

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

<b>California Independent System Operator Corporation</b>	)	<b>Docket No. EL12-____-000</b>
	)	
<b>In Re Transmission Control Agreement</b>	)	
	)	

**COMPLAINT OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR  
CORPORATION TO MODIFY THE TRANSMISSION CONTROL AGREEMENT**

The California Independent System Operator Corporation (ISO) hereby submits this complaint to modify the Transmission Control Agreement (TCA), under which the ISO assumes operational control of the transmission facilities and entitlements that constitute the ISO controlled grid, because the TCA would be unjust and unreasonable and unduly discriminatory without the revisions proposed in this complaint.<sup>1</sup>

In particular, the TCA would be unjust and unreasonable and unduly discriminatory without the ISO's proposed revisions to TCA sections 22.1 and 22.4 to revise the standard for a determination of liability or indemnity from an ordinary negligence standard to a gross negligence standard, as the Commission has already accepted this same revision to the similar provisions of ISO tariff sections 14.4 (addressing indemnity) and 14.5 (addressing liability) as just and

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<sup>1</sup> The ISO submits this complaint pursuant to Sections 206, 306, and 309 of the Federal Power Act, 16 U.S.C. §§ 824e, 825e, and 825h, and Section 206 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.206. The ISO is sometimes referred to as the CAISO. Capitalized terms not otherwise defined herein have the meanings set forth in the Master Definitions Supplement, Appendix D to the TCA.

reasonable. Without the proposed revisions to TCA sections 22.1 and 22.4, the ISO could be faced with significant uncertainty and potentially conflicting standards in circumstances regarding its liability and its entitlement to indemnity where the provisions of either the ISO tariff or the TCA could be applicable. For the same reasons the Commission accepted the revisions to the standard for the ISO's liability in ISO tariff section 14.5 and for indemnity in ISO tariff section 14.4, the Commission should order the incorporation of this same revision into the liability and indemnity provisions in sections 22.1 and 22.4 of the TCA.<sup>2</sup>

The TCA would also be unjust and unreasonable and unduly discriminatory without the other revisions proposed with this filing, including revisions to add Citizens Sunrise Transmission LLC (Citizens Sunrise Transmission) as a conditional new participating transmission owner, revisions to update outdated information in the TCA, and revisions to enhance the consistency of many other provisions of the TCA with the provisions of the ISO tariff.

The ISO and the other parties to the TCA have negotiated for several months regarding these proposed revisions throughout the TCA. These negotiations have resulted in an impasse with some participating transmission owners solely as to the proposed revision to section 22.4,<sup>3</sup> thus precluding the

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<sup>2</sup> The ISO seeks to modify the TCA pursuant to the filing of a complaint because doing so is consistent with direction provided by the Commission in a previous proceeding initiated by the ISO to modify the TCA. See *California Independent System Operator Corporation*, 109 FERC ¶ 61,153, at P 34 (2004).

<sup>3</sup> The ISO understands that the cities of Anaheim, Azusa, Banning, Pasadena, and Riverside, each a participating transmission owner, share objections to the proposed revision of TCA section 22.4.

ISO from being able to represent that all of the revisions to the TCA contained in this filing were agreed to by all parties. However, other than with regard to TCA section 22.4, the ISO's understanding is that all of the other proposed changes to the TCA were agreed upon by the parties during the negotiations.<sup>4</sup>

In addition, as described in more detail below, on December 23, 2011, Citizens Sunrise Transmission filed a proposed transmission owner tariff and associated proposed transmission revenue requirement (TRR) with the Commission in Docket No. ER12-686 to reflect its proposed acquisition of an interest in the Sunrise Powerlink transmission project currently under construction and to turn that interest over to the ISO's operational control as a new participating transmission owner. Citizens Sunrise Transmission requests that the Commission make its transmission owner tariff and TRR effective as of the date of commercial operation of the project, on which date the ISO anticipates accepting operational control of it from San Diego Gas & Electric Company (SDG&E) and Citizens Sunrise Transmission unless the ISO identifies some obstacle to its exercise of operational control. The ISO does not anticipate that it will identify such an obstacle.

The changes to the TCA proposed herein include those necessary to add Citizens Sunrise Transmission as a new participating transmission owner and party to the TCA effective as of the ISO's acceptance of operational control of Citizens Sunrise Transmission's interest in the Sunrise Powerlink project. As these actions need to be coordinated, the ISO requests that the Commission

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<sup>4</sup> The ISO understands that the other participating transmission owners have no objection to any of the proposed changes to the TCA, including the changes to section 22.4.

allow these changes to the TCA to become effective on July 1, 2012<sup>5</sup> or any later date on which the ISO may accept operational control of the interest of Citizens Sunrise Transmission in the Sunrise Powerlink project. This effective date is necessary to ensure that the transmission interest of Citizens Sunrise Transmission is subject to the ISO's operational control on the date that the project achieves commercial operation and the ISO assumes operational control of it.

By this complaint, the ISO seeks to make the following changes to the TCA, which are included in clean copy in Attachment A to the present filing and as black-lined changes in Attachment B to the present filing:

- Changes to TCA sections 22.1 and 22.4 to revise the standard for a determination of liability or indemnity from an ordinary negligence standard to a gross negligence standard, consistent with the parallel provisions of the ISO tariff.
- Changes throughout the TCA to enhance the consistency of other provisions of the TCA with the provisions of the ISO tariff, and to clarify provisions of the TCA and the processes for their administration.
- Changes to TCA sections 4.6, 5.1, and 5.3 and Appendices A, B, and E to update outdated information, including the entitlements and encumbrances of the participating transmission owners.

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<sup>5</sup> This date is subject to change reflecting permitting, weather, and construction-related activities, if any, that may advance or delay this July 1st date for ISO operational control of the Sunrise Powerlink transmission project.

- Changes to remove Appendix F from the TCA and to revise TCA section 26.1 to specify that the parties are to advise the ISO of their contacts for notices and that the ISO will post these contacts on the ISO website but that they will no longer be incorporated directly into the TCA.
- New TCA Appendices A and B (Citizens Sunrise Transmission) to reflect Citizens Sunrise Transmission's proposed transmission interest in the Sunrise Powerlink transmission project and its relationship to the interests of SDG&E in that same project.
- The addition of new TCA Section 4.4.6 to specify limitations on the ability of Citizens Sunrise Transmission to convert the subject transmission rights to merchant operation not subject to Commission jurisdiction.
- Changes to Section 10 of the TCA to reflect the ISO's role with respect to interconnection requests to the ISO controlled grid.
- Changes to the ISO's TCA signature page to reflect the ISO's agreement to the TCA changes contained in Attachment A to the present filing.
- A new TCA signature page executed by Citizens Sunrise Transmission.

In addition, the TCA contains a revised Table of Contents to reflect the changes described above. A table listing the proposed changes is provided in Attachment C to the present filing.

The ISO believes negotiations on the proposed revisions to the TCA are at an impasse as discussed above. Because Citizens Sunrise Transmission has advised the ISO that it needs conditional approval of its addition as a party to the TCA as an element of its financing of its acquisition of an interest in the Sunrise Powerlink project, and because Citizens Sunrise Transmission has already filed with the Commission its application for acceptance of its transmission owner tariff and TRR in Docket No. ER12-686, the ISO has submitted this complaint.<sup>6</sup> To confirm that the ISO and Citizens Sunrise Transmission are in agreement with the amendments proposed herein, the ISO and Citizens Sunrise Transmission have executed the amended TCA. However, given the short time available and the lack of complete agreement by the TCA parties regarding the resolution of the issues they have raised regarding this matter, the ISO has not attempted to obtain the signatures of other parties to the TCA to include with this filing.<sup>7</sup> The ISO will rely on comments that may be filed to express the views of other parties in response to this complaint.

As discussed below, the TCA expressly provides that it may be modified by order of the Commission. The ISO files this pleading as a complaint concerning the current terms and conditions of the TCA because the failure to

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<sup>6</sup> Indeed, the Commission issued an order conditionally accepting the TRR for Citizens Sunrise on February 21, 2012 (See, 138 FERC ¶ 61,129).

<sup>7</sup> As explained herein, due to the impasse regarding the issue of proposed revision to TCA section 22.4 and the need to add Citizens Sunrise Transmission as a party to the TCA in the very near future, the ISO believes it is compelled to make this filing without the complete agreement of all the participating transmission owners and without their execution of revised signature pages to the extent they may agree with the TCA amendments proposed in this filing. Consequently, the ISO has not included revised signature pages for the participating transmission owners with this filing.

include the revision to TCA sections 22.1 and 22.4 to establish a gross negligence standard for liability and indemnity – and the failure to include all of the other proposed and agreed upon revisions to the TCA – would be unjust, unreasonable, and unduly discriminatory.

## **I. BACKGROUND**

### **A. The TCA**

The TCA is the agreement among the ISO and participating transmission owners that establishes the terms and conditions under which transmission owners place certain transmission facilities and entitlements under the ISO's operational control, thereby becoming participating transmission owners. The TCA describes how the ISO and each participating transmission 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 ISO on March 31, 1997. Refinements to the TCA were made as a result of an ongoing 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, et al.*, 80 FERC ¶ 61,128 (1997). In its order dated October 30, 1997, the Commission granted interim and conditional authorization to the ISO to commence operations and required certain modifications to the TCA. *Pacific Gas and Electric Company, et al.*, 81 FERC ¶ 61,122. The ISO filed the revised TCA on February 20, 1998. By order dated March 30, 1998, *California Independent System Operator Corporation*, 82 FERC ¶ 61,325, the Commission

conditionally accepted the TCA for filing to become effective on the ISO operations date and required further modifications to be made in a compliance filing within 60 days of the ISO operations date.<sup>8</sup>

Additional amendments to the TCA have been made to add new participating transmission owners and for other purposes. The most recent amendments were filed with the Commission in Docket No. ER11-2295 and accepted by the Commission by letter orders issued on February 14 and May 18, 2011.

#### **B. Issues Raised Regarding the ISO's Standards for Liability and Indemnity**

The ISO proposes to amend two sections of the TCA to bring the standard for liability and indemnity for damages for certain actions into conformity with that of the ISO tariff. Currently, under section 22.1 of the TCA, the parties to the TCA are liable to one another for certain direct and consequential damages resulting from the performance or non-performance of their duties to the extent that the damages result from negligence or intentional wrongdoing. Under TCA section 22.4, each participating transmission owner also must indemnify the ISO against damages arising from third party claims caused by the participating transmission owner's acts or omissions except in the case of the ISO's negligence or intentional wrongdoing. The ISO is proposing to amend these provisions of the TCA such that both standards would be limited to gross negligence or intentional wrongdoing. This is consistent with the standard for determinations of liability

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<sup>8</sup> *California Independent System Operator Corp.*, 82 FERC at 62,276-79. The ISO submitted the required compliance filing on June 1, 1998.

and indemnity that the Commission has approved for the ISO in sections 14.5 and 14.4 of the ISO tariff<sup>9</sup> and is consistent with the standard of liability that the Commission has accepted for ISO New England, PJM, the Midwest ISO, and the Southwest Power Pool (“SPP”).<sup>10</sup>

The Commission has always recognized that the liability standard applicable to the ISO might appropriately be modified. When the Commission approved the previously applicable liability provisions in the ISO tariff, it did so subject to the outcome of its consideration of liability issues in its Standard Market Design rulemaking and without prejudice to the ISO’s making a filing that would limit its liability to direct damages.<sup>11</sup> The Commission never completed its Standard Market Design rulemaking and has subsequently addressed liability limitations on a case-by-case basis. In every instance in which an independent system operator or regional transmission organization – specifically, the ISO, PJM, SPP, the Midwest ISO, or ISO New England – has proposed limiting its liability to instances of gross negligence, the Commission has approved the limitation.<sup>12</sup>

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<sup>9</sup> The ISO filed amendments to sections 14.4 and 14.5 of the ISO tariff in its filing of August 3, 2007 in Docket No. ER07-1257-000. The Commission accepted them in *California Independent System Operator Corporation*, 123 FERC ¶ 61,285, at P 241 (2008).

<sup>10</sup> See *id.*; *PJM Interconnection L.L.C.*, 112 FERC ¶ 61,264, at PP 9-10 (2005) (*PJM*); *Southwest Power Pool, Inc.*, 112 FERC ¶ 61,100, at PP 36-44 (2005) (*SPP*); *Midwest Independent Transmission System Operator, Inc.*, 110 FERC ¶ 61,164, at P 29 (2005) (*Midwest ISO*); *ISO New England, Inc.*, 106 FERC ¶ 61,280, at PP 220-31 (2004).

<sup>11</sup> *California Independent System Operator Corp.*, 101 FERC ¶ 61,219, at PP 110-13 (2002).

<sup>12</sup> See n. 9 and n. 10, *supra*.

The reasons that the Commission found a gross negligence standard appropriate for those other independent system operators and regional transmission organizations, including for the ISO tariff, are equally compelling for the TCA. With regard to the ISO tariff, the Commission explained that

[t]he modification of the liability provisions to reflect a gross negligence standard is reasonable, as this change offers an equitable balance between lower rates for all market participants and the burden of limited recovery of liability for some. As the Commission stated in Order No. 890, similar limitations on liability have been provided to regional transmission organizations and independent system operators because they were created, and are solely regulated, by the Commission. . . . We reiterate that while the total liability held by the CAISO decreases, the modified liability provision will lead to decreased litigation, resulting in lower costs for all market participants. We conclude that the liability provisions proposed by the CAISO are in the best interest of all market participants because the complexity of the CAISO's system can lead to excessive damage awards that would ultimately be borne by all market participants.<sup>13</sup>

The Commission has provided similar explanations with regard to the gross negligence provisions of other independent system operators and regional transmission organizations. The Commission has explained that excessive damage awards can lead to higher insurance premiums and a higher cost of capital, costs that would be borne by all customers. In addition, the excessive damage awards themselves would be passed through to all customers.<sup>14</sup> The Commission has also noted that, as courts have found, the technological complexity of modern utility systems increases the potential for system failures

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<sup>13</sup> *California Independent System Operator Corp.* 123 FERC ¶ 61,285, at P 241 (citations omitted).

<sup>14</sup> *SPP* at P 36; *PJM* at P 7; *Midwest ISO* at P 29.

unrelated to human errors, necessitating greater liability protection.<sup>15</sup> This is particularly true of independent system operators and regional transmission organizations operating significant transmission systems in conjunction with complex day-ahead and locational marginal pricing markets. Independent system operators and regional transmission organizations also cannot deny service to particular customers or adjust rates based on the potential risk of damages associated with service to those customers. Absent limitations on liability, all customers would ultimately bear the cost associated with the service to high risk customers, including those customers that do not have special reliability needs.<sup>16</sup> For these reasons, including a gross negligence standard in the TCA strikes a more appropriate balance between lower rates for all customers and the burden of limited recovery for some than the current negligence standard.

The revision to the indemnity standard is appropriate for the same reasons. This provision protects the ISO's customers from the cost of third-party claims absent gross negligence or intentional wrongdoing on the part of the ISO. It thus provides the ISO and its customers with the same level of protection as the limitation on liability provision, but does so with respect to claims that may be brought by other parties. The Commission has previously acknowledged that the same reasoning supports both provisions in connection with approving the parallel liability and indemnity provisions in the ISO tariff. In the proceeding to

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<sup>15</sup> SPP at P 36, citing *Transmission Access Policy Study Group v. FERC*, 225 F.3d 667, 727 (D.C. Cir. 2000).

<sup>16</sup> SPP at P 38; PJM at P 8.

amend the tariff, Six Cities argued that the indemnity provision was distinct from the general limitation of liability provision and should not be adopted even if a gross negligence standard was adopted for the latter provision.<sup>17</sup> The Commission rejected this argument, holding that both of the provisions “are in the best interest of all market participants because the complexity of the CAISO’s system can lead to excessive damage awards that would ultimately be borne by all market participants.”<sup>18</sup>

The proposed TCA amendments regarding liability and indemnity are a very limited adjustment of the ISO’s current exposure to liability under the TCA that simply brings the TCA in line with the parallel provisions in the tariff. Because the ISO is a non-profit organization, it can have no concern about protecting shareholders, but rather the ISO proposes these amendments because it is concerned about protecting customers from excessive rates. A failure to make this adjustment would also expose the ISO to potentially competing standards under the ISO tariff and the TCA, and could encourage parties to suggest that actions by the ISO were undertaken pursuant to the TCA rather than the ISO tariff since the standards of liability and indemnity would be more favorable if that were the result. Such potentially conflicting standards would create confusion, promote more litigation rather than less, and create a risk that the policy objective of limiting ISO customers’ exposure would be undermined. Under these circumstances, the proposed amendment is just and reasonable.

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<sup>17</sup> *California Independent System Operator Corp.*, 123 FERC ¶ 61,285, at P 240.  
<sup>18</sup> *Id.* at P 241.

The ISO, current participating transmission owners, and Citizens Sunrise have engaged in discussions concerning the standard for determinations of liability or indemnity in TCA sections 22.1 and 22.4. During the course of these discussions, some of the participating transmission owners informed the ISO that they have concerns with the proposed amendment to TCA section 22.4. Specifically, some participating transmission owners expressed concern that the proposed amendment to TCA section 22.4 could increase their exposure to costs incurred as a result of having to indemnify the ISO. For the reasons stated above, the ISO submits that the Commission should issue an order accepting the ISO's proposed revision to TCA sections 22.1 and 22.4 notwithstanding these concerns.

### **C. Other Proposed TCA Revisions**

Over the course of the past few years, the TCA has become outdated in certain respects, including the development of inconsistencies with changing provisions of the ISO tariff and the need for updating of TCA appendices to reflect changes in the parties' transmission facilities and entitlements. The ISO proposes a number of revisions throughout the TCA to update these outdated provisions. The ISO is not aware of any opposition by any of the other TCA parties or by Citizens Sunrise Transmission to the proposed revisions. However, the ISO will rely on the comments that may be filed to identify any issues raised by the proposed revisions.

## **1. Addition of Citizens Sunrise Transmission as a New Participating Transmission Owner**

The ISO proposes several revisions to the TCA to accommodate the addition of Citizens Sunrise Transmission as a new TCA party and conditional participating transmission owner. Citizens Sunrise Transmission submitted an application to become a new participating transmission owner on August 10, 2011, and the ISO governing board conditionally accepted Citizens Sunrise Transmission's application on December 15, 2011.<sup>19</sup> As explained above, Citizens Sunrise Transmission also filed a proposed transmission owner tariff and associated proposed TRR with the Commission in Docket No. ER12-686 to reflect its proposed acquisition of an interest in the Sunrise Powerlink transmission project currently under construction and to turn that interest over to the ISO's operational control as a new participating transmission owner. It is currently expected that this transmission project will be energized in July 2012.

Given these circumstances, it would be unjust and unreasonable not to allow Citizens Sunrise Transmission to become a party to the TCA with respect to its interest in this important project. Moreover, the path forward for Citizens Sunrise Transmission should not be put at risk due to the ISO's interest in updating the remainder of the TCA as proposed in the present filing.

The ISO also proposes to add new TCA section 4.4.6 to address issues raised in discussions with the participating transmission owners regarding their concerns about the possibility that Citizens Sunrise Transmission might recover all or a portion of its TRR for its interest in the Sunrise Powerlink project and then

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<sup>19</sup> See <http://www.caiso.com/Documents/Decision-ParticipatingTransmissionOwnerApplication-MotionDec2011.pdf>.

subsequently seek to withdraw those interests from the ISO's operational control and operate them as non-Commission jurisdictional transmission rights. In the course of the discussions, both the concerned parties and Citizens Sunrise Transmission indicated that they could accept provisions modeled on existing TCA sections 4.4.4 and 4.4.5, which were incorporated into the TCA to address similar concerns relating to Trans Bay Cable LLC (Trans Bay Cable) and Startrans IO, L.L.C (Startrans IO) when they proposed to become TCA parties. The proposed provisions of section 4.4.6 would specify essentially the same rights and obligations for Citizens Sunrise Transmission as sections 4.4.4 and 4.4.5 specify for Trans Bay Cable and Startrans IO, respectively. These provisions recognize the benefit conferred on Citizens Sunrise Transmission through its transmission revenue requirement and require that successors in interest become participating transmission owners under the TCA. It is the ISO's understanding that the provisions of section 4.4.6 are acceptable to the TCA parties and to Citizens Sunrise Transmission. Consequently, for the same reasons that the Commission accepted sections 4.4.4 and 4.4.5, the ISO requests that the Commission accept section 4.4.6 as part of its order on this filing.

## **2. TCA Updates for Increased Consistency with the ISO Tariff**

The ISO proposes revisions throughout the TCA to enhance its consistency with provisions of the ISO tariff, and to clarify provisions of the TCA and the processes for their administration. The table provided in Attachment C identifies these proposed changes. The ISO is not aware of any objection raised

by TCA parties and believes Attachment C provides sufficient justification for the proposed changes. Nonetheless, the ISO believes it appropriate to briefly discuss one change in some additional detail.

Section 10 of the TCA provides for interconnection to the ISO controlled grid. These provisions were not amended when Order 2003 was implemented and the ISO assumed responsibility for interconnection of generating facilities to the ISO controlled grid. The revisions now proposed to Section 10 of the TCA clarify the ISO's role under Order 2003 by distinguishing between interconnection requests for generation, transmission, and load, with the ISO tariff governing generator interconnections and the transmission owner tariffs governing transmission and load interconnections. However, the ISO recognizes that this paradigm may need to be revisited in the near future in light of the competitive solicitation provisions of the ISO's transmission planning process, the continuing interests being expressed by non-participating transmission owners and transmission developers in joining or connecting to the ISO, and Order 1000 compliance requirements. Given these factors the ISO intends to review whether the principles underlying the existing provisions should be further considered to meet the requirements of the new framework, and will engage stakeholders in the assessment if the ISO determines any future changes may be warranted.

### **3. Updates to TCA Appendices A, B, and E to Reflect Changes in Transmission Entitlements and Encumbrances**

The ISO proposes revisions to provisions of Appendices A, B, and E of the TCA to reflect changes over the past few years to the entitlements and

encumbrances of the participating transmission owners. These changes have been presented to the ISO by the participating transmission owners and the ISO has no reason to object to any of the proposed changes. Therefore, they have all been included and represent the most current and up-to-date expression of the information provided in these Appendices.

#### **4. Effective Date Needed to Accommodate the Addition of Citizens Sunrise Transmission as a New Participating Transmission Owner**

The ISO considers it important not to delay the effectiveness of Citizens Sunrise Transmission's status as a participating transmission owner. Over the course of its operations the ISO has become accustomed to implementing Commission-ordered revisions to transmission revenue requirements and the associated revisions to its transmission access charges to become effective on dates as necessary to support schedules associated with the addition of transmission facilities and other transactions involving entitlements.<sup>20</sup> Consequently, the ISO is willing to forego its usual preference for implementation of transmission access charge revisions for new participating transmission owners on July 1 or January 1 in the case of Citizens Sunrise Transmission as prescribed by ISO tariff section 4.3.1.1 should the actual effective date be other than July 1, 2012. In this particular case, a July 1, 2012 effective date has been requested but may need to change in order to address the construction schedule associated with the Sunrise Powerlink transmission project. If the July 1, 2012

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<sup>20</sup> See, e.g., *California Independent System Operator Corp.*, 109 FERC ¶ 61,153, at Ordering Paragraph (B) (2004) (accepting revisions to TCA effective November 1, 2004 as proposed by the ISO).

date proves infeasible, it is not in the interests of the ISO or Citizens Sunrise Transmission to defer the effective date to January 1, 2013. Accordingly the ISO hereby requests any waiver, if necessary, by the Commission of the provisions of ISO tariff section 4.3.1.1 – and the related provisions of ISO tariff Appendix F, Schedule 3, Section 8.1 – in order to implement the effective date of these TCA amendments should the actual effective date be other than July 1, 2012. The granting of any necessary waiver of these provisions by the Commission in conjunction with its order establishing the effective date of these TCA amendments should resolve any concerns that other participating transmission owners may express.

Absent Commission approval of an effective date for the TCA amendments associated with Citizens Sunrise Transmission simultaneous with the commercial operation date of the Sunrise Powerlink transmission project and the ISO assumption of operational control of the facilities, the ISO's market participants may not have access to this transmission capacity.

## **II. COMPLAINT**

### **A. Overview of the Basis for this Complaint**

The Federal Power Act and the Commission's rules provide that any person may seek redress regarding any contract affecting the rates and charges of a public utility. The ISO is submitting this complaint because the TCA would be unjust, unreasonable, and unduly discriminatory unless it were modified to include the proposed revisions discussed in section I, above. Therefore, the ISO requests that Commission issue an order permitting the TCA to be thus modified.

As discussed in section I.B of this filing, the ISO submits that the issues and concerns raised by some TCA parties regarding this matter have been sufficiently considered, and that there is no objection to any of the other proposed changes to the TCA. Consequently, the ISO submits that there should be no reasonable objection to the TCA amendments proposed in this filing and that it would be unjust and unreasonable and unduly discriminatory not to accept TCA revisions proposed in the present filing.

**B. Authority of the Commission to Authorize the TCA Amendment and to Take Action Regarding the Terms and Conditions of the TCA Pursuant to the ISO's Complaint**

**1. The TCA Expressly Provides for Amendment by Commission Order**

The ISO's filing of this complaint is consistent with the express terms of section 26.11 of the TCA. Section 26.11 states, in relevant part, that the TCA may be modified "by mutual agreement of the Parties, subject to approval by the FERC," or "*upon issuance of an order by FERC.*" TCA, §§ 26.11(1), -(3) (emphasis added). As the ISO felt compelled to submit this filing only after it reached an impasse with at least one other participating transmission owner regarding the proposed revision to TCA section 22.4, the amendment to the TCA with regard to section 22.4 cannot be made by mutual agreement of all of the parties to the TCA. Therefore, consistent with the provision of the TCA that expressly permits modification by order of the Commission, the ISO respectfully requests that the Commission issue an order modifying the TCA as described in this filing. These modifications to the TCA are necessary for the reasons stated above in section I of this filing. The Commission has already determined that it

has the authority to issue an order of this sort, as the Commission issued similar orders in response to similar filings by the ISO with regard to the incorporation of Western Area Power Administration into the TCA as a partial participating transmission owner<sup>21</sup> and with regard to the incorporation of Startrans IO into the TCA as a new participating transmission owner.<sup>22</sup>

## **2. The Commission's Authority to Amend the TCA Is Indisputable**

A number of provisions in the Federal Power Act and the Commission's regulations give the Commission indisputable authority to amend the TCA.

Section 306 of the Federal Power Act states in relevant part that:

Any person . . . complaining of anything done or omitted to be done by any licensee or public utility in contravention of the provisions of this Act may apply to the Commission by petition which shall briefly state the facts, whereupon a statement of the complaint thus made shall be forwarded by the Commission to such licensee or public utility, who shall be called upon to satisfy the complaint or answer the same in writing within a reasonable time to be specified by the Commission. If such licensee or public utility shall not satisfy the complaint within the time specified or there shall appear to be any reasonable ground for investigating such complaint, it shall be the duty of the Commission to investigate the matters complained of in such manner and by such means as it shall find proper.

16 U.S.C. § 825e.

In addition, section 206 of the Federal Power Act states in relevant part that the Commission, upon its own motion or upon complaint, may determine whether "any rate, charges, or classification demanded, observed, charged, or

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<sup>21</sup> *California Independent System Operator Corp.*, 109 FERC ¶ 61,153 (2004). In that case, the Commission treated the ISO's alternative filing as a complaint and granted the ISO's requested relief in part. *Id.* at P 34.

