

February 15, 2018

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 CAISO Rate Schedule No. 104
Docket No. ER18-____-000**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits for filing and acceptance the Planning Coordinator Agreement dated December 13, 2017, between the CAISO and the City of Santa Clara, California, a chartered California municipal corporation doing business as Silicon Valley Power (“SVP”).¹ The Planning Coordinator Agreement sets forth the terms under which the CAISO will serve as the Planning Coordinator² for the transmission facilities, and generation units connected to those transmission facilities, that are part of the Bulk Electric System (“BES”) and are located within CAISO’s Balancing Authority Area (“BAA”) (“SVP BES Facilities”), as well as certain transmission facilities, and generation units connected to those transmission facilities, that are not part of the BES (“SVP Non-BES Facilities”).³ Under the Planning Coordinator Agreement, SVP will pay the CAISO an annual service fee for its services as Planning Coordinator during the initial three year term of the agreement.

The CAISO respectfully requests that the Commission accept the Planning Coordinator Agreement. The agreement promotes reliability within the

¹ The CAISO submits the Planning Coordinator Agreement pursuant to Rule 205 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.205 and Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

² The term “Planning Coordinator” is defined in the North American Electric Reliability Corporation (“NERC”) Reliability Functional Model. The NERC Reliability Functional Model (Version 5) defines Planning Coordinator as “The functional entity that coordinates, facilitates, integrates and evaluates (generally one year and beyond) transmission facility and service plans, and resource plans within a Planning Coordinator area and coordinates those plans with adjoining Planning Coordinator areas.” *NERC Reliability Functional Model, Function Definitions and Functional Entities*, Version 5, page 22 (November 30, 2009).

³ The specific SVP BES Facilities and SVP Non-BES Facilities are set forth in Attachment 1 to the Planning Coordinator Agreement.

CAISO's BAA, and compliance with NERC standards, by allowing the CAISO to serve as SVP's Planning Coordinator. The CAISO requests an effective date of April 17, 2018.

I. Background

The NERC Reliability Standards establish the Planning Authority, which is synonymous with the term "Planning Coordinator," as one of the functional entities within the NERC Functional Model. The CAISO is registered as a Planning Authority.⁴ As required by NERC regulations, the Planning Authority coordinates and integrates transmission facility and service plans, resource plans, and protection system plans among the Transmission Planners, Resource Planners, and Distribution Providers within its area of purview.⁵ These activities include the review and integration of reinforcement and corrective action plans developed by the functional entities (i.e., Planning Authority, Transmission Planner, and Resource Planner) whose area of responsibility is within the Planning Authority's area with respect to established reliability needs, as well as providing procedures, protocols, modeling and methodology software, etc. for consistent use within its area.

The NERC Reliability Functional Model further describes that the Planning Coordinator:

- (1) coordinates and collects data for system modeling from Transmission Planners, Resource Planners, and other Planning Coordinators;
- (2) coordinates transfer capability (generally one year and beyond) with Transmission Planners, Reliability Coordinators, Transmission Owners, Transmission Operators, Transmission Service Providers, and neighboring Planning Coordinators;
- (3) coordinates plans with the Reliability Coordinator and other Planning Coordinators on reliability issues;
- (4) receives plans from Transmission Planners and Resource Planners;
- (5) collects information including (a) transmission facility characteristics and ratings from the Transmission Owners, Transmission Planners,

⁴ The CAISO is also registered as a Balancing Authority, Transmission Operator, and Transmission Service Provider.

⁵ NERC Reliability Functional Model, Function Definitions and Functional Entities, Version 5, pages 22-23.

and Transmission Operators, (b) demand and energy forecasts, capacity resources, and demand response programs from Load-Serving Entities, and Resource Planners, (c) generator unit performance characteristics and capabilities from Generator Owners, and (d) long-term capacity purchases and sales from Transmission Service Providers;

- (6) collects and reviews reports on transmission and resource plan implementation from Resource Planners and Transmission Planners;
- (7) submits and coordinates the plans for the interconnection of facilities to the Bulk Electric System within its Planning Coordinator area with Transmission Planners and Resource Planners and adjacent Planning Coordinator areas, as appropriate;
- (8) provides and informs Resource Planners, Transmission Planners, and adjacent Planning Coordinators of the methodologies and tools for the simulation of the transmission system; and
- (9) facilitates the integration of the respective plans of the Resource Planners and Transmission Planners within the Planning Coordinator area.⁶

Through its Transmission Control Agreement, the CAISO currently acts as the Planning Coordinator for its participating transmission owners, who have transferred their transmission lines and associated facilities to the CAISO's operational control. Consistent with the CAISO's registration as a Planning Coordinator, its participating transmission owners are registered as Transmission Planners.

