maintenance duties. The CAISO shall operate Transmission Facilities in a manner compatible with the priority of safety. In the event there is conflict between safety and reliability, the jurisdictional agency regulations for safety shall take precedence.

## **11. DISPUTE RESOLUTION**

Any dispute between the CAISO and a PTO relating to matters covered in this Appendix C shall be subject to the provisions of the Transmission Control Agreement, including the dispute resolution provisions set forth therein.

# **TRANSMISSION CONTROL AGREEMENT**

## **APPENDIX D**

### **Master Definitions Supplement**

**Actual Adverse Tax Action**

A plan, tariff provision, operating protocol, action, order, regulation, or law issued, adopted, implemented, approved, made effective, taken, or enacted by the CAISO, the FERC, the IRS or the United States Congress, as applicable, that likely adversely affects the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO or that, with the passage of time, likely would adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO if the affected facilities were to remain under the Operational Control of the CAISO; provided, however, no Actual Adverse Tax Action shall result with respect to a Tax Exempt Participating TO that initiates such a plan, tariff provision, operating protocol, action, order, regulation, or law; provided further, however, that the immediately preceding proviso shall not include private letter ruling requests or related actions; provided further, that no Actual Adverse Tax Action shall result in connection with Local Furnishing Bonds if the adverse effect on the tax-exempt status of the Local Furnishing Bonds reasonably could be avoided by application of the procedures set forth in Section 4.1.2 or in Section 2.3.2 and Appendix B.



**Adverse Tax Action Determination**

A determination by a Tax Exempt Participating TO, as supported by (i) an opinion of its (or its joint action agency's) nationally recognized bond counsel, or (ii) the IRS (e.g., through a private letter ruling received by a Tax Exempt Participating TO or its joint action agency), that an Impending Adverse Tax Action or an Actual Adverse Tax Action has occurred.

**Ancillary Services**

As used in this Agreement, the term Ancillary Services shall have the definition set forth in Appendix A of the CAISO Tariff.

**Applicable Reliability Criteria**

The Reliability Standards and reliability criteria established by NERC and WECC and Local Reliability Criteria, as amended from time to time, including any requirements of the NRC.

**Approved Maintenance Outage**

A Maintenance Outage which has been approved by the CAISO through the CAISO Outage Coordination Office.

**Balancing Authority**

The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports

interconnection frequency in real time.

**Balancing Authority Area**

The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

**Black Start**

The procedure by which a Generating Unit self-starts without an external source of electricity thereby restoring a source of power to the CAISO Balancing Authority Area following system or local area blackouts.

**Business Day**

Monday through Friday, excluding federal holidays and the day after Thanksgiving Day.

**CAISO**

The California Independent System Operator Corporation, a state chartered, California non-profit public benefit corporation that operates the transmission facilities of all Participating TOs and dispatches certain Generating Units and Loads.

**CAISO ADR Procedures**

The procedures for resolution of disputes or differences set out in Section 13 of the CAISO Tariff, as amended from time to time.

**CAISO Code of Conduct**

For employees, the code of conduct for officers, employees and substantially full-time consultants and

contractors of the CAISO as set out in exhibit A to the CAISO bylaws; for governors, the code of conduct for governors of the CAISO as set out in exhibit B to the CAISO bylaws.

**CAISO Control Center**

The control center established by the CAISO pursuant to Section 7.1 of the CAISO Tariff.

**CAISO Controlled Grid**

The system of transmission lines and associated facilities of the Participating TOs that have been placed under the CAISO's Operational Control.

**CAISO Governing Board**

The Board of Governors established to govern the affairs of the CAISO.

**CAISO Operations Date**

March 31, 1998.

**CAISO Outage  
Coordination Office**

The office established by the CAISO to coordinate Maintenance Outages in accordance with Section 9.3 of the CAISO Tariff.

