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**REDACTED VERSION FOR PUBLIC RELEASE**  
**PRIVILEGED INFORMATION CONTAINED IN SEPARATE VOLUME**

August 12, 2009

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

**Re: California Independent System Operator Corporation  
Filing of an Amendment to Rate Schedule No. 42  
Docket No. ER09-\_\_\_\_-000**

Dear Secretary Bose:

The California Independent System Operator Corporation ("ISO") submits for Commission filing and acceptance Amendment No. 5 to the Interconnected Control Area Operating Agreement ("ICAOA") between the ISO and the Sacramento Municipal Utility District ("SMUD").<sup>1</sup>

## **I. Background**

The original ICAOA was filed with the Commission on April 26, 2002, in Docket No. ER02-1641-000 and was designated as ISO Rate Schedule FERC No. 42. The Commission accepted that filing by letter order issued on June 24, 2002. The ISO has subsequently submitted several amendments to the ICAOA, most recently Amendment No. 4 submitted on September 30, 2005 in Docket No.

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<sup>1</sup> This filing is submitted pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

ER05-1533-000, regarding which the Commission issued an order accepting that amendment dated November 30, 2005.<sup>2</sup>

## II. Amendment No. 5

The ICAOA is designed to assist the ISO and SMUD in coordinating the operation and maintenance of their interconnected balancing authority areas, in a manner consistent with reliability standards adopted by the North American Electric Reliability Corporation and the Western Electricity Coordinating Council ("WECC") and good utility practice. The purpose of Amendment No. 5 is to implement the following revisions to the ICAOA:

- Section ICAA 4.1 has been revised to update the description of the WECC reliability coordinator under WECC's new consolidated structure.
- Section ICAA 7.6 has been revised to reflect a modification that has been made in the California-Oregon Intertie ("COI") Control Area Operating Agreement between the ISO and SMUD to the percentage obligations of the ISO and SMUD for power flow reduction measures that may be required by the path operator for the COI and any sanctions that may be imposed on the path operator for the COI for operation of the COI.<sup>3</sup>
- Service Schedule 2 has been revised to reflect termination of certain pre-existing contracts and to incorporate improvements to the descriptions of the terms of the relevant contracts.
- Service Schedule 3 has been revised to reflect current points of contact.
- Service Schedule 6 has been revised to reflect corrected technical information associated with real-time operating limits.
- Service Schedule 15 has been updated to reflect the consolidation of the WECC sub-regions.

## III. Effective Date

The ISO requests that Amendment No. 5 to the ICAOA be made effective as of October 12, 2009, sixty-one days following the submittal of this filing.

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<sup>2</sup> *California Independent System Operator Corp.*, 113 FERC ¶ 61,217 (2005).

<sup>3</sup> The modification described above is reflected in Amendment No. 1 to the COI Control Area Operating Agreement, which is being filed in a separate docket on the same date as this filing of Amendment No. 5 to the ICAOA.

#### **IV. Request for Privileged Treatment**

Included in a separate volume along with this amendment, pursuant to Commission Order Nos. 630 and 630-A,<sup>4</sup> is a sealed copy of the non-public portions of Amendment No. 5, specifically, Service Schedule 3. The ISO is seeking privileged treatment for Service Schedule 3 under 18 C.F.R. § 388.112, as it contains confidential telephone numbers of ISO and SMUD operating personnel. Public disclosure of the telephone numbers contained in Service Schedule 3 would unnecessarily reveal sensitive information and pose significant security problems, and therefore the identified portions of the Service Schedule should be granted privileged treatment.

#### **V. Expenses**

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

#### **VI. Service and Contents of Filing**

Copies of this filing have been served on SMUD, the California Public Utilities Commission, and all entities that are on the official service lists for the docket in which the ISO filed the original ICAOA with SMUD, Docket No. ER02-1641, and for the dockets in which the ISO filed the first four amendments to that ICAOA, Docket Nos. ER03-1155, ER05-149, ER05-1520, and ER05-1533. In addition, the filing has been posted on the ISO's website.

Enclosed for filing are six copies of each of the following:

- (1) this letter of transmittal;
- (2) the executed Amendment No. 5 (Attachment A);
- (3) the public version of the rate schedule sheets in the ICAOA that are revised by Amendment No. 5 (Attachment B); and
- (4) the public version of the revisions to the ICAOA incorporating the changes contained in Amendment No. 5 shown in black-line format (Attachment C).

The filing also includes a separate volume that contains the non-public portions of the ICAOA described above.

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<sup>4</sup> *Critical Energy Infrastructure Information*, Order No. 630, FERC Stats. and Regs. ¶ 31,140, *order on reh'g*, Order No. 630-A, FERC Stats. and Regs. ¶ 31,147 (2003).

Also enclosed are two additional copies of this filing to be date-stamped and returned to our messenger.

**VII. Correspondence**


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

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Senior Counsel  
California Independent System  
Operator Corporation  
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Folsom, CA 95630  
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\* Individuals designated for service pursuant to 18 C.F.R. § 203(b)(3).

Respectfully submitted,



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General Counsel  
Michael D. Dozier  
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Operator Corporation  
151 Blue Ravine Road  
Folsom, CA 95630

Attorneys for the California Independent System Operator Corporation

**Attachment A – Executed Amendment No. 5**  
**August 12, 2009**  
**Amendment No. 5**  
**Interconnected Control Area Operating Agreement**  
**Between**  
**California Independent System Operator**  
**And**  
**Sacramento Municipal Utility District**

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
AND  
SACRAMENTO MUNICIPAL UTILITY DISTRICT**

**AMENDMENT NO. 5  
TO THE  
INTERCONNECTED CONTROL AREA OPERATING AGREEMENT**

**THIS AMENDMENT NO. 5** is dated this 6<sup>th</sup> day of August, 2009, and is entered into, by and between:

(1) **Sacramento Municipal Utility District** ("SMUD"), having its registered and principal executive office at 6201 S Street, Sacramento, California 95817;

and

(2) **California Independent System Operator Corporation** ("ISO"), a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the ISO Governing Board may from time to time designate, initially 151 Blue Ravine Road, Folsom, California 95630.

SMUD and the ISO are hereinafter referred to as the "Parties."

**Whereas:**

- A.** The Parties are signatories to an Interconnected Control Area Operating Agreement dated April 24, 2002 (the "Operating Agreement"), which Operating Agreement was accepted for filing by the Federal Energy Regulatory Commission ("FERC") effective June 13, 2002, the date SMUD was certified as a Control Area operator.
- B.** The Parties are signatories to Amendment No. 1 of the Operating Agreement dated July 7, 2003 ("Amendment No. 1"), which FERC accepted for filing September 26, 2003.
- C.** The Parties are signatories to Amendment No. 2 of the Operating Agreement dated October 30, 2004 ("Amendment No. 2"), which was filed with FERC on November 1, 2004, and which FERC accepted for filing by an order issued on December 30, 2004, effective as of January 1, 2005, as revised by a compliance filing filed by the ISO with FERC on January 31, 2005 ("the Compliance Filing").

- D. The Parties are signatories to Amendment No. 3 of the Operating Agreement dated September 28, 2005 ("Amendment No. 3"), which was filed with FERC on September 29, 2005, and which FERC accepted for filing on November 14, 2005.
- E. The Parties are signatories to Amendment No. 4 of the Operating Agreement dated September 28, 2005 ("Amendment No. 4"), which was filed with FERC on September 30, 2005, and which FERC accepted for filing on November 30, 2005.
- F. The Parties desire to further amend the Operating Agreement to (i) modify obligations associated with power flow mitigation, (ii) update the description of the Western Electricity Coordinating Council ("WECC") Reliability Coordinator under their new consolidated structure, (iii) update Service Schedule 2 to reflect termination of certain pre-existing contracts, (iv) update Service Schedule 3 to reflect current points of contact, (v) update Service Schedule 6 to reflect corrected technical information associated with real-time operating limits, and (vi) update Service Schedule 15 to reflect the consolidation of the WECC sub-region.
- G. In all other respects, the Parties intend that the Operating Agreement remain in full force and effect in accordance with its terms.

NOW THEREFORE, **THE PARTIES AGREE** as follows:

- 1. **Effective Date.** This Amendment No. 5 shall be effective on the date made effective by FERC.
- 2. **Termination.** This Amendment No. 5 shall remain in full force and effect until the termination of the Operating Agreement.
- 3. **Amendment to the Operating Agreement.** The Operating Agreement shall be amended as follows:
  - 3.1 Section ICAA 4.1: "WECC Reliability Coordinator" is deleted in its entirety and replaced with the following:

#### **ICAA 4.1 WECC Reliability Coordinator**

The ISO and SMUD operate under the purview of the WECC Reliability Coordinator and are subject to directives from the WECC's Vancouver or Loveland Reliability Coordinator Centers as set forth in the mandatory NERC Reliability Standards.