There are other transmission owners, known as "adjacent systems," who have facilities or systems that are connected to the transmission network under CAISO operational control, but are not within the CAISO's planning coordinator boundary. Some of these transmission owners do not have a Planning Coordinator for these particular systems and facilities. Because these adjacent systems are not within the CAISO's planning coordinator area boundary, the NERC regulations do not require the CAISO to be their Planning Coordinator. NERC regulations do, however, require these adjacent systems to be responsible for the planning of their own systems and facilities and, thus, to be represented by a registered Planning Coordinator.

⁶ *Id.*

Recently, the CAISO identified several adjacent systems who are not represented by a Planning Coordinator with respect to some or all of their systems or facilities under CAISO operational control. In an effort to enhance system reliability under the NERC Functional Model, the CAISO offered to provide Planning Coordinator services on behalf of these adjacent systems. SVP expressed an interest in the CAISO's offer.⁷

After further discussions with SVP, the parties negotiated and executed a Planning Coordinator Agreement, whereby the CAISO has agreed to serve as the Planning Coordinator for SVP with respect to the SVP BES Facilities and SVP Non-BES Facilities in exchange for a modest service fee, discussed in detail below. This agreement allows adjacent systems, like SVP, to have a Planning Coordinator and, thus, furthers the NERC reliability objective that all transmission owners have a Planning Coordinator for their Bulk Electric System facilities.

II. The Planning Coordinator Agreement

The Planning Coordinator Agreement details the contractual terms, including the scope of work and the fee, under which the CAISO will provide Planning Coordinator services to SVP. The fundamental purposes served by the Planning Coordinator Agreement are described below.

A. The Planning Coordinator Agreement Establishes the Parties' Respective Responsibilities

The Planning Coordinator Agreement establishes the respective obligations of the CAISO and SVP, which are set forth in Article II.

Specifically, the CAISO must maintain its registration as a Planning Coordinator with NERC and serve as the Planning Coordinator for the SVP BES Facilities and SVP Non-BES Facilities covered by the agreement. In conjunction with these services, the CAISO will be responsible for compliance, as determined by the Commission, NERC, and the Western Electricity Coordinating Council ("WECC"), with all reliability standards applicable to a Planning Coordinator for the SVP BES Facilities and SVP Non-BES Facilities. Because the CAISO is already a Planning Coordinator for its participating transmission owners, it will be able to leverage its existing processes in serving as the Planning Coordinator for SVP.

SVP is responsible for maintaining its registration with NERC as a Transmission Planner. SVP is also responsible for ensuring that it is in

⁷ SVP is registered with NERC as a Transmission Planner, Generation Owner, Generator Operator, Transmission Owner, Transmission Operator, and Distribution Provider. The CAISO is also discussing this offer with other parties.

compliance, as determined by the Commission, NERC and WECC, with all reliability standards applicable to a Transmission Planner for the SVP BES Facilities and SVP Non-BES Facilities. Consistent with its responsibility to meet reliability standards applicable to a Transmission Planner and a Transmission Owner, SVP is solely responsible for implementing necessary corrective actions, modifications or changes to the SVP BES facilities and SVP Non-BES Facilities.

B. The Planning Coordinator Agreement Describes the Parties' Duties of Cooperation and Coordination

To facilitate the fulfillment of the parties' roles and responsibilities, Article III of the Planning Coordinator Agreement sets forth the parties' duties of cooperation and coordination with each other.

Specifically, Attachment 2 to the Planning Coordinator Agreement illustrates the various areas in which the parties will coordinate their efforts, including the sharing and assessment of data related to interconnections, transmission planning, transfer capability and stability limits, modeling, uninstructed flow limits, and transmission relay loadability. In addition, the parties will cooperate with each other regarding all compliance related activities with respect to the Planning Coordinator and Transmission Planner functions. This includes complying with a reasonable request for data or assistance from the other party to demonstrate compliance with applicable Reliability Standards and to support the party's self-certifications, potential violation reviews or audits.

C. The CAISO Will Charge SVP an Annual Service Fee in Exchange for its Planning Coordinator Services

The Planning Coordinator Agreement specifies that SVP will pay an annual service fee during the initial three-year term of the agreement.⁸ The fee reflects SVP's pro rata share of the CAISO's costs for transmission planning. The CAISO calculated the costs of transmission planning in a 2014 cost of service study that formed the basis of the CAISO's 2015 Grid Management Charge Update. The CAISO allocated costs to SVP based on its number of circuits of transmission facilities as a portion of the total number of circuits of transmission facilities for which the CAISO conducts planning. The discussion paper of the 2015 Grid Management Charge Update and spreadsheets documenting the derivation and allocation of the transmission planning costs are included with the Declaration of April Gordon in Attachment C to this filing.⁹ After

⁸ Planning Coordinator Agreement, Section 4.1, attached as Attachment A to this filing.