<sup>22</sup> *California Independent System Operator Corp.*, 124 FERC ¶ 61,004 (2008). In that case, the Commission granted the relief requested in the ISO's complaint in substantial part and accepted the ISO's proposed revisions to the TCA. *Id.* at PP 47, 48.

collected by any public utility for any transmission or sale subject to the jurisdiction of the Commission, or [whether] any rule, regulation, practice, or contract affecting such rate, charge, or classification” is unjust, unreasonable, unduly discriminatory, or preferential. 16 U.S.C. § 824e(a). Moreover, the section provides that the Commission “shall determine the just and reasonable rate, charge, classification, rule, regulation, practice, or contract to be thereafter observed and in force, and shall fix the same by order.” *Id.* Rule 206 also provides in relevant part that “[a]ny person may file a complaint seeking Commission action against any other person alleged to be in contravention or violation of any statute, rule, order, or other law administered by the Commission, or for any other alleged wrong over which the Commission may have jurisdiction.” 18 C.F.R. § 385.206(a). The Commission has previously authorized other revisions to the TCA pursuant to complaint proceedings.<sup>23</sup>

Without the addition of the proposed changes contained in this filing, the TCA is unjust and unreasonable as it would subject the ISO to potentially conflicting standards for liability and indemnification. In addition, preventing the ISO from fully exercising its operational control over the Sunrise Powerlink transmission project could have detrimental reliability and market impacts. Moreover, it would be unduly discriminatory if existing participating transmission owners could exclude additional parties from becoming participating transmission owners by failing or refusing to execute a revision to the TCA.

That the Commission has authority to order this remedy is unquestionable. Section 309 of the Federal Power Act states in relevant part that “[t]he

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<sup>23</sup> See *California Independent System Operator Corp.*, 124 FERC ¶ 61,004 (2008).

Commission shall have power to perform any and all acts, and to prescribe, issue, make amend, and rescind such orders, rules, and regulations as it may find necessary or appropriate to carry out the provisions of this Act.” 16 U.S.C. § 825h. Given its mandate to ensure transmission rates and contracts are just and reasonable and do not present issues of undue discrimination, the Commission must take action and modify the TCA.

### **III. EFFECTIVE DATE**

The ISO respectfully requests the proposed changes to the TCA contained in this filing to become effective on July 1, 2012 to accommodate the addition of Citizens Sunrise Transmission as a party to the TCA. This effective date will ensure that Citizens Sunrise Transmission can continue its path towards becoming a participating transmission owner in a timely manner, and will minimize the likelihood that all appropriate considerations can be addressed prior to the date that the Sunrise Powerlink transmission project is in commercial operation and under ISO operational control.

The ISO further requests the Commission consider issuing an order with respect to the proposed TCA changes by April 30, 2012, *i.e.*, 61 days after the date of this filing. This would provide much needed advance assurance to Citizens Sunrise Transmission and its financial backers that their interest in the Sunrise Powerlink transmission project will be under ISO operational control as of the commercial operation date of the facilities. In the event additional time is necessary to consider any changes other than those necessary to make Citizens Sunrise Transmission a party to the TCA, the ISO respectfully requests that the

Commission nonetheless issue an order with respect to the proposed changes that are not disputed, particularly those necessary to make Citizens Sunrise Transmission a party to the TCA, no later than April 30, 2012.

The ISO has submitted the revised TCA in Attachment A showing an effective date of July 1, 2012. However, the actual effective date should coincide with the date the ISO assumes operational control of the Sunrise Powerlink transmission project. This date may very well be other than the requested effective date. Consequently, the ISO will submit a compliance filing reflecting the actual effective date of the revised TCA when the ISO assumes operational control of the Sunrise Powerlink transmission project. If the Commission does not order a specific effective date, then the ISO will file to revise the TCA effective date when (1) the Commission has issued its order on this filing and (2) the ISO has accepted operational control of the Citizens Sunrise Transmission rights shown in the Citizens Sunrise Transmission TCA Appendix A.

#### **IV. RULE 206 REQUIREMENTS**

Action or Inaction Alleged to Violate Statutory Standards or Regulatory Requirements (Rule 206(b)(1)): The violation is stated in sections I and II above.

How Action or Inaction Violates Applicable Statutory Standards or Regulatory Requirements (Rule 206(b)(2)): The violation of statutory and regulatory requirements is described in section II above.

Issues Presented as They Relate to or Affect the Complainant (Rule 206(b)(3)): The issues presented are set forth in sections I, II, and III above.

Good Faith Effort to Quantify the Financial Impact or Burden Created for Complainant (Rule 206(b)(4)): The ISO is unable to quantify the financial impact or burden created if the TCA is not amended as described in section I above or the requested effective date is not granted as described in section III above.

Practical, Operational, or other Nonfinancial Impacts on Complainant (Rule 206(b)(5)): Unless the Commission grants the relief requested in this complaint, the ISO will be unable to ensure that Citizens Sunrise Transmission entitlements will be under the ISO's operational control. In addition, if the Commission does not grant the requested TCA revisions described in section I.B above, the ISO may be subject to varying standards of liability and indemnity for actions taken under the ISO tariff and the TCA.

Related Proceedings (Rule 206(b)(6)): As discussed in the introduction and section I above, this proceeding is related to the Commission proceedings on the transmission owner tariff and TRR proposed by Citizens Sunrise Transmission in Docket No. ER12-686. However, the specific relief requested in this complaint, the amendment of the TCA to modify the TCA and add Citizens Sunrise Transmission as a new participating transmission owner consistent with the outcome of those proceedings, is not appropriately the subject of those proceedings.

Specific Relief Requested (Rule 206(b)(7)): The specific relief requested is set forth in sections II and III above.

Documents that Support the Facts in the Complaint (Rule 206(b)(8)): No documents other than the complaint itself are provided to support the facts in the complaint.

Dispute Resolution (Rule 206(b)(9)): The ISO does not believe that dispute resolution procedures would be useful with regard to this matter and the ISO has not employed such procedures. Given the short time available and the lack of complete agreement by the TCA parties regarding the resolution of the issues they have raised regarding this matter, the ISO has not attempted to obtain the signatures of other parties to the TCA to include with this filing. The ISO will rely on comments that may be filed to express their views in response to this complaint.

Service (Rule 206(c)): The ISO has served copies of this complaint and all attachments upon the Public Utilities Commission of the State of California, the California Energy Commission, the participating transmission owners, Citizens Sunrise Transmission, and all parties with effective Scheduling Coordinator Agreements under the ISO tariff. In addition, the ISO has posted the complaint and all attachments on the ISO website.

## **V. EXPENSES**

No expense or cost associated with this filing has been alleged or judged in any judicial or administrative proceeding to be illegal, duplicable, unnecessary, or demonstratively the product of discriminatory employment practices.

## **VI. COMMUNICATIONS**

Communications regarding this matter should be addressed to the following persons, who should also be designated for service on the Commission's official service list:

John C. Anders  
Senior Counsel  
California Independent System Operator Corporation  
250 Outcropping Way  
Folsom, California 95630  
Tel: (916) 608-7287  
Fax: (916) 608-7222  
janders@caiso.com

## **VII. LIST OF ATTACHMENTS**

The following documents, in addition to this letter, support this filing:

Attachment A	Proposed clean version of the TCA
Attachment B	Black-lined version showing the proposed changes to the TCA
Attachment C	Table of proposed TCA changes

## VIII. CONCLUSION

Wherefore, the ISO respectfully requests that the Commission issue an order accepting the changes to the TCA proposed herein, effective as of the date proposed in this filing.

Respectfully submitted,

s/John C. Anders

Nancy Saracino  
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Sidney Davies  
Assistant General Counsel  
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Dated: February 29, 2012

**Attachment A -  
Transmission Control Agreement**

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
FERC ELECTRIC TARIFF NO. 7  
FOURTH REPLACEMENT TRANSMISSION CONTROL AGREEMENT

AMENDED AND RESTATED TRANSMISSION CONTROL  
AGREEMENT

Among  
The California Independent System Operator Corporation  
and  
Transmission Owners

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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 ATLANTIC 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 .....

**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  
Atlantic 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  
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APPENDICES B - ENCUMBRANCES

PG&E Appendix B  
Edison Appendix B  
SDG&E Appendix B  
Citizens Sunrise 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.

## **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 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 therefrom, 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.

#### **4.5. 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 reducing that filed Transmission Revenue Requirement and directs the CAISO to make refunds of amounts collected 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 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 14<sup>th</sup> day of February, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

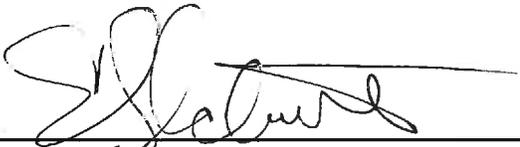
Appendix C

Appendix D

Appendices 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 \_\_\_\_ day of \_\_\_\_\_, 2012 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)

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

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

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

Appendix D

Appendix E (SONGS)

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

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

**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 \_\_\_\_ day of \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Edison)

Appendix B (Edison)

Appendix C

Appendix D

Appendix E (SONGS)

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

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

**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 \_\_\_\_ day of \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Vernon)

Appendix B (Vernon)

Appendix C

Appendix D

Appendix E

**CITY OF VERNON**

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

ATTEST:

\_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Anaheim)

Appendix B (Anaheim)

Appendix C

Appendix D

**CITY OF ANAHEIM**

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

ATTEST:

\_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Azusa)

Appendix B (Azusa)

Appendix C

Appendix D

**CITY OF AZUSA**

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

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Banning)

Appendix C

Appendix D

**CITY OF BANNING**

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

ATTEST:

\_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Riverside)

Appendix B (Riverside)

Appendix C

Appendix D

**CITY OF RIVERSIDE  
3900 Main Street, 4<sup>th</sup> Floor  
Riverside, California 92522**

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

ATTEST:

\_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_

**36. SIGNATURE PAGE**

**ATLANTIC PATH 15, LLC**

**ATLANTIC PATH 15, LLC** 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 (Atlantic Path 15)

Appendix C

Appendix D

**Atlantic Path 15, LLC**

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

**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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Western)

Appendix C

Appendix D

**Western Area Power Administration, Sierra Nevada Region  
Sierra Nevada Region**

**114 Parkshore Drive**

**Folsom, CA 95630-4710**

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

**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: \_\_\_\_\_

**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 \_\_\_\_ day of \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Trans Bay Cable LLC)

Appendix C

Appendix D

**Trans Bay Cable LLC**

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

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 \_\_\_\_\_, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Startrans IO)

Appendix C

Appendix D

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

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

**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 February, 2012 and thereby incorporates the following Appendices in this Agreement:

Appendices A

Appendices B

Appendix C

Appendix D

Appendices E

**CITIZENS SUNRISE TRANSMISSION LLC**

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

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

**Peter F. Smith**  
Chief Operating Officer

**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.	PacifiCorp	PG&E Original Rate Schedule FERC No. 240	Lease of Transmission Capacity	12/31/2017	PG&E lease of varying amounts of PacifiCorp's share of the transmission capacity on the 500 kV No. 2 line between the Malin and Round Mountain substations. See also Section 2 of the Lease.
3.	SCE, Montana Power, Nevada Power, Sierra Pacific	WSCC 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.
4.	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
5.	Various – See Attachment A	Western Systems Power Pool Agreement – WSPP Rate Schedule FERC No.1	Power Sales, transmission	Upon WSPP expiration	Both entitlement and encumbrance.

## 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>
1.	City-Edison Pacific Intertie D-C Transmission Facilities Agreement	LADWP	448	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 facility.</li> </ul>

**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>
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	11/20/2019, or sooner by mutual agreement.	<ul style="list-style-type: none"> <li>• 1950 MW towards Edison, 900 MW towards LADWP. Transfer capability of the interconnection is established through joint technical studies.</li> </ul>

## 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>
4.	City-Edison Sylmar Interconnection Agreement	LADWP	307	On 5 years 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>Sylmar-Pardee #1&amp;2, Sylmar-Gould and Sylmar-Eagle Rock 230 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 notice by either party.	<ul style="list-style-type: none"> <li>At the request of either party and by mutual agreement, LADWP's and Edison's respective systems interconnected at LADWP's Haiwee 34.5 kV Substation, may be operated in parallel, which normally operates open at Haiwee.</li> </ul>
6.	City-Edison 400,000 kVA Interconnection Agreement (Velasco)	LADWP	215	On 3 year 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>
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>

**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>
8.	Amended and Restated IID-Edison Mirage 230 kV Interconnection Agreement	IID	314	On one year 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.	IID Edison Transmission Service Agreement for Alternative Resources	IID		Earlier of Dec 31, 2015, or the termination date of the last Plant Connection Agreement.	<ul style="list-style-type: none"> <li>Transmission Service on IID's 230 kV system to transmit the output of QFs resources to Edison's system, via Mirage Substation.</li> </ul>

## 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>
10.	Principles of Interconnected Operation for Four Corners Interconnection Agreement	APS, SRP, EPE, PSNM, TGE	47.0	None	<ul style="list-style-type: none"> <li>• Generation principles for emergency service.</li> <li>• Edison's facility at Four Corners includes its portion of the Eldorado –Moenkopi from Eldorado to CA/NV border of the Eldorado-Moenkopi –Four Corners 500 kV transmission line.</li> <li>• Edison can separate its wholly-owned facilities from parallel operation with others under abnormal operating conditions without prior notice.</li> <li>• Edison can separate its wholly-owned facilities from parallel operation with others for maintenance on reasonable advance notice (see Co-tenancy Agreement for facilities).</li> <li>• Edison has the right to schedule emergency service from each party.</li> </ul>
11.	Four Corners Project Co-Tenancy Agreement and Operating Agreement	APS, SRP, EPE, PSNM, TGE	47.2	2016	<ul style="list-style-type: none"> <li>• Edison has co-tenancy ownership of 32% in the Four Corners 500 kV switchyard, 12% in the 345 kV switchyard and 48% in the 345/500 kV bus-tie transformer bank.</li> <li>• Edison has rights to sufficient capacity in the switchyards and bus-tie transformer bank to permit its entitlement to Four-Corners Project power and energy to be delivered to the point where the Eldorado-Moenkopi-Four Corners transmission line connects to the Four Corners 500 kV Switchyard.</li> <li>• Edison may use any unused capacity in the switchyard for any purpose, provided that any over subscription shall be subject to proration of the remaining capacity based on switchyard ownership of the requesting co-owners.</li> </ul>

**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>
12.	Navajo Interconnection Principles	USA, APS, SRP, NPC, LADWP, TGE	76	None	<ul style="list-style-type: none"> <li>• Generation principles for emergency service.</li> </ul>
13.	Edison – Navajo Transmission Agreement	USA, APS, SRP, NPC, LADWP, TGE	264	5/21/2023	<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. The amount of service provided is proportional to each party's entitlement to the total capability of the transmission system described above.</li> </ul>
14.	ANPP High Voltage Switchyard Participation Agreement	APS, SRP, PSNM, EPE, SCPPA, LADWP	320	2031	<ul style="list-style-type: none"> <li>• Edison has 21.77% 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>

## 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>
15.	Mutual Assistance Transmission Agreement	IID, APS, SDG&E	174	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.	<ul style="list-style-type: none"> <li>• In the event of a contingency in the Palo Verde-Devers, 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.</li> </ul>
16.	Midway Interconnection Agreement	PG&E	77	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 share of 500 kV Midway-Vincent transmission system:               <ul style="list-style-type: none"> <li>– Midway-Vincent #1</li> <li>– Midway-Vincent #2</li> <li>– Midway-Vincent #3 from Vincent Substation to mile 53, Tower 1</li> </ul> </li> </ul>
17.	Amended and Restated Eldorado System Conveyance and Co-Tenancy	NPC, SRP, LADWP	424	12/31/2012 unless extended by agreement of all parties.	<ul style="list-style-type: none"> <li>• Edison's share of Eldorado System Components:</li> <li>• Eldorado Substation: Edison 500 kV Capacity Entitlement = Eldorado Substation Capacity minus NPC transmission Entitlement [222 MW] minus SRP transmission Entitlement [158 MW] minus LADWP transmission Entitlement [316 MW];</li> <li>• Eldorado Substation: Edison 220 kV Capacity Entitlement = Eldorado Substation Capacity minus NPC transmission entitlement [222 MW], minus SRP transmission entitlement [158 MW];</li> <li>• Mohave Switchyard: Edison Capacity Entitlement = 884 MW;</li> <li>• Eldorado – Mohave 500 kV line: (Edison Capacity Entitlement = Eldorado – Mohave 500 kV line capacity minus NPC transmission Entitlement [222 MW] minus SRP transmission</li> </ul>

**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>
					Entitlement [158 MW] minus LADWP transmission Entitlement [316 MW]); <ul style="list-style-type: none"> <li>• Eldorado – Mead 220 kV Line Nos. 1 &amp; 2: (Edison Capacity Entitlement = Eldorado – Mead 220 kV Line No. 1 &amp; 2 capacity minus NPC transmission Entitlement [222 MW] minus SRP Capacity Entitlement [158 MW].</li> </ul>

## 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>
18.	WAPA-Edison Contract for 161-kV Interconnection and Operation, Maintenance and Replacement at Blythe Substation	WAPA	482	Midnight September 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>
19.	SONGS Ownership and Operating Agreements	SDG&E, Anaheim, Riverside	321	In effect until termination of easement for plant site.	<ul style="list-style-type: none"> <li>• Edison's share of SONGS switchyard with termination of its 230 kV transmission lines: <ul style="list-style-type: none"> <li>– SONGS – Santiago 1 and 2,</li> <li>– SONGS – Serrano, and</li> <li>– SONGS – Chino 230 kV</li> </ul> </li> </ul>
20.	District-Edison 1987 Service and Interchange Agreement	MWD	443	The earlier of: (1) the termination of the agreement, (2) upon 60 days written notice by SCE following a determination by the CPUC that SCE was imprudent for entering into the Fourth Amendment, or (3) upon 30 days advance written notice by either party.	<ul style="list-style-type: none"> <li>• 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 Line is available to transmit any electric energy to which Edison may be entitled.</li> <li>• Up to 320 MW is required to supply District's Colorado River Aqueduct pump load.</li> <li>• District's Transmission Line is operated by the District as directed by Edison.</li> </ul>
21.	Edison-Arizona Transmission Agreement	APS	282	Through the term of the Four Corners plant site New Lease	<ul style="list-style-type: none"> <li>• Edison has ownership-like rights to the 500 kV Transmission line from the Four Corners Project to the Arizona-Nevada border. Edison also owns the 500 kV line from Arizona-</li> </ul>

**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>
				as that term may be extended or renewed.	Nevada border to Edison's Eldorado substation.
22.	Mead Interconnection Agreement	WAPA	308	May 31, 2017	<ul style="list-style-type: none"> <li>• Edison has rights to transmit its Hoover power</li> <li>• Edison's facilities include Eldorado-Mead 230 kV #1 and 2 transmission lines.</li> <li>• Edison may request additional firm transmission service rights through Mead Substation subject to availability as determined by WAPA.</li> </ul>
23.	Agreement for Mitigation of Major Loop Flow	Pacificorp, PG&E, SCE	Pacificorp R/S # 298	2/12/2020	<ul style="list-style-type: none"> <li>• Pacificorp to operate Phase Shifting Transformers on the Sigurd-Glen Canyon and Pinto-Four Corners Transmission Lines in accord with contract.</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
81-034	Mutual Assistance Transmission Agreement	IID, APS, Edison	62	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.	Should a contingency occur in the Palo Verde-Devers, 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.
79-016	SONGS Participation Agreement	Edison, Anaheim, Riverside	321	None.	SDG&E's share of SONGS switchyard with termination of its 230 kV transmission lines: - San Luis Rey (3 Lines)  - Talega (2 lines)
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 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 & Electric Company, Imperial Irrigation District, and Salt River Project Agricultural Improvement and Power District Incorporated (MOU)	Funding Agreement: Salt River Project 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.  MOU: SDG&E, APS, IID, and SRP	SCE FERC Rate Schedule 420	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 Switchyard (Hassayampa) on terms and conditions satisfactory to the ANPP High Voltage Switchyard Participants consistent with the MOU. Under the MOU, SDG&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.
	SDG&E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease	SDG&E, Citizens Sunrise Transmission LLC			SDG&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") after the Commercial Operation Date of the Sunrise Powerlink for

					<p>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 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>
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## 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	154	(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	<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

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Termination	Contract Amount
1. Marketplace Substation-Adelanto	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		Oct 31, 2030	12 MW
2. Westwing-Mead-Marketplace 500 kV	Banning-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030	3 MW
3. Marketplace-McCullough 500 kV	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030	12 MW 3 MW
4. Adelanto-Victorville/Lugo	Banning-LADWP	To Victorville	Adelanto-Victorville/Lugo Firm Transmission Service Agreement		See Note 1	12 MW
5. Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement		See Note 2	3 MW
6. Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Sylmar Firm Transmission Service Agreement		See Note 3	5 MW
7. Mead 230 kV-Devers 115 kV	Banning-SCE	To Devers	Hoover Firm Transmission Service Agreement		See Note 4	2 MW
8. Devers 500 kV-Devers 115 kV	Banning-SCE	To Devers	1995 San Juan Unit 3 Firm Transmission Service Agreement		See Note 5	15 MW

### Notes

- 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.
1. 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.
  2. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest San Juan Unit 3; or (iii) unacceptable FERC modification.
  3. 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.
  4. Agreement terminates on June 30, 2012.

## APPENDIX A: CITY OF RIVERSIDE TRANSMISSION ENTITLEMENTS

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Termination	Contract Amount
1. IPP-Adelanto Switching Station	Riverside-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	N-S 244 MW S-N 142 MW
2. Marketplace Substation-Adelanto	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	118 MW
3. Westwing-Mead-Marketplace 500 kV	Riverside-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	18 MW
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	118 MW 17 MW
5. Adelanto-Victorville/Lugo	Riverside-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agmnt		See Note 1	118 MW
6. Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Base Capacity Transmission Service Agreement		See Note 2	137 MW
7. Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Additional Capacity Transmission Service Agreement		See Note 3	107 MW
8. IPP-Mona Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4	W-E 135 MW E-W 126 MW
IPP-Gonder Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4	W-E 19 MW E-W 12 MW
10. San Onofre-Vista	Riverside-SCE	To Vista	San Onofre Nuclear Generating Station Firm Transmission Service Agmt.		See Note 5	42 MW
11. Mead 230 kV-Vista	Riverside-SCE	To Vista	Hoover Firm Transmission Service Agreement		See Note 6	30 MW
12. Lugo/Victorville-Vista	Riverside-SCE	To Vista	Intermountain Power Project Firm Transmission Service Agreement		See Note 7	156 MW
13. Lugo/Victorville-Vista	Riverside-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agmt.		See Note 8	12 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 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 San Onofre Nuclear Generating Station Units 2 and 3; or (iii) unacceptable FERC modification.
6. 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.
7. 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.
8. 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**  
**Atlantic Path 15, LLC**  
**Transmission Entitlements**

Path 15 Project Facilities

Atlantic 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. Atlantic Path 15, LLC will own Entitlements to certain capacity on the Path 15 Project Facilities.

Atlantic 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 Atlantic 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 Atlantic 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. Atlantic 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 Atlantic 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>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Adelanto Project (MAP)	SCPPA, MSR, 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, MSR, 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

# **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

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
1.	Bay Area Rapid Transit	Service Agreement Nos. 42 and 43 to FERC Electric Tariff, First Revised Volume No. 12	Network Integration Transmission Service Agreement and Network Operating Agreement - OAT	10/1/2016	
2.	CDWR	Comprehensive Agreement – PG&E Rate Schedule FERC No. 77	Interconnection and Transmission	12/31/2014	Transmission Related Losses

<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.

3.	Midway-Sunset Co-Generation	Cogeneration Project Special Facilities – PG&E Rate Schedule FERC No. 182	Interconnection, transmission	1/1/2017	
4.	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	
5.	Path 15 Operating Instructions		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
6.	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
7.	San Francisco (City and County of)	Interconnection Agreement - PG&E Rate Schedule FERC No. 114	Interconnection, transmission and supplemental power sales	7/1/2015	Power sales are Firm Partial Requirements
8.	Santa Clara (City of)	Mokelumne Settlement and Grizzly Development Agreement – PG&E Service Agreement No. 20 under FERC Electric Tariff Sixth Revised Volume No. 5	Transmission, power sales	1/1/2034	
9.	SCE, Montana Power Nevada Power, Sierra Pacific	WSCC 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.
10.	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
11.	TANC and other COTP Participants	COTP Interconnection Rate Schedule – PG&E Rate Schedule FERC No. 144	Interconnection	Upon termination of COTP	
12.	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	
13.	WAPA	San Luis Unit – Contract No. 2207A – PG&E Rate Schedule FERC No. 227 (superseding Original Tariff Sheet Nos. 104 through 137 of PG&E Rate Schedule FERC No. 79)	Transmission	4/1/2016	

\* 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
14.	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
15.	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

	POINT OF RECEIPT- DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
1.	Devers - CAISO Grid Take Out Point serving Banning	Banning	To Banning	1995 San Juan Unit 3 Firm Transmission Service Agreement	381	Earlier of termination of Banning's interest in San Juan Unit 3 or Banning's 1-year notice given after 1/1/03.	15 MW
2.	Devers-- Vista	Colton	To Vista	1995 San Juan Unit 3 Firm Transmission Service Agreement	365	Earlier of termination of Colton's interest in San Juan Unit 3 or Colton's 1-year notice given after 1/1/03.	14.043 MW
3.	Hinds - Vincent	MWD	Bi-dir.	District-Edison 1987 Service and Interchange Agreement	443	The earlier of: (1) the termination of the agreement, (2) upon 60 days written notice by SCE following a determination by the CPUC that SCE was imprudent for entering into the Fourth Amendment, or (3) upon 30 days advance written notice by either party.	110 MW

### Footnotes:

- 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
4.	Eldorado-Pastoria Vincent-Eldorado / Pastoria	CDWR	Bi-dir.	Firm Transmission Service Agreement (Eldorado-Vincent)	113	Earlier of: (a) the in-service date of transmission facilities CDWR has obtained for replacement of the firm transmission service being made available by Edison to CDWR hereunder, (b) the date when CDWR is no longer entitled to receive a share of the electrical output from Reid Gardner Unit No. 4, (c) July 25, 2013, (d) the date when Reid Gardner Unit No. 4 is permanently retired from service, or (e) the date which is eight (8) months following advance written notice of termination by CDWR, or if Edison agrees, on lesser notice.	235 MW
5.	Eldorado / Mohave - Lugo	LADWP	Bi-dir.	Victorville - Lugo Interconnection Agreement	51	11/20/2019, or sooner by mutual agreement.	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 Mohave-Lugo, Mohave-Eldorado, Eldorado-Lugo, Eldorado-McCullough, McCullough-Victorville lines, and Victorville-Lugo 500 kV transmission lines.
6.	Moenkopi - Eldorado	USA, APS, SRP, NPC, LADWP, TGE	Bi-dir.	Edison - Navajo Transmission Agreement	264	5/21/2023.	In the event of a contingency in the Navajo-McCullough or Moenkopi-Eldorado transmission lines, Edison and the Navajo participants provide each other emergency service transmission rights without a charge.
7.	Mohave – Eldorado	LADWP, NPC, SRP	to Eldorado	Amended and Restated Eldorado System Conveyance and Co-	424, 425	12/31/2012 unless extended by agreement of all parties.	If Mohave-Eldorado line is curtailed, pro-rata back up is provided on Mohave-Lugo and Eldorado-Lugo

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
				Tenancy Agreement; Eldorado System Conveyance 2 and Co-Tenancy Agreement, Amended and Restated Eldorado System Operating Agreement			lines. If Mohave-Lugo is curtailed, pro-rata back-up is provided on Mohave-Eldorado. Amount of back up capacity is up to participant's Mohave Capacity Entitlement. For curtailment purposes, Capacity Entitlements are: Edison-884 MW; LADWP-316 MW; NPC-222 MW;SRP-158 MW.
8.	Eldorado - Mead	LADWP, NPC, SRP	to Eldorado	Amended and Restated Eldorado System Conveyance and Co-Tenancy Agreement; Eldorado System Conveyance 2 and Co-Tenancy Agreement, Amended and Restated Eldorado System Operating Agreement	424, 425	12/31/2012 unless extended by agreement of all parties.	If Eldorado-Mead lines are curtailed, line capacity is allocated pro rata in proportion to the following Capacity Entitlements: NPC-222 MW; SRP-158 MW; LADWP – 0 MW; Edison Capacity Entitlement is equal to entire capacity of the Eldorado-Mead Line Nos. 1&2 minus NPC Capacity Entitlement minus SRP Capacity Entitlement.
9.	Mead - Mohave	NPC	To Mohave	Amended and Restated Agreement for Additional NPC Connection to Mohave Project	426	Co-terminous with the Eldorado System Conveyance and Co-Tenancy Agreement.	Up to 222 MW of Back-up transmission service through the Eldorado system and Mohave 500 kV switchyard.
10.	Mead - CAISO Grid Take Out Point serving Banning	Banning	E-W	Hoover Firm Transmission Service Agreement	378	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.	2 MW
11.	Mead - Rio Hondo	Azusa	Bi-dir	Sylmar Firm Transmission Service Agreement	375	Earliest effective date of: written agreement of the Parties; Azusa's 1-year notice given after 1/1/2002;	8 MW

	POINT OF RECEIPT- DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
						or termination of Azusa's interest in San Juan Unit #3.	
1 2.	Mead - Rio Hondo	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
1 3.	Mead - Vista	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

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
14.	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.	30 MW
15.	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
16.	Mead - Mountain Center	AEPCO	E-W	Firm Transmission Service Agreement	131	Earliest of: 7/1/2021; 10 years advance written notice by either Party*; by AEPCO 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)	10 MW
17.	Palo Verde - Devers	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date on which DPV#1 is permanently removed from service, or (2)	368 MW

						upon 12 months prior written notice by LADWP (which may be extended by Edison for an additional period not to exceed 24 months).	
18.	Palo Verde - Sylmar	LADWP	Bi-dir.	Exchange Agreement	219	5/31/2012.	100 MW
19.	Sylmar - Devers	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date when DPV#1 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
20.	Palo Verde - Devers Devers - Valley Valley - Serrano Serrano - SONGS	IID, APS, SDG&E	Bi-Dir.	Mutual Assistance Transmission Agreement	174	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.	In the event of a contingency in the Palo Verde-Devers, 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.