- 3.2** Section ICAA 7.6: "Co-Mitigation of the California-Oregon Intertie Derates" is deleted in its entirety and replaced with the following:

#### **ICAA 7.6 Co-Mitigation of California-Oregon Intertie Derates**

The ISO and SMUD as Control Area operators will implement the COI Power Flow Reduction Measures, as directed by the Path Operator of COI. These obligations (77% ISO, 23% SMUD as of the effective date of Amendment No. 5 to this Operating Agreement) are established and quantified in the operating procedures pursuant to the California-Oregon Intertie Path Operator Agreement. The Expanded SMUD Control Area and the ISO Control Area shall provide the total Energy or the total curtailment (in the event that the COI Power Flow Reduction Measures allow) necessary to implement COI Power Flow Reduction Measures as determined by the Path Operator of COI and implemented by means of automatic adjustment signal.

- 3.3** Service Schedule 2 specifying the "Pre-Existing Contracts: Provisions and Information" is deleted in its entirety and the Service Schedule 2 attached to this Amendment No. 5 is substituted in its place.
- 3.4** Service Schedule 3 specifying the "Points of Contact" is deleted in its entirety and the Service Schedule 3 attached to this Amendment No. 5 is substituted in its place.
- 3.5** Service Schedule 6 specifying the "Real-Time Operating Limits" is deleted in its entirety and the Service Schedule 6 attached to this Amendment No. 5 is substituted in its place.
- 3.6** Service Schedule 15 specifying the "Restoration Coordination" is deleted in its entirety and the Service Schedule 15 attached to this Amendment No. 5 is substituted in its place.
- 4.** This Amendment No. 5 constitutes the complete and final agreement of the Parties with respect to the purpose of this Amendment No. 5 as described in the



Recitals hereto and supersedes all prior understandings, whether written or oral, with respect to such subject matter.

- 5. Except as expressly modified in this Amendment No.5, the Operating Agreement, as previously amended, shall remain in full force and effect in accordance with its terms, and the unmodified provisions of the Operating Agreement shall apply to any new rights and/or obligations established by this Amendment No. 5.
- 6. This Amendment No. 5 may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same agreement.

**IN WITNESS WHEREOF**, the Parties have caused this Amendment No. 5 to be duly executed by and through their respective authorized representatives as of the date hereinabove written.

**California Independent System Operator Corporation**

By: *[Signature]*  
 Name: JAMES W DETMERS  
 Title: VP OPERATIONS  
 Date: 7/23/09



**Sacramento Municipal Utility District**

By: *[Signature]*  
 Name: James R. Shetter  
 Title: AGM, Energy Supply  
 Date: 8/6/09

*[Handwritten initials]*  
(seal)

## **SERVICE SCHEDULE 2**

### **Pre-Existing Contracts: Provisions and Information**

#### **[Section 3.1.2]**

As set forth in ICAA 3.1.2 and ICAA 3.3, the ISO and SMUD will operate in accordance with pre-existing transmission service contract rights.

All power flows over ISO Controlled Grid facilities pursuant to pre-existing transmission service contracts shall be scheduled and settled in accordance with the ISO Tariff by a Scheduling Coordinator.

The descriptions provided in this Service Schedule 2 do not modify the terms of contracts between the ISO or SMUD and third parties, nor do these provisions provide any basis for any pre-existing contract interpretation or implementation contrary to instructions provided by PG&E to the ISO. In case of any conflicts in interpretation, the terms of the contracts shall prevail.

This Service Schedule may be modified upon mutual agreement of the Parties.

#### **Pre-Existing Transmission Service Contracts**

The following contracts have been identified by SMUD, the ISO, and PG&E as pre-existing transmission service contracts that currently affect the operation of the Interconnection.

#### **PG&E – SMUD Pre-Existing Transmission Contracts**

**CONTRACT #1.** Midway Transmission Service/South of Tesla Principles – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 MW of bi-directional firm service between Midway and SMUD's interconnections at Rancho Seco and Lake Substations 230 kV busses with an additional transaction point at the COTP southern terminus for Midway transactions. The amount of rights are currently 78 MW but may change due to arrangements among TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by TANC and PG&E.

**CONTRACT #2.** Camp Far West Transmission Agreement – FERC Rate Schedule # 91 - PG&E provides SMUD 7.9 MW of firm transmission service from Camp Far West Power Plant in Yuba County to Rancho Seco and Lake substation 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, PG&E's FERC Rate Schedule 136, below.

**CONTRACT #3.** Interconnection Agreement – FERC Rate Schedule #136 - PG&E provides SMUD 6 MW of non-firm transmission and 94 MW of Reserved Transmission Service from its wind resources connected to PG&E at SMUD's Russell substation in Solano County to SMUD's Rancho Seco and Lake 230 kV busses. Russell Substation is connected to PG&E's Bird's Landing Switching Station as of June 1, 2009. SMUD has agreed not to take any transmission services for the remaining term of this agreement for Camp Far West, Solano Wind and Slab Creek. The Interconnection Agreement, PG&E's Rate Schedule 136, terminates at midnight on 12/31/2009.

**CONTRACT #4.** Slab Creek Transmission Agreement – FERC Rate Schedule # 88 - PG&E provides SMUD 0.420 MW of firm transmission from Slab Creek Power Plant in El Dorado County to Rancho Seco and Lake 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, above.

The following is a summary of operational information on the above contracts:

**SMUD – PG&E**

Contract Title	Contract Reference Number	Points of Receipt and Delivery	MW Amount of Transfer	Scheduling Timelines	Curtailement <sup>1</sup>	Current Scheduling Coordinator	Transmission Owner
Midway Transmission – South of Tesla	TBD by ISO	Midway - Rancho Seco/Lake 230 kV busses Midway – COTP Terminus	78 MW bi-directional	Per TRTC Instructions submitted by PG&E	Per TRTC Instructions submitted by PG&E	SMD1	PG&E

**Additional Third Party Contract with Delivery Rights at Rancho Seco and Lake 230 kV Busses**

The following information is provided regarding SMUD’s understanding of contract rights of the California Department of Water Resources (CDWR) to receive and deliver power at the Interconnection between the ISO and Rancho Seco 230 kV Bus:

Contract Title	Contract Reference Number	Points of Receipt and Delivery	MW Amount of Transfer	Scheduling Timelines	Curtailement <sup>1</sup>	Current Scheduling Coordinator	Transmission Owner
CDWR Comprehensive Agreement	TBD by ISO	Rancho Seco/Lake 230 kV busses	Up to 500 MW for SMUD-CDWR transfer, subject to CDWR request and not to exceed 1,300 MW total on PG&E’s High Voltage system as provided per TRTC Instructions submitted by PG&E.	As per CDWR-ISO Scheduling Coordinator agreement	Per TRTC Instructions submitted by PG&E and footnote below.	CDWR	PG&E

**PG&E Pre-Existing Contracts Related to the COTP Terminus**

**CONTRACT #1.** PG&E Rate Schedule for the Interconnection of the COTP and the PG&E Electric System – FERC Rate Schedule #144 - PG&E and the COTP Participants. This contract establishes the terms for interconnection of the COTP with

<sup>1</sup> In the event the real-time import capability to SMUD at Rancho Seco and Lake is less than the maximum simultaneous contract limit of 1,271 MW, SMUD will notify the ISO which transmission schedules it will reduce to observe the real-time import capability limit.

the PG&E electric system including the location of the COTP Terminus near PG&E's Tesla Substation which together with the Tesla Bypass section of the COTP makes the Tesla-Tracy and Tesla-Los Banos 500-kV lines. The Agreement further provides that neither party will charge the other party any fees, losses, or other charges for use of the Tesla Bypass section of the COTP between the Tracy Substation and the Southern Terminus. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus.

**CONTRACT #2.** Midway Transmission Service/South of Tesla Principles (SOTP) – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 MW of bi-directional firm service between Midway and SMUD's interconnections at Rancho Seco and Lake Substations 230 kV busses with an additional transaction point at the COTP southern terminus for Midway transactions. SOTP rights include transmission service from Midway Substation to COTP Terminus and separate service from COTP Terminus to Midway Substation. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus. Service under the SOTP cannot be used for TANC member-to-TANC member trades within the former PG&E Control Area. The amount of rights may change due to arrangements among TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by the parties.

**CONTRACT #3.** Owners Coordinated Operations Rate Schedule – PG&E FERC Rate Schedule #229 – PG&E, Western and TANC establish the coordinated operation of the COTP and PACI, the requirement to have an agreement with the COI Path Operator, and the requirement for COI Control Area Operators Agreements with the Path Operator, curtailment sharing, system restoration and protection, and other protocols required to operate the COTP and the PACI as a coordinated three line system.

