

California Independent System Operator Corporation

April 1, 2014

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

Re: California Independent System Operator Corporation Docket No. ER14-____-000

FERC Electric Tariff No. 7, Transmission Control Agreement

Dear Secretary Bose:

The California Independent System Operator Corporation ("ISO") submits for filing and acceptance changes to Appendix E of the Transmission Control Agreement ("TCA").¹ Appendix E of the TCA covers transmission operating protocols for certain transmission facilities connected to the two nuclear plants within the ISO's balancing authority area. The changes proposed here relate only to the protocols set forth in Appendix E that are applicable to the San Onofre Nuclear Generating Station ("SONGS") jointly owned by Southern California Edison Company ("SCE") and San Diego Gas & Electric Company ("SDG&E"). Because these protocols have in recent years been incorporated into a separate agreement, the proposed change seeks to replace the specifically identified protocols set forth in Appendix E with a cross-reference to the separate agreement or any successor agreement covering these issues. This approach allows the affected parties to incorporate changes in protocols on a timely basis as operational circumstances (such as in this case the shut-down of the SONGS generators) may dictate, without requiring other parties to the TCA, who have no role in these issues, to participate in the update process.

In connection with a prior TCA change covering other issues, the Commission recently approved a near-identical provision specifically for the portion of Appendix E that relates to the transmission protocols for Diablo Canyon Nuclear Power Plant owned by Pacific Gas & Electric. The current proposed change seeks only to make a conforming change for the portion of Appendix E that is applicable to SONGS.

¹ This filing is submitted pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d (2012).

The TCA parties who are affected by the proposed change – the ISO, SCE and SDG&E – have each agreed to this revision, and all of the remaining TCA parties either concur in or do not oppose the proposed change. The ISO requests that the changes to Appendix E of the TCA be made effective on June 1, 2014, sixty-one days after the date of this filing.

I. Background of the TCA

The TCA is the agreement among the ISO and its 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 their 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*, 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.² The ISO filed the revised TCA on February 20, 1998. By order dated March 30, 1998, the Commission conditionally accepted the TCA for filing to become effective on the ISO operations date and required further modifications to be made in a compliance filing within 60 days of the ISO operations date.³

Additional changes to the TCA have been made since that time to add new participating transmission owners and for other purposes. The most recent changes to the TCA were filed in Docket No. EL12-40-000 to add Valley Electric Association and the City of Colton as new participating transmission owners, which were accepted by Commission letter order dated November 6, 2012.⁴

II. Proposed TCA Changes

Only one change is being proposed to the TCA in this filing – an update to Appendix E. The proposed change to Appendix E states that the requirements

² *Pac. Gas and Elec. Co., et al.*, 81 FERC ¶ 61,122.

³ *Cal. Indep. Sys. Operator Corp., 82 FERC* ¶ *61,325* at 62,276-79 (1998). The ISO submitted the required compliance filing on June 1, 1998.

⁴ See Docket ER13-71-000.

applicable to SONGS, rather than being embodied in the TCA, are set forth in a separate agreement or in any successor agreement.

This change is needed for two related reasons. First, the current requirements no longer reflect the operational status of SONGS and therefore need to be updated in any event. Second, the parties recognize that it is unwieldy and inefficient to include the specific protocols in the TCA because those protocols are subject to change over time and are already the subject of a separate agreement among the affected parties (the ISO, SCE, and SDG&E). Implementing this change allows the replacement requirements to evolve as may be appropriate without the need to make further changes to Appendix E of the TCA.

Appendix E currently includes requirements for off-site power supply and operability that were appropriate when SONGS was in operation. Since SONGS no longer operates as a nuclear generating facility, these requirements are no longer appropriate to include in the TCA.⁵ The ISO, SCE, SDG&E and SONGS recognized this some time ago and commenced negotiation of replacement arrangements. An agreement reflecting these replacement arrangements is expected to be completed by the requested effective date for the proposed changes to Appendix E. These changes will avoid the need to further revise the TCA once that agreement is completed or in the future as operational circumstances may dictate.

The proposed change to Appendix E is nearly identical to the change that was recently accepted by the Commission with respect to nuclear plant interface requirements applicable to Diablo Canyon.⁶ As in that context, revision of the provision will enhance efficiency and avoid the potential for conflicting provisions between the TCA and the operative agreement that is specific to the affected parties.

For these reasons, the Commission should accept the proposed change to Appendix E of the TCA as filed.

⁵ On June 7, 2013, SCE announced that SONGS 2&3 would not restart. On June 12, 2013, SCE submitted a Certification of Permanent Cessation of Power Operations to the Nuclear Regulatory Commission ("NRC"), certifying that SCE has permanently ceased power operations of SONGS 2&3. SCE, SONGS' majority owner and sole operator, also submitted to the NRC a Certification of Permanent Removal of Fuel for Unit 3 on June 28, 2013, and for Unit 2 on July 23, 2013. As a result of these submittals, SCE now holds an NRC license that does not permit power operations but does authorize the possession of the SONGS facilities and licensed material.

⁶ See Cal. Indep. Sys. Operator Corp., 139 FERC ¶ 61,198 (2012) (amending and restating the TCA including changes to Appendix E similar to the changes presented here).

III. Effective Date

The ISO respectfully requests the proposed changes to Appendix E of the TCA contained in this filing become effective on June 1, 2014 to accommodate the agreed upon nuclear plant interface requirements applicable to SONGS. This change has been agreed upon by the ISO, SCE and SDG&E, which are the only parties to the TCA impacted by this change.⁷ All of the other Participating TOs either concur or do not oppose the proposed change.⁸

IV. Attachments

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

Attachment A: Proposed clean version of the TCA Attachment B: Black-line of proposed changes to the TCA Attachment C: ISO Signature Page Attachment D: SCE Signature Page Attachment E: SDG&E Signature Page

V. Service

Copies of this filing, including all attachments, have been served upon the Public Utilities Commission of the State of California, the California Energy Commission, and the participating transmission owners. In addition, the ISO has posted the filing and all attachments on the ISO website.