	<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>
21.	SONGS - Vista	Riverside	To Vista	SONGS 2 & 3 Firm Transmission Service Agreement	393	180 day notice by Riverside or SONGS Participation termination.	42 MW
22.	Victorville/Lugo - Midway In addition: Beginning 1/1/2014: Victorville/Lugo - Midway Victorville/Lugo - Vincent Vincent - Midway	MSR	S-N	Firm Transmission Service Agreement (Victorville/Lugo-Midway)	339	In the event the Mead-Adelanto 500 kV Transmission Project is permanently removed from operation; or upon at least five (5) years' advance written notice by MSR to Edison; or upon eight (8) months advance written notice by MSR to Edison, or if Edison agrees, on lesser notice.	150 MW
23.	Victorville/Lugo - Vista	Riverside	To Vista	Intermountain Power Project Firm Transmission Service Agreement	391	180 day notice by Riverside or IPP Participation termination	156 MW
24.	Victorville/Lugo - 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
25.	Victorville/Lugo - 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
26.	Victorville/Lugo - 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>
27.	Victorville/Lugo - 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
28.	Victorville/Lugo --Laguna Bell	Vernon	Bi-dir.	Victorville-Lugo 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
29.	Victorville/Lugo - CAISO Grid Take Out Point serving Banning	Banning	Bi-dir.	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

	<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>
30.	Victorville/Lugo - 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
31.	Victorville/Lugo - 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
32.	Hoover - Mead	WAPA	Bi-dir.	Lease of Two 230-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 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 July 1, 2011, these interconnection points include:

1. the point at the International Border where SDG&E's ownership interest in the 230 kV Miguel/Tijuana transmission line interconnects with Comision Federal de Electricidad's ownership interest in the Miguel/Tijuana transmission line;
  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 segment of the 500 kV Miguel/Imperial Valley transmission line interconnects with the Imperial Valley Substation facilities which are owned in part by Imperial Irrigation District ("IID");
  4. 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;
  5. 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;
  6. the point where SDG&E's wholly-owned Narrows Substation interconnects with transmission facilities which are owned 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 SONGS and at other facilities which are not connected directly to the Local T/D System ("Owned/Leased Remote SDG&E Generating Units").
    - i. As of July 1 2011, SDG&E's 20% ownership interests in SONGS Unit 1 and Unit 2 are the only Owned/Leased Remote SDG&E Generating Units.



(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 Internal Revenue Service, 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.

## 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
81-034	Mutual Assistance Transmission Agreement	IID, APS, Edison	62	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.	In the event of a contingency in the Palo Verde-Devers, 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.
79-016	SONGS Participation Agreement	Edison, Anaheim, Riverside	321	None	SDG&E's share of SONGS switchyard with termination of its 230 kV transmission lines: - San Luis Rey (3 lines) - Talega (2 lines)
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.

<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.

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.
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

# TRANSMISSION CONTROL AGREEMENT

## APPENDIX C

### CAISO TRANSMISSION MAINTENANCE STANDARDS

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## 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.



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:

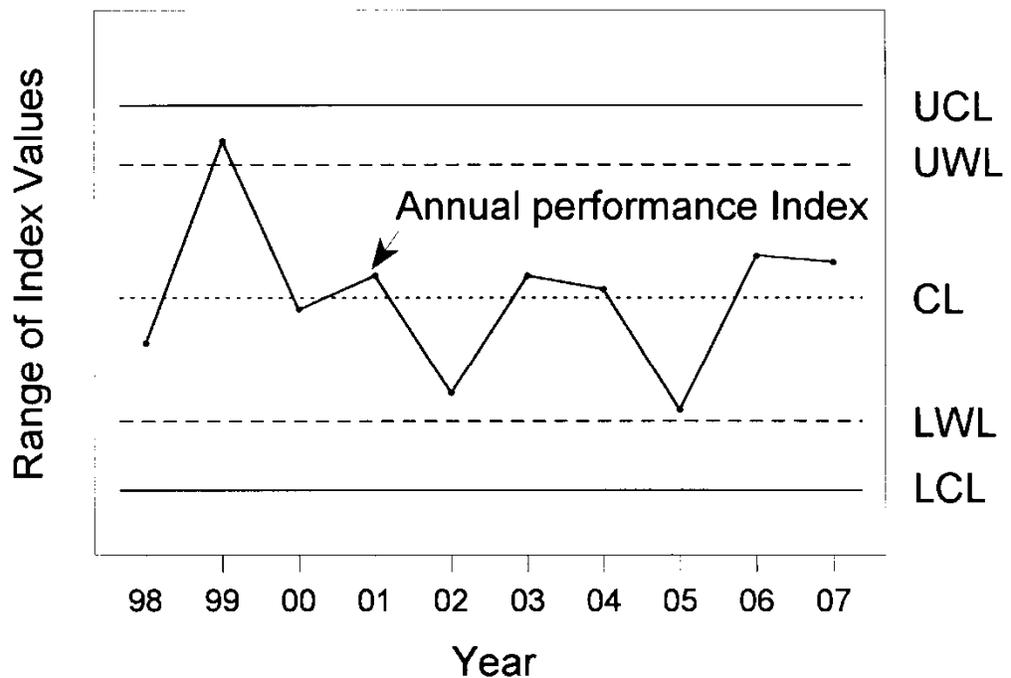
- Scheduled Outages<sup>(IMS)</sup>
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures.
- Forced Outages<sup>(IMS)</sup> which: (1) were caused by events outside the PTO’s system including Outages<sup>(IMS)</sup> which originate in other TO systems, other electric 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  $10^{**}2 = 100$  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  $M^{**}n = U$  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 v1 consecutive annual index values fall above the CL or v2 consecutive annual index values fall below the CL. The actual values of v1 and v2 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**

<b>Percentile</b>	<b>v1</b>	<b>v2</b>
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,  $v_1=6$ , and  $v_2=8$ .

- **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**

The Western Electricity Coordinating Council or its

**(WECC)**

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 October 10, 2006

### I. OVERVIEW

The preferred source of electrical power for the San Onofre Nuclear Generating Station (SONGS) electrical loads (safety-related and non safety-related) is the **offsite power supply** or 230 kV grid. The offsite power supply is sometimes referred to as the **preferred power supply** in the applicable regulatory documents.

The offsite power supply is considered "Operable" with respect to the SONGS Operating License and Technical Specifications when it can provide sufficient capacity and capability to supply electrical loads needed to safely shut down the reactor and mitigate certain specified accident scenarios.

The offsite power supply is considered "Inoperable" with respect to the SONGS Operating License and Technical Specifications if it is degraded to the point that it cannot provide sufficient capacity and capability to supply electrical loads needed to safely shut down the reactor and to mitigate the effects of an accident at SONGS.

It is a necessary condition of the SONGS Operating License and Technical Specifications that the offsite power supply be Operable at all times. If the offsite power supply is declared Inoperable, action must be taken to shut down an

online SONGS unit(s) and, for an offline unit, to suspend activities as required by the SONGS Operating License and Technical Specifications.

This level of degradation that would result in inoperability can be caused by an unstable offsite power system, or any condition which renders the offsite power supply unavailable to safely shutdown the units or to supply emergency electrical loads.

Since accident scenarios for which the SONGS plant is designed can result in a unit trip, it is imperative that this trip not impair the operability of the offsite power supply.

If both SONGS units are online and one unit trips (due to an accident or otherwise), the non-tripped unit will provide local voltage support to the SONGS switchyard, and 230 kV system voltage will remain within the required range. In cases where one SONGS unit is online and one unit offline, the offsite power supply must be sufficiently robust to survive a trip of the online unit and meet the SONGS voltage requirements in the post-trip condition. A dual unit trip is not the limiting condition since a plant accident is not postulated simultaneous with a dual unit trip. System Operating Procedures (see Reference 9 below) and programs shall be in place to ensure that various system operating conditions (generating unit outages, line outages, system loads, spinning reserve, etc.), including multiple contingency events, are evaluated and understood, such that impaired or potentially degraded grid conditions are recognized, assessed and communicated to the SONGS Control Room.

The SONGS switchyard is made up of the Southern California Edison Company (SCE) switchyard and the San Diego Gas & Electric Company (SDG&E) switchyard. Unless specifically stated otherwise, SONGS switchyard requirements contained in this document apply to both the SCE switchyard and the SDG&E switchyard.

## II. REQUIREMENTS

**Note: This section identifies the operational requirements for the SONGS offsite power supply. These requirements are part of the SONGS design basis and licensing basis. Failure to meet these requirements may render the offsite power supply Inoperable, thus requiring the operating SONGS unit(s) to shutdown. Failure to meet these requirements must be communicated to SCE and the SONGS Control Room for operability determination as soon as practicable, but in any case, within one hour. Changes in the operation of the transmission network that conflict with these requirements must have prior approval by SCE.**

**Note: Specific requirements, procedures, operating bulletins, division orders, and analysis that support or provide the basis for the specific operational requirements may be revised periodically subject to prior approval of the affected parties.**

1. Nine transmission lines into the SONGS switchyard are normally in service. Any increase or decrease in the number of lines into the SONGS switchyard requires prior approval of SCE. (Reference 7 below)

No line may be removed from service for greater than 30 days without prior notification to SCE. At least two independent transmission lines (one from SCE and one from SDG&E) between the transmission network (grid) and SONGS switchyard shall be in service at all times. (References 1, 2, 3, 4, 7, 8 below)

2. With both San Onofre units off-line, the SONGS offsite power source shall be capable of providing 158 MW and 96 MVAR to SONGS for normal operation and for shutting down the units during plant Design Basis Accident (DBA) conditions. (References 9, 10 below)
3. The minimum grid voltage at the SONGS switchyard shall be maintained at or above 218 kV. In the event of a system disturbance that can cause the voltage to dip below 218 kV, including the trip of a SONGS unit, the grid voltage shall recover to 218 kV or above within 2.5 seconds. (References 9, 10, 12, 13, 18 below)
4. The following initiating events shall not result in the loss of grid stability or availability:
  - a. The loss of a SONGS Unit (with the other unit already offline), or
  - b. The loss of any generating unit on the SCE and SDG&E grids, or
  - c. The loss of any major transmission circuit or intertie on the SCE and SDG&E grids, or
  - d. The loss of any large load or block of load (e.g., due to a bus section outage) on the SCE and SDG&E grids. (References 2, 3, 4, 8 below)
5. The maximum grid voltage at the SONGS switchyard shall be maintained at or below 234 kV. (References 10, 11, 18 below)

6. The normal operating voltage of the SONGS switchyard shall be maintained at 229 kV. The SONGS switchyard voltage shall not exceed 232 kV unless required to preserve transmission network integrity. (References 10, 11, 18 below)
7. The 3 limiting conditions for SONGS offsite power supply operability are defined as follows:
  1. One SONGS unit is off- line, and
  2. One of the critical line (s) outages, in GCC Operating Procedure, OP-13: SONGS Voltage (reference 19) occurs, and
  3. VAR flows north and south of SONGS are above the threshold levels for the existing combined SCE and SDG&E import level as defined by the nomograms referenced in the GCC Operating Procedure, OP-13: SONGS Voltage.

Based on these nomograms and SONGS offline unit's status, whenever limiting conditions 1 and 2, as set forth in this Requirement 7, occur, the CAISO (or the SCE Grid Control Center (SCE GCC), as directed by the CAISO) shall, as soon as practicable but, in any case, within one hour of the event, perform an evaluation of system conditions to determine whether or not the SONGS off site power supply remains Operable as defined herein. If the SONGS offsite power supply is Inoperable or cannot be determined to be Operable as defined herein, the CAISO (or the SCE GCC, as directed by the CAISO) shall notify the SONGS Control Room immediately of entry into the event. Subsequent to notification, the SONGS Control Room shall declare the offsite power supply Inoperable (in anticipation of losing the second SONGS unit) and shall declare the time period within which the on-line unit will have to initiate shutdown if conditions are not corrected. The time period shall be within 1 to 24 hours, based on the SONGS plant and equipment conditions.

In order to ensure the continued ability to meet the 3 limiting conditions identified above in this Requirement 7, the following six requirements (a-f) must be met:

- a. Systems studies shall be performed and updated based on changing grid conditions (load growth, etc.) to identify critical conditions that could render the offsite power supply Inoperable.
- b. Procedures and programs shall be in effect to ensure that the SONGS Control Room is notified as soon as practicable but, in any

case, within one hour of an event that renders the offsite power supply Inoperable.

- c. Grid conditions that are more severe with respect to SONGS switchyard voltage, or are otherwise unanalyzed, shall render the offsite power supply Inoperable.
  - d. Auditable records of current system studies shall be made available to SCE as needed to demonstrate compliance with regulatory requirements. Study results, including revisions and updates, shall be formally transmitted to SCE.
  - e. Study results and conclusions shall be assessed at least annually and updated, if needed, based on changing grid conditions. Results of the annual assessments shall be formally transmitted to Vice President Nuclear Engineering and Technical Services, San Onofre Nuclear Generating Station. (References 1, 2, 19, and 21 below)
  - f. System studies shall consider the interconnections between SCE, SDG&E, and other utilities in the Western Electricity Coordinating Council (WECC). (Reference 7 below)
8. In the event of loss of the SONGS offsite power:

**Note: SONGS 2 and 3 are required by NRC regulations to be able to safely cope with a loss of all AC power (Station Blackout) for a maximum of four hours. The four hour coping duration is based on the expectation that at least one source of AC power (offsite transmission line or onsite diesel generator) will be restored to the blacked-out unit within the four hours to ensure the proper functioning of systems required for plant safety.**

- a. Highest possible priority shall be given to restoring power to the SONGS switchyard. Procedures and training should consider several potential methods of transmitting power from black-start capable units to the SONGS switchyard. This includes such items as nearby gas turbine generators, portable generators, hydro generators, and black-start fossil power plants. (References 15, 26, 28 below)
- b. Should incoming lines to the SONGS switchyard be damaged, highest priority shall be assigned to repair and restoration of at least one line into the SONGS switchyard.

- c. Repair crews engaging in power restoration activities for SONGS shall be given the highest priority for manpower, equipment, and materials.
  - d. Formal programs and procedures shall be in place to effect items a, b and c above. (References 14, 15, 16, 17, 26, 27 below)
- 9. Grid frequency shall be maintained at 60 Hertz (nominal). A trip of one SONGS unit shall not cause the grid frequency to dip below 59.7 Hertz. SCE and SDG&E shall comply with the WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan. (References 7, 20 below)
- 10. SCE and SDG&E Bulk Power Transmission System Reliability Criteria as described in the SONGS Updated Final Safety Analysis Report (UFSAR) shall be maintained. It is recognized that the SCE and SDG&E Bulk Power Transmission System Reliability Criteria as described in the SONGS 2&3 Updated Final Safety Analysis Report may be revised from time to time. In the event the reliability criteria are revised, a system assessment and/or study (as described under specification 7) shall be performed to determine if the revised reliability criteria adversely impact grid reliability and availability as defined in this specification. Results of the assessment and/or study together with a copy of the revised reliability criteria shall be provided to SCE. Changes in grid operation based on the revised criteria and associated studies shall not be implemented without prior approval of SCE. (Reference 7 below)
- 11. Patrol and inspection of SCE and SDG&E transmission lines, to ensure that the physical and electrical integrity of transmission components are maintained, shall be performed as required by the SONGS UFSAR or in accordance with the current CAISO approved Overhead Electric Transmission Line Maintenance Practice, whichever requirement is more stringent. (Reference 7 below)
- 12. Line insulators on lines which carry power from the plant to the grid shall be washed as required by the SONGS UFSAR or on an appropriate wash cycle in accordance with the current CAISO approved Overhead Electric Transmission Line Maintenance Practice, whichever requirement is more stringent. The purpose and frequency of which is proven to prevent line outages that may result from flashovers due to accumulated contamination. (Reference 7 below)

13. Maintenance, testing and calibration of SCE and SDG&E station equipment and protective relays shall be performed as required by the SONGS UFSAR or in accordance with the current CAISO approved Electrical Station Maintenance Practice, whichever requirement is more stringent. (Reference 7 below)
14. Preventive maintenance and testing of SONGS switchyard batteries shall be performed in accordance with IEEE 450-1985 or IEEE 450-2002 subsequent to SONGS converting its battery maintenance program to IEEE 450-2002 requirements. (Reference 7, 23 below)
15. Updates to applicable portions of Section 8.0, Electric Power of the SONGS UFSAR shall be provided annually to facilitate periodic updates to the UFSAR by SONGS that are required by 10CFR50.71(e).

## **VI REFERENCES** (Current approved revision except as noted)

- 1) SONGS 2&3 Operating License and Technical Specifications, Section 3.8, Electrical Power Systems
- 2) 10CFR50 Appendix A, General Design Criterion 17 (GDC-17), Electrical Power Systems
- 3) NUREG 75/087, Standard Review Plan Revision 1, Section 8.2, Offsite Power System
- 4) NUREG 0800, Standard Review Plan Revision 2, Section 8.2, Offsite Power System
- 5) NUREG 0800, Standard Review Plan Revision 2, Branch Technical Position ICSB-11 (PSB), Stability of Offsite Power Systems
- 6) NUREG 0712, SONGS 2&3 Safety Evaluation Report, Section 8.0, Electric Power Systems
- 7) SONGS 2 & 3 Updated Final Safety Analysis Report, Section 8.0, Electric Power
- 8) ANSI/IEEE Std. 765-2002 Preferred Power Supply for Nuclear Power Generating Stations
- 9) SONGS Design Calculation E4C-082, System Dynamic Voltages During Design Basis Accident
- 10) SONGS Design Calculation E4C-090, Auxiliary System Voltage Regulation
- 11) SONGS Design Calculation E4C-092, Short Circuit Studies
- 12) SONGS Design Calculation E4C-098, 4 kV Swgr Protective Relay Setting
- 13) DBD-SO23-120, SONGS Design Basis Document, 6.9KV, 4.16KV and 480V Electrical Systems
- 14) 90051, SONGS Station Blackout Analyses
- 15) NUMARC 87-00 Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors
- 16) Letter from M. O. Medford (SCE) to the Document Control Desk (NRC), dated April 17, 1989, Subject: "Response to 10 CFR 50.63, `Loss of all

Alternating Current Power,' San Onofre Nuclear Generating Station Units 1, 2 and 3"

- 17) Letter from F. R. Nandy (SCE) to the Document Control Desk (NRC), dated May 1, 1990, Subject: "Supplemental Response to 10 CFR 50.63, 'Loss of All Alternating Current Power,' Station Blackout (TAC No. 68599/600), San Onofre Nuclear Generating Station Units 1, 2, and 3"
- 18) System Operating Bulletin 17 Appendix, System Voltage Control for San Onofre Nuclear Generating Station
- 19) GCC Operating Procedure, OP-013: SONGS Voltage
- 20) System Operating Bulletin 113, San Onofre 220 kV System Separation
- 21) Regulatory Guide 1.93, Revision 0, Availability of Electric Power Sources
- 23) SCE Division Order 60.20, Storage Batteries
- 26) System Operating Bulletin 1-A, Thermal Station Start-up and Power System Restoration
- 27) System Operating Bulletin 254, Emergency Orders—San Onofre Nuclear Generating Station 220 kV
- 28) SDG&E Control Procedure 1150, Capacity & Energy Emergencies - SDG&E System Emergencies
- 29) IEEE Std, 450-1985 IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations
- 30) IEEE Std. 450-2002 IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications

**Attachment B -  
Marked Transmission Control Agreement**

AMENDED AND RESTATED TRANSMISSION CONTROL  
AGREEMENT

Among  
The California Independent System Operator Corporation  
and  
Transmission Owners

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**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”) first dated ~~originally effective~~ as of ~~February 19, 1998~~ March 31, 1998, are

(1) The California Independent System Operator Corporation, a California nonprofit public benefit ~~C~~ corporation (the ~~“Independent System Operator”~~ or “ISO/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 ~~i~~ independent ~~S~~ system ~~O~~ operator (“ISO”) 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

~~ISO~~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 ~~ISO~~CAISO Operational Control of certain transmission lines and associated facilities and/or Entitlements, which are to be incorporated by the ~~ISO~~CAISO into the ~~ISO~~CAISO Controlled Grid for the purpose of allowing them to be controlled as part of an integrated ~~Control Area~~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 ~~ISO~~CAISO intends to provide to each Participating TO access to the ~~ISO~~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 ~~Control Area~~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 ~~ISO~~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 ~~Initial Transmission Owners~~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 ~~ISO~~CAISO Controlled Grid may apply to the ~~ISO~~CAISO under Section 2.2 to become a Participating TO and become a Party to this Agreement.

## 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO's Operational Control are subject, together with any documents creating such Encumbrances and any dispatch protocols to give effect to them, as the ~~ISO~~CAISO may require;

(iv) a statement that the applicant intends to place under the ~~ISO~~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 ~~s-2.4.3 and 2.4.4~~ of the ~~ISO~~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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ~~WEnet~~ or the ISOCAISO internet ~~w~~Website. The ISOCAISO 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

ISOCAISO 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 ISOCAISO determines that:

i. the applicant's transmission lines and associated facilities, including Entitlements, that are to be placed under the ISOCAISO's Operational Control can be incorporated into the ISOCAISO Controlled Grid without any material adverse impact on its reliability;

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

iii. -objections by the ISOCAISO under Section 4.1.3 shall have been withdrawn or determined by the ISOCAISO 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 ISOCAISO shall permit a Party to

become a Participating TO pending the outcome of ~~ISO~~CAISO ADR Procedures challenging whether or not the applicant satisfies the criteria set out in Section 2.2.3 if the ~~ISO~~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 ~~WEnet~~ or the ~~ISO~~CAISO internet wWebsite.

**2.2.6 Procedures and Charges.** The ~~ISO~~CAISO shall adopt fair and non-discriminatory procedures for processing applications under this Section 2.2. The ~~ISO~~CAISO shall publish its procedures for processing applications under this Section 2.2 on ~~WEnet~~ or on the ~~ISO~~CAISO internet wWebsite 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 ~~all costs incurred~~ any application fee established by the CAISO as filed with and accepted by FERC for in-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. ~~The ISO will furnish applicants, upon request, an itemized bill for the costs of processing their application.~~

## 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO's Operational Control to be exercised subject

to Encumbrances, provided that such Encumbrances do not materially impair the ISOCAISO's ability to meet its obligations under the ISOCAISO 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 ~~shall become~~ 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. the latest of:

- i. ~~the date that it is signed by the ISO and the Transmission Owners referred to in Section 2.1.1;~~
- ii. ~~the date the CPUC or its delegate declares to be the start date for direct access pursuant to CPUC Decision 97-12-131; and~~
- iii. ~~the date when this Agreement is accepted for filing and made effective by the 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 ~~ISO~~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 ~~ISO~~CAISO's ability to meet its Operational Control responsibilities as to the facilities remaining within the ~~ISO~~CAISO Controlled Grid.

3.3.4 **Publication of Withdrawal Notices.** The ~~ISO~~CAISO shall inform the public through ~~WEnet~~ or the ~~ISO~~CAISO internet ~~w~~Web site 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 ~~ISOCAISO~~, 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 working~~ 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 ~~ISOCAISO~~'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 ISOCAISO of a notice to Withdraw for Tax Reasons, the ISOCAISO shall promptly begin working with the applicable Tax Exempt Participating TO to relinquish the ISOCAISO'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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO any time after six days prior to the projected date of the Actual Adverse Tax Action, the ISOCAISO 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO shall relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO. If the ~~ISO~~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 ~~ISO~~CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements to such Tax Exempt Participating TO, such ~~p~~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 ~~ISO~~CAISO to relinquish Operational Control over the affected transmission lines, associated facilities, or Entitlements.

**3.4.6 Procedures to Relinquish Operational Control.** The

ISOCAISO 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 ISOCAISO'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 ISOCAISO.

**3.4.8 Amendment of Agreement.** Following the relinquishment by the

ISOCAISO of Operational Control of any affected transmission lines, associated facilities, or Entitlements in accordance with this Section 3.4, the ISOCAISO promptly shall prepare the necessary changes to this Agreement and to the ISOCAISO 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 ISOCAISO.** To assist Tax Exempt

Participating TOs in identifying at the earliest opportunity Impending Adverse Tax Actions or Actual Adverse Tax Actions, the ISOCAISO promptly shall provide to Participating TOs any non-confidential information regarding any ISOCAISO plans, actions, or operating protocols that the ISOCAISO 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 ISOCAISO shall inform the public through ~~WEnet~~ or the ISOCAISO internet ~~w~~Website of all notices received under this Section 3.4.

#### 4. TRANSFER OF OPERATIONAL CONTROL

##### 4.1. TO Facilities and Rights Provided to the ISOCAISO.

4.1.1 **ISOCAISO Controlled Grid.** Subject to Section 4.1.2 and the treatment of Existing Contracts under Section ~~16 s~~ 2.4.3 and 2.4.4 of the ISOCAISO Tariff and subject to the applicable interconnection, integration, exchange, operating, joint ownership, and joint participation agreements, each Participating TO shall place under the ISOCAISO'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 ISOCAISO'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 ~~Initial Transmission Owners~~ 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 ISOCAISO'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 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 ISOCAISO determines not to be necessary to fulfill the ISOCAISO's responsibilities under the ISOCAISO 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 ISOCAISO 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 ISOCAISO's Operational Control by one or more but not all of the joint owners or rights holders. The ISOCAISO 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 ISOCAISO. 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 3.2.9~~ 24.16 of the ISOCAISO Tariff. If an application under Section 211 of the FPA is filed by an eligible entity (or the ISOCAISO 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 ISOCAISO Operational Control over its expanded transmission facilities in accordance with this Section 4.