**PG&E Contracts Related to SMUD's and PG&E's Interconnections with Western**

**CONTRACT #1.** Parallel Operations Agreement between PG&E and the Western Area Power Administration Governing the Coordinated Operations of the PG&E and Western Electric Systems in Northern California, PG&E FERC Rate Schedule #228. The Agreement recognizes the Western interconnections to SMUD at Hurley and Elverta and the PG&E interconnections to SMUD at PG&E's Bellota and Gold Hill substations as third party parallel transmission interconnections. This Agreement acknowledges that parallel flows between the Western and PG&E electric systems may result in flows through the SMUD electric system (Section 9.2) and provides that the capacity of Western's Interconnections with PG&E shall be determined by assessing the thermal capacity of the most limiting element of the Interconnection Facilities or, if less, the maximum transfer capability through the Network Point of Interconnection as

determined through power system studies and as may be limited by either Party's Electric System or by a Third Party Electric System. The capacity of the PG&E-Western interconnections is determined when requested by either party or when required to assess the impacts of a modification or addition. The operating limits provided in Service Schedule 6 shall incorporate the interconnection capacity determinations of PG&E and Western.

**SERVICE SCHEDULE 3**

**POINTS OF CONTACT**

**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**ISO:**

Address:

California ISO  
151 Blue Ravine Road  
P.O. Box 639014  
Folsom, CA 95763-9014

**ISO CONTACTS FOR NOTICES**  
**[Section 10.2]**

Name of Primary

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Fax No: (916) 608-7292

Name of Alternative

Representative: Christopher J. Sibley

Title: Senior Contracts Negotiator

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Phone: (916) 608-7030

Fax No: (916) 608-7292



**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**SMUD**

Address

SMUD  
Director, System Operations and Reliability  
6001 S Street MS D109  
Sacramento, CA 95817-1899

**SMUD CONTACTS FOR NOTICES**  
**[Section 10.2]**

Name of Primary

Representative: Vicken Kasarjian

Title: Director System Operations and Reliability

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Name of Alternative

Representative: Richard Buckingham

Title: Principal Power Contracts Specialist

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Email Address: rbuckin@smud.org

Phone: (916) 732-7027

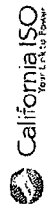
Fax No: (916) 732-6537

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**SERVICE SCHEDULE 6**  
**REAL – TIME OPERATING LIMITS**

The Parties have identified the real-time operating limits in the attached table “SMUD-CAISO Control Area Tie Points, Points of Interconnection/Control Area Tie Points”.

Nomograms for simultaneous import limits into the Expanded SMUD Control Area will continue to be established by the SVSG and updated on an annual, or as required, basis. SMUD and all other SVSG members have committed to continue participation in the SVSG after SMUD expands its Control Area. SVSG Nomograms shall establish simultaneous import limits into the Expanded SMUD Control Area under specific transmission contingencies as well as with all lines at the Interconnection in service. SMUD shall at all times make such simultaneous import limits, as calculated in real time from the pertinent SVSG Nomogram, electronically available to the ISO. SMUD shall comply with import limits in all circumstances by managing SMUD loads and resources to maintain total imports at or below the simultaneous limit by limiting flows at each Interconnection point to the lower of the contract or thermal limit at that Interconnection point. Operating instructions will be prepared for the ISO and Expanded SMUD Control Areas to implement the SVSG Nomograms in their respective coordinated operating procedures.



**Service Schedule 6  
SMUD-CAISO Control Area Tie Points  
Points of Interconnection/Control Area Tie Points**

Substation	Adjacent Control Area	Breaker and/or Disconnect	Limiting Criteria of Transfer Capability	SUMMER RATING				WINTER RATING				Control Area Branch Group		
				NORMAL		EMERGENCY		NORMAL		EMERGENCY				
				MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps			
Cottonwood 230kV "C" Bus 1 230kV "C" Bus 2	CAISO	PCB 472/Disc 473 PCB 482/Disc 483	Thermal Thermal	797	2000	797	2000	797	2000	797	2000	n/a	X	1
				797	2000	797	2000	797	2000	797	2000	n/a	X	
Lawrence Livermore (LLNL) 115 kV Tesla Line 1	CAISO	PCB 752 & PCB 852	Thermal	164	825	194	975	239	1200	239	1200	n/a	X	2
Round Mountain 230kV Cottonwood Line	CAISO	PCB 242 / Disc 245	Thermal	320	800	320	800	370	930	370	930	n/a	X	3
Tracy (COTP Southern Terminus) 500kV Tesla Line 500kV Los Banos Line	CAISO	PCB 2192 & PCB 2096 PCB 1192 & PCB 1096	Thermal Thermal	1931	2230	3080	3556	3431	3962	3684	4254	4 hr	X	4
				1931	2230	3080	3556	3431	3962	3684	4254	4 hr	X	
230kV Tesla Line 1 230kV Tesla Line 2	CAISO	PCB 382 PCB 582	Thermal Thermal	657	1650	683	1714	747	1874	747	1874	n/a	X	5
				657	1650	683	1714	747	1874	747	1874	n/a	X	
69kV Herdlyn Line		PCB 2452	Thermal	73	600	73	600	73	600	73	600	n/a	X	n/a
Rancho Seco 2 230kV Bellota Line 1 230kV Bellota Line 2	CAISO	PCB 210 & PCB 310 PCB 250 & PCB 350	Thermal Thermal	494	1239	590	1482	637	1600	637	1600	n/a	X	6
				494	1239	590	1482	637	1600	637	1600	n/a	X	
Lake 2 230kV Gold Hill Line	CAISO	PCB 6230 & PCB 6236	Thermal	303	760	351	880	358	900	358	900	n/a	X	
Standford 115-kV CCSF #3 Line (Standford-Moccasin&Newark) 115 kV CCSF #4 Line (Standford-Moccasin&Newark) 115-kV CCSF#7 Line (Standford-Warmerville) 3 115-kV CCSF #8 Line (Standford-Warmerville) 3	CAISO	PCB 909/Disc 903-C PCB 904/Disc 904-C PCB 907/Disc 907-C PCB 908/Disc 908-C	Thermal Thermal Thermal Thermal	87	438	87	438	133	666	133	666	n/a	X	7
				87	438	87	438	133	666	133	666	n/a	X	
				158	792	158	792	223	1122	223	1122	n/a	X	
				158	792	158	792	223	1122	223	1122	n/a	X	
Westley 230-kV Westley-Tesla Line 1	CAISO	PCB 2355/Disc 2280 & PCB 2356/Disc 2286	Thermal	591	1484	677	1700	796	2000	796	2000	n/a	X	8

**NOTES:**

- 1 Control Area Boundary at Westley Junction. See operating procedures for MID/TID imports.
  - 2 Rancho Seco & Lake total scheduling limited to contractual 1,271 MW rating, otherwise individually thermally limited.
  - 3 The Standford-Warmerville tie point scheduling limit is 306 MVA for all conditions due to limitations on the 230/115 kV Warmerville transformers.
- Summer ratings are valid April 1 to October 31 and Winter ratings are valid from November 1 to March 31.
- All limits shown are the maximum based on the most limiting element at the identified location.
- Transfer limits may be less than the amounts shown at the tie-points above based on an established path rating or due to power flows exceeding limit on another system element.
- COTP ratings have been coordinated with TANC.

**SERVICE SCHEDULE 15**  
**RESTORATION COORDINATION**

**[Section 7.4]**

SMUD and the ISO will work in close cooperation to maximize the reliability of interconnected operations. As appropriate, priority will be placed by both Parties on restoration of the Interconnection. The Interconnection will be closed only on orders from the ISO, the Transmission Owner that has jurisdiction of the line or equipment, and SMUD.

SMUD and the ISO, in conjunction with PG&E, Western, and the WECC Reliability Coordinator, shall establish procedures for system and Interconnection restoration, including power routing and switching sequence(s) on the Interconnection facilities.

**Attachment B – Clean Sheets**  
**August 12, 2009**  
**Amendment No. 5**  
**Interconnected Control Area Operating Agreement**  
**Between**  
**California Independent System Operator**  
**And**  
**Sacramento Municipal Utility District**

# **CALIFORNIA INDEPENDENT SYSTEM OPERATOR**

AND

# **SACRAMENTO MUNICIPAL UTILITY DISTRICT**

# **INTERCONNECTED CONTROL AREA OPERATING AGREEMENT**

**Incorporating Amendment No. 5**

or any load-based charges, provided, however, that (1) imports into the ISO Control Area at the COTP Interconnection Point that use the ISO Controlled Grid beyond the COTP Terminus shall pay all applicable ISO Tariff based charges; and (2) exports from the ISO Controlled Area at the COTP Interconnection Point that use the ISO Controlled Grid shall pay all applicable ISO Tariff based charges.