⁹ The cost allocation methodology used to determine the annual service fee for SVP is the same methodology used for calculating the annual service fee for the City and County of San Francisco, the Metropolitan Water District of Southern California, and Southern California Edison

the initial three-year term of the agreement, subsequent annual service fees will be calculated in the same manner using data from the most recently published Grid Management Charge Update.

D. Other Provisions

The Planning Coordinator Agreement includes a variety of standard provisions that round out the parties' commitments. These include confidentiality (Section 4.2), termination (Section 4.4), dispute resolution (Section 4.5), representations and warranties (Section 4.6), limitations of liability (Section 4.7.1), governing law and venue (Section 4.13) and certain miscellaneous provisions.

III. Next Steps

Following Commission acceptance of this filing, the CAISO will complete the transmission plan studies and its collection and assessment of the data necessary to meet its Planning Coordinator obligations.

IV. Effective Date

The CAISO requests that the Planning Coordinator Agreement be made effective April 17, 2018.

V. Request for Confidential Treatment

Attachment 1 to the Planning Coordinator Agreement is a diagram of the SVP BES Facilities and SVP Non-BES Facilities and, thus, includes Critical Energy/Electric Infrastructure Information ("CEII") (as defined in 18 C.F.R. §388.113) that is being submitted pursuant to 18 C.F.R §388.113. Accordingly, the CAISO requests that this information receive confidential treatment per the Commission's regulations and that the information be exempt from mandatory public disclosure requirements under the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552. Notwithstanding this fact, the CAISO requests that the Commission provide the CAISO with notice of any FOIA requests and the opportunity to participate in any proceeding initiated to determine whether the Commission should direct disclosure of the aforementioned information. The CAISO further requests that the CEII label apply for at least five years from the date of this filing.

in connection with their Planning Coordinator Agreements with the ISO and which were approved by the Commission in 2015, 2016 and 2017, respectively.

VI. Request for Waivers

The CAISO believes this filing constitutes a new service (Planning Coordinator services) to a customer (SVP), and is thus an initial rate schedule, subject to section 35.12 of the Commission's regulations, and this filing complies with the requirements¹⁰ applicable to filings of this type. The CAISO respectfully requests waiver of any such requirement to the extent this filing does not satisfy that requirement.

In the event the Commission concludes that this filing is a change in a rate tariff or service agreement, the CAISO submits that the filing also substantially complies with the requirements of section 35.13 of the Commission's regulations¹¹ which are applicable to filings of this type. The CAISO respectfully requests waiver of any such requirement to the extent this filing does not satisfy that requirement.

In either event, there is good cause to waive filing requirements that are not material to the Commission's consideration of the Planning Coordinator Agreement.

VII. Service

The CAISO has served copies of this filing upon all scheduling coordinators, the California Public Utilities Commission, and the California Energy Commission. In addition, the CAISO has posted the filing on the CAISO website.

VIII. Contents of Filing

In addition to this transmittal letter, this filings includes the following attachments:

Attachment A	Public version of the executed Planning Coordinator Agreement;
Attachment B	Confidential CEII portions of the Planning Coordinator Agreement; and
Attachment C	Declaration of April Gordon, Director of Financial Planning and Procurement.

¹⁰ 18 C.F.R. § 35.12 (2016).

¹¹ 18 C.F.R. § 35.13 (2016).

IX. Correspondence

Pursuant to Rule 203(b)(3) of the Commission's Rules of Practice and Procedure,¹² the CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

John E. Spomer
Senior Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7257
Fax: (916) 608-7222
E-mail: jspomer@caiso.com

X. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit the Planning Coordinator Agreement, CAISO Rate Schedule No. 104, to be effective April 17, 2018. If there are any questions concerning this filing, please contact the undersigned.

Respectfully submitted,

By: /s/ John E. Spomer

Roger E. Collanton
General Counsel
Burton A. Gross
Deputy General Counsel
John E. Spomer
Senior Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7257
Fax: (916) 608-7222
jspomer@caiso.com

Attorneys for the California Independent
System Operator Corporation

¹² 18 C.F.R. § 385.203(b)(3).

Attachment A – Planning Coordinator Agreement
Planning Coordinator Agreement with Silicon Valley Power and the
California Independent System Operator Corporation

CONFIDENTIAL CEII INFORMATION REDACTED

PURSUANT TO 18 C.F.R. § 388.113

PLANNING COORDINATOR AGREEMENT

**CALIFORNIA INDEPENDENT SYSTEM OPERATOR
CORPORATION**

AND

**THE CITY OF SANTA CLARA, dba SILICON VALLEY
POWER**



PLANNING COORDINATOR AGREEMENT

THIS AGREEMENT is dated this 13th day of December, 2017, and is entered into, by and between:

(1) The City of Santa Clara, California, a chartered California municipal corporation doing business as Silicon Valley Power (SVP), having its registered and principal place of business located at 1500 Warburton Ave, Santa Clara, California 95050. (“SVP”);

and

(2) the California Independent System Operator Corporation, a California nonprofit public benefit corporation, having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate, initially 250 Outcropping Way, Folsom, California 95630 (“CAISO”).