4.1.3 **Refusal of Facilities.** The ISOCAISO 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 ~~during the processing of an application under Section 2.2~~ 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 ISOCAISO to meet the Applicable Reliability Criteria and the applicant or Participating TO fails to give the ISOCAISO 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 ISOCAISO.

ii. The transmission lines, associated facilities, or Entitlements are subject to Encumbrances that unduly impair the ISOCAISO's ability to exercise its Operational Control over them in accordance with the ISOCAISO Tariff and the applicant or Participating TO fails to give the ISOCAISO a written undertaking to negotiate in good faith to the extent permitted by the applicable contract the removal of

the Encumbrances identified by the ~~ISO~~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 ~~ISO~~CAISO, the ADR Procedures shall be used to resolve any disputes between the ~~ISO~~CAISO and the applicant or Participating TO. For this purpose, Non-Participating TOs may utilize ~~ISO~~CAISO ADR procedures on a voluntary basis.

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

If the ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO's Operational Control.** The transmission lines, associated facilities, and Entitlements which each Participating TO places under the ~~ISO~~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 ISOCAISO's Operational Control and the Entitlements that it is making available for the ISOCAISO'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 ISOCAISO'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 ISOCAISO 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 ISOCAISO'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 ISOCAISO's Operational Control meet the Applicable Reliability Criteria (~~ARC~~) for the relevant Participating TO except as disclosed in writing to the ISOCAISO. As to the Local Reliability Criteria component of ~~ARC~~ the Applicable Reliability Criteria, each Participating TO has provided the ISOCAISO with such information required to identify such Participating TO's Local Reliability Criteria.

#### **4.2. The ISOCAISO Register.**

4.2.1 **Register of Facilities Subject to ISOCAISO Operational Control.** The ISOCAISO shall maintain a register (the "ISOCAISO Register") of all transmission lines, associated facilities, and Entitlements that are for the time being

subject to the ISOCAISO's Operational Control. The ISOCAISO Register shall also indicate those facilities over which the ISOCAISO has asserted temporary control pursuant to Section 4.5.2 and whether or not the ISOCAISO has commenced proceedings under Section 203 of the FPA in relation to them.

4.2.2 **Contents.** The ISOCAISO Register shall disclose in relation to each transmission line and associated facility subject to the ISOCAISO'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 ISOCAISO 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 ISOCAISO Register current, each Participating TO shall submit an ISOCAISO Register change for each addition or removal of a transmission line or associated facility or Entitlement from the ISOCAISO'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 ISOCAISO shall review each ISOCAISO Register change for accuracy and to assure that all requirements of this Agreement have been met. If the ISOCAISO determines that a

submitted ISOCAISO Register change is accurate and meets all the requirements of this Agreement, the ISOCAISO will modify the ISOCAISO Register to incorporate such change by the end of the next Business Day. The ISOCAISO may determine that an ISOCAISO 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 ISOCAISO promptly will communicate to the Participating TO the reason that the ISOCAISO cannot implement the ISOCAISO Register change and will work with the Participating TO in an attempt to resolve promptly the concerns leading to the ISOCAISO's refusal to implement an ISOCAISO Register change. The ISOCAISO 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 ISOCAISO as a result of an ISOCAISO determination that an ISOCAISO Register change cannot be implemented pursuant to this Section 4.2.3.

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

4.2.5 **Duty to Maintain Records.** The ISOCAISO shall maintain the ISOCAISO 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 ~~ISO~~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 ~~ISO~~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, ~~ISO~~CAISO Protocols, procedures, and directions of the ~~ISO~~CAISO issued or given in accordance with this Agreement. Rights and responsibilities that have not been transferred to the ~~ISO~~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 ~~ISO~~CAISO Controlled Grid without the ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO's Operational Control without the ~~ISO~~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 s 2.4.3 and 2.4.4~~ of the ISOCAISO 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 ISOCAISO's prior written consent. The ISOCAISO 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 ISOCAISO reasonably determines that the change is inconsistent with the Participating TO's obligations under the ISOCAISO Tariff or the TO Tariff or that the change may materially impair the ISOCAISO's ability to exercise Operational Control over the relevant lines or facilities or Entitlements or may reduce the reliability of the ISOCAISO 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 ISOCAISO, Trans Bay Cable LLC ("Trans Bay Cable"), and the Participating TOs acknowledge and agree that, following the ISOCAISO'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 ISOCAISO 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 ISOCAISO 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 ISOCAISO; 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 ISOCAISO.

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~~ ~~18.3~~ of the ISOCAISO Tariff, or a pro rata reduction in payments under Section ~~11.29.17.1~~ ~~16.1~~ of the ISOCAISO 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 ~~ISOCAISO~~, or (b) Trans Bay Cable receives either an underpayment, pursuant to Section 11.~~29.19.6~~.~~18.3~~ of the ~~ISOCAISO~~ Tariff, or a pro rata reduction in payments under Section 11.~~29.17.1~~.~~16.4~~ of the ~~ISOCAISO~~ 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 ~~ISOCAISO~~ 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 TRBAA adjustment true-ups to be made by the Participating TO pursuant to Section 6.1 of Schedule 3 of Appendix F of the ~~ISOCAISO~~ Tariff; (ii) Trans Bay Cable's action or failure to act; (iii) an error that has been corrected by the ~~ISOCAISO~~; or (iv) a billing or payment dispute between Trans Bay Cable and the ~~ISOCAISO~~.

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 ~~ISOCAISO~~, 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 ~~ISOCAISO~~, Startrans IO, L.L.C. ("Startrans IO"), and the Participating TOs acknowledge and agree that, following the ~~ISOCAISO~~'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 ISOCAISO 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 ISOCAISO 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 ~~ISO~~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 ~~ISO~~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~~ ~~.48.3~~ of the ~~ISO~~CAISO Tariff, or a pro rata reduction in payments under Section ~~11.29.17.1~~ ~~.46.4~~ of the ~~ISO~~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 ~~ISO~~CAISO, or (b) Startrans IO receives either an underpayment, pursuant to Section ~~11.29.19.6~~ ~~.48.3~~ of the ~~ISO~~CAISO Tariff, or a pro rata reduction in payments under Section ~~11.29.17.1~~ ~~.46.4~~ of the ~~ISO~~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 ~~ISO~~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 ISOCAISO Tariff; (ii) Startrans IO's action or failure to act; (iii) an error that has been corrected by the ISOCAISO; or (iv) a billing or payment dispute between Startrans IO and the ISOCAISO.

4.4.5.6 Should this Section 4.4.5 become null and void under Section 4.4.5.5, then Startrans IO, the ISOCAISO, 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.

**4.5. Procedure for Designating ISOCAISO Controlled Grid Facilities.**

4.5.1 **Additional Facilities.** If the ISOCAISO determines that it requires Operational Control over additional transmission lines and associated facilities not then constituting part of the ISOCAISO Controlled Grid in order to fulfill its responsibilities in relation to the ISOCAISO Controlled Grid then the ISOCAISO 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 ISOCAISO 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 ISOCAISO to exercise Operational Control over them) that do not then form part of the ISOCAISO 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 ISOCAISO to meet Applicable Reliability Criteria or to fulfill its Control Area Balancing Authority Area responsibilities under the ISOCAISO 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 ISOCAISO 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 ISOCAISO to assume such temporary control.

4.5.4 **Transmission Expansion Projects.** Any transmission expansion projects carried out pursuant to Section ~~3.2-24~~ of the ISOCAISO Tariff shall

be subject to the ISOCAISO's Operational Control from the date that it goes into service or after such period as the ISOCAISO deems to be reasonably necessary for the ISOCAISO to integrate the project into the ISOCAISO Controlled Grid.

**4.6. ~~TOs Control Centers.~~[INTENTIONALLY LEFT BLANK]**

**4.6.1 ~~ISO's Right to Occupy Participating TOs Control Centers.~~**

~~From the ISO Operations Date until the date when, in the reasonable opinion of the ISO, the ISO Control Center is established in accordance with Section 2.3.1.1 of the ISO Tariff, each Participating TO shall allow the ISO access to and such rights to occupy the Participating TO's existing control centers as the ISO reasonably requires for the purposes of exercising Operational Control of the ISO Controlled Grid.~~

~~4.6.2 **Confidentiality.** The parties to this Agreement shall implement Section 4.6.1 in conformity with the confidentiality requirements of Section 26.3.~~

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

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

- i. directly assignable radial lines and associated facilities

interconnecting Generation (other than lines and facilities interconnecting ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO shall inform the public through ~~WEnet~~ and the ISOCAISO internet ~~w~~Website of its intention to do so and of the basis for its determination pursuant to Section 4.7.1. The ISOCAISO 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 ISOCAISO's Operational Control. If the ISOCAISO 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 ISOCAISO may refer any disputes for resolution pursuant to the ISOCAISO ADR Procedures in Section 13 of the ISOCAISO Tariff. Alternatively, the ISOCAISO may apply to FERC for its approval of the ISOCAISO's proposal.

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

## 5. INDEPENDENT SYSTEM OPERATOR

### 5.1. ~~Control Area Operator~~Balancing Authority.

5.1.1 ~~CAISO as Balancing Authority~~Membership of WSCC and RTGs. The ~~ISO~~CAISO shall be the designated ~~Control Area operator~~Balancing Authority for the ~~ISO~~CAISO Controlled Grid and shall be a member of the WSCC and the relevant Regional Transmission Groups (RTGs) in that capacity. No Party shall take any position before the WSCC or an RTG that is inconsistent with a binding decision reached through the dispute resolution process referenced in Section 15, provided that the scope of the decision was no greater than the issues set forth in the statement of claims published by the ISO pursuant to Section 13.2.2 of the ISO Tariff.

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

- i. providing a framework for the efficient transmission of electricity across the ~~ISO~~CAISO Controlled Grid in accordance with the ~~ISO~~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 ~~ISO~~CAISO Controlled Grid in accordance with the ~~ISO~~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 ~~ISO~~CAISO shall have the exclusive right and

responsibility to exercise Operational Control over the ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO Tariff, and the Operating Procedures. The ~~ISO~~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 ~~ISO~~CAISO shall, in consultation with the Participating TOs and other Market Participants, promulgate Operating Procedures governing its exercise of Operational Control over the ~~ISO~~CAISO Controlled Grid in accordance with this Agreement. The ~~ISO~~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 ~~WEnet or the~~ CAISO internet ~~w~~Website.

5.1.5 **Applicable Reliability Criteria.** The ~~ISO~~CAISO shall, in consultation with Participating TOs and other Market Participants, develop and promulgate Applicable Reliability Criteria for the ~~ISO~~CAISO Controlled Grid, which shall be in compliance with the reliability standards promulgated by NERC, ~~W~~SCC and WECC, Local Reliability Criteria, and NRC grid criteria related to operating licenses for

nuclear generating units. The ~~ISO~~ISOCAISO 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 ~~WE~~net or the ~~ISO~~ISOCAISO internet ~~Website~~.

5.1.6 **Waivers.** The ~~ISO~~ISOCAISO may grant to any Participating TO whose transmission facilities do not meet the Applicable Reliability Criteria when it becomes a ~~p~~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 ~~ISO~~ISOCAISO 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 ~~ISO~~ISOCAISO Controlled Grid, the ~~ISO~~ISOCAISO 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 ~~ISO~~ISOCAISO 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 ~~ISO~~ISOCAISO 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 ISOCAISO shall have the authority and responsibility to take all actions necessary and shall direct the restoration of the ISOCAISO Controlled Grid to service following any interruption associated with a System Emergency. The ISOCAISO 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 ISOCAISO pursuant to this Section 5.1.8 shall be consistent with Section 5.1.3, Duty of Care.

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

## 5.2. Monitoring.

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

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

5.2.3 **~~Power~~ Energy Management System.** The ISOCAISO shall install a computerized ~~Power~~ Energy Management System (PEMS) to monitor transmission facilities in the ISOCAISO Controlled Grid. A Participating TO may at its own expense and for its own internal management purposes install a read only PEMS

workstation that will provide the Participating TO with the same displays the ISOCAISO uses to monitor the Participating TO's transmission facilities.

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

**5.3. ~~[INTENTIONALLY LEFT BLANK]~~Coordination Role.**

~~The ISO shall perform a WSCC security coordinator function as designated by the WSCC. As such, the ISO shall have all necessary powers as described in this Agreement in relation to Participating TOs to meet the applicable NERC and WSCC requirements for security coordinators. The ISO shall assume this responsibility concurrent with the commencement of ISO Operational Control.~~

**5.4. Public Information.**

5.4.1 **~~WEnet~~CAISO Website.** The ISOCAISO shall develop a public information board (~~"WEnet" or ISO on the CAISO internet website~~) for the ISOCAISO Controlled Grid in accordance with the provisions in Section 6 of the ISOCAISO Tariff.

5.4.2 **Access to ISOCAISO Information.** The ISOCAISO 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 ISOCAISO 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 ~~ISO~~CAISO-imposed reliability requirements, operating requirements, or performance standards, the ~~ISO~~CAISO shall, at the request of the Participating TO, provide specific information regarding the nature of, and need for, the ~~ISO~~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 **ISOCAISO Operating Orders.** Each Participating TO shall operate its transmission facilities in compliance with the CAISO Tariff, ~~ISO~~CAISO Protocols, the Operating Procedures (including emergency procedures in the event of communications failure), and the ISO~~CAISO~~'s operating orders unless the health or safety of personnel or the general public would be endangered. Proper implementation of an ~~ISO~~CAISO operating order by a Participating TO shall be deemed prudent. In the event an ~~ISO~~CAISO order would risk damage to facilities, and if time permits, a

Participating TO shall inform the ~~ISO~~CAISO of any such risk and seek confirmation of the relevant ~~ISO~~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, ~~ISO~~CAISO Protocols, the Operating Procedures, and the Applicable Reliability Criteria.

6.1.4 **Outages.** Each Participating TO shall obtain approval from the ~~ISO~~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 ~~ISO~~CAISO Register, except in cases involving immediate hazard to the safety of personnel ~~and or the~~ general public or imminent damage to facilities or in the case of a Forced Outage ~~where there is not time to contact the ISO~~. The Participating TO shall promptly notify the ~~ISO~~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 ~~ISO~~CAISO's Operational Control as soon as possible and in the priority order determined by the ~~ISO~~CAISO. The ~~ISO~~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 ISOCAISO 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 ISOCAISO's Operational Control) only on the terms of the ISOCAISO Tariff and the TO Tariff.

6.2.2 **Release of Scheduling Rights.** When required by the ISOCAISO, a Participating TO shall release all of its scheduling rights over the transmission lines and associated facilities and Entitlements that are part of the ISOCAISO Controlled Grid to the extent such rights are established through Existing Contracts among or between Participating TOs, as provided in the ISOCAISO 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 ISOCAISO'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 ISOCAISO prior to the effective date of its becoming a Party to this Agreement, and in a format acceptable to the ISOCAISO:

- i. Technical specifications for any facilities under the ISOCAISO's Operational Control, as the ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO for review not less than ninety (90) days prior to the date on which the ISOCAISO is expected to assume Operational Control of any such facility. The ISOCAISO 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 ISOCAISO 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 ISOCAISO access to the Participating TO's data from such systems relating to the facilities under the ISOCAISO's Operational Control. The ISOCAISO, 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 ISOCAISO 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 ~~9.2.3.3~~ of the ISOCAISO Tariff.

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

In order to facilitate Maintenance Outage coordination of the ISOCAISO Controlled Grid by the ISOCAISO, 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 ISOCAISO 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 ISOCAISO of any faults on the ISOCAISO Controlled Grid or any actual or anticipated Forced Outages as soon as it becomes aware of them, in accordance with Section ~~2.3.3~~ 9.3.10 of the ISOCAISO 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 ISOCAISO Tariff and ISOCAISO Protocols, to prevent Forced Outages and to return to operation, as soon as possible, any facility under the ISOCAISO's Operational Control that is the subject of a Forced Outage.

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

### **8.1. Remedial Action ~~Systems~~ Schemes, Under ~~F~~requency Load Shedding, Under Voltage Load Shedding.**

Each Participating TO shall coordinate its Critical Protective Systems with the ISOCAISO, other Transmission Owners, and Generators to ensure that its Remedial Action Schemes ("RAS"), Under ~~F~~requency Load Shedding ("UFLS"), and Under Voltage Load Shedding ("UVLS") schemes function on a coordinated and complementary basis in accordance with ~~WSCC/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 ~~WSCC/WECC/~~ and NERC planning, reliability, and protection policies

and standards and the ISOCAISO Tariff.

Each Participating TO, in conjunction with the ISOCAISO, shall identify, describe, and provide to the ISOCAISO the functionality of all RAS for electric systems operating at 200 kV nominal voltage or higher and any other lower voltage lines that the ISOCAISO and Participating TO determine to be critical to the reliability of the ISOCAISO Controlled Grid. Each Participating TO shall provide to the ISOCAISO a description of the functionality of UFLS and UVLS schemes that protect the security and reliability of transmission facilities on the ISOCAISO 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 ~~WSCC/WECC/~~ and NERC planning, reliability, and protection policies and standards. Each Participating TO shall notify the ISOCAISO in advance of all RAS, UFLS, and UVLS schemes functionality and setting changes that affect transmission facilities on the ISOCAISO Controlled Grid. Each Participating TO shall not disable or take clearances on RAS or UVLS schemes without the approval of the ISOCAISO through the Maintenance Outage and Forced Outage coordination process in accordance with the ISOCAISO Tariff. Clearances on UFLS may be taken without approval depending upon the armed load disabled as agreed to between the Participating TO and ISOCAISO 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 ISOCAISO Controlled Grid.

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

Each Participating TO shall provide to the ISOCAISO protective relay system functional information necessary to perform system planning and operating analysis, and to operate transmission facilities on the ISOCAISO Controlled Grid in compliance with ~~WSCC/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 ISOCAISO Controlled Grid.

## **9. SYSTEM EMERGENCIES**

### **9.1. ISOCAISO Management of Emergencies.**

The ISOCAISO shall manage a System Emergency pursuant to the provisions of Section ~~7.7 2-3-2~~ of the ISOCAISO Tariff. The ISOCAISO may carry out unannounced tests of System Emergency procedures pursuant to the ISOCAISO Tariff.

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

9.2.1 **ISOCAISO Orders.** In the event of a System Emergency, the Participating TOs shall comply with all directions from the ISOCAISO 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 ISOCAISO 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 ISOCAISO in the preparation of an Outage review pursuant to Sections 7.7.13 and 9.3.10.6 ~~2.3~~ of the ISOCAISO 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 ISOCAISO may order a Participating TO to pay appropriate sanctions, as filed with and approved by FERC in accordance with Section 12.3, if the ISOCAISO 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 ISOCAISO's Operational Control, prolonged the response time or ~~was~~ were responsible for the Outage.

## **10. ISOCAISO CONTROLLED GRID ACCESS AND INTERCONNECTION**

### **10.1. ISOCAISO Controlled Grid Access and Services.**

10.1.1 **Access.** The ISOCAISO shall respond to requests from the Participating TOs and other Market Participants for access to the ISOCAISO Controlled Grid. All Participating TOs who have Eligible Customers connected to their transmission or distribution facilities that do not form part of the ISOCAISO 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO Tariff and the TO Tariff as applicable, provided that the terms of the ~~ISO~~CAISO Tariff shall govern to the extent there is any inconsistency between the ~~ISO~~CAISO Tariff and the TO Tariff, and must comply with all of their provisions, including provisions related to creditworthiness and payment for ~~Facility~~ interconnection ~~S~~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 ~~ISO~~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 ~~Commission~~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 and/or Generation Unit and apparatus to that part of the ~~ISO~~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 ~~ISO~~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 ISOCAISO with copies of their technical standards for ~~the~~ interconnection developed pursuant to Section 10.3.2 of this Agreement and all amendments so that the ISOCAISO can satisfy itself as to their compliance with the Applicable Reliability Criteria. The ISOCAISO shall develop consistent ~~the~~ interconnection standards across the ISOCAISO Controlled Grid, to the extent possible given the circumstances of each Participating TO, in consultation with Participating TOs. Any differences in ~~the~~ interconnection standards shall be addressed through negotiations and dispute resolution proceedings, as set forth in the ISOCAISO Tariff, between the ISOCAISO and the Participating TO.

**10.3.4 Notice.** A list of the ~~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 ~~information board (e.g. WEnet or ISOCAISO internet website)~~. In addition, the posting will provide information on how to obtain the ~~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 ISOCAISO shall process ~~interconnection requests~~ for interconnection of transmission facilities or load to the CAISO Controlled Grid in accordance with the ISOCAISO Tariff and the TO Tariff as

applicable, provided that the terms of the ~~ISO~~CAISO Tariff shall govern to the extent there is any inconsistency between the ~~ISO~~CAISO Tariff and the TO Tariff. Any differences in the procedures for interconnection contained in the ~~ISO~~CAISO Tariff and the TO Tariff shall be addressed through negotiations and dispute resolution procedures, as set forth in the ~~ISO~~CAISO Tariff, between the ~~ISO~~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 ~~the~~ 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 ~~System Impact Interconnection Study Agreement, Facility Study Agreement~~ or other agreement entered into pursuant to this Section 10.3 or the provisions of the ~~ISO~~CAISO Tariff and its TO Tariff as applicable relating to such ~~the~~ 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 ISO~~CAISO may at its own expense accompany a Participating TO during on-site inspections and tests of such ~~the~~ interconnections or, by pre-arrangement, may itself inspect such ~~the~~ 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 ~~ISO~~CAISO relevant information about ~~interconnection requests~~ for interconnection of transmission facilities or load to the CAISO Controlled Grid and coordinate their activities to ensure that all such ~~the~~ interconnection requests are processed in a timely, non-discriminatory fashion and that all such ~~the~~ interconnections meet the operational and reliability criteria applicable to the ~~ISO~~CAISO Controlled Grid. Subject to Section 26.3 of this Agreement, the ~~ISO~~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 ~~3.2-24~~ and ~~25~~ of the ISOCAISO Tariff will apply to any expansion or reinforcement of the ISOCAISO Controlled Grid affecting the transmission facilities of the Participating TOs placed under the Operational Control of the ISOCAISO.

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

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

Except as provided in Section 13, use of the ISOCAISO Controlled Grid by the Participating TOs and other Market Participants shall be in accordance with the rates, terms, and conditions established in the ISOCAISO Tariff and the Participating TO's TO Tariff. Pursuant to Section ~~2.4.2~~ of the ISOCAISO 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 ISOCAISO to administer the terms and conditions for access to the ISOCAISO 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 ISOCAISO, 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 ISOCAISO. 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 s 2.4.3 and 2.4.4~~ of the ISOCAISO Tariff will apply to the treatment of transmission facilities of a Participating TO under the Operational Control of the ISOCAISO which are subject to transmission service rights under Existing Contracts. In addition, the ISOCAISO 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 ISOCAISO Controlled Grid.

## **14. MAINTENANCE STANDARDS**

### **14.1. ISOCAISO Determination of Standards.**

The ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO ADR Procedures set forth in Section 13 of the ~~ISO~~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 ~~ISO~~CAISO Tariff**

The ~~ISO~~CAISO and Participating TOs shall comply with the billing and

payment provisions set forth in Section 11 of the ISOCAISO 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 ISOCAISO Tariff, including any FERC order that requires the ISOCAISO 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 ISOCAISO 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 reducing that filed Transmission Revenue Requirement and directs the CAISO to make refunds of amounts collected 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 refunded pursuant to the final order.

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

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

The ISOCAISO shall keep such records as may be necessary for the efficient operation of the ISOCAISO Controlled Grid and shall make appropriate records available to a Participating TO, upon request. The ISOCAISO 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 ISOCAISO Register.

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

17.2.1 **Existing Maintenance Standards.** Each Participating TO shall provide to the ISOCAISO, as set forth in Appendix C hereto: (1) the Participating TO's standards for inspection, maintenance, repair, and replacement of its facilities under the ISOCAISO'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 ISOCAISO and maintain current data, records, and drawings describing the physical and electrical properties of the facilities under the ISOCAISO's Operational Control, which records shall be shared with the ISOCAISO under reasonable guidelines and procedures to be specified by the ISOCAISO.

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

- i. System Emergencies, Forced Outages, and other incidents affecting the ISOCAISO Controlled Grid;
- ii. Maintenance Outage requests, including yearly forecasts required by Section 9.3.6 ~~2.3.3.5~~ of the ISOCAISO 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 ISOCAISO 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 ISOCAISO with such information or reports as are necessary for the operation of the ISOCAISO Controlled Grid. The Participating TO shall make all such information or reports available to the ISOCAISO 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 ISOCAISO.

17.2.5 **Other Market Participant Information.** At the request of the ISOCAISO, a Participating TO shall provide the ISOCAISO 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 ISOCAISO Controlled Grid.

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

17.3.1 **System Studies and Grid Stability Analyses.** The ISOCAISO, 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO Controlled Grid has occurred. Subsequent to notification, each Party shall make available to the ISOCAISO 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 ISOCAISO 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 ISO/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. ~~ISOCAISO~~ employees and contractors shall abide by the ~~ISOCAISO~~ Code of Conduct contained in the ~~ISOCAISO~~ Bylaws and approved by FERC.

## **20.2. Technical Training.**

The ISOCAISO 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 ISOCAISO Controlled Grid and to comply with any NERC or WSCCWECC 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) ISOCAISO (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 ISOCAISO Register, which is necessary to meet their specific obligations under this Agreement.

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

Under certain circumstances, it may be prudent for the ISOCAISO 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 ISOCAISO and the Participating TO shall mutually determine whether the ISOCAISO shall lease or rent the Participating TO's equipment. The ISOCAISO 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 ISOCAISO 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. ISOCAISO's Insurance.**

The ISOCAISO 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 ISOCAISO Governing Board from time to time. The ISOCAISO 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 ~~ISO~~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 ~~ISO~~CAISO or of its officers, directors, or employees. The ~~ISO~~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 ~~ISO~~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.**

~~An Uncontrollable Force means 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 and without such Party's fault or negligence. 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. ISOCAISO ENFORCEMENT**

In addition to its other rights and remedies under this Agreement, the ISOCAISO

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; ~~or~~ (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 ~~other Parties~~ 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 in Appendix F. ~~Such changes to Appendix F shall not constitute an amendment to this Agreement.~~ 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 **ISOCAISO**. The ~~ISOCAISO~~ 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 20.3 of the ~~ISOCAISO~~ Tariff; (b) ~~e~~Critical ~~e~~Energy ~~i~~Infrastructure ~~i~~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 ~~ISOCAISO~~ 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 ISOCAISO prior to January 1, 2005 so long as the Data qualifies for confidential treatment hereunder. Notwithstanding the foregoing, the ISOCAISO shall not keep confidential: (1) information that is explicitly subject to data exchange through ~~WEnet or~~ the ISOCAISO internet ~~w~~Website pursuant to Section 6 of the ISOCAISO Tariff; (2) information that the ISOCAISO or the Party providing the information is required to disclose pursuant to this Agreement, the ISOCAISO Tariff, or applicable regulatory requirements (provided that the ISOCAISO 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 ISOCAISO's breach of this Agreement).

**26.3.2 Other Parties.** No Party shall have a right hereunder to receive from the ISOCAISO 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 ISOCAISO 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 ISOCAISO

may disclose such information; provided, however, that as soon as the ~~ISO~~CAISO learns of the disclosure requirement and prior to making such disclosure, the ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ISOCAISO ADR Procedures set forth in Section 13 of the ISOCAISO 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<sub>1</sub> and E<sub>1</sub> shall constitute an original<sub>1</sub>, 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO or the ~~ISO~~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 ~~ISO~~CAISO Tariff, as applicable.