**CAISO Protocols**

The rules, protocols, procedures and standards promulgated by the CAISO (as amended from time to time) to be complied with by the CAISO, Scheduling Coordinators, Participating TOs and all other Market Participants in relation to the operation of the CAISO Controlled Grid and the participation in the markets for

Energy and Ancillary Services in accordance with the CAISO Tariff.

**CAISO Register**

The register of all the transmission lines, associated facilities and other necessary components that are at the relevant time being subject to the CAISO's Operational Control.

**CAISO Tariff**

The California Independent System Operator Corporation Agreement and Tariff, dated March 31, 1997, as it may be modified from time to time.

**CAISO Website**

The CAISO internet home page at <http://www.caiso.com> or such other internet address as the CAISO shall publish from time to time.

**Congestion**

A characteristic of the transmission system produced by a binding Transmission Constraint (as that term is defined in Appendix A of the CAISO Tariff) to the optimum economic dispatch to meet Demand such that the LMP (as that term is defined in Appendix A of the CAISO Tariff), exclusive of Marginal Cost of Losses (as that term is defined in Appendix A of the CAISO Tariff), at different Locations (as that term is defined in Appendix A of the CAISO Tariff) of the transmission system is not equal.

**Congestion Management**

The alleviation of Congestion in accordance with applicable CAISO procedures, the CAISO Tariff, and Good Utility Practice.

**CPUC**

The California Public Utilities Commission, or its successor.

**Critical Protective System**

Facilities and sites with protective relay systems and Remedial Action Schemes that the CAISO determines may have a direct impact on the ability of the CAISO to maintain system security and over which the CAISO

exercises Operational Control.

**Demand**

The instantaneous amount of Power that is delivered to Loads and Scheduling Points by Generation, transmission or distribution facilities. It is the product of voltage and the in-phase component of alternating current measured in units of watts or standard multiples thereof, e.g., 1,000W=1kW, 1,000kW=1MW, etc.

**Eligible Customer**

(i) any utility (including Participating TOs, Market Participants and any power marketer), Federal power marketing agency, or any person generating Energy for sale or resale; Energy sold or produced by such entity may be Energy produced in the United States, Canada or Mexico; however, such entity is not eligible for transmission service that would be prohibited by Section 212(h)(2) of the Federal Power Act; and (ii) any retail customer taking unbundled transmission service pursuant to a state retail access program or pursuant to a voluntary offer of unbundled retail transmission service by the Participating TO.

**Encumbrance**

A legal restriction or covenant binding on a Participating TO that affects the operation of any transmission lines or associated facilities and which the CAISO needs to take

into account in exercising Operational Control over such transmission lines or associated facilities if the Participating TO is not to risk incurring significant liability. Encumbrances shall include Existing Contracts and may include: (1) other legal restrictions or covenants meeting the definition of Encumbrance and arising under other arrangements entered into before the CAISO Operations Date, if any; and (2) legal restrictions or covenants meeting the definition of Encumbrance and arising under a contract or other arrangement entered into after the CAISO Operations Date.

**End-Use Customer or End-User**

A consumer of electric power who consumes such power to satisfy a Load directly connected to the CAISO Controlled Grid or to a Distribution System (as that term is defined in Appendix A of the CAISO Tariff) and who does not resell the power.

**Energy**

The electrical energy produced, flowing or supplied by generation, transmission or distribution facilities, being the integral with respect to time of the instantaneous power, measured in units of watt-hours or standard multiples thereof, e.g., 1,000 Wh=1kWh, 1,000 kWh=1MWh, etc.

**Energy Management System (EMS)**

A computer control system used by electric utility dispatchers to monitor the real time performance of the various elements of an electric system and to control Generation and transmission facilities.

**Entitlements**

The right of a Participating TO obtained through contract or other means to use another entity's transmission facilities for the transmission of Energy.

**Existing Contracts**

The contracts which grant transmission service rights in existence on the CAISO Operations Date (including any contracts entered into pursuant to such contracts) as may be amended in accordance with their terms or by agreement between the parties thereto from time to time.