SVP and CAISO are hereinafter referred to as the “Parties”.

RECITALS

A. WHEREAS, Section 215 of the Federal Power Act, 16 USC 824o, requires all users, owners and operators of the bulk-power system to comply with applicable reliability standards approved by the Federal Energy Regulatory Commission (“FERC”) (“Reliability Standards”); and

B. WHEREAS, North American Electric Reliability Corporation (“NERC”) and the Western Electricity Coordinating Council (“WECC”) have developed Reliability Standards, certain of which apply to CAISO and SVP, and NERC has delegated to WECC enforcement of the Reliability Standards in the Western Interconnection including California; and

C. WHEREAS, SVP owns transmission facilities, and generation units connected to those transmission facilities, that are part of the Bulk Electric System (“BES”) and are located within CAISO’s Balancing Authority Area (“BAA”) (“SVP BES Facilities”), as well as certain transmission facilities, and generation units connected to those transmission facilities, that are not part of the BES (“SVP Non-BES Facilities”). The SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement are listed in Attachment 1.

D. WHEREAS, SVP is not a Participating Transmission Owner (“PTO”) as that term is defined in the FERC approved tariff of CAISO (“CAISO Tariff”); and



E. WHEREAS, SVP's current SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement are set forth in the diagram attached as Attachment 1 (Attachment 1 contains Confidential Information and is subject to Section 4.2); and

F. WHEREAS, SVP is registered with NERC as a Transmission Planner, Generation Owner, Generator Operator, Transmission Owner, Transmission Operator, and Distribution Provider; and

G. WHEREAS, CAISO is registered with NERC as a Planning Authority (which is synonymous with "Planning Coordinator"); and

H. WHEREAS, SVP has determined that there is a need for SVP to identify a Planning Coordinator for its SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement, currently and into the foreseeable future; and

I. WHEREAS, CAISO has determined it is qualified to be the Planning Coordinator for SVP; and

J. WHEREAS, pursuant to this Agreement, CAISO agrees to be the Planning Coordinator for SVP; and

K. WHEREAS, the Parties are entering into this Agreement in order to establish the terms and conditions on which CAISO and SVP will discharge their respective duties and responsibilities.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, THE PARTIES AGREE as follows:

AGREEMENT

ARTICLE I

DEFINITIONS AND INTERPRETATION

1.1 Definitions. Capitalized words in this Agreement that are not defined herein shall have the meanings set forth in NERC's "Glossary of Terms Used in NERC Reliability Standards" ("NERC Glossary of Terms").

1.2 Rules of Interpretation. The following rules of interpretation and conventions shall apply to this Agreement:

(a) if there is any inconsistency between this Agreement and the NERC Glossary of Terms, the NERC Glossary of Terms will prevail to the extent of the inconsistency;



- (b) the singular shall include the plural and vice versa;
- (c) the masculine shall include the feminine and neutral and vice versa;
- (d) “includes” or “including” shall mean “including without limitation”;
- (e) references to an Article, Section or Attachment shall mean an Article, Section or Attachment of this Agreement, as the case may be, unless the context otherwise requires;
- (f) a reference to a given agreement or instrument shall be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
- (g) unless the context otherwise requires, references to any law shall be deemed references to such law as it may be amended, replaced or restated from time to time;
- (h) unless the context otherwise requires, any reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having separate legal personality;
- (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (j) any reference to a day, week, month or year is to a calendar day, week, month or year; and
- (k) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

**ARTICLE II
GENERAL RESPONSIBILITIES OF THE PARTIES**

2.1 Description of CAISO Responsibilities. While the Agreement is in effect, CAISO shall have the following responsibilities, including:

- (a) CAISO is registered with NERC as a Planning Authority (which is synonymous with Planning Coordinator); and

(b) CAISO will serve as the Planning Coordinator (as that term is defined in the NERC Reliability Functional Model) for the SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement;

(c) While the Agreement is in effect, CAISO will be responsible for compliance, as determined by FERC, NERC and WECC, with all Reliability Standards applicable to a Planning Coordinator for the SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement.

CAISO shall not, as a condition of performing the services set forth above, require SVP to become a PTO.

2.2 Description of SVP Responsibilities. While the Agreement is in effect, SVP shall have the following responsibilities, including:

(a) SVP is registered with NERC as a Transmission Planner; and

(b) SVP will be responsible for compliance, as determined by FERC, NERC and WECC, with all Reliability Standards applicable to a Transmission Planner for the SVP BES and SVP Non-BES Facilities covered by this Agreement – as specified in the list in Attachment 1.