**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 eControl 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 eControl 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 ~~California~~ 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
<del>1.</del>	Pacific Power & Light, SCE, SDG&E	Transmission Use Agreement – PP&L Rate Schedule with FERC	Transmission	Upon 40 years beginning approx. 1968	
<del>2.</del>	SCE, SDG&E	Calif. Companies Pacific Intertie Agreement – PG&E Rate Schedule FERC No. 38	Transmission	8/1/2007	Both entitlement and encumbrance.
1.	<u>PacifiCorp, CAISO</u>	<u>PG&amp;E Original Rate Schedule FERC No. 239</u>	<u>Transmission Exchange Agreement</u>	<u>12/31/2027 or per Section 4.2</u>	<u>Both entitlement and encumbrance. PG&amp;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.</u>
2.	<u>PacifiCorp</u>	<u>PG&amp;E Original Rate Schedule FERC No. 240</u>	<u>Lease of Transmission Capacity</u>	<u>12/31/2017</u>	<u>PG&amp;E lease of varying amounts of PacifiCorp's share of the transmission capacity on the 500 kV No. 2 line between the Malin and Round Mountain substations. See also Section 2 of the Lease.</u>
3.	SCE, Montana Power, Nevada Power, Sierra Pacific	WSCC Unscheduled Flow Mitigation Plan – PG&E Rate Schedule FERC No. <del>183</del> <u>221</u>	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.
4.	<del>TANC and other COTP Participants, and WAPA, and</del> <u>PacifiCorp</u>	Owners Coordinated Operations Agreement – PG&E Rate Schedule FERC No. 229	Transmission system coordination, curtailment sharing, rights	1/1/2043, or on two years' notice, or earlier if other agreements terminate	Both entitlement and encumbrance

			allocation, scheduling		
5.	Various – See Attachment A	Western Systems Power Pool Agreement – WSPP Rate Schedule FERC No. 1	Power Sales, transmission	Upon WSPP expiration	Both entitlement and encumbrance.
<del>6.</del>	<del>Vernon (City of)</del>	<del>Transmission Service Exchange Agreement – PG&amp;E Rate Schedule FERC No. 148</del>	<del>Transmission</del>	<del>7/31/2007, or by extension to 12/15/2042</del>	<del>Both entitlement and encumbrance. PG&amp;E swap of DC Line rights for service on GOTP</del>

## 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

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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.

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 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.

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
<del>4.</del>	<del>California Companies Pacific Intertie Agreement (CCPIA)</del>	<del>PG&amp;E, SDG&amp;E</del>	<del>40</del>	<del>July 31, 2007</del>	<del>• 43% of the California Companies entitlements on the Pacific Intertie.</del>
1.	City-Edison Pacific Intertie D-C Transmission Facilities Agreement	• LADWP	448	3/31/2041 or sooner by mutual agreement of the parties.	• Edison owns 50% of the D-C transmission facility. (Per CCPIA, this ownership is part of the California Companies entitlements on the Pacific Intertie).
<del>-</del>	<del>PP&amp;L Agreement</del>	<del>PP&amp;L, PG&amp;E, SDG&amp;E</del>		<del>2008</del>	<del>• California Companies are entitled to use the entire capacity on the PP&amp;L 500 kV transmission line from Malin to Indian Spring for the term of the agreement. Per CCPIA Edison is entitled to 43% of the capacity available on the Pacific Intertie.</del>
<del>-</del>	<del>Los Angeles-Edison Exchange Agreement</del>	<del>LADWP</del>	<del>49</del>	<del>May 31, 2025</del>	<del>• 500 MW of bi-directional firm entitlement on the PDCI transmission line.</del>
<del>-</del>	<del>Owners Coordinated Operations Agreement</del>	<del>PG&amp;E, SCE, SDG&amp;E, WAPA &amp; COTP</del>		<del>SCE's participation terminates on 7/31/07 with CCPIA termination unless as otherwise contemplated by Section 6.3.1 of the Agreement.</del>	<del>• Provides for the continued coordinated operation of the PACI and COTP. The allocation of Available Scheduling Capability between the parties is calculated as specified in the Agreement.</del>

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
6.	<del>Pasadena-Edison 230-KV Interconnection and Transmission Agreement</del>	<del>Pasadena</del>	<del>55</del>	<del>8/4/2010</del>	<ul style="list-style-type: none"> <li><del>Goodrich-Gould and Goodrich-Laguna Bell 230 kV transmission line interconnect Edison's system with Pasadena's system at Pasadena's Goodrich Substation. Lines have been re-configured from arrangement shown in contract.</del></li> <li><del>Edison maintains and operates Goodrich 230 kV Substation.</del></li> </ul>
<u>2.</u>	<u>Pasadena Interconnection Agreement</u>	<u>Pasadena</u>	<u>484</u>	<u>By Pasadena upon 24 months advance written notice; or by SCE upon default by Pasadena.</u>	<ul style="list-style-type: none"> <li><u>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.</u></li> <li><u>Edison maintains and operates T.M. Goodrich 220 kV Substation.</u></li> </ul>
<u>73.</u>	<u>Victorville-Lugo Interconnection Agreement</u>	<u>LADWP</u>	<u>51</u>	<u>11/20/2019, or sooner by mutual agreement.</u>	<ul style="list-style-type: none"> <li><u>1950 MW towards Edison, 900 MW towards LADWP. Transfer capability of the interconnection is established through joint technical studies.</u></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>
84.	City-Edison Sylmar Interconnection Agreement	LADWP	307	On 5 years 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>Sylmar-Pardee #1&amp;2, Sylmar-Gould and Sylmar-Eagle Rock 230 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 <del>two</del> <u>three</u> regulating transformers at Sylmar.</li> </ul>
95.	City-Edison Owens Valley Interconnection and interchange Agreement	LADWP	50	On 12 months notice by either party.	<ul style="list-style-type: none"> <li>At the request of either party and by mutual agreement, LADWP's and Edison's respective systems interconnected at LADWP's Haiwee -34.5 kV Substation, may be operated in parallel, which normally operates open at Haiwee.</li> </ul>
406.	City-Edison 400,000 kVA Interconnection Agreement (Velasco)	LADWP	215	On 3 year 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>
447.	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>
42.	<del>Edison-Los Angeles Sepulveda Canyon Power Plant Transmission Service Agreement</del>	LADWP	280	<del>Termination of Sepulveda Canyon Power Plant Interconnection Agreement or sooner by either party giving a one year notice. Should LADWP change rates, SCE has the right to terminate with 60 days written notice.</del>	<ul style="list-style-type: none"> <li><del>9 MW of transmission service from the high voltage leads of Sepulveda Canyon Power Plant to the 230 kV bus at Sylmar.</del></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>
438.	Amended and Restated IID-Edison Mirage 230 kV Interconnection Agreement	IID	314	On one year 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>
449.	IID Edison Transmission Service Agreement for Alternative Resources	IID		Earlier of Dec 31, 2015, or the termination date of the last Plant Connection Agreement.	<ul style="list-style-type: none"> <li>Transmission Service on IID's 230 kV system to transmit the output of QFs resources to Edison's system, via Mirage Substation.</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>
105.	<del>Four Corners</del> Principles of Interconnected Operation for Four Corners <u>Interconnection Agreement</u>	APS, SRP, EPE, PSNM, TGE	47.0	None	<ul style="list-style-type: none"> <li>• Generation principles for emergency service.</li> <li>• Edison's facility at Four Corners includes its portion of the Eldorado –Moenkopi from Eldorado to CA/NV boarder of the Eldorado-Moenkopi –Four Corners 500 kV transmission line.</li> <li>• Edison can separate its wholly-owned facilities from parallel operation with others under abnormal operating conditions without prior notice.</li> <li>• Edison can separate its wholly-owned facilities from parallel operation with others for maintenance on reasonable advance notice (see Co-tenancy Agreement for facilities).</li> <li>• Edison has the right to schedule emergency service from each party.</li> </ul>
116.	Four Corners Project Co-Tenancy Agreement and Operating Agreement	APS, SRP, EPE, PSNM, TGE	47.2	2016	<ul style="list-style-type: none"> <li>• Edison has co-tenancy ownership of 32% in the Four Corners 500 kV switchyard, 12% in the 345 kV switchyard and 48% in the 345/500 kV bus-tie transformer bank.</li> <li>• Edison has rights to sufficient capacity in the switchyards and bus-tie transformer bank to permit its entitlement to Four-Corners Project power and energy to be delivered to the point where the Eldorado-Moenkopi-Four Corners transmission line connects to the Four Corners 500 kV Switchyard.</li> <li>• Edison may use any unused capacity in the switchyard for any purpose, provided that any over subscription shall be subject to proration of the remaining capacity based on switchyard ownership of the requesting co-owners.</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>
127.	Navajo Interconnection Principles	USA, APS, SRP, NPC, LADWP, TGE	76	None	<ul style="list-style-type: none"> <li>• Generation principles for emergency service.</li> </ul>
138.	Edison – Navajo Transmission Agreement	USA, APS, SRP, NPC, LADWP, TGE	264	5/21/2023	<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. The amount of service provided is proportional to each <del>parties'</del> party's entitlement to the total capability of the transmission system described above.</li> </ul>
149.	ANPP High Voltage Switchyard Participation Agreement	APS, SRP, PSNM, EPE, SCPPA, LADWP	320	2031	<ul style="list-style-type: none"> <li>• Edison has 21.77% 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>

	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
2015.	Mutual Assistance Transmission Agreement	IID, APS, SDG&E	174	<del>In</del> 4/12/2034 or sooner by mutual agreement of the parties. <u>A party may withdraw from this agreement upon giving 5 years advance written notice to the other parties.</u>	<ul style="list-style-type: none"> <li>In the event of a contingency in the Palo Verde-Devers, 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.</li> </ul>
2116.	Midway Interconnection Agreement	PG&E	47709	July 31, 2007 <u>Upon one (1) year advance written notice by either party, but not prior to 1/1/2012.</u>	<ul style="list-style-type: none"> <li>Edison's share of 500 kV Midway-Vincent transmission system: <ul style="list-style-type: none"> <li>Midway-Vincent #1</li> <li>Midway-Vincent #2</li> <li>Midway-Vincent #3 from Vincent Substation to mile 53, Tower 1</li> </ul> </li> </ul>
2217.	Amended and Restated Eldorado System Conveyance and Co-Tenancy	NPC, SRP, LADWP	424	July 1, 2006 <u>12/31/2012 unless extended by agreement of all parties.</u>	<ul style="list-style-type: none"> <li>Edison's share of Eldorado System Components:</li> <li>Eldorado Substation: Edison <u>500 kV Capacity Entitlement = Eldorado Substation Capacity minus NPC Mohave Capacity transmission Entitlement [222 MW] minus SRP Mohave Capacity transmission Entitlement [158 MW] minus LADWP Mohave Capacity transmission Entitlement [316 MW];</u></li> <li>Eldorado Substation: Edison <u>220 kV Capacity Entitlement = Eldorado Substation Capacity minus NPC transmission entitlement [222 MW], minus SRP transmission entitlement [158 MW];</u></li> <li>Mohave Switchyard: Edison Capacity Entitlement = 884 MW;</li> <li>Eldorado – Mohave 500 kV line: (Edison Capacity Entitlement</li> </ul>

	CONTRACT NAME	OTHER PARTIES	FERC NO.	CONTRACT TERMINATION	FACILITY/PATH, AMOUNT OF SERVICE
					<p> <del>—= Eldorado – Mohave 500 kV line capacity minus NPC Mohave Capacity transmission Entitlement [222 MW] minus SRP Mohave Capacity transmission Entitlement [158 MW] minus LADWP Mohave Capacity transmission Entitlement [316 MW]);</del>  <ul style="list-style-type: none"> <li>• Eldorado – Mead 2320 kV Line Nos. 1 &amp; 2: (Edison Capacity Entitlement- = Eldorado – Mead 2320 kV Line No. 1 &amp; 2 capacity minus NPC Mohave Capacity transmission Entitlement [222 MW] minus SRP Capacity Entitlement [158 MW].</li> </ul> </p>

	<b>CONTRACT NAME</b>	<b>OTHER PARTIES</b>	<b>FERC NO.</b>	<b>CONTRACT TERMINATION</b>	<b>FACILITY/PATH, AMOUNT OF SERVICE</b>
2318.	WAPA-Edison Contract for 161-kV Blythe Substation Interconnection and Operation, Maintenance and Replacement at Blythe Substation Agreement	WAPA	482224	Midnight September 30, 2007-2028 or sooner by 3-1 year advanced 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. <u>System to System interconnection agreement.</u></li> <li><del>Edison may transmit up to 168 MW through WAPA's Blythe Substation, via the Eagle Mountain-Blythe 161 kV transmission line (Note: FP&amp;L entitled to 96 MW of FTRs due to participation in facility upgrade project).</del></li> </ul>
2419.	SONGS Ownership and Operating Agreements	SDG&E, Anaheim, Riverside	321	In effect until termination of easement for plant site.	<ul style="list-style-type: none"> <li>Edison's share of SONGS switchyard with termination of its 230 kV transmission lines: <ul style="list-style-type: none"> <li>SONGS – Santiago 1 and 2,</li> <li>SONGS – Serrano, and</li> <li>SONGS – Chino 230 kV</li> </ul> </li> </ul>
205.	District-Edison 1987 Service and Interchange Agreement	MWD	443	<del>September 30, 2017 or on five years notice by either party.</del> The earlier of: (1) the termination of the agreement, (2) upon 60 days written notice by SCE following a determination by the CPUC that SCE was imprudent for entering into the Fourth Amendment, or (3) upon 30 days	<ul style="list-style-type: none"> <li>Transmission is owned by District, but is in <u>CAISO control Balancing Authority area</u>. If not in use by District, or the United States under existing contracts, District's Transmission Line is available to transmit any electric energy to which Edison may be entitled.</li> <li>Up to 320 MW is required to supply District's Colorado River Aqueduct pump load.</li> <li>District's Transmission Line is operated by the District as directed by Edison.</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>
				advance written notice by either party.	
216.	Edison-Arizona Transmission Agreement	APS	282	<del>2/28/2017 or later upon negotiation.</del> Through the term of the Four Corners plant site New Lease as that term may be extended or renewed.	<ul style="list-style-type: none"> <li>Edison has ownership-like rights to the 500 kV Transmission line from the Four Corners Project to the Arizona-Nevada border. Edison also owns the 500 kV line from Arizona-Nevada border to Edison's Eldorado substation.</li> </ul>
227.	Mead Interconnection Agreement	WAPA	308	May 31, 2017	<ul style="list-style-type: none"> <li>Edison has rights to transmit its Hoover power</li> <li>Edison's facilities include Eldorado-Mead 230 kV #1 and 2 transmission lines.</li> <li>Edison may request additional firm transmission service rights through Mead Substation subject to availability as determined by WAPA.</li> </ul>
<del>28.</del>	<del>Power Purchase Contract Between SCE and Midway-Sunset Cogeneration Company.</del>	<del>Midway-Sunset Cogeneration Company.</del>		<del>5/8/09</del>	<ul style="list-style-type: none"> <li><del>200 MW of capacity through Midway Substation.</del></li> </ul>
239.	Agreement for Mitigation of Major Loop Flow	Pacificorp, PG&E, SCE	Pacificorp R/S # 298	2/12/2020	<ul style="list-style-type: none"> <li>Pacificorp to operate Phase Shifting Transformers on the Sigurd-Glen Canyon and Pinto-Four Corners Transmission Lines in accord with contract.</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 and & Electric  
Company  
Transmission Owner)**

The diagrams of transmission lines and associated facilities placed under the Operational eControl of the CAISO submitted hereby 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 eOperational eControl 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
66-020	California Companies Pacific Intertie Agreement	Edison, PG&E	20	Subject to FERC's approval and any litigation concerning term, no earlier than July 31, 2007.	7% of the California Companies entitlements on the Pacific Intertie, including delivery rights through SCE's system from Sylmar to SONGS (100 MW); and from SONGS to Sylmar (105 MW); from Midway to SONGS (161 MW); and from SONGS to Midway (109MW).
67-012	Pacific Power & Light Agreement	PP&L, PG&E, Edison		Subject to FERC's acceptance and any litigation concerning term, no earlier than 2008.	California Companies entitled to use the entire capacity on the PP&L 500 kV transmission line from Malin to Indian Spring for the term of the agreement. SDG&E is entitled to 7% of the capacity available on the Pacific Intertie.
	Owners Coordinated Operations Agreement	PG&E, Edison, and COTP participants		SDG&E's participation terminates on 7/31/07 with CCPIA termination unless as otherwise contemplated by Section 6.3.1 of the Agreement.	The allocation of Available Scheduling Capability between COTP parties and the Companies Pacific Intertie parties calculated on a pro rata basis according to the COTP's and PACI's Rated System Transfer Capabilities as specified in the Agreement.
81-034	Mutual Assistance Transmission Agreement	IID, APS, Edison	62	4/12/2034 or sooner by mutual agreement of the parties. <u>A party may withdraw from this agreement upon giving 5 years advance written notice to the other parties.</u>	Should a contingency occur in the Palo Verde-Devers, 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.
79-016	SONGS Participation Agreement	Edison, Anaheim, Riverside	321	None.	SDG&E's share of SONGS switchyard with termination of its 230 kV transmission lines: <ul style="list-style-type: none"> <li>- San Luis Rey (3 Lines)</li> <li>- Talega (2 lines)</li> </ul>

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 <u>CAISO's Control Balancing Authority Area Agreement</u> ).	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 <u>CAISO's Control Balancing Authority Area Agreement</u> ).	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%.
	<u>The Funding Agreement For The Development Of A Satellite Switchyard To The ANPP High Voltage Switchyard Between Participating Interconnectors and Salt River Project Agricultural Improvement and Power District</u>	<u>Funding Agreement: Salt River Project Agricultural Improvement and Power District, Department of</u>	<u>SCE FERC Rate Schedule 420</u>	<u>July 31, 2031.</u>	<u>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 Switchyard (Hassavampa) 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</u>

	<p><u>(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)</u></p>	<p><u>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 Mextran, Inc.</u></p> <p><u>MOU: SDG&amp;E, APS, IID, and SRP</u></p>			<p><u>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.</u></p>
	<p><u>SDG&amp;E-Citizens Sunrise Transmission LLC Development and Coordination Agreement/Transfer Capability Lease</u></p>	<p><u>SDG&amp;E, Citizens Sunrise Transmission LLC</u></p>			<p><u>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”) after the Commercial Operation Date 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 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</u></p>

					<u>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.</u>
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## 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**

**[NOT USED]**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
3. <del>North to South on COTP</del> <del>South to North on COTP</del>	Vernon, PG&E, TANC, WAPA, City of Shasta Lake, Carmichael Water District, San Juan Suburban Water District, CDWR (Operating Agent Western (SNR)) (7)		COTP Interim Participation Agreement.		Upon execution of a superseding long- term participation agreement or upon a unanimous decision by the executing parties to terminate this Agreement.	121 MW N-S 92 MW S-N
4. <del>Sylmar-Midway (After 12/31/2007).</del>	Vernon, Edison	Bi-Directional	Edison-Vernon PDCI/COTP FTS	72	(1) See Notes	93 MW
5. <del>Sylmar-Laguna Bell</del> <del>Through midnight</del> <del>December 31, 2002.</del> <del>After midnight</del> <del>December 31, 2002.</del>	Vernon, Edison	Bi-Directional	Edison-Vernon PDCI/COTP FTS	272	(1) See Notes	93 MW 60 MW
1. <del>Midway-Laguna Bell (After 12/31/2007).</del>	Vernon, Edison	Bi-Directional	Edison-Vernon PDCI/COTP FTS	72	(1) See Notes	60 MW
2.1. <del>Mead-Laguna Bell</del>	Vernon, Edison	Bi-Directional	Edison-Vernon Mead FTS	207	(21) See Notes	26 MW
2. <del>Victorville-Lugo Midpoint-</del>	Vernon, Edison	Bi-Directional	Edison-Vernon Victorville-Lugo		(32) See Notes	75-11 MW

<p>Laguna Bell</p> <p><del>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.</del></p>			Midpoint FTS	154		
<p>3. Adelanto-Victorville/Lugo Midpoint (43a)</p>	Vernon, Los Angeles	Bi-Directional	Los Angeles-Vernon Adelanto-Victorville/Lugo FTS		(43b) See Notes	75/81 MW (8)
<p>10. <del>NOB Sylmar-Midway Midway-Sylmar-NOB (6)</del></p>	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.~~

(21) 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.

(32) 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.

(43a) DWP No. 10396.

(43b) 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.~~

	<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	<del>339-424</del> 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	"	"	"		"	<del>118</del> <u>159</u> MW
3	Westwing-Mead 500 kV	Anaheim-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	<del>47-70</del> MW
	Marketplace-Mead 500 kV	"	"	"		"	<del>110</del> <u>155</u> MW
	Mead 500 kV-Mead 230 kV	"	"	"		"	110 MW
	Marketplace Substation-McCullough	"	"	"		"	<del>110</del> <u>103</u> MW
4	Adelanto-Victorville/Lugo	Anaheim-LADWP	Bi-directional	Adelanto-Victorville/Lugo 110 MW Firm Transmission Service <del>Agmt</del> <u>Agreement</u>		See Note 1	110 MW
5	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Base Capacity Transmission Service Agreement		See Note 2	<del>212-238</del> MW
6	Adelanto-Victorville/Lugo	Anaheim-LADWP	North-South	IPP Additional Capacity Transmission Service Agreement		See Note 3	<del>127-185</del> MW
7	IPP-Mona Substation	Anaheim-LADWP	<del>Bi-directional</del>	Northern Transmission System Agreement		See Note 4	<del>381-235</del> MW
	<u>Mona Substation-IPP</u>	"	<u>East-West</u>	"		"	<del>218-257</del> MW
	IPP-Gonder Substation	"	<u>East-West</u>	"		"	54 <del>32-36</del> MW
	<u>Gonder Substation-IPP</u>	"	<u>West-East</u>	"		"	<del>21-23</del> MW
8	<del>Nevada-Oregon Border-Sylmar</del>	<del>Anaheim-Burbank &amp; Pasadena</del>	<del>Bi-directional</del>	<del>Pacific Intertie Direct Current Firm Transmission Service Agreement</del>		<del>30-Sep-09</del>	<del>24</del> 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.	          <del>34</del> MW 0 MW <del>34</del> MW
3. Mead - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Hoover FTS	<del>372247.</del> 4	(1) See Notes	4 MW
4. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Palo Verde Nuclear Generating Station FTS	<del>373247.</del> 6	(2) See Notes	4 MW
5. Victorville-Lugo - Rio Hondo	Azusa, Edison	Uni-Directional	Edison-Azusa Pasadena FTS	<del>374247.</del> 8	(3) See Notes	14 MW

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
<del>6. Sylmar - Rio Hondo</del>	<del>Azusa, Edison</del>	<del>Uni-Directional</del>	<del>Edison-Azusa San Juan Unit 3 FTS</del>	<del>247.29</del>	<del>(4) See Notes</del>	<del>10 MW: CY 2004 through termination</del>
<del>67. Mead - Rio Hondo</del>	<del>Azusa, Edison</del>	<del>Bi-Directional</del>	<del>Edison-Azusa Sylmar FTS</del>	<del>375247.24</del>	<del>(45) See Notes</del>	<del>8 MW</del>
<del>8. Sylmar - NOB</del>	<del>Azusa, Pasadena, Burbank</del>	<del>Bi-Directional</del>	<del>Pacific Intertie Direct Current FTS</del>	<del>-</del>	<del>(6) See Notes</del>	<del>3MW</del>
<del>9. ANPP (Devers) - Sylmar</del>	<del>Azusa, Los Angeles</del>	<del>Bi-Directional</del>	<del>Los Angeles - Azusa ANPP/Sylmar FTS</del>	<del>DWP No. 10021</del>	<del>(7) See Notes</del>	<del>10 MW</del>
<del>740. Victorville-Lugo - Adelanto</del>	<del>Azusa, Los Angeles</del>	<del>Bi-Directional</del>	<del>Los Angeles - Azusa Adelanto-Victorville/Lugo FTS</del>	<del>DWP No. 10345</del>	<del>(58) See Notes</del>	<del>19 MW</del>

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)~~
- ~~(45) Contract Termination: Same as (3)~~
- ~~(6) Contract Termination: This agreement will be terminated effective September 30, 2009.~~
- ~~(7) Contract Termination: This agreement shall be terminated upon the earlier of: (i) 2400 hours on December 31, 2023; (ii) by mutual agreement of the Parties; (iii) thirty-six months after Los Angeles has provided written notice that the Agreement is to terminate, provided, however, such notice of termination shall not be given prior to December 31, 2000; or (iv) Azusa may elect to discontinue service under this Agreement by written notice to Los Angeles within sixty days of the mailing date of any subsequent rate for transmission service established under Section 10.3 of the Agreement. If Azusa so elects, this Agreement shall terminate on the last day of the second full month following the mailing date of Azusa's notice.~~
- (58) 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.

Point of Receipt-Delivery	Parties	Direction	Contract Title	FERC No.	Contract Termination	Contract Amount
1. Marketplace Substation-Adelanto	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		Oct 31, 2030	12 MW
2. Westwing-Mead-Marketplace 500 kV	Banning-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030	3 MW
3. Marketplace-McCullough 500 kV	Banning-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract Mead-Phoenix Project Transmission Service Contract		Oct 31, 2030	12 MW 3 MW
4. ANPP-Sylmar	Banning-LADWP	Bi-directional	ANPP/Sylmar 15 MW Transmission Service Agreement		See Note 4	15 MW
54. Adelanto-Victorville/Lugo	Banning-LADWP	To Victorville	Adelanto-Victorville/Lugo Firm Transmission Service Agreement		See Note-2_1	12 MW
6. Nevada-Oregon Border-Sylmar	Banning-Burbank & Pasadena	Bi-directional	Pacific Intertie Direct Current Firm Transmission Service Agreement		Sep 30, 2009	1 MW
75. Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Palo Verde Nuclear Generating Station Firm Transmission Service Agreement		See Note-3_2	3 MW
86. Victorville/Lugo-Devers 115 kV	Banning-SCE	To Devers	Sylmar Firm Transmission Service Agreement		See Note-4_3	5 MW
97. Mead 230 kV-Devers 115 kV	Banning-SCE	To Devers	Hoover Firm Transmission Service Agreement		See Note-5_4	2 MW
108. Devers 500 kV-Devers 115 kV	Banning-SCE	To Devers	1995 San Juan Unit 3 Firm Transmission Service Agreement		See Note-6_5	15 MW

#### Notes

1. Agreement terminates on: (i) December 31, 2023; or (ii) 36 months notice by LADWP.
21. 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.
32. 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.
43. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest San Juan Unit 3; or (iii) unacceptable FERC modification.
54. 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.
65. Agreement terminates on: (i) twelve months notice by Banning; (ii) termination of Banning's interest San Juan Unit 3; or (iii) unacceptable FERC modification June 30, 2012.

Point of Receipt-Delivery	Parties	Direction	CONTRACT TITLE	FERC No.	Contract Termination	Contract Amount
1. IPP-Adelanto Switching Station	Riverside-SCPPA	Bi-directional	Southern Transmission System Transmission Service Contract		15-Jun-27	N-S 495- <del>244</del> MW S-N 142 MW 118 MW
2. Marketplace Substation-Adelanto	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	118 MW
3. Westwing-Mead-Marketplace 500 kV	Riverside-SCPPA	Bi-directional	Mead-Phoenix Project Transmission Service Contract		31-Oct-30	<del>42-18</del> MW
4. Marketplace-McCullough 500 kV	Riverside-SCPPA	Bi-directional	Mead-Adelanto Project Transmission Service Contract		31-Oct-30	118 MW
5. Adelanto-Victorville/Lugo	Riverside-LADWP	Bi-directional	Mead-Phoenix Project Transmission Service Contract Adelanto-Victorville/Lugo 110 MW Firm Transmission Service Agmnt		31-Oct-30 See Note 1	<del>42-17</del> MW 118 MW
6. Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Base Capacity Transmission Service Agreement		See Note 2	<del>122-137</del> MW
7. Adelanto-Victorville/Lugo	Riverside-LADWP	To Victorville	IPP Additional Capacity Transmission Service Agreement		See Note 3	<del>73-107</del> MW
8. IPP-Mona Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4	<del>220-W-E 135</del> MW <del>E-W 126</del> MW
IPP-Gonder Substation	Riverside-LADWP	Bi-directional	Northern Transmission System Agreement		See Note 4	<del>34-W-E 19</del> MW <del>E-W 12</del> MW
9. Nevada-Oregon Border Sylmar	Riverside-Burbank & Pasadena	Bi-directional	Pacific Intertie Direct Current Firm Transmission Service Agreement		30-Sep-09	23 MW
10. San Onofre-Vista	Riverside-SCE	To Vista	San Onofre Nuclear Generating Station Firm Transmission Service Agmt.		See Note 5	42 MW
11. Mead 230 kV-Vista	Riverside-SCE	To Vista	Hoover Firm Transmission Service Agreement		See Note 6	30 MW
12. Lugo/Victorville-Vista	Riverside-SCE	To Vista	Intermountain Power Project Firm Transmission Service Agreement		See Note 7	156 MW
13. Lugo/Victorville-Vista	Riverside-SCE	To Vista	Palo Verde Nuclear Generating Station Firm Transmission Service Agmt.		See Note 8	12 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 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 San Onofre Nuclear Generating Station Units 2 and 3; or (iii) unacceptable FERC modification.
6. 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.
7. 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.