**Existing Rights**

The transmission service rights and obligations of non-Participating TOs under Existing Contracts, including all terms, conditions, and rates of the Existing Contracts, as they may change from time to time under the terms of the Existing Contracts.

**FERC**

The Federal Energy Regulatory Commission or its successor.

**Forced Outage**

An Outage for which sufficient notice cannot be given to allow the Outage to be factored into the Day-Ahead



Market, HASP, or RTM bidding processes, as the terms for those bidding processes are defined in Appendix A of the CAISO Tariff.

**FPA**

Parts II and III of the Federal Power Act, 16 U.S.C. § 824 et seq., as they may be amended from time to time.

**Generating Unit**

An individual electric generator and its associated plant and apparatus whose electrical output is capable of being separately identified and metered or a Physical Scheduling Plant that, in either case, is:

- (a) located within the CAISO Balancing Authority Area;
- (b) connected to the CAISO Controlled Grid, either directly or via interconnected transmission, or distribution facilities; and
- (c) that is capable of producing and delivering net Energy (Energy in excess of a generating station's internal power requirements).

**Generation**

Energy delivered from a Generating Unit.

**Generator**

The seller of Energy or Ancillary Services produced by a Generating Unit.

### **Good Utility Practice**

Any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good Utility Practice is not intended to be limited to any one of a number of the optimum practices, methods, or acts to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4).

### **Hydro Spill Generation**

Hydro-electric Generation in existence prior to the CAISO Operations Date that: i) has no storage capacity and that, if backed down, would spill; ii) has exceeded its storage capacity and is spilling even though the generators are at full output, iii) has inadequate storage capacity to prevent loss of hydro-electric Energy either immediately or during the forecast period, if hydro-electric Generation is reduced; or iv) has increased regulated water output to

avoid an impending spill.

**Impending Adverse Tax Action**

A proposed plan, tariff, operating protocol, action, order, regulation, or law that, if issued, adopted, implemented, approved, made effective, taken, or enacted by the CAISO, the FERC, the IRS or the United States Congress, as applicable, likely would adversely affect the tax-exempt status of any Tax Exempt Debt issued by, or for the benefit of, a Tax Exempt Participating TO if the affected facilities were to remain under the Operational Control of the CAISO; provided, however, that with respect to a proposed federal law, such proposed law must first have been approved by (i) one of the houses of the United States Congress and (ii) at least one committee or subcommittee of the other house of the United States Congress; provided further, however, no Impending Adverse Tax Action shall result with respect to a Tax Exempt Participating TO that initiates such a plan, tariff provision, operating protocol, action, order, regulation, or law; provided further, however, that the immediately preceding proviso shall not include private letter ruling requests or related actions; provided further, that no Impending Adverse Tax Action shall result in connection with Local Furnishing Bonds if the adverse

effect on the tax-exempt status of the Local Furnishing Bonds reasonably could be avoided by application of the procedures set forth in Section 4.1.2 or in Section 2.3.2 and Appendix B.

**IRS**

The United States Department of Treasury, Internal Revenue Service, or any successor thereto.

**Load**

An end-use device of an End-Use Customer that consumes Power. Load should not be confused with Demand, which is the measure of Power that a Load receives or requires.

**Local Furnishing Bond**

Tax-exempt bonds utilized to finance facilities for the local furnishing of electric energy, as described in section 142(f) of the Internal Revenue Code, 26 U.S.C. § 142(f).

**Local Furnishing Participating TO**

Any Tax Exempt Participating TO that owns facilities financed by Local Furnishing Bonds.

**Local Regulatory Authority**

The state or local governmental authority, or the board of directors of an electric cooperative, responsible for the regulation or oversight of a utility.