ARTICLE III PROCEDURES AND COMPLIANCE

3.1 Coordination. The Parties agree that, for illustrative purposes only, Attachment 2 to this Agreement describes how CAISO and SVP anticipate coordinating with each other while carrying out their respective responsibilities as a Planning Coordinator and Transmission Planner with respect to the SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement. SVP and CAISO may revise Attachment 2 by mutual written agreement. Regardless of the terms set forth in Attachment 2, the Parties agree that they must each meet their respective responsibilities as Planning Coordinator and Transmission Planner.

3.2 CAISO's Use Of Existing Practices, Procedures and Processes. Except as otherwise agreed by the Parties, to the extent applicable, CAISO will utilize its existing practices, procedures, and processes in performing its responsibilities as the Planning Coordinator for SVP. For the avoidance of doubt, the Parties clarify that requests for new or modified interconnections to the SVP BES Facilities or SVP Non-BES Facilities covered by this Agreement may be processed pursuant to the interconnection procedures adopted by SVP and are not required to be undertaken pursuant to CAISO's existing practices, procedures and process for interconnections to PTO facilities.

3.3 Interconnections to PTO Facilities. This Agreement does not change the respective rights and responsibilities of CAISO and SVP with respect to interconnections to PTO facilities.

3.4 SVP's Responsibility for its Facilities. SVP will coordinate and cooperate with CAISO in accordance with applicable Reliability Standards and will seek in good faith to reach agreement where possible on study assumptions, impacts and acceptable solutions. Nonetheless, consistent with its responsibility to meet Reliability Standards applicable to a Transmission Owner and a Transmission Planner, SVP has final authority over and is solely responsible for implementing necessary corrective actions, modifications or changes to its facilities.

3.5 Provision of Data. SVP will provide to CAISO in a timely manner all model data, including facility ratings, necessary for CAISO to perform the studies required for CAISO to fulfill its responsibilities as Planning Coordinator for the SVP BES Facilities and SVP Non-BES Facilities covered by this Agreement, and CAISO agrees to use this information solely for this purpose.

3.6 Compliance.

3.6.1 The Parties will cooperate with each other with respect to all compliance related activities, including but not limited to WECC audits of Reliability Standards, and with respect to the Transmission Planner and the Planning Coordinator functions.

3.6.2 Each Party shall comply with a reasonable request for data or assistance from the other Party to the extent reasonably necessary to demonstrate compliance with an applicable Reliability Standard, including providing reports or data reasonably necessary to support the other party's self-certifications, potential violation reviews, or WECC audits of Reliability Standards.

3.7 Additional Studies or Assessments By CAISO. SVP may request CAISO to undertake additional studies or assessments that are not within CAISO's responsibility as a Planning Coordinator. At its sole discretion, CAISO may agree to undertake such studies or assessments, subject to reimbursement for the cost of such work by SVP in accordance with Section 4.1.2 of the Agreement.

ARTICLE IV GENERAL TERMS AND CONDITIONS

4.1 Payment

4.1.1 Annual Service Fee. SVP will compensate CAISO for its services as Planning Coordinator under this Agreement by paying CAISO an annual service fee (“Annual Fee”), which will not exceed an aggregate sum of \$60,000 during the Current Term of the Agreement.

CAISO shall invoice SVP for the first Annual Fee within thirty (30) days of the Effective Date, and shall invoice SVP within thirty (30) days of each anniversary to the Effective Date during the Current Term consistent with Section 4.1.3. SVP will pay the invoice no later than thirty (30) days after receipt thereof.

The annual service fee will be based on the number of SVP BES Facilities and SVP non-BES Facilities covered by this Agreement multiplied by CAISO’s long term transmission planning process (“TPP”) cost per transmission circuit. The TPP cost per transmission circuit will be based on the CAISO annual budget and Grid Management Charge Rates as amended from time to time and the total number of circuits owned by the PTOs included in CAISO’s most current transmission plan. The calculation of the annual service fee for each year of the Current Term is set forth in Attachment 3. Subsequent annual service fees will be calculated in the same manner using data from the most recently published California ISO Grid Management Charge Update Cost of Service Study.

4.1.2 Hourly Fees. If, pursuant to Section 3.7, SVP requests CAISO to undertake additional studies or assessments that are not within CAISO’s responsibility as a Planning Coordinator, and CAISO agrees to undertake such studies or assessments, SVP shall compensate CAISO at an hourly rate that is based on CAISO’s internal labor costs plus overhead. Before any studies or assessments are undertaken, CAISO and SVP will agree in writing on the applicable hourly rate, the scope of work, and a total fee estimate. CAISO shall submit to SVP monthly invoices for such studies or assessments consistent with Section 4.1.3 of the Agreement no later than thirty days after undertaking such work.