8. 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**  
**~~Trans-Elect NTD-Atlantic Path 15, LLC~~**  
**Transmission Entitlements**

Path 15 Project Facilities

~~Trans-Elect NTD-Atlantic 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. ~~Trans-Elect NTD-Atlantic Path 15, LLC~~ will own Entitlements to certain capacity on the Path 15 Project Facilities.

~~Trans-Elect Atlantic 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 ~~Trans-Elect NTD-Atlantic 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 ~~Trans-Elect NTD-Atlantic 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. ~~Trans-Elect NTD-Atlantic 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 ~~Trans-Elect NTD-Atlantic 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	14143 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]
B7.	Sylmar – T.M. Goodrich	Pasadena-SCE	Bi-directional	230-KV Interconnection and Transmission Agreement		04-Aug-10	200 MW
B8.a	Adelanto - Sylmar	Pasadena-LADWP	Bi-directional	IPP Transmission Service Agreement 14443		15-Jun-27	14149 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
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**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.

~~TBC will provide the funding for (i) the development and construction of the Project, (ii) the acquisition of all needed real property and other interests and (iii) the reimbursement of the on-going operation and maintenance expenses of the Project. In return and pursuant to the Operating Memorandum among TBC, the City of Pittsburg and Pittsburg Power Company which was accepted for filing by the Federal Energy Regulatory Commission (112 FERC ¶ 61,095, *order granting clarification*, 114 FERC ¶ 61,031), TBC will be granted 100% of the Entitlements to the transmission capacity created by the Project and all financial benefits associated with the Entitlements. In accordance with the TCA and the TO Tariff, TBC will transfer the Entitlements created by 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>FERC</b>	<b>CONTRACT TERMINATION</b>	<b>CONTRACT AMOUNT</b>
1. Mead-Adelanto Project (MAP)	SCPPA, MSR, 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, MSR, 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**

<u>Point of Receipt- Delivery</u>	<u>Parties</u>	<u>Direction</u>	<u>Contract Title</u>	<u>FERC No.</u>	<u>Contract Start Date</u>	<u>Contract Termination</u>	<u>Contract Amount</u>
<u>Imperial Valley Substation*</u>	<u>SDG&amp;E and Citizens Sunrise Transmission, LLC</u>	<u>Bidirectional</u>	<u>Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011</u>	<u>NA</u>	<u>2012</u>	<u>2042</u>	<u>NA</u>
<u>Suncrest Substation/Sycamore Canyon Substations*</u>	<u>SDG&amp;E and Citizens Sunrise Transmission, LLC</u>	<u>Bidirectional</u>	<u>Development and Coordination Agreement of May 9, 2009, as amended December 21, 2011</u>	<u>NA</u>	<u>2012</u>	<u>2042</u>	<u>NA</u>

\* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation only to the San Diego County/Imperial County Border

# **TRANSMISSION CONTROL AGREEMENT**

## **APPENDIX B**

### **Encumbrances**

## PG&E APPENDIX B

List of Encumbrances on Lines, and 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  
~~SMUD = Sacramento Municipal Utility District~~  
 TANC = Transmission Agency of Northern California  
 WAPA = Western Area Power Administration

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
1.	Bay Area Rapid Transit	Service Agreement Nos. 42 and 43 to FERC Electric Tariff, First Revised Volume No. 12	Network Integration Transmission Service Agreement and Network Operating Agreement - OAT	10/1/2016	
2.	CDWR	Comprehensive Agreement – PG&E Rate Schedule FERC No. 77	Interconnection and Transmission	12/31/2014	Transmission Related Losses
3.	CDWR	<del>Etiwanda Power Plant Generation Exchange – PG&amp;E Rate Schedule FERC No. 169</del>	<del>Power exchanges</del>	<del>Evergreen, or on 5 years notice</del>	
4.	<del>Dynegy Power Services</del>	<del>Control Area Transmission Agreement – PG&amp;E Rate Schedule FERC No. 224</del>	<del>Transmission and various other services</del>	<del>Terminated 12/31/01. PG&amp;E filing of FERC termination pending submittal.</del>	

<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.

<del>5.</del>	DOE Laboratories, WAPA	<del>PG&amp;E/WAPA/DOE SF 10/30/98 Settlement Agreement – PG&amp;E Rate Schedule FERC No. 147</del>	Transmission Service	3/31/2009	
<del>3.</del>	Midway-Sunset Co-Generation	Cogeneration Project Special Facilities – PG&E Rate Schedule FERC No. 182	Interconnection, transmission	1/1/2017	
<del>j)</del>	Minnesota Methane	<del>Service Agreement No. 1, under FERC Electric Tariff, First Revised Volume No. 12</del>	<del>Firm Point-to-Point Transmission Service – OAT</del>	10/1/2016	Effective 10/1/96
<del>k)</del>	Modesto Irrigation District	<del>Interconnection Agreement – PG&amp;E Rate Schedule FERC No. 116</del>	<del>Interconnection, transmission, power sales</del>	4/1/2008	Power sales are coordination sales – voluntary spot sales
<del>4.</del>	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	
<del>m)5.</del>	Path 15 Operating Instructions Settlement, Revision 1 – Various, see FERC Docket No. ER04-61-000	<del>Exhibit B-1 to this Appendix B to the TCA</del>	Implements curtailment priorities consistent with various Existing Transmission Contracts. Establishes Path 15 Facilitator role for PG&E.	Upon request by PG&E after 4/4/05, subject to FERC acceptance.	<u>See Exhibit B-1 to this Appendix B to the TCA</u>
<del>n)</del>	Power Exchange	<del>Control Area Transmission Service Agreement – PG&amp;E Rate Schedule FERC No. 186</del>	<del>Transmission and various other services</del>	<del>Terminated 3/1/2000. PG&amp;E filing of FERC termination pending submittal</del>	
<del>6.</del>	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
<del>7.</del>	San Francisco (City and County of)	Interconnection Agreement - PG&E Rate Schedule FERC No. 114	Interconnection, transmission and supplemental power sales	7/1/2015	Power sales are Firm Partial Requirements
<del>8.</del>	Santa Clara (City of)	Mokelumne Settlement and Grizzly Development Agreement – PG&E Service Agreement No. 20 under FERC Electric Tariff Sixth Revised Volume No. 5	Transmission, power sales	1/1/2034	
<del>9.</del>	SCE, SDG&E	Calif. Companies Pacific Intertie Agreement – PG&E Rate Schedule FERC No. 38	Transmission service	8/1/2007	Both entitlement and encumbrance.
<del>9.</del>	SCE, Montana Power Nevada Power, Sierra Pacific	WSCC 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.
<del>10.</del>	Shelter Cove	Interconnection Agreement – PG&E Rate Schedule FERC No. 198	Distribution	6/30/2006	Effective 8/15/96
<del>11.</del>	Sierra Pacific	Interconnection Agreement – PG&E Rate Schedule FERC No. 72	Interconnection and support services	Evergreen, or 3 years notice	
<del>12.</del>	SMUD	Interconnection Agreement – PG&E Rate Schedule FERC No. 136	Interconnection and transmission services	12/31/2009	
<del>13.</del>	SMUD	EHV Transmission Agreement – PG&E Rate Schedule FERC No. 37	Transmission	Terminated 1/1/2005 (appeal pending)	
<del>14.</del>	SMUD	Camp Far West Transmission Agreement – PG&E Rate Schedule FERC No. 94	Transmission	No notice of termination filed with FERC	

Ref. #	Entities	Contract / Rate Schedule #	Nature of Contract	Termination	Comments
<del>3)</del>	SMUD	<del>Slab Creek Transmission Agreement – PG&amp;E Rate Schedule FERC No. 88</del>	Transmission	<del>No notice of termination filed with FERC</del>	
<del>7)</del> 10.	TANC and other COTP Participants, and 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
<del>8)</del> 11.	TANC and other COTP Participants	COTP Interconnection Rate Schedule – PG&E Rate Schedule FERC No. 144	Interconnection	Upon termination of COTP	
<del>9)</del> 12.	TANC	Midway Transmission Service / South of Tesla Principles – PG&E Rate Schedule FERC No. 143	Transmission, curtailment priority mitigation,* replacement power	Same as the COTP Interim Participation Agreement, subject to exception	
<del>10)</del> e)	Turlock Irrigation District	<del>Interconnection Agreement – PG&amp;E Rate Schedule FERC No. 213</del>	<del>Interconnection, transmission</del>	<del>4/1/2008, subject to exception</del>	
<del>11)</del> d)	Vernon (City of)	<del>Transmission Service Exchange Agreement – PG&amp;E Rate Schedule FERC No. 148</del>	<del>Transmission service</del>	<del>7/31/2007, or by extension to 12/15/2042</del>	<del>Both entitlement and encumbrance. PG&amp;E swap of DC Line rights for Vernon's COTP rights</del>
<del>12)</del> e)	13. WAPA	San Luis Unit – Contract No. 2207A – PG&E Rate Schedule FERC No. 227 (superseding Original Tariff Sheet Nos. 104 through 137 of PG&E Rate Schedule FERC No. 79)	Transmission	4/1/2016	

\* 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
<del>#</del> 14.	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
15.	<u>PacifiCorp, CAISO</u>	<u>PG&amp;E Rate Schedule FERC No. 239</u>	<u>Transmission Exchange Agreement</u>	<u>12/31/2027 or per Section 4.2</u>	<u>Through an exchange, (1) PG&amp;E provides PacifiCorp 800 MW of transmission capacity north to south and 612 MW south to north on PG&amp;E's portion of the 500-kV No. 2 Line between the Round Mountain substation and Indian Spring and (2) PacifiCorp provides PG&amp;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.</u>

### **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 eCongestion 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

	POINT OF RECEIPT- DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
1.	<del>Devers - Mirage / Coachella 230 kV</del>	<del>IID</del>	<del>SCE to IID</del>	<del>Firm Transmission Service Agreement</del>	<del>268</del>	<del>On 3-year notice</del>	<del>100 MW May- October, 50 MW rest of the year.</del>
21.	Devers - CAISO Grid Take Out Point serving Banning	Banning	To Banning	1995 San Juan Unit 3 Firm Transmission Service Agreement	381	Earlier of termination of Banning's interest in San Juan Unit 3 or Banning's 1-year notice given after 1/1/03.	15 MW
32.	Devers-- Vista	Colton	To Vista	1995 San Juan Unit 3 Firm Transmission Service Agreement	365	Earlier of termination of Colton's interest in San Juan Unit 3 or Colton's 1-year notice given after 1/1/03.	14.043 MW
43.	Hinds - Vincent	MWD	Bi-dir.	District-Edison 1987 Service and Interchange Agreement	443	The earlier of: <del>either (1) the term of MWD's Hoover Electric Service Contract (DE-MS65-86WP39583) expected to be 9/30/2017 or (2) five-year notice (1) the termination of the agreement, (2) upon 60 days written notice by SCE following a determination by the CPUC that SCE was imprudent for entering into the Fourth Amendment, or (3) upon 30 days advance written notice by either party.</del>	110 MW

Footnotes:

- 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 eControl 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.

2. 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
5 4.	<del>Eldorado-Vincent</del> Eldorado-Pastoria Vincent-Eldorado / Pastoria	CDWR	Bi-dir.	Firm Transmission Service Agreement (Eldorado-Vincent)	113	Earlier of: <del>date that a) CDWR has obtained for replacement transmission service; b) CDWR is no longer entitled to Reid Gardner Unit 4 output; c) 12/31/2020; or, d) Reid Gardner Unit 4 is permanently retired from service</del> <u>(a) the in-service date of transmission facilities CDWR has obtained for replacement of the firm transmission service being made available by Edison to CDWR hereunder, (b) the date when CDWR is no longer entitled to receive a share of the electrical output from Reid Gardner Unit No. 4, (c) July 25, 2013, (d) the date when Reid Gardner Unit No. 4 is permanently retired from service, or (e) the date which is eight (8) months following advance written notice of termination by CDWR, or if Edison agrees, on lesser notice.</u>	235 MW
6 5.	Eldorado / Mohave - Lugo	LADWP	Bi-dir.	Victorville - Lugo Interconnection Agreement	51	11/20/2019, or sooner by mutual agreement,	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 Mohave-Lugo, Mohave-Eldorado, Eldorado-Lugo, Eldorado-McCullough, McCullough-Victorville lines, and Victorville-Lugo 500 kV transmission lines.
7 6.	Moenkopi - Eldorado	USA, APS, SRP, NPC,	Bi-dir.	Edison - Navajo Transmission Agreement	264	5/21/2023,	In the event of a contingency in the Navajo-McCullough or Moenkopi-

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
		LADWP, TGE					Eldorado transmission lines, Edison and the Navajo participants provide each other emergency service transmission rights without a charge.
87.	Mohave – Eldorado	LADWP, NPC, SRP	to Eldorado	Amended and Restated Eldorado System Conveyance and Co-Tenancy Agreement; Eldorado System Conveyance 2 and Co-Tenancy Agreement, Amended and Restated Eldorado System Operating Agreement	424, 425	<del>7/1/06</del> 12/31/2012 unless extended by agreement of all parties.	If Mohave-Eldorado line is curtailed, pro-rata back up is provided on Mohave-Lugo and Eldorado-Lugo lines. If Mohave-Lugo is curtailed, pro-rata back-up is provided on Mohave-Eldorado. Amount of back up capacity is up to participant's Mohave Capacity Entitlement. For curtailment purposes, Capacity Entitlements are: Edison-884 MW; LADWP-316 MW; NPC-222 MW;SRP-158 MW.

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
98.	Eldorado - Mead	LADWP, NPC, SRP	to Eldorado	Amended and Restated Eldorado System Conveyance and Co-Tenancy Agreement; Eldorado System Conveyance 2 and Co-Tenancy Agreement, Amended and Restated Eldorado System Operating Agreement	424, 425	<del>7/1/06</del> 12/31/2012 unless extended by agreement of all parties.	If Eldorado-Mead lines are curtailed, line capacity is allocated pro rata in proportion to the following Capacity Entitlements: NPC-222 MW; SRP-158 MW; LADWP – 0 MW; Edison Capacity Entitlement is equal to entire capacity of the Eldorado-Mead Line Nos. 1&2 minus NPC Capacity Entitlement minus SRP Capacity

							Entitlement.
10 9.	Mead - Mohave	NPC	To Mohave	Amended and Restated Agreement for Additional NPC Connection to Mohave Project	426	Co-terminous with <del>Mohave Project Plant Site</del> <u>the Eldorado System Conveyance and Co-Tenancy Agreement.</u>	Up to 222 MW of Back-up transmission service <u>through the Eldorado system and Mohave 500 kV switchyard.</u>
10 4.	Mead - CAISO Grid Take Out Point serving Banning	Banning	E-W	Hoover Firm Transmission Service Agreement	378	Earliest effective date of: <u>written agreement of the Parties; Banning's 1-year notice given after 1/1/2002;</u> or termination of <del>WAPA</del> <u>the Electric Service Contract between Western (WAPA) and City.</u>	2 MW
11 2.	Mead - Rio Hondo	Azusa	Bi-dir	Sylmar Firm Transmission Service Agreement	375	Earliest effective date of: <u>written agreement of the Parties; Azusa's 1-year notice given after 1/1/2002;</u> or termination of Azusa's interest in San Juan Unit #3.	8 MW
12 3.	Mead - Rio Hondo	Azusa	E-W	Hoover Firm Transmission Service Agreement	372	Earliest effective date of: <u>written agreement of the Parties; Azusa's 1-year notice given after 1/1/2002;</u> or termination of <del>WAPA</del> <u>the Electric Service Contract between Western (WAPA) and City.</u>	4 MW
13 4.	Mead - Vista	Colton	E-W	Hoover Firm Transmission Service Agreement	361	Earliest effective date of: <u>written agreement of the Parties; Colton's 1-year notice given after 1/1/2002;</u> or termination of <del>WAPA</del> <u>the Electric Service Contract between Western (WAPA) and City.</u>	3 MW

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FE RC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
14 5.	Mead - Riverside	Riverside	E-W	Hoover Firm Transmission Service Agreement	390	<u>Earliest effective date of: written agreement of the Parties; 180 days notice by Riverside; or termination of WAPA the Electric Service Contract between Western (WAPA) and City.</u>	30 MW
15 6.	Mead - Laguna Bell	Vernon	Bi-dir	Mead Firm Transmission Service Agreement	207	<u>Upon mutual Earlier of: effective date of written agreement to terminate; or termination of Vernon's allocation to capacity and energy from Hoover Power-Sales Agreement 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.</u>	26 MW
16 7.	Mead - Mountain Center	AEPCO	E-W	Firm Transmission Service Agreement	131	<u>Earliest of: 7/1/2021; or on 10 years advance written notice by either Party*; by AEPCO upon eight (8) months advance written notice to Edison, or if Edison agrees, on lesser notice; or termination of the Load Control Agreement.</u> <u>*(Such notice tendered by SCE on 7/10/2008, to terminate agreement on 7/10/2018)</u>	10 MW
17 8.	Palo Verde - Devers	LADWP	Bi-dir	Exchange Agreement	219	<u>Earlier st of (i) in-service of DPV#2 line, (ii) the in-service date of any other new transmission line connecting Palo Verde to Devers in which LADWP has obtained an ownership interest or entitlement, (iii) the date on which DPV#1 is permanently removed from service, (iv) 4 years after CPUC approval to transfer DPV#2 rights of</u>	368 MW

						way to LADWP or (v2) upon 12 months prior written notice by LADWP (which may be extended by Edison for an additional period not to exceed 24 months).	
18 9.	Palo Verde - Sylmar	LADWP	Bi-dir.	Exchange Agreement	219	5/31/2012.	100 MW
20 19.	Sylmar - Devers	LADWP	Bi-dir	Exchange Agreement	219	Earlier of (1) the date when DPV#1 is permanently removed from service, or if DPV#2 is built, the date DPV#2 is removed from service (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
20 4.	Palo Verde - Devers Devers - Valley Valley - Serrano Serrano - SONGS	IID, APS, SDG&E	Bi-Dir.	Mutual Assistance Transmission Agreement	174	On 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.	In the event of a contingency in the Palo Verde-Devers, 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.
	<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>
22.	Midway - Vincent 500 kV	PG&E	N-S	California Companies Pacific Intertie Agreement	40 (38 PG&E; 20-SDG&E)	7/31/07	633 MW
23.	Midway - SONGS	SDG&E	N-S	California Companies Pacific Intertie Agreement	40 (38 PG&E; 20-SDG&E)	7/31/07	161 MW
24.	Midway - Vincent 500	LADWP	Bi-dir.	Exchange Agreement	219	5/31/25 or Pacific AC Intertie	320 MW

	kV					Agreement termination on 7-31-2007	
25.	Midway - Vincent 500 kV	PG&E	S-N	California Companies Pacific Intertie Agreement	40 (38 - PG&E; 20 - SDG&E)	7/31/07	655 MW
26.	Midway - SONGS	SDG&E	S-N	California Companies Pacific Intertie Agreement	40 (38 - PG&E; 20 - SDG&E)	7/31/07	109 MW
27.	Midway - Laguna Bell	Vernon	Bi-dir.	Edison-Vernon Firm Transmission Service Agreement	272	Earlier of: term of PG&E Transmission Agreement, or 12/29/42 (50 yrs).	60 MW until 1/1/00, 60MW after 12/31/07
28.	Pacific AC 500 kV Intertie	LADWP	Bi-dir.	Exchange Agreement	219	5/31/25 or Pacific AC Intertie Agreement termination on 7-31-2007	320 MW

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
<u>21</u> <u>9.</u>	SONGS - Vista	Riverside	To Vista	SONGS 2 & 3 Firm Transmission Service Agreement	393	180 day notice by Riverside or SONGS Participation termination.	42 MW
<u>30</u> <u>22.</u>	Victorville/Lugo - Midway <u>In addition:</u> <u>Beginning 1/1/2014:</u> <u>Victorville/Lugo - Midway</u> <u>Victorville/Lugo - Vincent</u> <u>Vincent - Midway</u>	MSR	S-N	Firm Transmission Service Agreement (Victorville/Lugo-Midway)	339	<del>Earlier of: five-year notice by MSR, or life of</del> <u>In the event the Mead-Adelanto 500 kV Transmission Project is permanently removed from operation; or upon at least five (5) years' advance written notice by MSR to Edison; or upon eight (8) months advance written notice by MSR to Edison, or if Edison agrees, on lesser notice.</u>	150 MW
<u>31</u> <u>23.</u>	Victorville/Lugo - Vista	Riverside	To Vista	Intermountain Power Project Firm Transmission Service Agreement	391	180 day notice by Riverside or IPP Participation termination	156 MW
<u>32</u> <u>24.</u>	Victorville/Lugo - 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
<u>33</u> <u>25.</u>	Victorville/Lugo - 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
<u>34</u> <u>26.</u>	Victorville/Lugo - 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>35</del> <u>27.</u>	Victorville/Lugo - 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>36</del> <u>28.</u>	Victorville/Lugo --Laguna Bell	Vernon	Bi-dir.	Victorville-Lugo Firm Transmission Service	360	<del>Terminates with</del> <u>Earlier of:</u> 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>37</del> <u>29.</u>	Victorville/Lugo - CAISO Grid Take Out Point serving Banning	Banning	Bi-dir.	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

	<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>
30 8.	Victorville/Lugo - 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
31 9.	Victorville/Lugo - 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
40.	<del>Sylmar - Rio Hondo</del>	<del>Azusa</del>	<del>To Rio Hondo</del>	<del>1995 San Juan Unit 3 FTS Agreement</del>	<del>376</del>	<del>Earlier of: termination of Azusa's interest in San Juan Unit #3 or Azusa's 1-year notice given after 1/1/02</del>	<del>10 MW</del>

	<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>
41.	Sylmar - Goodrich	Pasadena	Bi-dir	Pasadena-Edison 230-kV Interconnection and Transmission Agreement	55	8/4/10	200 MW; Edison also responsible for delivery of up to 15 MW of Azusa Hydro Energy to Pasadena at Goodrich
42.	Sylmar - Vista	Colton	Bi-dir.	Sylmar Firm Transmission Service Agreement	364	Earliest of: Colton's 1-year notice given after 1/1/02, or termination of Idaho service contract.	3 MW
43.	Sylmar - Midway	Vernon	Bi-dir.	Edison-Vernon Firm Transmission Service Agreement	272	Termination of Vernon COTP Ownership	93 MW until 1/1/00, 93MW after 12/31/07
44.	Sylmar - Laguna Bell	Vernon	Bi-dir.	Edison-Vernon Firm Transmission Service Agreement	272	Termination of Vernon COTP Ownership	60 MW
45.	Sylmar - SONGS	SDG&E	To SDG&E	California Companies Pacific Intertie Agreement	40 (38-PG&E; 20-SDG&E)	7/31/07	100 MW
46.	Sylmar - SONGS	SDG&E	To Sylmar	California Companies Pacific Intertie Agreement	40 (38-PG&E; 20-SDG&E)	7/31/07	105 MW
47.	Sylmar - Mead	PG&E	To Mead.	Edison-PG&E Transmission Agreement	256	7/31/07	Up to 200 MW of FTS.

	POINT OF RECEIPT-DELIVERY	PARTIES	DIR.	CONTRACT TITLE	FERC No.	CONTRACT TERMINATION	CONTRACT AMOUNT
48 <del>32.</del>	Hoover - Mead	WAPA	Bi-dir.	Lease of Two 230-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 capacity leased to WAPA.
49.	<del>Callectric — Vincent</del>	CDWR	<del>To Vincent</del>	<del>Amended and Restated CDWR Devil Canyon Power Plant Additional Facilities and Firm Transmission Service Agreement</del>	421	<del>Life of Plant</del>	<del>120 MW</del>
50.	<del>Mojave Siphon (Vista) - Vincent</del>	CDWR	<del>To Vincent</del>	<del>CDWR Mojave Siphon Additional Facilities and Firm Transmission Service Agreement</del>	342	<del>Life of Plant</del>	<del>28 MW</del>

	<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>
51.	Blythe - Cibola, & Ehrenberg	APS	To APS Load	Firm Transmission Service (Blythe Accounts)	348	Upon 3-year notice by APS, or 10 year notice by Edison	Presently 5.1 MW, 7 MW max.

## 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 ~~Debt 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~~ 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 lines facilities which are directly connected to SDG&E's wholly-owned electric distribution facilities in San Diego and Orange Counties, (the "Local T/D System"), and (ii) other electric utility properties.- As of January July 1, 1998 2011,

these interconnection points include:

1. the point at the International Border where SDG&E's ownership interest in the 230 kV Miguel/Tijuana transmission line interconnects with Comision Federal de Electridad's ownership interest in the Miguel/Tijuana transmission line;
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 ~~a switchyard but which is~~ facilities owned (in whole or in part) by Southern California Edison Company ("SCE");
3. the point where SDG&E's wholly-owned segment of the 500 kV Miguel/Imperial Valley transmission line interconnects with the Imperial Valley Substation; facilities which are owned in part by Imperial Irrigation District ("IID");
4. the point at the San Diego/Imperial ~~Valley~~ County border where SDG&E's ownership interest in a 2.5 mile-long radial distribution line ~~interconnects with Imperial Irrigation District's~~ intersects with IID's ownership interest in that same distribution line;
5. the ~~point~~ 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;
6. the point where SDG&E's wholly-owned Narrows Substation ~~interconnects~~ interconnects with transmission facilities which are owned by ~~Imperial Irrigation District~~ IID.

C. For purposes of paragraph B, net flows of electric energy shall be calculated ~~by treating~~ after taking into account the following adjustments:

1. Treating as a deemed ~~outbound flow at the SONGS switchyard bus all~~ (or as a reduction in inbound flow) SDG&E's share as owner or lessee of electric energy generated at SONGS on behalf of and at other facilities which are not connected directly to the Local T/D System ("Owned/Leased Remote SDG&E (i.e., consequent to Generating Units")).

- i. As of July 1 2011, SDG&E's 20% ownership interests in SONGS Unit 1 and Unit 2 are the only Owned/Leased Remote SDG&E Generating Units.
  - ii. In 2011, Owned/Leased Remote SDG&E Generating Units are expected to include SDG&E's 480 MW interest in SONGS) that is not transmitted into the Desert Star Energy Center.
  - iii. In 2012, Owned/Leased Remote SDG&E Generating Units are expected to include SDG&E's electric service area in San Diego and Orange Counties. Electric 189 MW interest in the Rim Rock Project.
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 SONGS on behalf of wholesale to electric utilities other than SDG&E that is transmitted into.
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 area, whether 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 delivery to retail customers of SDG&E or for other uses, shall not be treated as an inbound flow at the SONGS switchyard bus interconnection for purposes of this calculation. 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~~ 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 ~~by~~ 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 the ISO proposes to set rates for transmission over SDG&E's transmission facilities based in whole or in part upon the costs to Participating Transmission Owners other than SDG&E (see, e.g., California Public Utilities Code § 9600(a)(2)), the ISO will return Operating Control over SDG&E's transmission facilities to SDG&E unless SDG&E, in good faith, has obtained an opinion (of the type generally regarded in the municipal bond market as unqualified) from nationally recognized bond counsel selected by SDG&E that the proposed ratemaking will not adversely affect the tax-exempt status of interest on Local Furnishing Bonds issued for the benefit of SDG&E.~~

~~G. F. If SDG&E has been unable to obtain the unqualified opinion of bond counsel described in sections paragraph E and F 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) ~~or transmission rates~~ 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) ~~or transmission rates~~. Until such a ruling is obtained from the Internal Revenue Service, 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.