**Local Reliability Criteria**

Reliability Criteria unique to the transmission systems of each of the Participating TOs established at the later of: (1) CAISO Operations Date, or (2) the date upon which a

New Participating TO places its facilities under the control of the CAISO.

**Maintenance Outage**

A period of time during which an Operator (as that term is defined in Appendix A of the CAISO Tariff) takes its transmission facilities out of service for the purposes of carrying out routine planned maintenance, or for the purposes of new construction work or for work on de-energized and live transmission facilities (e.g., relay maintenance or insulator washing) and associated equipment.

**Market Participant**

An entity, including a Scheduling Coordinator, who either: (1) participates in the CAISO Markets (as that term is defined in Appendix A of the CAISO Tariff) through the buying, selling, transmission, or distribution of Energy, capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; (2) is a CRR Holder or Candidate CRR Holder (as those terms are defined in Appendix A of the CAISO Tariff), or (3) is a Convergence Bidding Entity (as that term is defined in Appendix A of the CAISO Tariff).

**Municipal Tax Exempt Debt**

An obligation the interest on which is excluded from gross income for federal tax purposes pursuant to Section

103(a) of the Internal Revenue Code of 1986 or the corresponding provisions of prior law without regard to the identity of the holder thereof. Municipal Tax Exempt Debt does not include Local Furnishing Bonds.

**Municipal Tax Exempt TO**

A Transmission Owner that has issued Municipal Tax Exempt Debt with respect to any transmission facilities, or rights associated therewith, that it would be required to place under the CAISO's Operational Control pursuant to the Transmission Control Agreement if it were a Participating TO.

**NERC**

The North American Electric Reliability Corporation or its successor.

**New Participating TO**

A Participating TO that is not an Original Participating TO.

**Nomogram**

A set of operating or scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, including any requirements of the NRC.

**Non-Participating TO**

A TO that is not a party to this Agreement or, for the purposes of Section 16.1 of the CAISO Tariff, the holder of transmission service rights under an Existing Contract that is not a Participating TO.

**NRC**

The Nuclear Regulatory Commission or its successor.

**Operating Procedures**

Procedures governing the operation of the CAISO Controlled Grid as the CAISO may from time to time develop, and/or procedures that Participating TOs currently employ which the CAISO adopts for use.

**Operational Control**

The rights of the CAISO under this Agreement and the CAISO Tariff to direct Participating TOs how to operate their transmission lines and facilities and other electric plant affecting the reliability of those lines and facilities for the purpose of affording comparable non-discriminatory transmission access and meeting Applicable Reliability Criteria.

**Original Participating TO**

A Participating TO that was a Participating TO as of January 1, 2000.

**Outage**

Disconnection, separation or reduction in capacity, planned or forced, of one or more elements of an electric system.

**Participating Generator**

A Generator or other seller of Energy or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid (1) from a Generating Unit with a rated capacity of 1 MW or greater, (2) from a Generating Unit

with a rated capacity of from 500 kW up to 1 MW for which the Generator elects to be a Participating Generator, or (3) from a Generating Unit providing Ancillary Services or submitting Energy Bids (as that term is defined in Appendix A of the CAISO Tariff) through an aggregation arrangement approved by the CAISO, which has undertaken to be bound by the terms of the CAISO Tariff, in the case of a Generator through a Participating Generator Agreement or QF PGA (as those terms are defined in Appendix A of the CAISO Tariff).



**Participating TO**

A party to this Agreement whose application under Section 2.2 has been accepted and who has placed its transmission assets and Entitlements under the CAISO's Operational Control in accordance with this Agreement. A Participating TO may be an Original Participating TO or a New Participating TO.