4.1.3 Invoices. Invoices furnished by CAISO under this Agreement will be in a form acceptable to SVP and include a unique invoice number. SVP will provide CAISO with an acceptable form of invoice no later than the Effective Date of the Agreement. Payment shall be made by SVP to CAISO at the address specified in Attachment 4 to this Agreement.

4.2 Confidentiality

4.2.1 Both Parties understand and agree that, in the performance of the work or services under this Agreement or in contemplation thereof, a Party (a "Recipient") may have access to private or Confidential Information (as defined below) which may be owned or controlled by the other Party (a "Discloser") and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to the Discloser. Both Parties agree that all Confidential Information disclosed by a Discloser to a Recipient shall be held in confidence by the Recipient and used only in performance of the Agreement, except to the extent such information is required to be disclosed by local, State or Federal laws and regulations or by court or public agency order. A Recipient shall exercise the same standard of care to protect a Discloser's confidential information as a reasonably prudent contractor would use to protect its own proprietary data. "Confidential Information" means (i) all written materials marked "Confidential", "Proprietary" or with words of similar import provided to either Party by the other Party, and (ii) all observations of equipment (including computer screens) and oral disclosures related to either Party's systems, operations and activities that are indicated as such at the time of observation or disclosure, respectively, provided that such indication is confirmed in writing within five (5) business days of the disclosure. Confidential Information includes portions of documents, records and other material forms or representations that either Party may create, including but not limited to, handwritten notes or summaries that contain or are derived from such Confidential Information.

4.2.2 In the event that disclosure of confidential or proprietary information is required by local, State or Federal laws and regulations or by court or public agency order, the Recipient shall give prior written notice to the Discloser as far in advance as reasonably possible. The Recipient shall cooperate with the Discloser in the event the Discloser seeks a protective order or other appropriate remedy to prevent such disclosure and, if such a protective order or other remedy cannot be obtained by such Discloser, the Recipient shall disclose only that portion of the confidential or proprietary information that is legally required to be disclosed.

4.2.3 Notwithstanding Sections 4.2.1 and 4.2.2 above, each Party to this Agreement shall not have breached any obligation under this Agreement if Confidential Information is disclosed to a third party when the Confidential Information: (a) was in the public domain at the time of such disclosure or is subsequently made available to the public consistent with the terms of this Agreement; or (b) had been received by either Party at the time of disclosure through other means without restriction on its use, or had been independently developed by either Party as shown through documentation; or (c) is subsequently disclosed to either Party by a third party without restriction on use and without breach of any agreement or legal duty; or (d) subject to the provisions of Section 4.2.2, is used or disclosed pursuant to statutory

duty or an order, subpoena or other lawful process issued by a court or other governmental authority of competent jurisdiction.

4.2.4 The Parties acknowledge that the CAISO must comply with Section 20 of the CAISO Tariff.

4.3 Effective Date. This Agreement shall be effective as of the later of the date it is executed by the Parties or the date accepted for filing and made effective by FERC (“Effective Date”) and shall remain in full force and effect for three (3) years from the Effective Date (“Current Term”) or as terminated pursuant to Section 4.4 of this Agreement. Beginning on the Effective Date, CAISO will commence activities necessary to perform the services described in Section 2.1 herein. The Parties may mutually agree in writing to extend the term of the Agreement at any time.

4.4 Termination

4.4.1 Termination by CAISO. CAISO may terminate this Agreement by giving thirty (30) days prior written notice of termination to SVP, in the event that SVP commits any material default under this Agreement which, if capable of being remedied, is not remedied within thirty (30) days after CAISO has given to SVP written notice of the default, unless excused by reason of Uncontrollable Force (as defined in Appendix A of the CAISO Tariff) in accordance with Section 4.9 of this Agreement. In addition, CAISO may terminate this Agreement by giving not less than a one year prior written notice of termination to SVP. With respect to any notice of termination given pursuant to this Section, if filing at FERC is required for this Agreement, CAISO must file a timely notice of termination with FERC. In the case of a SVP uncured material default, the filing of the notice of termination by CAISO with FERC will be considered timely if the filing of the notice of termination is made after the preconditions for termination have been met, and CAISO files the notice of termination within sixty (60) days after issuance of the notice of default. The notice of termination shall become effective on the later of (i) the date specified in the notice of termination, or (ii) in the event filing of the notice of termination is required, the date FERC accepts such notice.

4.4.2 Termination by SVP. SVP may terminate this Agreement by giving not less than ninety (90) days prior written notice of termination to CAISO. With respect to any notice of termination given pursuant to this Section, if filing at FERC is required for this Agreement, CAISO must file a timely notice of termination with FERC. The filing of the notice of termination by CAISO with FERC will be considered timely if the request to file a notice of termination is made, and CAISO files the notice of termination with FERC within thirty (30) days of receipt of SVP’s notice of termination. The notice of termination shall become effective on the later of (i) the date specified in the notice of termination, or (ii) in the event filing of the notice of termination is required, the date FERC accepts such notice.