The COTP Participants shall retain existing transmission rights and obligations for deliveries to or from the COTP Terminus pursuant to pre-existing contracts with PG&E for COTP or SOTP transmission as specified in operating instructions provided to the ISO by PG&E in accordance with ICAA 3.1.2. The contractual basis for such treatment related to the COTP Terminus is summarized in Service Schedule 2.

### **ICAA 3.3.2 Coordinated Outages and Maintenance of COTP Terminus**

The ISO and SMUD recognize and agree that Western is the operating and maintenance agent for the COTP. The ISO shall coordinate outages of the COTP Terminus with SMUD and Western in accordance with ICAA 6 and Service Schedule 12. The ISO shall coordinate with SMUD and Western the removal from, and restoration to, service for any facilities within the ISO Control Area that affect available system transfer capability at the COI in accordance with ICAA 3.2, 6, and 7 and Service Schedules 4, 5, 8, 12, and 15. The ISO shall initiate requests for, or implement as appropriate, emergency response procedures to isolate inoperable components of the COTP Terminus and to restore the available electric system facilities to service without delay in accordance with ICAA 3.2, 6, and 7 and Service Schedules 4, 5, 8, 12, and 15. The ISO agrees that Western and SMUD, acting in coordination with the ISO, may remove from service, and following an outage may restore to service, all or part of the COTP Terminus facilities in accordance with ICAA 3.2, 6, and 7 and Service Schedules 4, 5, 8, 12, and 15.

## **ICAA 4 RELIABILITY Coordination**

### **ICAA 4.1 WECC Reliability Coordinator**

The ISO and SMUD operate under the purview of the WECC Reliability Coordinator and are subject to directives from the WECC's Vancouver or Loveland Reliability Coordinator Centers as set forth in the mandatory NERC Reliability Standards.



reasonably practicable. The ISO and SMUD shall, where practicable, keep operators in affected control areas and the appropriate WECC Reliability Coordinators informed as to the nature and extent of the system emergency.

### **ICAA 7.3 Operations Exercised Independently**

Emergency operation in response to unforeseen system occurrences that may jeopardize the safety of personnel and the general public and/or system stability may be performed independently by SMUD or the ISO. SMUD shall forward the outcomes of its emergency operation to the ISO Control Center as soon as practicable after the occurrence. The ISO shall forward the outcomes of the emergency operation to which it is a party to the Expanded SMUD Control Center as soon as practicable after the occurrence. The duties and responsibilities for the ISO Control Center and the Expanded SMUD Control Center under the foregoing circumstances are described in more detail in Service Schedule 14.

### **ICAA 7.4 Restoration Coordination**

The ISO and SMUD shall coordinate restoration on the facilities affecting the Interconnection, and shall take necessary restoration measures on facilities affecting the Interconnection in their respective control areas following an interruption, including coordinating the restarting of either or both systems from a black start, if requested. The ISO and SMUD shall develop restoration procedures, as described in more detail in Service Schedule 15.

### **ICAA 7.5 Voltage Collapse**

The ISO and SMUD shall take measures within their respective control areas to arrest collapsing voltage that affects the Interconnection.

### **ICAA 7.6 Co-Mitigation of California-Oregon Intertie Derates**

The ISO and SMUD as Control Area operators will implement the COI Power Flow Reduction Measures, as directed by the Path Operator of COI.

These obligations (77% ISO, 23% SMUD as of the effective date of Amendment No. 5 to this Operating Agreement) are established and quantified in the operating procedures pursuant to the California-Oregon Intertie Path Operator Agreement. The Expanded SMUD Control Area and the ISO Control Area shall provide the total Energy or the total curtailment (in the event that the COI Power Flow Reduction Measures allow) necessary to implement COI Power Flow Reduction Measures as determined by the Path Operator of COI and implemented by means of automatic adjustment signal.

## **ICAA 8            LIABILITY**

### **ICAA 8.1        Uncontrollable Forces**

An Uncontrollable Force means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, earthquake, explosion, any curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond the reasonable control of a control area operator which could not be avoided through the exercise of Good Utility Practice.

## **SERVICE SCHEDULE 2**

### **Pre-Existing Contracts: Provisions and Information**

#### **[Section 3.1.2]**

As set forth in ICAA 3.1.2 and ICAA 3.3, the ISO and SMUD will operate in accordance with pre-existing transmission service contract rights.

All power flows over ISO Controlled Grid facilities pursuant to pre-existing transmission service contracts shall be scheduled and settled in accordance with the ISO Tariff by a Scheduling Coordinator.

The descriptions provided in this Service Schedule 2 do not modify the terms of contracts between the ISO or SMUD and third parties, nor do these provisions provide any basis for any pre-existing contract interpretation or implementation contrary to instructions provided by PG&E to the ISO. In case of any conflicts in interpretation, the terms of the contracts shall prevail.

This Service Schedule may be modified upon mutual agreement of the Parties.

## **Pre-Existing Transmission Service Contracts**

The following contracts have been identified by SMUD, the ISO, and PG&E as pre-existing transmission service contracts that currently affect the operation of the Interconnection.

### **PG&E – SMUD Pre-Existing Transmission Contracts**

**CONTRACT #1.** Midway Transmission Service/South of Tesla Principles – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 MW of bi-directional firm service between Midway and SMUD's interconnections at Rancho Seco and Lake Substations 230 kV busses with an additional transaction point at the COTP southern terminus for Midway transactions. The amount of rights are currently 78 MW but may change due to arrangements among TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by TANC and PG&E.

**CONTRACT #2.** Camp Far West Transmission Agreement – FERC Rate Schedule # 91 - PG&E provides SMUD 7.9 MW of firm transmission service from Camp Far West Power Plant in Yuba County to Rancho Seco and Lake substation 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, PG&E's FERC Rate Schedule 136, below.

**CONTRACT #3.** Interconnection Agreement – FERC Rate Schedule #136 - PG&E provides SMUD 6 MW of non-firm transmission and 94 MW of Reserved Transmission Service from its wind resources connected to PG&E at SMUD's Russell substation in Solano County to SMUD's Rancho Seco and Lake 230 kV busses. Russell Substation is connected to PG&E's Bird's Landing Switching Station as of June 1, 2009. SMUD has agreed not to take any transmission services for the remaining term of this agreement for Camp Far West, Solano Wind and Slab Creek. The Interconnection Agreement, PG&E's Rate Schedule 136, terminates at midnight on 12/31/2009.

**CONTRACT #4.** Slab Creek Transmission Agreement – FERC Rate Schedule # 88 - PG&E provides SMUD 0.420 MW of firm transmission from Slab Creek Power Plant in El Dorado County to Rancho Seco and Lake 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, above.

The following is a summary of operational information on the above contracts:

**SMUD – PG&E**

Contract Title	Contract Reference Number	Points of Receipt and Delivery	MW Amount of Transfer	Scheduling Timelines	Curtailment <sup>1</sup>	Current Scheduling Coordinator	Transmission Owner
Midway Transmission – South of Tesla	TBD by ISO	Midway - Rancho Seco/Lake 230 kV busses  Midway – COTP Terminus	78 MW bi-directional	Per TRTC Instructions submitted by PG&E	Per TRTC Instructions submitted by PG&E	SMD1	PG&E

**Additional Third Party Contract with Delivery Rights at Rancho Seco and Lake 230 kV Busses**

The following information is provided regarding SMUD’s understanding of contract rights of the California Department of Water Resources (CDWR) to receive and deliver power at the Interconnection between the ISO and Rancho Seco 230 kV Bus:

Contract Title	Contract Reference Number	Points of Receipt and Delivery	MW Amount of Transfer	Scheduling Timelines	Curtailment <sup>1</sup>	Current Scheduling Coordinator	Transmission Owner
CDWR Comprehensive Agreement	TBD by ISO	Rancho Seco/Lake 230 kV busses	Up to 500 MW for SMUD-CDWR transfer, subject to CDWR request, and not to exceed 1300 MW total on PG&E High Voltage system as provided per TRTC Instructions submitted by PG&E.	As per CDWR-ISO Scheduling Coordinator agreement	Per TRTC Instructions submitted by PG&E and footnote below	CDWR	PG&E

<sup>1</sup> In the event the real-time import capability to SMUD at Rancho Seco and Lake is less than the maximum simultaneous contract limit of 1,271 MW, SMUD will notify the ISO which transmission schedules it will reduce to observe the real-time import capability limit.

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**PG&E Pre-Existing Contracts Related to the COTP Terminus**

**CONTRACT #1.** PG&E Rate Schedule for the Interconnection of the COTP and the PG&E Electric System – FERC Rate Schedule #144 - PG&E and the COTP Participants. This contract establishes the terms for interconnection of the COTP with the PG&E electric system including the location of the COTP Terminus near PG&E's Tesla Substation which together with the Tesla Bypass section of the COTP makes the Tesla-Tracey and Tesla-Los Banos 500-kV lines. The Agreement further provides that neither party will charge the other party any fees, losses, or other charges for use of the Tesla Bypass section of the COTP between the Tracy Substation and the Southern Terminus. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus.