**Physical Scheduling  
Plant**

A group of two or more related Generating Units, each of which is individually capable of producing Energy, but which either by physical necessity or operational design must be operated as if they were a single Generating Unit and any Generating Unit or Units containing related multiple generating components which meet one or more of the following criteria: i) multiple generating components are related by a common flow of fuel which cannot be interrupted without a substantial loss of efficiency of the combined output of all components; ii) the Energy production from one component necessarily causes Energy production from other components; iii) the operational arrangement of related multiple generating components determines the overall physical efficiency of the combined output of all components; iv) the level of coordination required to schedule individual generating components would cause the CAISO to incur scheduling costs far in excess of the benefits of having scheduled such individual components separately; or v) metered output is available only for the combined output of related multiple generating components and separate generating component metering is either impractical or economically inefficient.

**Power**

The electrical work produced by a Generating Unit that is absorbed by the resistive components of Load or other network components, measured in units of watts or standard multiples thereof, e.g., 1,000 Watt = 1 kW; 1,000 kW = 1 MW, etc.

**Project Sponsor**

A Market Participant, group of Market Participants, a Participating TO or a project developer who is not a Market Participant or Participating TO that proposes the construction of a transmission addition or upgrade in accordance with Section 24 of the CAISO Tariff.

**Regulatory Must-Run Generation**

Hydro Spill Generation and Generation which is required to run by applicable federal or California laws, regulations, or other governing jurisdictional authority. Such requirements include but are not limited to hydrological flow requirements, environmental requirements, such as minimum fish releases, fish pulse releases and water quality requirements, irrigation and water supply requirements, or the requirements of solid waste Generation, or other Generation contracts specified or designated by the jurisdictional regulatory authority as it existed on December 20, 1995, or as revised by federal or California law or Local Regulatory Authority.

**Reliability Criteria**

Pre-established criteria that are to be followed in order to maintain desired performance of the CAISO Controlled Grid under Contingency (as that term is defined in Appendix A of the CAISO Tariff) or steady state conditions.

**Reliability Standard**

A requirement approved by FERC under Section 215 of the Federal Power Act to provide for reliable operation of the bulk power system. The term includes requirements for the operation of existing bulk power system facilities, including cyber security protection, and the design of planned additions or modifications to such facilities to the extent necessary for reliable operation of the bulk power system; but the term does not include any requirement to enlarge such facilities or to construct new transmission capacity or generation capacity.

**Remedial Action Schemes (RAS)**

Protective systems that typically utilize a combination of conventional protective relays, computer-based processors, and telecommunications to accomplish rapid, automated response to unplanned power system events. Also, details of RAS logic and any special requirements for arming of RAS schemes, or changes in RAS programming, that may be required. Remedial Action

Schemes are also referred to as Special Protection Systems (as that term is defined in Appendix A of the CAISO Tariff).

**SCADA (Supervisory Control and Data Acquisition)**

A computer system that allows an electric system operator to remotely monitor and control elements of an electric system.

**Scheduling Coordinator**

An entity certified by the CAISO for the purposes of undertaking the functions specified in Section 4.5.3 of the CAISO Tariff.

**Scheduling Point**

A location at which the CAISO Controlled Grid or a transmission facility owned by a Transmission Ownership Right holder is connected, by a group of transmission paths for which a physical, non-simultaneous transmission capacity rating has been established for Congestion Management, to transmission facilities that are outside the CAISO's Operational Control.

**System Emergency**

Conditions beyond the normal control of the CAISO that affect the ability of the CAISO Balancing Authority Area to function normally, including any abnormal system condition which requires immediate manual or automatic action to prevent loss of Load, equipment damage, or tripping of system elements which might result in

cascading Outages or to restore system operation to meet Applicable Reliability Criteria.

**System Reliability**

A measure of an electric system's ability to deliver uninterrupted service at the proper voltage and frequency.

**Tax Exempt Debt**

Municipal Tax Exempt Debt or Local Furnishing Bonds.

**Tax Exempt Participating TO**

A Participating TO that is the beneficiary of outstanding Tax Exempt Debt issued to finance any electric facilities, or rights associated therewith, which are part of an integrated system including transmission facilities the Operational Control of which is transferred to the CAISO pursuant to this Agreement.