4.4.3 Termination by Mutual Agreement. The Parties may terminate this Agreement at any time upon mutual agreement in writing.

4.4.4 Effect of Expiration or Termination. Upon the expiration or termination of this Agreement for any reason, each Party will be released from all obligations to the other Party arising after the date of expiration or termination, except that expiration or termination of this Agreement will not (i) relieve either Party of those terms of this Agreement which by their nature are intended to survive, including without limitation Section 4.1.3 (Invoices), Section 4.2 (Confidentiality), Section 4.5 (Dispute Resolution), Section 4.6 (Representations and Warranties), Section 4.7 (Liability), Section 4.8 (Insurance), Section 4.11 (Notices), Section 4.13 (Governing Law and Forum), and Section 4.17 (Severability), (ii) relieve SVP of its payment obligations for services already rendered in accordance with the terms of this Agreement, or (iii) relieve either Party from any liability arising from any breach of this Agreement.

4.4.5 Transition Assistance. Except in the case of a termination for a default by SVP, if SVP so requests, CAISO will reasonably assist SVP to transition to another Planning Coordinator, including providing data and assistance, provided that SVP will reimburse CAISO for its reasonable costs of such assistance.

4.5 Dispute Resolution. The Parties shall make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. If such efforts do not result in settlement, Section 4.13 shall apply.

4.6 Representation and Warranties. Each Party represents and warrants that the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.

4.7 Liability.

4.7.1 Limitation of Liability. Neither Party shall be liable to the other Party under any circumstances, whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits, loss of earnings or revenue, loss of use, loss of contract or loss of goodwill, arising out of or in connection with this Agreement or the services performed in connection with this Agreement.

4.7.2 Assessment of Penalties. If FERC, NERC or WECC assesses one or more monetary penalties against CAISO as a Planning Coordinator for the violation of one or more Reliability Standards, and the conduct or omission(s) of SVP contributed, in whole or in part, to the violation(s) at issue, then the CAISO may recover from SVP that portion of the penalty that resulted from SVP's conduct or

omissions(s) provided that each of the conditions set forth in Section 14.7.2.1 of the CAISO Tariff are met except that references to the Market Participant that caused or contributed to the violation at issue should be taken to be references to SVP, and instead of the payment provisions described in Section 14.7.2.5 of the CAISO Tariff, the payment provisions in Section 4.1.3 of this Agreement shall apply.

4.8 Insurance. CAISO is responsible for maintaining in force, during the full term of the Agreement, Commercial General Liability, Workers' Compensation, Commercial Auto Liability and Professional Liability insurance coverage.

4.9 Uncontrollable Forces Tariff Provisions. The Parties agree that Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Sections 14.1, 14.2 and 14.3 of the CAISO Tariff to Market Participants shall be read as a reference to SVP and references to the CAISO Tariff shall be read as references to this Agreement.

4.10 Assignments. Either Party may assign or transfer any or all of its rights and/or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff. In the case of SVP, a prior written consent must be executed and approved in the same manner as this Agreement. Any such transfer or assignment shall be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.

4.11 Notices. The Parties agree that any notice, demand or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4.1 of the CAISO Tariff, provided that all references in Section 22.4.1 of the CAISO Tariff to Market Participants shall be read as a reference to SVP and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Attachment 4. A Party must update the information in Attachment 4 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.

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

4.13 Governing Law and Forum. This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance

with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement, shall be brought in any of the following forums, as appropriate: any court of the State of California or any federal court of the United States of America located in Sacramento in the State of California, or, where subject to its jurisdiction, before the Federal Energy Regulatory Commission.

4.14 Compliance with Laws. The Parties shall keep themselves fully informed of all federal, state and local laws in any manner affecting the performance of this Agreement, and must at all times comply with such applicable laws as they may be amended from time to time.

4.15 Subcontracting. Neither Party may subcontract this Agreement, nor any part of thereof, unless such subcontracting is first approved by the other Party in writing. Neither Party shall, on the basis of this Agreement, contract on behalf of or in the name of the other Party. An agreement made in violation of this provision shall confer no rights on any Party and shall be null and void.

4.16 Merger. This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.

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

4.18 Amendments. This Agreement and the Attachments hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective.

Nothing contained herein shall be construed as affecting in any way the right of CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and SVP shall have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any

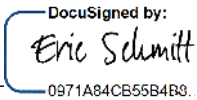
other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

4.19 Counterparts. This Agreement 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 hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation:

By:  _____
The signature box contains the text "DocuSigned by:" above the handwritten signature "Eric Schmitt" and a unique identifier "0971A84CB55B4B8..." below it.