**CONTRACT #2.** Midway Transmission Service/South of Tesla Principles (SOTP) – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 MW of bi-directional firm service between Midway and SMUD's interconnections at Rancho Seco and Lake Substation 230 kV busses with an additional transaction point at the COTP southern terminus for Midway transactions. SOTP rights include transmission service from Midway Substation to COTP Terminus and separate service from COTP Terminus to Midway Substation. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus. Service under the SOTP cannot be used for TANC member-to-TANC member trades within the former PG&E Control Area. The amount of rights may change due to arrangements among TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by the parties.



**CONTRACT #3.** Owners Coordinated Operations Rate Schedule – PG&E FERC Rate Schedule #229 – PG&E, Western and TANC establish the coordinated operation of the COTP and PACI, the requirement to have an agreement with the COI Path Operator, and the requirement for COI Control Area Operators Agreements with the Path Operator, curtailment sharing, system restoration and protection, and other protocols required to operate the COTP and the PACI as an coordinated three line system.

**PG&E Contracts Related to SMUD's and PG&E's Interconnections with Western**

**CONTRACT #1.** Parallel Operations Agreement between PG&E and the Western Area Power Administration Governing the Coordinated Operations of the PG&E and Western Electric Systems in Northern California, PG&E FERC Rate Schedule #228. The Agreement recognizes the Western interconnections to SMUD at Hurley and Elverta and the PG&E interconnections to SMUD at PG&E's Bellota and Gold Hill substations as third party parallel transmission interconnections. This Agreement acknowledges that parallel flows between the Western and PG&E electric systems may result in flows through the SMUD electric system (Section 9.2) and provides that the capacity of Western's Interconnections with PG&E shall be determined by assessing the thermal capacity of the most limiting element of the Interconnection Facilities or, if less, the maximum transfer capability through the Network Point of Interconnection as determined through power system studies and as may be limited by either Party's Electric System or by a Third Party Electric System. The capacity of the PG&E-Western interconnections is determined when requested by either party or when required to assess the impacts of a modification or addition. The operating limits provided in Service Schedule 6 shall incorporate the interconnection capacity determinations of PG&E and Western.

Privileged Material Redacted Pursuant  
To 18 C.F.R. § 388.112

**SERVICE SCHEDULE 3**

**POINTS OF CONTACT**

**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**ISO:**

Address:

California ISO  
151 Blue Ravine Road  
P.O. Box 639014  
Folsom, CA 95763-9014

**ISO CONTACTS FOR NOTICES**  
**[Section 10.2]**

Name of Primary Representative: Ms. Roni L. Reese

Title: Senior Contracts Analyst

Address: 151 Blue Ravine Road

City/State/Zip/Code: Folsom, CA 95630

Email Address: rreese@caiso.com

Phone: (916) 608-7027

Fax No: (916) 608-7292

Name of Alternative Representative: Christopher J. Sibley

Title: Senior Contracts Negotiator

Address: 151 Blue Ravine Road

City/State/Zip Code: Folsom, CA 95630

Email Address: csibley@caiso.com

Phone: (916) 608-7030

Fax No: (916) 608-7292

Privileged Material Redacted Pursuant  
To 18 C.F.R. § 388.112

**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**SMUD**

Address

SMUD  
Director, System Operations and Reliability  
6001 S Street MS D109  
Sacramento, CA 95817-1899

**SMUD CONTACTS FOR NOTICES**  
**[Section 10.2]**

**Name of Primary**

**Representative:** Vicken Kasarjian

**Title:** Director System Operations and Reliability

**Address:** 6001 S Street MS D109 (P. O. Box 15830 MS D109)

**City/State/Zip/Code:** Sacramento CA 95852-1830

**Email Address:** vkasrj@smud.org

**Phone:** (916) 732-5727

**Fax No:** (916) 732-7026

**Name of Alternative**

**Representative:** Richard Buckingham

**Title:** Principal Power Contracts Specialist

**Address:** 6001 S Street MS D109 (P. O. Box 15830 MS D109)

**City/State/Zip Code:** Sacramento CA 95852-1830

**Email Address:** rbuckin@smud.org

**Phone:** (916) 732-7027

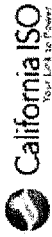
**Fax No:** (916) 732-6537

**SERVICE SCHEDULE 6**  
**REAL – TIME OPERATING LIMITS**

The Parties have identified the real-time operating limits in the attached table “SMUD-CAISO Control Area Tie Points, Points of Interconnection/Control Area Tie Points”.

Nomograms for simultaneous import limits into the Expanded SMUD Control Area will continue to be established by the SVSG and updated on an annual, or as required, basis. SMUD and all other SVSG members have committed to continue participation in the SVSG after SMUD expands its Control Area. SVSG Nomograms shall establish simultaneous import limits into the Expanded SMUD Control Area under specific transmission contingencies as well as with all lines at the Interconnection in service. SMUD shall at all times make such simultaneous import limits, as calculated in real time from the pertinent SVSG Nomogram, electronically available to the ISO. SMUD shall comply with import limits in all circumstances by managing SMUD loads and resources to maintain total imports at or below the simultaneous limit by limiting flows at each Interconnection point to the lower of the contract or thermal limit at that Interconnection point. Operating instructions will be prepared for the ISO and Expanded SMUD Control Areas to implement the SVSG Nomograms in their respective coordinated operating procedures.

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
 ORIGINAL FERC RATE SCHEDULE NO. 42  
 INTERCONNECTED CONTROL AREA OPERATING AGREEMENT



Amendment No. 5 SMUD ICAOP

Original Sheet No. 37A

Service Schedule 6  
 SMUD-CAISO Control Area Tie Points  
 Points of Interconnection/Control Area Tie Points

Substation	Adjacent Control Area	Breaker and/or Disconnect	Limiting Criteria of Transfer Capability	SUMMER RATING				WINTER RATING				Control Area Branch Group			
				NORMAL MVA	Amps	EMERGENCY MVA	Amps	NORMAL MVA	Amps	EMERGENCY MVA	Amps				
Cottonwood 230kV 'G' Bus 1 230kV 'G' Bus 2	CAISO	PCB 472/Disc 473	Thermal	797	2000	797	2000	n/a	n/a	797	2000	n/a	n/a	X	1
		PCB 482/Disc 483	Thermal	797	2000	797	2000	n/a	n/a	797	2000	n/a	n/a	X	
Lawrence Livermore (LLNL) 115 kV Tesla Line 1	CAISO	PCB 752 & PCB 852	Thermal	164	825	194	975	4 hrs	239	1200	239	1200	X	2	
Round Mountain 230kV Cottonwood Line	CAISO	PCB 242 / Disc 245	Thermal	320	800	320	800	n/a	370	930	370	930	n/a	X	3
Tracy (COTP Southern Terminus) 500kV Tesla Line 500kV Los Banos Line	CAISO	PCB 2192 & PCB 2095 PCB 1192 & PCB 1096	Thermal Thermal	1931 1931	2230 2230	3090 3090	3656 3656	30 min 30 min	3431 3431	3962 3962	3684 3684	4254 4254	4 hr 4 hr	X X	4
230kV Tesla Line 1 230kV Tesla Line 2		PCB 382 PCB 552	Thermal Thermal	557 557	1650 1650	683 683	1714 1714		747 747	1874 1874	747 747	1874 1874	X X	5	
69kV Herdlyn Line		PCB 2452	Thermal	73	600	73	600		73	600	73	600	X	n/a	
Rancho Seco 2 230kV Bellota Line 1 230kV Bellota Line 2	CAISO	PCB 210 & PCB 310 PCB 350 & PCB 350	Thermal Thermal	494 494	1239 1239	590 590	1482 1482	4 hr 4 hr	637 637	1600 1600	637 637	1600 1600	X X	6	
Lake 2 230kV Gold Hill Line	CAISO	PCB 5230 & PCB 5236	Thermal	303	760	351	680	30 min	358	900	358	900	n/a	X	
Standiford 115-kV CCSF #3 Line (Standiford-Muccasin&Newark) 115 kV CCSF #4 Line (Standiford-Muccasin&Newark) 115-kV CCSF #7 Line (Standiford-Warmerville) 3 115-kV CCSF #8 Line (Standiford-Warmerville) 3	CAISO	PCB 903/Disc 903-C PCB 904/Disc 904-C PCB 907/Disc 907-C PCB 906/Disc 906-C	Thermal Thermal Thermal Thermal	87 87 158 158	438 438 792 792	87 87 158 158	438 438 792 792	n/a n/a n/a n/a	133 133 223 223	666 666 1122 1122	133 133 223 223	666 666 1122 1122	n/a n/a n/a n/a	X X X X	7
Westley 230-kV Westley-Tesla Line 1	CAISO	PCB 2358/Disc 2361	Thermal	591	1484	677	1700	4 hr	756	2000	756	2000	X	8	