## 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
81-034	Mutual Assistance Transmission Agreement	IID, APS, Edison	62	4/12/2034 or sooner by mutual agreement of the parties. <u>A party may withdraw from this agreement upon giving 5 years advance written notice to the other parties.</u>	In the event of a contingency in the Palo Verde-Devers, 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.
79-016	SONGS Participation Agreement	Edison, Anaheim, Riverside	321	None	SDG&E's share of SONGS switchyard with termination of its 230 kV transmission lines: - San Luis Rey (3 lines) - Talega (2 lines)
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 <u>CAISO's Control Balancing Authority Area Agreement</u> ).	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.

<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 at pages in Section I of this SDG&E App. B-4 through B-3 hereof.

<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 at page in Section II of this SDG&E App. B-4 hereof.

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 IID <del>CFE</del> of the <u>CAISO's Central Balancing Authority</u> 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.
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: CITY OF VERNON'S  
ENCUMBRANCES**

**NONE**

<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. <del>COTP [1]</del>	Vernon, PG&E		<del>Transmission Service Exchange Agreement Between Pacific Gas &amp; Electric Company and the City of Vernon</del>	148	See Notes (1) <del>(3)</del>	121 MW N-S 92 MW S-N
2. <del>—</del>	<del>PG&amp;E, SCE, SDG&amp;E, and COTP Participants</del>		<del>Coordinated Operation Agreement</del>	146	<del>Earlier of: 1/1/2013, agreement governing the interconnection of the COTP with PG&amp;E is no longer in force, or any of the binding agreements terminate.</del>	

~~— 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 650 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 for fifty years from the effective date.~~

[1] PG&E is an existing PTO and a joint-owner of COTP. We believe documents relating to the COTP are submitted to the CAISO by PG&E. Vernon has only minority ownership interests in the high voltage transmission facilities presently placed under the ISO's Operational Control by Vernon, which consist of Vernon's minority interests in COTP, MPP, MAP, and the Marketplace Substation/Expansion of and/or interconnection to these facilities require approval of the owners and/or the management committees of those facilities. Therefore, as the Commission determined in approving Vernon's TO Tariff in Docket No. EL00-105, 96 FERC ¶ 61,312 (September 14, 2001), Vernon does not have the legal authority to compel expansion of and/or interconnection to those facilities. Such encumbrances pertaining to Vernon's minority interests in the facilities turned over to ISO operational control that do not fit into the format of the table above are listed below:

### **Mead-Phoenix Project**

1. ~~1. Mead-Phoenix Project Joint Ownership Agreement and Definitions~~
2. ~~2. Mead-Phoenix Project Fiscal Agency Agreement~~
3. ~~3. Mead-Phoenix Project Construction Management Agreement~~
4. ~~4. Mead-Phoenix Project Land Rights Agreement~~
5. ~~5. Mead-Phoenix Project Operation Agreement~~
6. ~~6. Mead-Phoenix Project, Mead Westwing Transmission Line, Westwing Substation Interconnection Agreement (DWP No. 10408)~~
7. ~~7. Mead-Phoenix Project, Mead Interconnection Agreement~~

### **Mead-Adelanto Project**

8. ~~8. Marketplace Substation Participation Agreement (DWP No. 10330)~~
9. ~~9. Mead-Phoenix/Mead-Adelanto Projects, Marketplace-McCullough 500 kV Interconnection Agreement (DWP No. 10409)~~
10. ~~10. Mead-Adelanto Project Joint Ownership Agreement and Definitions~~
11. ~~11. Mead-Adelanto Project Fiscal Agency Agreement~~
12. ~~12. Mead-Adelanto Project Construction Management Agreement (DWP No. 10335)~~
13. ~~13. Mead-Adelanto Project Operation Agreement (DWP No. 10336)~~
14. ~~14. Mead-Adelanto Project, Marketplace-Adelanto Transmission Line, Adelanto Switching Station Interconnection Agreement (DWP No. 10338)~~
15. ~~15. Marketplace Static Var Compensator, Adelanto Switching Station Interconnection Agreement (DWP No. 10332)~~

### **California-Oregon Transmission Project**

1. ~~Interim Participation Agreement~~
2. ~~Project Operation and Maintenance Agreement~~
3. ~~COTP Western Interconnection Agreement~~
4. ~~Pacific Northwest Interim Interconnection Agreement~~
5. ~~Memorandum of Understanding~~

~~APPENDIX B: CITY OF ANAHEIM  
ENCUMBRANCES~~

NONE

<del>Point of Receipt-Delivery</del>	<del>Parties</del>	<del>Direction</del>	<del>Contract Title</del>	<del>FERC No.</del>	<del>Contract Start Date</del>	<del>Contract Termination</del>	<del>Contract Amount</del>
4 Mona-Substation-Gonder Substation	Anaheim-Deseret G&T	Bi-directional	Mona-Gonder Transmission Service Agreement		7-Jun-94	31-Dec-09	20 MW

**APPENDIX B: CITY OF AZUSA  
ENCUMBRANCES**

POINT OF RECEIPT-DELIVERY	PARTIES	DIRECTION	CONTRACT-TITLE	FERC	CONTRACT TERMINATION	CONTRACT AMOUNT
<del>1. ANPP (Devers) - Sylmar</del>	<del>Azusa, Los Angeles</del>		<del>Los Angeles - Azusa ANPP/Sylmar FTS</del>	<del>DWP No. 10021</del>		<del>10 MW</del>
<p><del>Los Angeles - Azusa ANPP/Sylmar FTS:</del>  Pursuant to Section 6.2 of the Los Angeles - Azusa ANPP/Sylmar FTS, the Los Angeles Department of Water and Power is entitled to schedule energy on a nonfirm basis over the 10 MW of bidirectional transmission service between Palo Verde and Sylmar to the extent Azusa does not use the transmission service.</p>						

~~Summary details are in each agreement.~~

**APPENDIX B: CITY OF RIVERSIDE  
ENCUMBRANCES**

<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Start Date</b>	<b>Contract Termination</b>	<b>Contract Amount</b>
1. Mona Substation-Gonder Substation	Riverside-Deseret G&T	Bi-directional	Mona-Gonder Transmission Service Agreement		17-Jun-94	31-Dec-09	20 MW

**APPENDIX B- CITY OF PASADENA  
ENCUMBRANCES**

	<b>Point of Receipt-Delivery</b>	<b>Parties</b>	<b>Direction</b>	<b>Contract Title</b>	<b>FERC No.</b>	<b>Contract Start Date</b>	<b>Contract Termination</b>	<b>Contract Amount</b>
1.	Nevada/Oregon Border - Sylmar	Pasadena - Riverside, Azusa, Banning, Colton	Bi-directional	Pacific Intertie Direct Current Firm Transmission Service Agreement		01-Oct-89	30-Sep-09	14 MW
2.	Nevada/Oregon Border - Sylmar	Pasadena - Anaheim	Bi-directional	Pacific Intertie Direct Current Firm Transmission Service Agreement		01-Oct-89	30-Sep-09	10 MW

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

<u>Point of Receipt-Delivery</u>	<u>Parties</u>	<u>Direction</u>	<u>Contract Title</u>	<u>FERC No.</u>	<u>Contract Start Date</u>	<u>Contract Termination</u>	<u>Contract Amount</u>
<u>Imperial Valley Substation*</u>	<u>SDG&amp;E and Citizens Sunrise Transmission, LLC</u>	<u>Bidirectional</u>	<u>Transmission Control Agreement, SDG&amp;E Appendix B, SDG&amp;E's Encumbrances, Local Furnishing Transmission System Encumbrances</u>	<u>NA</u>	<u>2012</u>	<u>2042</u>	<u>NA</u>
<u>Suncrest Substation/Sycamore Canyon Substations*</u>	<u>SDG&amp;E and Citizens Sunrise Transmission, LLC</u>	<u>Bidirectional</u>	<u>Transmission Control Agreement, SDG&amp;E Appendix B, SDG&amp;E's Encumbrances, Local Furnishing Transmission System Encumbrances</u>	<u>NA</u>	<u>2012</u>	<u>2042</u>	<u>NA</u>

\* Citizens Sunrise Transmission's interest extends westward from the Imperial Valley Substation only to the San Diego County/Imperial County Border

# TRANSMISSION CONTROL AGREEMENT

## APPENDIX C

### CAISO TRANSMISSION MAINTENANCE STANDARDS

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

Availability - A measure of time a Transmission Line Circuit under ISOCAISO 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 ISOCAISO 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.

ISOCAISO 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 ISOCAISO, 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 ISOCAISO and the PTOs to facilitate compliance with the ISOCAISO 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 ISOCAISO 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 ISOCAISO Tariff and ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 Coordination Committee (“TMCC”) - The committee



assessed through an ISOCAISO review.

In developing these ISOCAISO Transmission Maintenance Standards, both the ISOCAISO 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 ISOCAISO Controlled Grid. For this reason, these ISOCAISO 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 ISOCAISO 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**

ISOCAISO 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO Transmission Maintenance Standards. First, these standards require that each PTO develop and submit a description of its Maintenance Practices to the ~~ISO~~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 ISOCAISO 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 ISOCAISO, 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 ISOCAISO for the Availability Measures. These standard formats are provided in the Maintenance Procedures. To facilitate review of the data by the ISOCAISO, 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 ISOCAISO TRANSMISSION MAINTENANCE STANDARDS**

The ISOCAISO 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 ISOCAISO in accordance with these ISOCAISO 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 ISOCAISO 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 ISOCAISO at the time of the change. In its annual report to the ISOCAISO, 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:

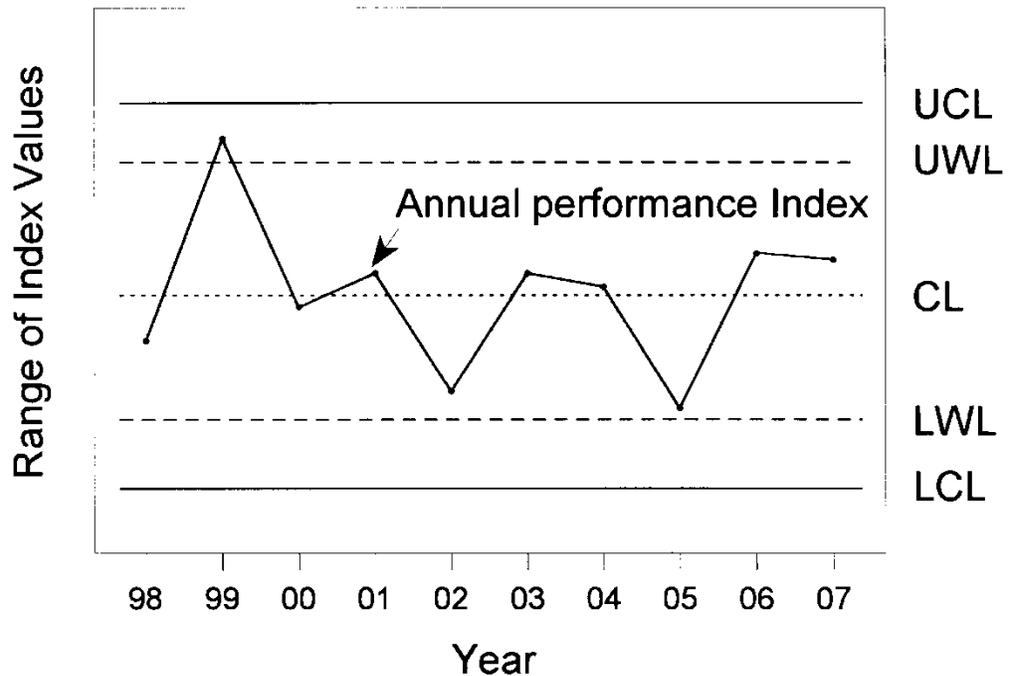
- Scheduled Outages<sup>(IMS)</sup>
- Outages<sup>(IMS)</sup> classified as “Not a Forced Outage” in the Maintenance Procedures.
- Forced Outages<sup>(IMS)</sup> which: (1) were caused by events outside the PTO’s system including Outages<sup>(IMS)</sup> which originate in other TO systems, other electric 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 ~~ISO~~ISOCAISO 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 ~~ISO~~CAISO providing reasonable justification for this modification. This report shall be submitted to the ~~ISO~~CAISO within 90 days after the date a TO becomes a PTO in accordance with the provisions of the Transmission Control Agreement.

The ~~ISO~~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 ISOCAISO 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 ~~ISO~~ ISO/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  $2*5 = 10$

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  $10^{**}2 = 100$  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  $M^{**}n = U$  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

$S_{P_{VC,k}}$  = 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 ISOCAISO 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 ISOCAISO 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 v1 consecutive annual index values fall above the CL or v2 consecutive annual index values fall below the CL. The actual values of v1 and v2 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,  $v_1=6$ , and  $v_2=8$ .

- **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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO'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 ~~ISO~~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 ISOCAISO 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 ISOCAISO to assess the proposed Maintenance Practices.

The ISOCAISO shall review the proposed Maintenance Practices and may provide recommendations for an amendment. To the extent there is any disagreement between the ISOCAISO and the prospective PTO regarding the prospective PTO's proposed Maintenance Practices, such disagreement shall be resolved by the ISOCAISO and prospective PTO so that the ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO**

Each PTO shall have in place Maintenance Practices that have been adopted by the ISOCAISO as set forth in this Appendix C. The ISOCAISO shall periodically review each PTO's Maintenance Practices having regard to these ISOCAISO Transmission Maintenance Standards and Maintenance Procedures. Following such a review, the ISOCAISO 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 ISOCAISO's recommendation. If the PTO exercises its option to draft amended language to the ISOCAISO's proposed amendment, the PTO shall so notify the ISOCAISO within 30 days after the receipt of notice from the ISOCAISO. The PTO will provide the ISOCAISO with its proposed amendment language in a time frame mutually agreed upon between the PTO and the ISOCAISO. If, after the ISOCAISO receives the proposed amendment language from the PTO, the ISOCAISO and the PTO are unable to agree on the language implementing the ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO, 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO or a PTO makes a recommendation to amend Maintenance Practices and if the ISOCAISO or PTO provides notice within the 30 Business Days specified in Section 5.3.3.1 of this Appendix C that the ISOCAISO or PTO does not agree with the recommended amendment, the PTO and the ISOCAISO shall make good faith efforts to reach a resolution

relating to the recommended amendment. If, after such efforts, the PTO and the ISOCAISO 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 ISOCAISO recommended amendment and the ISOCAISO 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 ISOCAISO, as the Maintenance Practices for that PTO, pursuant to the implementation time frame agreed to between the PTO and the ISOCAISO.

**5.3.3.3.** If the ISOCAISO determines, that prompt action is required to avoid a substantial risk to reliability of the ISOCAISO 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 ISOCAISO Controlled Grid, including, where a substantial risk is not imminent or clearly imminent, why prompt action is nevertheless required. The ISOCAISO 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 ISOCAISO in its advisory, unless the PTO provides a notice to the ISOCAISO, 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 ~~ISO~~CAISO or on such earlier date as the ~~ISO~~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 ~~ISO~~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 ISOCAISO 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 ISOCAISO Maintenance records as described in Section 6.1 and as set forth in the Maintenance Procedures.

### **6.3. ISOCAISO VISIT TO PTO'S TRANSMISSION FACILITIES**

The ISOCAISO 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. ISOCAISO AND TRANSMISSION MAINTENANCE COORDINATION COMMITTEE**

The ISOCAISO 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 ISOCAISO 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 ISOCAISO 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 ISOCAISO will strive to achieve a consensus among committee members.

## **8. REVISION OF ISOCAISO TRANSMISSION MAINTENANCE STANDARDS AND MAINTENANCE PROCEDURES**

### **8.1 REVISIONS TO ISOCAISO TRANSMISSION MAINTENANCE STANDARDS**

The ISOCAISO, PTOs, or any interested stakeholder may submit proposals to amend or revise these ISOCAISO Transmission Maintenance Standards. All proposals shall be initially submitted to the TMCC for review in accordance with this Appendix C. Any revisions to these ISOCAISO 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 ISOCAISO 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 ISOCAISO and the affected PTO.

## **9. INCENTIVES AND PENALTIES**

### **9.1 DEVELOPMENT OF A FORMAL PROGRAM**

The TMCC shall periodically investigate and report to the ISOCAISO on the appropriateness of a formal program of incentives and penalties associated with Availability Measures. Should the TMCC ever recommend that the ISOCAISO 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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~CAISO to the FERC, the approval by FERC of any specific penalty or sanction, or the specific imposition by the ~~ISO~~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 ~~ISO~~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 ~~ISO~~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 ~~ISO~~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.

**AGC (Automatic Generation Control)**

~~Generation equipment that automatically responds to signals from the ISO's EMS control in real time to control the power output of electric generators within a prescribed area in response to a change in system frequency, tieline loading, or the relation of these to each other, so as to maintain the target system frequency and/or the established interchange with other areas within the predetermined limits.~~

**Ancillary Services**

As used in this Agreement, the term Ancillary Services shall have the definition set forth in Appendix A of the CAISO Tariff. ~~Regulation, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve, Voltage Support and Black Start together with such other interconnected operation services as the ISO may develop in cooperation with Market Participants to support the transmission of Energy from Generation resources to~~

**Applicable Reliability Criteria**

~~Loads while maintaining reliable operation of the ISO Controlled Grid in accordance with Good Utility Practice. The Reliability Standards and reliability criteria established by NERC, and WSECC, and Local Reliability Criteria, as amended from time to time, including any requirements of the NRC.~~

**Applicants**

~~Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company and any others as applicable.~~

**Approved Maintenance Outage**

A Maintenance Outage which has been approved by the CAISO through the CAISO Outage Coordination Office.

**Available Transfer Capacity**

~~For a given transmission path, the capacity rating in MW of the path established consistent with ISO and WSCC transmission capacity rating guidelines, less any reserved uses applicable to the path.~~

**Balancing Authority**

**Balanc**

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 Controlled Grid 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.

**Website**

**CAISO**

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 condition that occurs when there is insufficient Available Transfer Capacity to implement all Preferred Schedules simultaneously. "Congested" shall be construed accordingly.~~  
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 Protocols~~ procedures, the CAISO Tariff, and Good Utility Practice.

**Control 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. An electric power system (or combination  
of electric power systems) to which a common AGC  
scheme is applied in order to: i) match, at all times, the  
power output of the Generating Units within the electric  
power system(s), plus the Energy purchased from entities  
outside the electric power system(s), minus Energy sold  
to entities outside the electric power system, with the  
Demand within the electric power system(s); ii) maintain  
scheduled interchange with other Control Areas, within  
the limits of Good Utility Practice; iii) maintain the  
frequency of the electric power system(s) within  
reasonable limits in accordance with Good Utility Practice;  
and iv) provide sufficient generating capacity to maintain  
operating reserves in accordance with 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.

**Day-Ahead Market**

~~The forward market for Energy and Ancillary Services to be supplied during the Settlement Periods of a particular Trading Day that is conducted by the ISO, the PX and other Scheduling Coordinators and which closes with the ISO's acceptance of the Final Day-Ahead Schedule.~~

**Demand**

~~The rate at which Energy 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.

**EMS (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.~~

**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 ~~purchaser~~ consumer of electric power who ~~purchases~~ 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**

~~These transmission service rights defined in Section~~

~~2.4.4.1.1 of the ISO Tariff. 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.~~

**Facilities Study Agreement**

~~An agreement between a Participating TO and either a Market Participant, Project Sponsor, or identified principal beneficiaries pursuant to which the Market Participants, Project Sponsor, and identified principal beneficiaries agree to reimburse the Participating TO for the cost of a Facility Study.~~

**Facility Study**

~~An engineering study conducted by a Participating TO to determine required modifications to the Participating TO's transmission system, including the cost and scheduled completion date for such modifications that will be required to provide needed services.~~

**FERC**

~~The Federal Energy Regulatory Commission or its successor.~~

**FIITC (Firm Import Interconnection Transmission Capacity)**

~~The amount of firm transmission capacity in MW associated with transmission facilities owned by a Participating TO or contracted to the Participating TO under an Existing Contract, which allows Generating Units that are not directly interconnected with that Participating~~

~~TO's transmission or distribution system to deliver Energy to that Participating TO. For each month of the Self-Sufficiency Test Period, FITC shall include the maximum amount of requirements and bundled power sale capacity purchased by the Participating TO from the transmission owner to which it is physically interconnected during the hour in which the Monthly Peak Load of the Participating TO occurs.~~

**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 ~~Hour-Ahead Market scheduling~~ 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 Control-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).

**Hour-Ahead Market**

~~The forward market for Energy and Ancillary Services to be supplied during a particular Settlement Period that is~~

~~conducted by the ISO, the PX and other Scheduling Coordinators which opens after the ISO's acceptance of the Final Day Ahead Schedule for the Trading Day in which the Settlement Period falls and closes with the ISO's acceptance of the Final Hour Ahead Schedule.~~

**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, or 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.

**Interconnection**

~~Transmission facilities, other than additions or replacements to existing facilities that: i) connect one system to another system where the facilities emerge from one and only one substation of the two systems and are functionally separate from the ISO Controlled Grid facilities such that the facilities are, or can be, operated~~

and planned as a single facility; or ii) are identified as radial transmission lines pursuant to contract; or iii) produce Generation at a single point on the ISO Controlled Grid; provided that such interconnection does not include facilities that, if not owned by the Participating TO, would result in a reduction in the ISO's Operational Control of the Participating TO's portion of the ISO Controlled Grid.

**Interconnection Agreement**

A contract between a party requesting interconnection and the Participating TO that owns the transmission facility with which the requesting party wishes to interconnect.

**IRS**

The United States Department of Treasury, Internal Revenue Service, or any successor thereto.

**CAISO (Independent System Operator)**

The California Independent System Operator Corporation, a state chartered, California non-profit public benefit corporation that controls 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 2.3.1.1 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.

**ISO Grid Operations Committee**

A committee appointed by the ISO Governing Board pursuant to Article IV, Section 4 of the ISO bylaws to advise on additions and revisions to its rules and protocols, tariffs, reliability and operating standards and other technical matters.

**CAISO Operations Date**

March 31, 1998. The date on which the ISO first assumes Operational Control of the ISO Controlled Grid.

**CAISO Outage Coordination Office**

The office established by the CAISO to coordinate Maintenance Outages in accordance with Section 2.3.3 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.

**Load**

An end-use device of an End-Use Customer that consumes pPower. Load should not be confused with Demand, which is the measure of pPower 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 established at the ISO Operations Date~~, 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 Energy marketplace 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).

**Monthly Peak Load**

~~The maximum hourly Demand on a Participating TO's transmission system for a calendar month, multiplied by the Operating Reserve Multiplier.~~

**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 Council 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 WSECC operating criteria reliability standards, including any requirements of the NRC.

**Non-Converted Rights**

~~These transmission service rights as defined in Section 2.4.4.2.1 of the ISO Tariff.~~

**Non-Participating Generator**

~~A Generator that is not a Participating Generator.~~

**Non-Participating TO**

A TO that is not a party to the ~~TGA~~ this Agreement or, for the purposes of Sections ~~2.4.3 and 2.4.4~~ 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 ~~the Transmission Control~~ 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.

**Operator**

~~The operator of facilities comprised in the ISO Controlled Grid or Reliability Must-Run Units.~~

**Original Participating TO**

A Participating TO that was a Participating TO as of January 1, 2000.

**Outage**

Disconnection, or 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, and 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

**Participating TO**

terms are defined in Appendix A of the CAISO Tariff).

A party to the ~~TCA~~ this Agreement whose application under Section 2.2 of the ~~TCA~~ has been accepted and who has placed its transmission assets and Entitlements under the CAISO's Operational Control in accordance with the ~~TCA~~ 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.

**PMS (Power Management System)**

~~The ISO computer control system used to monitor the real time performance of the various elements of the ISO Controlled Grid, control Generation, and perform operational power flow studies.~~

**Preferred Schedule**

~~The initial Schedule produced by a Scheduling Coordinator that represents its preferred mix of Generation to meet its Demand. For each Generator, the Schedule will include the quantity of output, details of any Adjustment Bids, and the location of the Generator. For each Load, the Schedule will include the quantity of consumption, details of any Adjustment Bids, and the location of the Load. The Schedule will also specify quantities and location of trades between the Scheduling Coordinator and all other Scheduling Coordinators. The Preferred Schedule will be balanced with respect to Generation, Transmission Losses, Load and trades~~

~~between Scheduling Coordinators.~~

**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, ~~or~~ group of Market Participants, ~~or~~ 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 ~~3.2~~ 24 of the CAISO Tariff.

**RAS (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).

**Regulatory Must-Run Generation**

Hydro Spill Generation and Generation which is required to run by applicable ~~F~~ederal 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 eContingency (as that term is defined in Appendix A of the CAISO Tariff) or steady state conditions.

**Reliability Must-Run Unit**

~~A Generating Unit which is the subject of the contract between the Generator and the ISO under which, in return for certain payments, the ISO is entitled to call upon the owner to run the unit when required by the ISO for the purposes of the reliable operation of the ISO Controlled Grid.~~

**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).

**RTG (Regional Transmission Group)**

~~A voluntary organization approved by FERC and composed of transmission owners, transmission users, and other entities, organized to efficiently coordinate the planning, expansion and use of transmission on a regional and inter-regional basis.~~

**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 ~~2.2.6~~ 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. ~~A Scheduling Point typically is physically located at an "outside" boundary of the ISO Controlled Grid (e.g., at the point of interconnection between a Control Area utility and the ISO Controlled Grid). For most practical purposes, a Scheduling Point can be considered to be a Zone that is outside the ISO's Controlled Grid.~~

**Self-Sufficiency or Self-Sufficient**

~~A Participating TO for which the sum of its Dependable Generation and its FIITC is greater than or equal to its Monthly Peak Load.~~

**Settlement Account**

~~An account held at a bank situated in California,~~

~~designated by a Scheduling Coordinator or a Participating TO pursuant to the Scheduling Coordinator's SC Agreement or in the case of a Participating TO, Section 2.2.1 of the TCA, to which the ISO shall pay amounts owing to the Scheduling Coordinator or the Participating TO under the ISO Tariff.~~

**System Emergency**

Conditions beyond the normal control of the CAISO that affect the ability of the CAISO Control 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 the minimum operating Applicable Reliability Criteria.

**System Planning Studies**

~~Reports summarizing studies performed to assess the adequacy of the ISO Controlled Grid as regards conformance to 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 ~~the TCA~~ 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.

**TCA (Transmission Control Agreement (TCA))**

~~This is a~~ 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.

**TO (Transmission Owner (TO))**

An entity owning transmission facilities or having firm contractual rights to use transmission facilities.

**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 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.

**UDC (Utility Distribution Company)**

~~An entity that owns a Distribution System for the delivery of Energy to and from the ISO Controlled Grid, and that provides regulated retail electric service to Eligible Customers, as well as regulated procurement service to those End-Use Customers who are not yet eligible for direct access, or who choose not to arrange services through another retailer.~~

**Uncontrollable Force**

Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, earthquake, explosion, ~~breakage, or accident to machinery or equipment,~~ 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 ~~and without such Party's fault or negligence~~ 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 ~~s~~System ~~e~~Emergency conditions.

**WEnet (Western Energy Network)**

~~An electronic network that facilitates communications and data exchange among the ISO, Market Participants and the public in relation to the status and operation of the ISO Controlled Grid.~~

**Western Electricity Coordinating Council (WECC)**

The Western Electricity Coordinating Council or its successor.

**Wheeling Out**

~~Except for Existing Rights and Non-Converted Rights exercised under an Existing Contract in accordance with Sections 2.4.3 and 2.4.4~~ 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 and Non-Converted Rights exercised under an Existing Contract in accordance with Sections 2.4.3 and 2.4.4~~ 16.1 of the CAISO Tariff, the use of the CAISO Controlled Grid for the transmission of Energy from a ~~Generating Unit~~ 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.