⁷ An updated ISO, SDG&E, and SCE signature page to the TCA are included with this filing.

⁸ The ISO is authorized to represent that none of the parties to the current version of the TCA objects to any of the changes proposed in this filing.

VI. Correspondence

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

John C. Anders* Lead Counsel California Independent System Operator Corporation 250 Outcropping Way Folsom, CA 95630 Tel: (916) 351-4400 Fax: (916) 608-7296 E-mail: janders@caiso.com * Individuals designated for service pursuant to Rule 203(b)(3), 18 C.F.R. § 385.203(b)(3)

VII. Conclusion

The ISO respectfully requests that the Commission accept this filing and permit the proposed changes to Appendix E of the TCA to be effective as of the date requested.

Respectfully submitted,

<u>/s/ John C. Anders</u> Roger E. Collanton General Counsel Burton A. Gross Assistant General Counsel John C. Anders Lead Counsel California Independent System Operator Corporation 250 Outcropping Way Folsom, CA 95630 Tel: (916) 351-4400 Fax: (916) 608-7296 E-mail: janders@caiso.com Attachment A – Clean

Transmission Control Agreement

California Independent System Operator Corporation

April 1, 2014

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 25th day of March, 2014 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

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 26th day of March, 2014 and thereby incorporates the

following Appendices in this Agreement:

Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

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

by: _____

David L. Geier Vice President, Electric Operations San Diego Gas & Electric

SOUTHERN CALIFORNIA EDISON COMPANY

Southern California Edison Company has caused this Transmission

Control Agreement to be executed by its duly authorized representative on this 31st day of March, 2014 and thereby incorporates the following Appendices in this Agreement:

Appendix A (Edison)

Appendix B (Edison)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

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

by:

Kevin Cini Vice President, Major Projects Organization and Engineering and Technical Services

SONGS 2&3 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY

Revised as of June 1, 2014

For purposes of this Appendix E, the requirements applicable to San Onofre Nuclear Generating Station (SONGS) are set forth in the San Onofre Nuclear Generating Station (SONGS) Nuclear Plant Interface Requirement Coordination Agreement between SONGS, Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E), and the California Independent System Operator Corporation (CAISO) Concerning Nuclear Plant Interface Requirements For the San Onofre Nuclear Generating Station, as that agreement may be amended from time to time or in any successor agreement regarding Nuclear Plant Interface Requirements. Attachment B – Marked

Transmission Control Agreement

California Independent System Operator Corporation

April 1, 2014

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

California Independent System Operator Corporation has caused this

Transmission Control Agreement to be executed by its duly authorized

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and thereby incorporates the following Appendices in this Agreement:

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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

SAN DIEGO GAS & ELECTRIC COMPANY

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representative on this <u>26th</u> day of <u>March</u>, <u>Arch</u>, <u>2006</u> 2014 and

thereby incorporates the following Appendices in this Agreement:

Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

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

by: _____

James AveryDavid L. Geier Senior Vice President ofVice President, Electric Operations -San Diego Gas & Electric

SOUTHERN CALIFORNIA EDISON COMPANY

Southern California Edison Company has caused this Transmission

Control Agreement to be executed by its duly authorized representative on this

24th-31st day of JulyMarch, 2006-2014 and thereby incorporates the following

Appendices in this Agreement:

Appendix A (Edison)

Appendix B (Edison)

Appendix C

Appendix D

Appendix E (SONGS)

Appendix F

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

by: _____

Ronald L. LitzingerKevin Cini Senior Vice President, Transmission & DistributionVice President, Major Projects Organization and Engineering and Technical Services

SONGS 2&3 REQUIREMENTS FOR OFFSITE POWER SUPPLY OPERABILITY

Revised as of October 10June 1, 20062014

For purposes of this Appendix E, the requirements applicable to San Onofre Nuclear Generating Station (SONGS) are set forth in the San Onofre Nuclear Generating Station (SONGS) Nuclear Plant Interface Requirement Coordination Agreement between SONGS, Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E), and the California Independent System Operator Corporation (CAISO) Concerning Nuclear Plant Interface Requirements For the San Onofre Nuclear Generating Station, as that agreement may be amended from time to time or in any successor agreement regarding Nuclear Plant Interface Requirements.

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

<u>Note:</u> 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.

<u>Note:</u> 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:

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)

In the event of loss of the SONGS offsite power:

<u>Note:</u> 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. 0. 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 C – ISO Signature Page

Transmission Control Agreement

California Independent System Operator Corporation

April 1, 2014

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 25 m/day of ______, 2014 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

bv:



Eric Schmitt Vice President, Operations

Attachment D – SCE Signature Page

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California Independent System Operator Corporation

April 1, 2014

SOUTHERN CALIFORNIA EDISON COMPANY

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Appendix B (Edison)

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Appendix D

Appendix E (SONGS)

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by:

Kevin Cini Vice President, Major Projects Organization and Engineering and Technical Services

Attachment E – SDG&E Signature Page

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California Independent System Operator Corporation

April 1, 2014

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Appendix A (SDG&E)

Appendix B (SDG&E)

Appendix C

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Appendix E (SONGS)

Appendix F

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

by:

David L. Geier Vice President, Electric Operations

Approved as to Legal Form 32~ 3)25/14