NOTES:

- 1 Control Area Boundary at Westley Junction. See operating procedures for MIE/TO imports.
  - 2 Rancho Seco & Lake total scheduling limited to contractual 1,271 MW rating, otherwise individually thermally limited
  - 3 The Standiford-Warmerville tie point scheduling limit is 305 MVA for all conditions due to limitations on the 250/115 kV Warmerville transformers
- Summer ratings are valid April 1 to October 31 and Winter ratings are valid from November 1 to March 31  
 All limits shown are the maximum based on the most limiting element at the identified location  
 Transfer limits may be less than the amounts shown at the tie-points above based on an established path rating or due to power flows exceeding limit on another system element  
 COTP ratings have been coordinated with TANC

Issued by: Laura Manz, Vice President, Market and Infrastructure Development  
 Issued on: August 12, 2009

Effective: October 12, 2009

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**SERVICE SCHEDULE 15**  
**RESTORATION COORDINATION**  
**[Section 7.4]**

SMUD and the ISO will work in close cooperation to maximize the reliability of interconnected operations. As appropriate, priority will be placed by both Parties on restoration of the Interconnection. The Interconnection will be closed only on orders from the ISO, the Transmission Owner that has jurisdiction of the line or equipment, and SMUD.

SMUD and the ISO, in conjunction with PG&E, Western, and the WECC Reliability Coordinator, shall establish procedures for system and Interconnection restoration, including power routing and switching sequence(s) on the Interconnection facilities.

**Attachment C – Blacklines**  
**August 12, 2009**  
**Amendment No. 5**  
**Interconnected Control Area Operating Agreement**  
**Between**  
**California Independent System Operator**  
**And**  
**Sacramento Municipal Utility District**

\* \* \*

CALIFORNIA INDEPENDENT SYSTEM OPERATOR

AND

SACRAMENTO MUNICIPAL UTILITY DISTRICT

INTERCONNECTED CONTROL AREA OPERATING AGREEMENT

Incorporating Amendment No. 45

\* \* \*

**ICAA 4 RELIABILITY COORDINATION**

**ICAA 4.1 WECC Reliability Coordinator**

The ISO and SMUD operate under the purview of the WECC Reliability Coordinator and are subject to directives from the WECC's Vancouver or Loveland Reliability Coordinator Centers as set forth in the mandatory NERC Reliability Standards~~has been designated the WECC Reliability Coordinator for WECC's California-Mexico Subregion.~~

\* \* \*

**ICAA 7.6 Co-Mitigation of California-Oregon Intertie Derates**

The ISO and SMUD as Control Area operators will implement the COI Power Flow Reduction Measures, as directed by the Path Operator of COI ~~provided the COI owners provide resources to, or accept curtailments from, (in the event that the COI Power Flow Reduction Measures allow) their respective Control Area Operator to facilitate management of COI overloads by the Path Operator of COI.~~ These obligations (797% ISO, 243% SMUD as of the effective date of Amendment No. 45 to this Operating Agreement) are established and quantified in the operating procedures pursuant to the California-Oregon Intertie Path Operator Agreement. The Expanded SMUD Control Area and the ISO Control Area shall provide the total Energy or the total curtailment (in the event that the COI Power Flow Reduction Measures allow) necessary to implement COI Power Flow Reduction Measures as determined by the Path Operator of COI and implemented by means of automatic adjustment signal.

\* \* \*

## **SERVICE SCHEDULE 2**

### **Pre-Existing Contracts: Provisions and Information**

#### **[Section 3.1.2]**

As set forth in ICAA 3.1.2 and ICAA 3.3, the ISO and SMUD will operate in accordance with pre-existing transmission service contract rights.

All power flows over ISO Controlled Grid facilities pursuant to pre-existing transmission service contracts shall be scheduled and settled in accordance with the ISO Tariff by a Scheduling Coordinator.

The descriptions provided in this Service Schedule 2 do not modify the terms of contracts between the ISO or SMUD and third parties, nor do these provisions provide any basis for any pre-existing contract interpretation or implementation contrary to instructions provided by PG&E to the ISO. In case of any conflicts in interpretation, the terms of the contracts shall prevail.

This Service Schedule may be modified upon mutual agreement of the Parties.

### **Pre-Existing Transmission Service Contracts**

The following contracts have been identified by SMUD, the ISO, and PG&E as pre-existing transmission service contracts that currently affect the operation of the Interconnection.

#### **PG&E – SMUD Pre-Existing Transmission Contracts**

~~CONTRACT #1. EHV Transmission Agreement – FERC Rate Schedule #37 – PG&E previously provided SMUD 200 MW bi-directional firm transmission between Malin and Rancho Seco and Lake Substation 230kV busses. PG&E sought FERC approval to terminate service provided under this Contract effective January 1, 2005. The FERC approved PG&E's request to terminate service provided under this Contract effective January 1, 2005. SMUD has appealed the FERC order terminating service to the District of Columbia Court of Appeals. The Parties shall modify this Operating Agreement in the event that the FERC order terminating service is reversed on appeal, and PG&E is required to continue to provide service under the Contract.~~

CONTRACT #21. Midway Transmission Service/South of Tesla Principles – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 -via TANC 46 MW of bi-directional firm service between Midway and SMUD's interconnections at Rancho Seco and Lake Substations 230 kV busses and Midway with a with an additional transaction point at the COTP southern terminus for Midway transactions. The amount of rights are currently 78 MW but may change due to arrangements among

TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by TANC and PG&E.

**CONTRACT #32.** Camp Far West Transmission Agreement – FERC Rate Schedule # 91 - PG&E provides SMUD 7.9 MW of firm transmission service from Camp Far West Power Plant in Yuba County to Rancho Seco and Lake substation 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, PG&E's FERC Rate Schedule 136, below.

**CONTRACT #43.** Interconnection Agreement – FERC Rate Schedule #136 - PG&E provides SMUD 46 MW of non-firm transmission from the Russell Wind Plant and 94 MW of Reserved Transmission Service from its wind resources connected to PG&E at SMUD's Russell substation in Solano County to SMUD's Rancho Seco and Lake 230 kV busses. PG&E will be filing with FERC an amendment to this agreement to provide SMUD with up to 100 MW of transmission service with a requested effective date of January 1, 2006. Russell Substation is connected to PG&E's Bird's Landing Switching Station as of June 1, 2009. SMUD has agreed not to take any transmission services for the remaining term of this agreement for Camp Far West, Solano Wind and Slab Creek. The Interconnection Agreement, PG&E's Rate Schedule 136, terminates at midnight on 12/31/2009.

**CONTRACT #54.** Slab Creek Transmission Agreement – FERC Rate Schedule # 88 - PG&E provides SMUD 0.420 MW of firm transmission from Slab Creek Power Plant in El Dorado County to Rancho Seco and Lake 230 kV busses. SMUD has agreed not to take any transmission services for the remaining term of the Interconnection Agreement. See Interconnection Agreement, above.

The following is a summary of operational information on the above contracts:

**SMUD – PG&E**

Contract Title	Contract Reference Number	Points of Receipt and Delivery	MW Amount of Transfer	Scheduling Timelines	Curtailment <sup>1</sup>	Current Scheduling Coordinator	Transmission Owner
Midway Transmission – South of Tesla	TBD by ISO	Midway - Rancho Seco/Lake 230 kV busses  Midway – COTP	46-78 MW bi-directional	Per TRTC Instructions submitted by PG&E no later than the lesser of 135 minutes in advance of the delivery	Per TRTC Instructions submitted by PG&E Per-Path 15-Operating Instructions for ZP26-NP15, pro rata for Tesla to	SMD1 PG&E acts as Path 15-facilitator for Path 15 transfer to/from APX.	PG&E

<sup>1</sup> In the event that ISO-SMUD transfer capability limits the ability to transfer the total amount of the existing transfers between SMUD and PG&E to less than the 1271 MW maximum PG&E-SMUD transfer limit, SMUD will provide the ISO a determination of which of the transmission services it will reduce to limit its total existing contract transfers to the constrained transfer limit.