**WSCC (Western System Electricity Coordinating Council (WECC))**

The Western Systems Electricity Coordinating Council or its successor.

# **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.

## **REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY REVISION 1**

### **~~DCPP 1&2 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY~~**

#### **~~OVERVIEW~~**

~~The DCPP Operating License and Technical Specifications require two physically independent sources (not necessarily on separate right of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both sources is acceptable. Each of these sources shall be designed to be available in sufficient time following a loss of all DCPP onsite alternating current power supplies and the other offsite electric power circuit. One of these sources shall be designed to be available within a few seconds following a loss of coolant accident. For DCPP, the sources available within seconds are the 230 kV grid interface and the second source is the 525 kV grid interface.~~

~~During normal operation, each DCPP unit's electrical loads are supplied from the unit's main onsite electrical generator. If the generator is not available, either due to unit shutdown or other reason, the loads (safety related and non-safety related) are transferred to the 230 kV grid. In addition DCPP has a delayed transfer capability to the 525 kV grid. The offsite power source is sometimes referred to as the preferred power supply in the regulatory documents.~~

The basic requirement for the offsite power supply is that it provides sufficient capacity and capability for safe shutdown and design basis accident mitigation. When this condition is met, the offsite power supply is considered Operable with respect to the DCPP Operating License and Technical Specifications. It is a necessary condition of the Operating License that the offsite power supply be Operable at all times. If either source of the offsite power system is declared Inoperable, action must be taken to shut down an on-line DCPP unit(s) and, for an off-line unit, to suspend activities as required by the DCPP Operating License and Technical Specifications. DCPP must also perform additional diesel testing. The offsite power system is considered Inoperable if either source is degraded to the point that it does not have the capability to effect safe shutdown and to mitigate the effects of an accident at DCPP. This level of degradation can be caused by an unstable offsite power system, or any condition, which renders the offsite power unavailable for safe shutdown and emergency purposes.

In specific terms, the offsite power supply voltages (at the DCPP switchyards) must stay within the range of 207 kV to 240 kV and 525 kV to 545 kV under post accident operating conditions. During normal operation, the 230 kV voltage must maintain above 207 kV such that when DCPP transfers its load from the onsite source to the offsite source the voltage does not decrease below 207 kV. During normal operation, the 230 kV voltage at DCPP 230 kV switchyard should meet the 230 kV voltage requirements identified in PG&E Operating Instruction O-23. Otherwise, that offsite power source may be considered Inoperable. Since a design basis accident can result in a unit trip, it is imperative that the trip does not impair the operability of the offsite power system. Therefore, following a trip of a DCPP unit (i.e., the unit breakers open) and assuming the other DCPP unit was already shutdown, the DCPP switchyard voltage must recover to and be maintained at or above 207 kV within 16 seconds following the unit trip. If this condition cannot be met, then the offsite power source is considered Inoperable, and action must be taken to shut down the operating DCPP unit(s). In addition, the 500 kV and 230 kV grid must remain stable if both DCPP units trip.

System Operating procedures and programs shall be in place to ensure that various system operating conditions (generating unit outages, line outages, system loads, spinning reserve, etc.), including multiple contingency events, are evaluated and understood, such that impaired or potentially degraded grid conditions are recognized, assessed and immediately communicated to the DCPP operating staff for Operability determination.

## **SPECIFIC REQUIREMENTS**

Note: This section identifies the operational requirements for the DCPP offsite power supply. These requirements are part of the DCPP design basis and licensing basis and include PG&E System Operating Instruction O-23 as revised as necessary. Failure to meet these requirements may render the offsite power

supply inoperable, thus requiring the operating DCPP unit(s) to shutdown. Failure to meet these requirements must be immediately communicated to the ISO/CAISO, PG&E and the DCPP operating staff for operability determination. Changes in the operation of the transmission network that conflict with these requirements requires prior approval by PG&E.

1. Three transmission lines into the 500 kV DCPP switchyard and two lines into the 230 kV DCPP switchyard are normally in service. Any change that alters the performance capabilities of either offsite source at the applicable switchyard requires prior approval by PG&E (DCPP) and the ISO/CAISO.

No line may be removed from service at anytime without prior notification to the DCPP Operations Department. At least two independent sources of power, the 500 kV and the 230 kV systems, between the transmission network (grid) and DCPP switchyards shall be available at all times. PG&E System Operating Procedure, 0-23, Operating Instructions for Reliable Transmission Service for Diablo Canyon, provides specific requirements to determine operability of these sources.

2. With both Diablo Canyon units off-line, the DCPP 500 kV and 230 kV offsite power source should be capable of providing 130 MVA (i.e. dual unit orderly shutdown) to Diablo Canyon for normal operation, safe shutdown, and design basis accident mitigation.
3. The minimum grid voltage at DCPP 230 kV switchyard shall be maintained at or above 230 kV for normal operation with all Los Padres 230 kV elements (See list below) in service. In the event of a system disturbance or line outage that can cause the DCPP voltage to dip below 230 kV, including the trip of a DCPP unit, the grid voltage shall recover to 207 kV or above within 16 seconds.

<u>Los Padres Area Major 230 kV Elements</u>	<u>Major 500 kV Elements</u>
DCPP – Mesa Line	DCPP-Gates Line
Morro Bay – Mesa Line	DCPP-Midway Line #1 & #2 Line
Morro Bay – DCPP Line	
Morro Bay – Templeton Line	
Morro Bay – Midway Line #1 or #2 Line	
Morro Bay – Gates Line #2 Line	
Largest Los Padres area generator other than DCPP	
DCPP 230 kV capacitor banks	
Mesa 115 kV capacitor banks	

4. Planning and operating reliability criteria shall result in plans for the following events without loss of grid stability or availability:

- a) ~~The loss of two DCPD units.~~
  - b) ~~The loss of any generating unit on the PG&E grid.~~
  - c) ~~The loss of any major transmission circuit or intertie on the PG&E grid.~~
  - d) ~~The loss of any large load or block of load on the PG&E grid.~~
5. ~~The maximum grid voltage at the DCPD 230 kV and 500 kV switchyards shall be maintained at or below 240 kV and 545 kV, respectively, unless required to preserve transmission network integrity.~~
6. ~~The 500 kV system shall be maintained between 525 kV and 545 kV. Operation of DCPD is limited between 24.375 kV and 26.25 kV (i.e. 0.975 p.u. and 1.05 p.u.).~~

~~PG&E, in coordination with the ISOCAISO, shall perform and update system studies based on changing grid conditions (load growth, etc.) to identify critical conditions that could render the DCPD offsite power supply Inoperable. The offsite power system is considered Inoperable if it is degraded to the point that it does not have the capability to effect safe shutdown and to mitigate the effects of an accident at DCPD. This level of degradation can be caused by an unstable offsite power system, or any condition that renders the offsite power supply unavailable for safe shutdown and emergency purposes. Procedures and programs shall be in effect to ensure that the DCPD operating staff is immediately notified of such conditions. Grid conditions that are more severe with respect to DCPD switchyard voltages or otherwise unanalyzed render the offsite power supply Inoperable. DCPD operating staff shall be immediately notified of such conditions. Auditable records of system study results shall be maintained. Study results, including revisions and updates, shall be transmitted via letter to both PG&E (Transmission Planning, Electric System Operations and DCPD) and the ISOCAISO. Study results and conclusions shall be assessed at least annually and updated, if needed, based on changing grid conditions. Results of the annual assessments shall be transmitted via letter to both PG&E (Transmission Planning, Electric System Operations and DCPD) and the ISOCAISO.~~

~~System studies shall consider the interconnections between PG&E, and other utilities in the Western Electricity Coordinating Council (WECC) region.~~

7. ~~In the event of a complete loss of the DCPD offsite power supply (i.e. both the 230 kV and 500 kV grid interfaces) both the ISOCAISO and PG&E shall establish the following restoration priorities:~~
- a) ~~Highest possible priority shall be given to restoring power to the DCPD~~

switchyards.

- b) ~~Should incoming lines to the DCPD switchyards be damaged, highest priority shall be assigned to repair and restoration of at least one line into the DCPD switchyards.~~
  - c) ~~Repair crews engaging in power restoration activities for DCPD shall be given the highest priority for manpower, equipment, and materials.~~
  - d) ~~Formal programs and procedures shall be in place to effect items a), b), and c) above.~~
8. ~~Grid frequency shall be maintained at 60 Hertz (nominal). The following operations are initiated for low system frequency conditions:~~
- a) ~~At 59.65 Hz, E19 & E20 interruptible customers are tripped.~~
  - b) ~~PG&E complies with the WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan.~~
9. ~~Patrol and inspection of PG&E transmission lines shall be performed in accordance with the current CAISO approved PG&E Overhead Electrical Transmission Line Maintenance Practice.~~
10. ~~Line insulators between the plant and switchyard shall be washed by PG&E on an appropriate wash cycle during the wash season in accordance with the current CAISO approved PG&E Overhead Electrical Transmission Line Maintenance Practice to reduce line outages that may result from flashovers due to possible accumulated contamination.~~
11. ~~Maintenance, testing and calibration of DCPD switchyard equipment and protective relays shall be performed in accordance with the current CAISO approved PG&E Electrical Station Maintenance Practice.~~
12. ~~PG&E (DCPD) maintains a safety analysis for DCPD (Section 8.0, Electric Power of DCPD 1&2 Final Safety Analysis Update Report (FSAR)). PG&E (DCPD) is required by 10CFR50.71(e) to submit to the NRC periodic updates to the FSAR. The requirements contained in this Appendix E are documented in the FSAR. Any changes to these requirements, or the Bulk Power Transmission System Reliability criteria used as a basis for compliance with a requirement, shall be transmitted by both the ISOCAISO and PG&E (Transmission operator) to PG&E (DCPD) for prior approval.~~

**~~These Specific Requirements mirror existing operating protocols, equipment, regional and national reliability organization standards and are subject to modification as necessary when new standards, equipment or~~**

| ~~protocols are adopted or updated.~~

# SONGS 2&3 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY

Revised as of October 10, 2006

## I. OVERVIEW

The preferred source of electrical power for the San Onofre Nuclear Generating Station (SONGS) electrical loads (safety-related and non safety-related) is the **offsite power supply** or 230 kV grid. The offsite power supply is sometimes referred to as the **preferred power supply** in the applicable regulatory documents.

The offsite power supply is considered “Operable” with respect to the SONGS Operating License and Technical Specifications when it can provide sufficient capacity and capability to supply electrical loads needed to safely shut down the reactor and mitigate certain specified accident scenarios.

The offsite power supply is considered “Inoperable” with respect to the SONGS Operating License and Technical Specifications if it is degraded to the point that it cannot provide sufficient capacity and capability to supply electrical loads needed to safely shut down the reactor and to mitigate the effects of an accident at SONGS.

It is a necessary condition of the SONGS Operating License and Technical Specifications that the offsite power supply be Operable at all times. If the offsite power supply is declared Inoperable, action must be taken to shut down an online SONGS unit(s) and, for an offline unit, to suspend activities as required by the SONGS Operating License and Technical Specifications.

This level of degradation that would result in inoperability can be caused by an unstable offsite power system, or any condition which renders the offsite power supply unavailable to safely shutdown the units or to supply emergency electrical loads.

Since accident scenarios for which the SONGS plant is designed can result in a unit trip, it is imperative that this trip not impair the operability of the offsite power supply.

If both SONGS units are online and one unit trips (due to an accident or otherwise), the non-tripped unit will provide local voltage support to the SONGS switchyard, and 230 kV system voltage will remain within the required range. In cases where one SONGS unit is online and one unit offline, the offsite power supply must be sufficiently robust to survive a trip of the online unit and meet the SONGS voltage requirements in the post-trip condition. A dual unit trip is not the limiting condition since a plant accident is not postulated simultaneous with a dual unit trip. System Operating Procedures (see Reference 9 below) and programs shall be in place to ensure that various system operating conditions

(generating unit outages, line outages, system loads, spinning reserve, etc.), including multiple contingency events, are evaluated and understood, such that impaired or potentially degraded grid conditions are recognized, assessed and communicated to the SONGS Control Room.

The SONGS switchyard is made up of the Southern California Edison Company (SCE) switchyard and the San Diego Gas & Electric Company (SDG&E) switchyard. Unless specifically stated otherwise, SONGS switchyard requirements contained in this document apply to both the SCE switchyard and the SDG&E switchyard.

## II. REQUIREMENTS

**Note:** This section identifies the operational requirements for the SONGS offsite power supply. These requirements are part of the SONGS design basis and licensing basis. Failure to meet these requirements may render the offsite power supply Inoperable, thus requiring the operating SONGS unit(s) to shutdown. Failure to meet these requirements must be communicated to SCE and the SONGS Control Room for operability determination as soon as practicable, but in any case, within one hour. Changes in the operation of the transmission network that conflict with these requirements must have prior approval by SCE.

**Note:** Specific requirements, procedures, operating bulletins, division orders, and analysis that support or provide the basis for the specific operational requirements may be revised periodically subject to prior approval of the affected parties.

1. Nine transmission lines into the SONGS switchyard are normally in service. Any increase or decrease in the number of lines into the SONGS switchyard requires prior approval of SCE. (Reference 7 below)

No line may be removed from service for greater than 30 days without prior notification to SCE. At least two independent transmission lines (one from SCE and one from SDG&E) between the transmission network (grid) and SONGS switchyard shall be in service at all times. (References 1, 2, 3, 4, 7, 8 below)

2. With both San Onofre units off-line, the SONGS offsite power source shall be capable of providing 158 MW and 96 MVAR to SONGS for normal operation and for shutting down the units during plant Design Basis Accident (DBA) conditions. (References 9, 10 below)

3. The minimum grid voltage at the SONGS switchyard shall be maintained at or above 218 kV. In the event of a system disturbance that can cause the voltage to dip below 218 kV, including the trip of a SONGS unit, the grid voltage shall recover to 218 kV or above within 2.5 seconds. (References 9, 10, 12, 13, 18 below)
4. The following initiating events shall not result in the loss of grid stability or availability:
  - a. The loss of a SONGS Unit (with the other unit already offline), or
  - b. The loss of any generating unit on the SCE and SDG&E grids, or
  - c. The loss of any major transmission circuit or intertie on the SCE and SDG&E grids, or
  - d. The loss of any large load or block of load (e.g., due to a bus section outage) on the SCE and SDG&E grids. (References 2, 3, 4, 8 below)
5. The maximum grid voltage at the SONGS switchyard shall be maintained at or below 234 kV. (References 10, 11, 18 below)
6. The normal operating voltage of the SONGS switchyard shall be maintained at 229 kV. The SONGS switchyard voltage shall not exceed 232 kV unless required to preserve transmission network integrity. (References 10, 11, 18 below)
7. The 3 limiting conditions for SONGS offsite power supply operability are defined as follows:
  1. One SONGS unit is off- line, and
  2. One of the critical line (s) outages, in GCC Operating Procedure, OP-13: SONGS Voltage (reference 19) occurs, and
  3. VAR flows north and south of SONGS are above the threshold levels for the existing combined SCE and SDG&E import level as defined by the nomograms referenced in the GCC Operating Procedure, OP-13: SONGS Voltage.

Based on these nomograms and SONGS offline unit's status, whenever limiting conditions 1 and 2, as set forth in this Requirement 7, occur, the ~~ISOCAISO~~ (or the SCE Grid Control Center (SCE GCC), as directed by the ~~ISOCAISO~~) shall, as soon as practicable but, in any case, within one hour of the event, perform

an evaluation of system conditions to determine whether or not the SONGS off site power supply remains Operable as defined herein. If the SONGS offsite power supply is Inoperable or cannot be determined to be Operable as defined herein, the ~~ISO~~ ISOCAISO (or the SCE GCC, as directed by the ~~ISO~~ ISOCAISO) shall notify the SONGS Control Room immediately of entry into the event. Subsequent to notification, the SONGS Control Room shall declare the offsite power supply Inoperable (in anticipation of losing the second SONGS unit) and shall declare the time period within which the on-line unit will have to initiate shutdown if conditions are not corrected. The time period shall be within 1 to 24 hours, based on the SONGS plant and equipment conditions.

In order to ensure the continued ability to meet the 3 limiting conditions identified above in this Requirement 7, the following six requirements (a-f) must be met:

- a. Systems studies shall be performed and updated based on changing grid conditions (load growth, etc.) to identify critical conditions that could render the offsite power supply Inoperable.
- b. Procedures and programs shall be in effect to ensure that the SONGS Control Room is notified as soon as practicable but, in any case, within one hour of an event that renders the offsite power supply Inoperable.
- c. Grid conditions that are more severe with respect to SONGS switchyard voltage, or are otherwise unanalyzed, shall render the offsite power supply Inoperable.
- d. Auditable records of current system studies shall be made available to SCE as needed to demonstrate compliance with regulatory requirements. Study results, including revisions and updates, shall be formally transmitted to SCE.
- e. Study results and conclusions shall be assessed at least annually and updated, if needed, based on changing grid conditions. Results of the annual assessments shall be formally transmitted to Vice President Nuclear Engineering and Technical Services, San Onofre Nuclear Generating Station. (References 1, 2, 19, and 21 below)
- f. System studies shall consider the interconnections between SCE, SDG&E, and other utilities in the Western Electricity Coordinating Council (WECC). (Reference 7 below)

8. In the event of loss of the SONGS offsite power:

**Note: SONGS 2 and 3 are required by NRC regulations to be able to safely cope with a loss of all AC power (Station Blackout) for a maximum of four hours. The four hour coping duration is based on the expectation that at least one source of AC power (offsite transmission line or onsite diesel generator) will be restored to the blacked-out unit within the four hours to ensure the proper functioning of systems required for plant safety.**

- a. Highest possible priority shall be given to restoring power to the SONGS switchyard. Procedures and training should consider several potential methods of transmitting power from black-start capable units to the SONGS switchyard. This includes such items as nearby gas turbine generators, portable generators, hydro generators, and black-start fossil power plants. (References 15, 26, 28 below)
  - b. Should incoming lines to the SONGS switchyard be damaged, highest priority shall be assigned to repair and restoration of at least one line into the SONGS switchyard.
  - c. Repair crews engaging in power restoration activities for SONGS shall be given the highest priority for manpower, equipment, and materials.
  - d. Formal programs and procedures shall be in place to effect items a, b and c above. (References 14, 15, 16, 17, 26, 27 below)
9. Grid frequency shall be maintained at 60 Hertz (nominal). A trip of one SONGS unit shall not cause the grid frequency to dip below 59.7 Hertz. SCE and SDG&E shall comply with the WECC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan. (References 7, 20 below)
  10. SCE and SDG&E Bulk Power Transmission System Reliability Criteria as described in the SONGS Updated Final Safety Analysis Report (UFSAR) shall be maintained. It is recognized that the SCE and SDG&E Bulk Power Transmission System Reliability Criteria as described in the SONGS 2&3 Updated Final Safety Analysis Report may be revised from time to time. In the event the reliability criteria are revised, a system assessment and/or study (as described under specification 7) shall be performed to determine if the revised reliability criteria adversely impact grid reliability and availability as defined in this specification. Results of the assessment and/or study together with a copy of the revised reliability criteria shall be provided to SCE. Changes in grid operation based on the revised criteria

and associated studies shall not be implemented without prior approval of SCE. (Reference 7 below)

11. Patrol and inspection of SCE and SDG&E transmission lines, to ensure that the physical and electrical integrity of transmission components are maintained, shall be performed as required by the SONGS UFSAR or in accordance with the current ~~ISO~~CAISO approved Overhead Electric Transmission Line Maintenance Practice, whichever requirement is more stringent. (Reference 7 below)
12. Line insulators on lines which carry power from the plant to the grid shall be washed as required by the SONGS UFSAR or on an appropriate wash cycle in accordance with the current ~~ISO~~CAISO approved Overhead Electric Transmission Line Maintenance Practice, whichever requirement is more stringent. The purpose and frequency of which is proven to prevent line outages that may result from flashovers due to accumulated contamination. (Reference 7 below)
13. Maintenance, testing and calibration of SCE and SDG&E station equipment and protective relays shall be performed as required by the SONGS UFSAR or in accordance with the current ~~ISO~~CAISO approved Electrical Station Maintenance Practice, whichever requirement is more stringent. (Reference 7 below)
14. Preventive maintenance and testing of SONGS switchyard batteries shall be performed in accordance with IEEE 450-1985 or IEEE 450-2002 subsequent to SONGS converting its battery maintenance program to IEEE 450-2002 requirements. (Reference 7, 23 below)
15. Updates to applicable portions of Section 8.0, Electric Power of the SONGS UFSAR shall be provided annually to facilitate periodic updates to the UFSAR by SONGS that are required by 10CFR50.71(e).

## **VI REFERENCES** (Current approved revision except as noted)

- 1) SONGS 2&3 Operating License and Technical Specifications, Section 3.8, Electrical Power Systems
- 2) 10CFR50 Appendix A, General Design Criterion 17 (GDC-17), Electrical Power Systems
- 3) NUREG 75/087, Standard Review Plan Revision 1, Section 8.2, Offsite Power System
- 4) NUREG 0800, Standard Review Plan Revision 2, Section 8.2, Offsite Power System
- 5) NUREG 0800, Standard Review Plan Revision 2, Branch Technical Position ICSB-11 (PSB), Stability of Offsite Power Systems
- 6) NUREG 0712, SONGS 2&3 Safety Evaluation Report, Section 8.0, Electric Power Systems
- 7) SONGS 2 & 3 Updated Final Safety Analysis Report, Section 8.0, Electric Power
- 8) ANSI/IEEE Std. 765-2002 Preferred Power Supply for Nuclear Power Generating Stations
- 9) SONGS Design Calculation E4C-082, System Dynamic Voltages During Design Basis Accident
- 10) SONGS Design Calculation E4C-090, Auxiliary System Voltage Regulation
- 11) SONGS Design Calculation E4C-092, Short Circuit Studies
- 12) SONGS Design Calculation E4C-098, 4 kV Swgr Protective Relay Setting
- 13) DBD-SO23-120, SONGS Design Basis Document, 6.9KV, 4.16KV and 480V Electrical Systems
- 14) 90051, SONGS Station Blackout Analyses
- 15) NUMARC 87-00 Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors
- 16) Letter from M. O. Medford (SCE) to the Document Control Desk (NRC), dated April 17, 1989, Subject: "Response to 10 CFR 50.63, `Loss of all

Alternating Current Power,' San Onofre Nuclear Generating Station Units 1, 2 and 3"

- 17) Letter from F. R. Nandy (SCE) to the Document Control Desk (NRC), dated May 1, 1990, Subject: "Supplemental Response to 10 CFR 50.63, 'Loss of All Alternating Current Power,' Station Blackout (TAC No. 68599/600), San Onofre Nuclear Generating Station Units 1, 2, and 3"
- 18) System Operating Bulletin 17 Appendix, System Voltage Control for San Onofre Nuclear Generating Station
- 19) GCC Operating Procedure, OP-013: SONGS Voltage
- 20) System Operating Bulletin 113, San Onofre 220 kV System Separation
- 21) Regulatory Guide 1.93, Revision 0, Availability of Electric Power Sources
- 23) SCE Division Order 60.20, Storage Batteries
- 26) System Operating Bulletin 1-A, Thermal Station Start-up and Power System Restoration
- 27) System Operating Bulletin 254, Emergency Orders—San Onofre Nuclear Generating Station 220 kV
- 28) SDG&E Control Procedure 1150, Capacity & Energy Emergencies - SDG&E System Emergencies
- 29) IEEE Std, 450-1985 IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations
- 30) IEEE Std. 450-2002 IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications

**TRANSMISSION CONTROL AGREEMENT**

**APPENDIX F**

**NOTICES**

## NOTICES

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**Appendix C**  
**Table of Proposed TCA Changes**

<b>TCA SECTION</b>	<b>PROPOSED CHANGE</b>
Cover page	Update references consistent with proposed changes
Table of contents	Update references consistent with proposed changes
Various	Change "ISO" to "CAISO" consistent with tariff
Effective date	Update to reflect actual effective date
Various	Change "Control Area" to "Balancing Authority Area"
Various	Add references to entitlements
Various	Correct ISO tariff section references
Various	Change "WEnet" to "CAISO Website" consistent with tariff
Various	Correct capitalizations of various terms, both defined and undefined
2.1.1	Conform heading to tariff term "Original Participating TOs"
2.2(xi)	Recognize settlement accounts are established at a later time
2.2.3(iv)	Require the effective date of an applicant's TO Tariff to be the date the CAISO assumes operational control of the facilities or entitlements (unless otherwise ordered by FERC)
2.2.5	Clarify that the effective date of an applicant's status as a Participating TO is tied to the ISO assuming operational control of the facilities in question
2.2.6	Remove references to payment and collection of an application processing fee and permit the ISO to establish such a fee by filing with FERC
3.1	Update to reflect actual effective date
3.4.2.1	Reference the defined term "Business Days"
4.1.1	Provide additional specification with respect to the transmission lines and associated facilities information provided to the ISO by a new Participating TO and existing Participating TOs, as well as the response provided by the ISO consistent with the TCA and the ISO tariff
4.1.1(i)	Reference "Generating Units" as the proper classification.
4.1.3	Refine descriptions and tie everything back to the revisions made to section 4.1.1 regarding the information provided
4.1.5(ii)	Remove use of an acronym
4.2.4	Clarify references to the secure portion of the ISO website
4.3	Recognize the ISO practice of entering into reliability standards agreements with Participating TOs to allocate responsibilities and delegate tasks for compliance with NERC or WECC reliability standards
4.4.4.6	Correct reference to "TRBA"
4.4.6	Include provisions applicable to Citizens Sunrise Transmission, LLC
4.6	Delete provision as no longer applicable
5.1.1	Remove requirement for of membership in regional

	transmission groups and associated provisions
5.2.3	Correct reference to “Energy Management System”
5.3	Remove reference to the ISO as a security coordinator since this role is now performed by the WECC
6.1.	Recognize the applicability of the ISO tariff
6.1.4	Reference the defined term “Forced Outage”
6.4.1	Recognize effective date of party status as relevant
7.2	Correct capitalization of “non-Participating Generators”
8.1	Correct heading references and more accurately recognize the role of the WECC and NERC
9.4	Make reference plural
10.2.2	Clarify interconnections are to the ISO controlled grid
10.2.3	Distinguish between the processes applicable to system upgrades triggered by interconnection of generating facilities and transmission facilities or load to the ISO controlled grid, with recognition of and deference to the role played by the ISO tariff, the TO tariff, and FERC policy, as applicable
10.3	Distinguish between the processes applicable to interconnection of generating facilities and transmission facilities or load to the ISO controlled grid throughout
10.3.1	Refer to “FERC” instead of the “Commission”
10.4	Distinguish between the processes applicable to interconnection of generating facilities and transmission facilities or load to the ISO controlled grid
16.2	Clarify the process for ISO refunds of amounts collected in excess of the FERC approved revenue requirement
17.2.3(iii)	Recognize that the scope is limited to interconnections to the ISO controlled grid
22.1	Conform standard of liability for all parties to the ISO tariff standard of gross negligence
22.4	Conform the indemnity standard of liability to the ISO tariff standard of gross negligence
23.1	Remove language in reliance on defined term “Uncontrollable Force”
26.1	Update provisions for notices
Signature pages	Updated signature pages for the ISO and Citizens Sunrise Transmission, LLC
Appendix A	Updates consistent with changes to the body of the transmission control agreement and updates of the transmission facilities and entitlements of the existing Participating TOs and Citizens Sunrise Transmission, LLC
Appendix B	Updates consistent with changes to the body of the transmission control agreement and updates to the encumbrances of the existing Participating TOs and Citizens Sunrise Transmission, LLC
Appendix C	Updates consistent with changes to the body of the

	transmission control agreement
Appendix D	Updates consistent with changes to the body of the transmission control agreement and the ISO tariff
Appendix E	Updates consistent with changes to the PG&E nuclear protocols and coordination agreement
Appendix F	Removal of contacts for notices consistent with changes to the body of the transmission control agreement