**TO Tariff**

A tariff setting out a Participating TO's rates and charges for transmission access to the CAISO Controlled Grid and whose other terms and conditions are the same as those contained in the document referred to as the Transmission Owners Tariff approved by FERC as it may be amended from time to time.

**Transmission Control Agreement (TCA)**

This Agreement between the CAISO and Participating TOs establishing the terms and conditions under which TOs will become Participating TOs and how the CAISO and each Participating TO will discharge their respective

duties and responsibilities, as may be modified from time to time.

**Transmission Owner (TO)**

An entity owning transmission facilities or having firm contractual rights to use transmission facilities.

**Transmission Ownership Right**

The ownership or joint ownership right to transmission facilities within the CAISO Balancing Authority Area of a Non-Participating TO that has not executed this Agreement, which transmission facilities are not incorporated into the CAISO Controlled Grid.

**Uncontrollable Force**

Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, earthquake, explosion, any curtailment, order, regulation, or restriction imposed by governmental, military, or lawfully established civilian authorities or any other cause beyond a Party's reasonable control which could not be avoided through the exercise of Good Utility Practice.

**Voltage Support**

Services provided by Generating Units or other equipment such as shunt capacitors, static var compensators, or synchronous condensers that are required to maintain established grid voltage criteria. This service is required under normal or System Emergency conditions.

**Western Electricity  
Coordinating Council  
(WECC)**

The Western Electricity Coordinating Council or its successor.

**Wheeling Out**

Except for Existing Rights exercised under an Existing Contract in accordance with Section 16.1 of the CAISO Tariff, the use of the CAISO Controlled Grid for the transmission of Energy from a Generating Unit located within the CAISO Controlled Grid to serve a Load located outside the transmission and distribution system of a Participating TO.

**Wheeling Through**

Except for Existing Rights exercised under an Existing Contract in accordance with Section 16.1 of the CAISO Tariff, the use of the CAISO Controlled Grid for the transmission of Energy from a resource located outside the CAISO Controlled Grid to serve a Load located outside the transmission and distribution system of a Participating TO.

**Withdraw for Tax  
Reasons or Withdrawal  
for Tax Reasons**

In accordance with Section 3.4 of this Agreement, withdrawal from this Agreement, or withdrawal from the CAISO's Operational Control of all or any portion of the transmission lines, associated facilities, or Entitlements that were financed in whole or in part with proceeds of the Tax Exempt Debt that is the subject of an Impending



Adverse Tax Action or an Actual Adverse Tax Action.

# **TRANSMISSION CONTROL AGREEMENT**

## **APPENDIX E**

### **Nuclear Protocols**

# **DIABLO CANYON NUCLEAR POWER PLANT UNITS 1 & 2**

For purposes of this Appendix E, the requirements applicable to Pacific Gas and Electric Company's Diablo Canyon Nuclear Power Plant are set forth in Attachment A to Appendix 2 of the Nuclear Plant Interface Requirement Coordination Agreement between Pacific Gas and Electric Company (NCR005299), Generation-Diablo Canyon Nuclear Power Plant Electric Operations and Engineering Department, and California Independent System Operator (NCR050548) Concerning Nuclear Plant Interface Requirements For the Diablo Canyon Nuclear Power Plant, as that agreement may be amended from time to time.

# **SONGS 2&3 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY**

**Revised as of June 1, 2014**

For purposes of this Appendix E, the requirements applicable to San Onofre Nuclear Generating Station (SONGS) are set forth in the San Onofre Nuclear Generating Station (SONGS) Nuclear Plant Interface Requirement Coordination Agreement between SONGS, Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E), and the California Independent System Operator Corporation (CAISO) Concerning Nuclear Plant Interface Requirements For the San Onofre Nuclear Generating Station, as that agreement may be amended from time to time or in any successor agreement regarding Nuclear Plant Interface Requirements.