		Terminus		hour or the deadline for submitting Preferred Hour-Ahead schedules to the ISO's Hour-Ahead Market, whichever occurs closer to the delivery hour; during active hour in emergencies	SMUD POI limitations		
Camp Far West (CFW) Transmission Agreement	TBD by ISO	CFW Plant - Rancho Seco/Lake 230 kV busses	7.9 MW generation to load	-no later than the lesser of 135 minutes in advance of the delivery hour or the deadline for submitting Preferred Hour-Ahead schedules to the ISO's Hour-Ahead Market, whichever occurs closer to the delivery hour; during active hour in emergencies	Pro rata based on maximum capability of affected facility, or as needed to avoid control area jeopardy	APX	PG&E

Solano Wind - Interconnection Agreement	TBD by ISO	Russell substation - Rancho Seco/Lake 230 kV busses	16 MW generation to load; anticipated to increase to 100 MW effective 1/1/06	no later than the lesser of 135 minutes in advance of the delivery hour or the deadline for submitting Preferred Hour-Ahead schedules to the ISO's Hour-Ahead Market, whichever occurs closer to the delivery hour; during active hour in emergencies	Curtailed first-off for Russell to SMUD POI limitations	APX	PG&E
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Slab-Creek Transmission Agreement	TBD by ISO	Slab-Creek Plant-Rancho Seco/Lake 230 kV busses	0-420 MW generation to load	no later than the lesser of 135 minutes in advance of the delivery hour or the deadline for submitting Preferred Hour-Ahead schedules to the ISO's Hour-Ahead Market; whichever occurs closer to the delivery hour; during active hour in emergencies	Pro-rata based on maximum capability of affected facility; or as needed to avoid control area jeopardy	APX	PG&E
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**Additional Third Party Contract with Delivery Rights at Rancho Seco and Lake 230 kV Busses**

The following information is provided regarding SMUD's understanding of contract rights a contract of the California Department of Water Resources (CDWR) to receive and deliver power that has delivery rights at the Interconnection between the ISO and Expanded SMUD Control Areas Rancho Seco 230 kV Bus:

<u>Contract Title</u>	<u>Contract Reference Number</u>	<u>Points of Receipt and Delivery</u>	<u>MW Amount of Transfer</u>	<u>Scheduling Timelines</u>	<u>Curtailment<sup>2</sup></u>	<u>Current Scheduling Coordinator</u>	<u>Transmission Owner</u>
CDWR Comprehensive Agreement	TBD by ISO	Rancho Seco/Lake 230 kV busses	Up to 500 MW for SMUD-CDWR transfer, subject to CDWR request, and not to exceed 135500 MW total on PG&E's High Voltage system as provided per TRTC Instructions submitted by PG&E backbone	As per CDWR-ISO Scheduling Coordinator agreement	Per TRTC Instructions submitted by PG&E and footnote below Pro-rata based on maximum OTC of constrained path	CDWR	PG&E

**PG&E Pre-Existing Transmission Contracts Related to the COTP Terminus**

<sup>2</sup> In the event the real-time import capability to SMUD at Rancho Seco and Lake is less than the maximum simultaneous contract limit of 1,271 MW, SMUD will notify the ISO which transmission schedules it will reduce to observe the real-time import capability limit.



**CONTRACT #1.** PG&E Rate Schedule for the Interconnection of the COTP and the PG&E Electric System – FERC Rate Schedule #144 - PG&E and the COTP Participants. This contract establishes the terms for interconnection of the COTP with the PG&E electric system including the location of the COTP Terminus near PG&E's Tesla Substation which together with the Tesla Bypass section of the COTP makes the Tesla-Tracy and Tesla-Los Banos 500-kV lines. The Agreement further, and provides that neither party will charge the other party any fees, losses, or other charges for use of the Tesla Bypass section of the COTP between the Tracy Substation and the Southern Terminus. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus.

**CONTRACT #2.** Midway Transmission Service/South of Tesla Principles (SOTP) – FERC Rate Schedule #143 - PG&E provides SMUD, as a TANC Member, 78 MW TANC 46 MW of bi-directional firm service between Midway and SMUD's interconnections at connections to the PG&E backbone (i.e. Rancho Seco and Lake Substations 230 kV busses) with an additional and Midway with a transaction point at the COTP southern tTerminus for Midway transactions. SOTP rights include transmission service includes transmission from Midway Substation to COTP Terminus and separate service from COTP Terminus to Midway Substation. For purposes of interchange at the ISO-SMUD Control Area boundary at the Tracy 500-kV bus, including service under the SOTP, that boundary is deemed to be equivalent to the COTP Terminus. Service under the SOTP cannot be used for TANC member-to-TANC member trades within the former PG&E Control Area. The amount of rights may change due to arrangements among TANC Members. PG&E will update the TRTC Instructions provided to the ISO to reflect any changes in the amount of service and the delivery and receipt points recognized by the parties ISO Control Area.

**CONTRACT #3.** Owners Coordinated Operations Rate Schedule — PG&E FERC Rate Schedule #229 – PG&E, Western and TANC and the other owners establish the coordinated operation of the COTP and PACI, the requirement to have an agreement with the COI Path Operator, and the requirement for COI Control Area Operators Agreements with the Path Operator, curtailment sharing, system restoration and protection, and other protocols required to operate the COTP and the PACI as an coordinated three line system.

### PG&E Contracts Related to SMUD's and PG&E's Interconnections with Western

**CONTRACT #1.** Parallel Operations Agreement between PG&E and the Western Area Power Administration Governing the Coordinated Operations of the PG&E and Western Electric Systems in Northern California, PG&E FERC Rate Schedule #228. The Agreement recognizes the Western interconnections to SMUD at Hurley and Elverta and the PG&E interconnections to SMUD at PG&E's Bellota and Gold Hill substations as third party parallel transmission interconnections. This Agreement acknowledges that parallel flows between the Western and PG&E electric systems may result in flows

through the SMUD electric system (Section 9.2) and provides that the capacity of Western's Interconnections with PG&E shall be determined by assessing the thermal capacity of the most limiting element of the Interconnection Facilities or, if less, the maximum transfer capability through the Network Point of Interconnection as determined through power system studies and as may be limited by either Party's Electric System or by a Third Party Electric System. The capacity of the PG&E-Western interconnections is determined when requested by either party or when required to assess the impacts of a modification or addition. The operating limits provided in Service Schedule 6 shall incorporate the interconnection capacity determinations of PG&E and Western.

~~The descriptions provided in this Service Schedule 2 do not modify the terms of contracts between the ISO or SMUD and third parties, nor do these provisions provide any basis for any pre-existing contract interpretation or implementation contrary to instructions provided by PG&E to the ISO. In case of any conflicts in interpretation, the terms of the contracts shall prevail.~~

~~This Service Schedule may be modified upon mutual agreement of the Parties.~~

\* \* \*

**SERVICE SCHEDULE 3**

**POINTS OF CONTACT**

**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**ISO:**

Privileged Material Redacted Pursuant  
To 18 C.F.R. § 388.112

Address: California ISO  
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P.O. Box 639014  
Folsom, CA 95763-9014

**ISO CONTACTS FOR NOTICES**  
**[Section 10.2]**

Name of Primary

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Phone: (916) 608-57087027

Fax No: (916) 351-2487608-7292

Name of Alternative

Representative: Philip D. Pettingill Christopher J. Sibley

Title: Manager of Infrastructure Policy & Contract  
Negotiations Senior Contracts Negotiator

Address: 151 Blue Ravine Road

**Privileged Material Redacted Pursuant  
To 18 C.F.R. § 388.112**

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Folsom, CA 95630

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Fax No:

(916) 351-22647292

**OPERATIONAL CONTACT**

**[Section 3.1.3]**

**SMUD**

**SMUD CONTACTS FOR NOTICES**  
[Section 10.2]

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Vicken Kasarjian

Title: Director System Operations and Reliability Manager  
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tingwer@smud.org

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Name of Alternative Representative: Richard Buckingham  
Brian Jobson

Title: Principal Power Contracts Specialist  
Supervisor,  
Regulatory and Contracts Area

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Phone: (916) 732-70275939

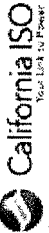
Fax No: (916) 732-65376002

\* \* \*

# SERVICE SCHEDULE 6 REAL - TIME OPERATING LIMITS

Service Schedule 6 SMUD-CAISO Control Area Tie Points Points of Interconnection/Control Area Tie Points												
Substation	Adjacent Control Area	Breaker and/or Disconnect	Limiting Criteria of Transfer Capability	SUMMER RATING				WINTER RATING				
				NORMAL MVA	EMERGENCY MVA	NORMAL MVA	EMERGENCY MVA	NORMAL MVA	EMERGENCY MVA			
<b>Cottonwood</b> 230KV 'G' Bus 1 230KV 'G' Bus 2	CAISO	PCB 472 PCB 462	Thermal Thermal	797 797	2000 2000	797 797	2000 2000	797 797	2000 2000	n/a n/a	X X	
<b>Lawrence Livermore (LLNL)</b> 115 kV Tesla Line 1	CAISO	PCB 752 & PCB 652	Thermal	164	825	194	975	256	1262	274	1350	X
<b>Round Mountain</b> 230KV Cottonwood Line	CAISO	PCB 242 / Disc 245	Thermal	320	800	320	800	370	930	n/a	X	
<b>Tracy (COTP Southern Terminus)</b> 500KV Tesla Line 500KV Los Banos Line	CAISO	PCB 2192 & PCB 2096 PCB 1192 & PCB 1096	Thermal Thermal	2253 2253	2478 2478	2683 2683	2951 2951	2253 2253	2478 2478	2683 2683	2951 2951	X X
230KV Tesla Line 1 230KV Tesla Line 2		PCB 382 PCB 582	Thermal Thermal	683 683	1714 1714	683 683	1714 1714	746 746	1873 1873	746 746	1873 1873	X X
69kV Herdlyn Line		PCB 2452	Thermal	95	800	95	800	95	800	n/a	X	
<b>Rancho Seco</b> 230KV Bellota Line 1 230KV Bellota Line 2	CAISO	PCB 210 & PCB 310 PCB 250 & PCB 350	Contractual Contractual	494 494	1239 1239	580 580	1462 1462	789 789	1981 1981	847 847	2127 2127	X X
<b>Lake</b> 230KV Gold Hill Line	CAISO	PCB 5230 & PCB 5238	Contractual	303	760	351	860	426	1070	474	1190	X
<b>Standiford</b> 115-KV CCSF #3 Line (Standiford-Moccasin&Newark) 115-KV CCSF #4 Line (Standiford-Moccasin&Newark) 115-KV CCSF #7 Line (Standiford-Warnerville) 115-KV CCSF #8 Line (Standiford-Warnerville)	CAISO	PCB 908/Disc 903-C PCB 904/Disc 904-C PCB 907/Disc 907-C PCB 908/Disc 908-C	Thermal Thermal Thermal Thermal	87 87 158 158	438 438 792 792	87 87 158 158	438 438 792 792	133 133 223 223	666 666 1122 1122	133 133 223 223	666 666 1122 1122	X X X X
<b>Westley</b> 230-KV Westley-Tesla Line*	CAISO	PCB 2355/DISC 2360 & PCB 2356/DISC 2381	Thermal	599	1504	637	1600	637	1600	637	1600	X

**NOTES:**  
 \* Control Area Boundary at Westley Junction. See operating procedures for MID/RTD imports.  
 \*\* Rancho Seco & Lake total scheduling limited by contract to 1,271 MW, otherwise individually thermally limited.  
 Summer and Winter periods defined by WECC OTC Policy Committee.  
 All limits shown are the maximum based on the most limiting element at the identified location.  
 Transfer limits may be less than the amounts shown at the tie-points above based on an established path rating or due to power flows exceeding limit on another system element.  
 COTP Ratings from TANC



**Service Schedule 6**  
**SMUD-CAISO Control Area Tie Points**  
*Points of Interconnection/Control Area Tie Points*

Substation	Adjacent Control Area	Limiting Criteria of Transfer Capability	Breaker and/or Disconnect	SUMMER RATING				WINTER RATING				Control Area Branch Group		
				NORMAL		EMERGENCY		NORMAL		EMERGENCY				
				MVA	Amps	MVA	Amps	MVA	Amps	MVA	Amps			
Cottonwood 230kV "G" Bus 1 230kV "G" Bus 2	CAISO	Thermal Thermal	PCB 472/Disc 473 PCB 482/Disc 483	797	2000	797	2000	n/a	n/a	797	2000	n/a	2000	1
				797	2000	797	2000	n/a	n/a	797	2000	797	2000	
Lawrence Livermore (LLNL) 115 kV Tesla Line 1	CAISO	Thermal	PCB 752 & PCB 852	164	825	194	575	4 hrs		239	1200		1200	2
Round Mountain 230kV Cottonwood Line	CAISO	Thermal	PCB 242 / Disc 245	320	800	320	800	n/a		370	930	n/a	930	3
Tracy (COTP Southern Terminus) 500kV Tesla Line 500kV Los Banos Line	CAISO	Thermal Thermal	PCB 2192 & PCB 2096 PCB 1192 & PCB 1096	1931 1931	2230 2230	3080 3080	3556 3556	30 min 30 min		3431 3431	3962 3962	4 hr 4 hr	4254 4254	4
230kV Tesla Line 1 230kV Tesla Line 2		Thermal Thermal	PCB 362 PCB 562	657 657	1650 1650	683 683	1714 1714			747 747	1874 1874		1874 1874	5
69kV Herdlyn Line		Thermal	PCB 2452	73	600	73	600			73	600		600	n/a
Rancho Seco 2 230kV Bellota Line 1 230kV Bellota Line 2	CAISO	Thermal Thermal	PCB 210 & PCB 310 PCB 250 & PCB 350	494 494	1239 1239	590 590	1482 1482	4 hr 4 hr		637 637	1600 1600		1600 1600	6
Lake 2 230kV Gold Hill Line	CAISO	Thermal	PCB 5230 & PCB 5236	303	760	351	880	30 min		358	900		900	X
Standiford 115-kV CCSF #6 Line (Standiford-Muccasin&Newark) 115 kV CCSF #4 Line (Standiford-Muccasin&Newark) 115-kV CCSF #7 Line (Standiford-Warnerville) 3 115-kV CCSF #8 Line (Standiford-Warnerville) 3	CAISO	Thermal Thermal Thermal Thermal	PCB 903/Disc 903-C PCB 904/Disc 904-C PCB 907/Disc 907-C PCB 908/Disc 908-C	87 87 158 158	438 438 792 792	87 87 158 158	438 438 792 792	n/a n/a n/a n/a		133 133 223 223	666 666 1122 1122	n/a n/a n/a n/a	666 666 1122 1122	7
Westley 230-kV Westley-Tesla Line 1	CAISO	Thermal	PCB 2355/Disc 2360 & PCB 2356/Disc 2361	591	1484	677	1700	4 hr		796	2000		2000	8

**NOTES:**  
1 Control Area Boundary at Westley Junction. See operating procedures for NED/TID imports.  
2 Rancho Seco & Lake total scheduling limited to contractual 1,271 MW rating, otherwise individually thermally limited  
3 The Standiford-Warnerville tie point scheduling limit is 305 MVA for all conditions due to limitations on the 230/115 kV Warnerville transformers  
Summer ratings are valid April 1 to October 31 and Winter ratings are valid from November 1 to March 31  
All limits shown are the maximum based on the most limiting element at the identified location  
Transfer limits may be less than the amounts shown at the tie-points above based on an established path rating or due to power flows exceeding limit on another system element  
COTP ratings have been coordinated with TANC

~~The Parties shall each maintain and have in service and operational at all times an automatic under frequency load shedding program and associated equipment designed and implemented in accordance with WEGC Coordinated Off-Nominal Frequency Load Shedding and Restoration Plan (Final Report, November 25, 1997, revised December 5, 2003). In addition, during a system emergency, the ISO and SMUD shall take actions appropriate for the prevalent condition or situation, upon which the Parties shall mutually agree and in accordance with Good Utility Practice as defined in ICAA 2.2.7, such that neither Party will cause an operational burden on the other Party. Such actions shall be as identified in operating procedures and/or agreements that shall be mutually agreed upon by the Parties prior to the implementation of the Expanded SMUD Control Area.~~

The Parties have identified the real-time operating limits in the attached table "SMUD-CAISO Control Area Tie Points, Points of Interconnection/Control Area Tie Points".

Nomograms for simultaneous import limits into the Expanded SMUD Control Area will continue to be established by the SVSG and updated on an annual, or as required, basis. SMUD and all other SVSG members have committed to continue participation in the SVSG after SMUD expands its Control Area. SVSG Nomograms shall establish simultaneous import limits into the Expanded SMUD Control Area under specific transmission contingencies as well as with all lines at the Interconnection in service. SMUD shall at all times make such simultaneous import limits, as calculated in real time from the pertinent SVSG Nomogram, electronically available to the ISO. SMUD shall comply with import limits in all circumstances by managing SMUD loads and resources to maintain total imports at or below the simultaneous limit by limiting flows at each Interconnection point to the lower of the contract or thermal limit at that Interconnection point. Operating instructions will be prepared for the ISO and Expanded SMUD Control Areas to implement the SVSG Nomograms in their respective coordinated operating procedures.

\* \* \*

**SERVICE SCHEDULE 15**  
**RESTORATION COORDINATION**  
**[Section 7.4]**

SMUD and the ISO will work in close cooperation to maximize the reliability of interconnected operations. As appropriate, priority will be placed by both Parties on restoration of the Interconnection. The Interconnection will be closed only on orders from the ISO, the Transmission Owner that has jurisdiction of the line or equipment, and SMUD.



SMUD and the ISO, in conjunction with PG&E, Western, and the WECC Reliability Coordinator for WECC's California-Mexico Subregion, shall establish procedures for system and Interconnection restoration, including power routing and switching sequence(s) on the Interconnection facilities.

\* \* \*