Name: Eric Schmitt

Title: VP, Operations

Date: 12/13/2017



CITY OF SANTA CLARA, CALIFORNIA
a chartered California municipal corporation

APPROVED AS TO FORM:

Dated: 12/7/17

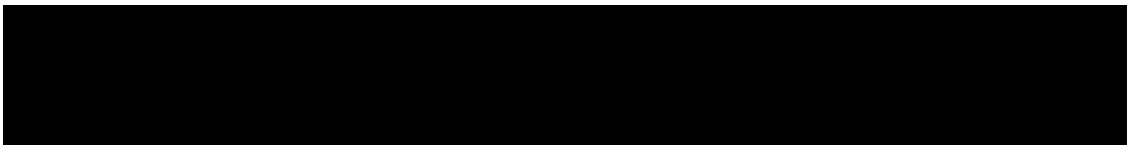
Brian Doyle
per BRIAN DOYLE
Interim City Attorney

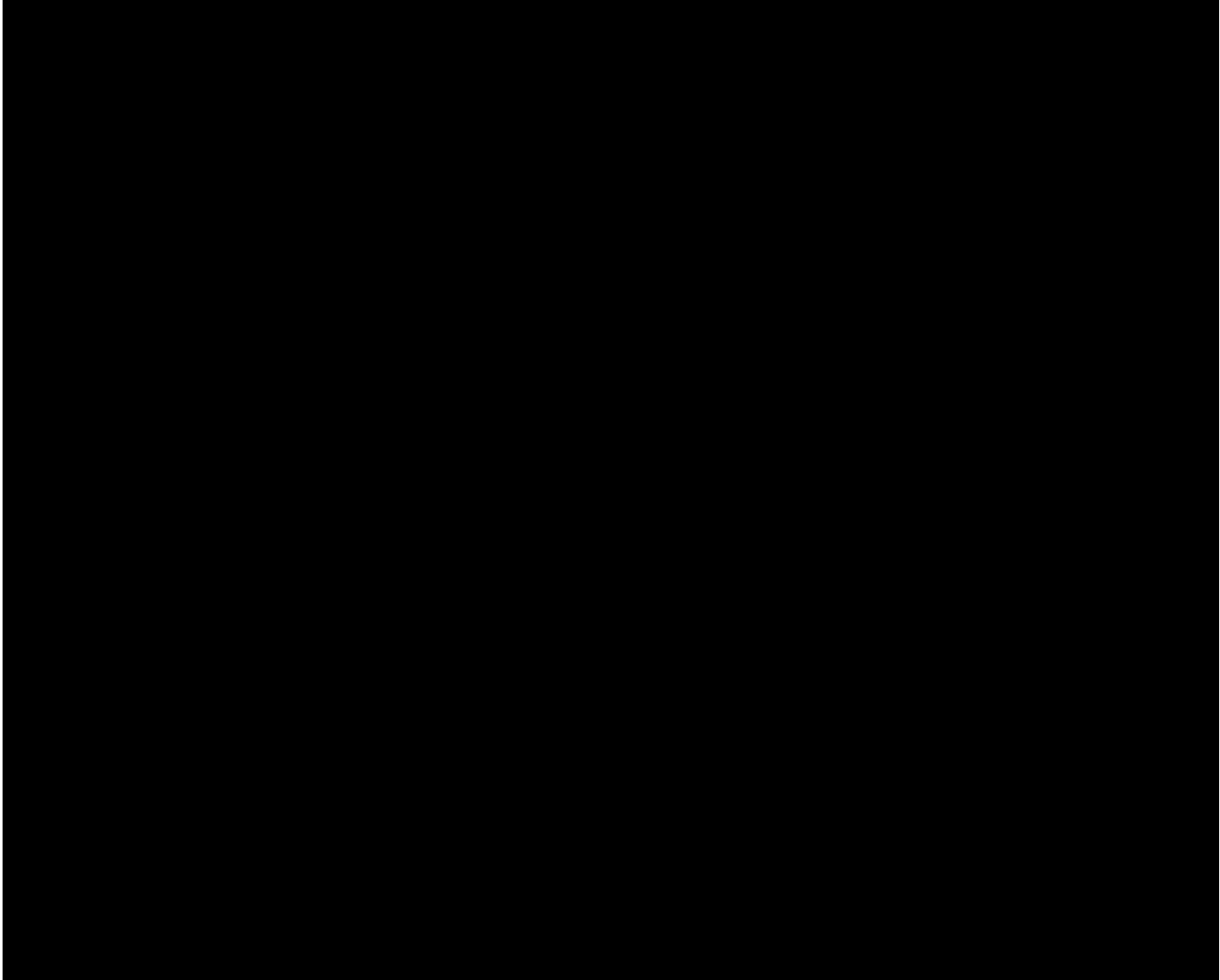
ATTEST: *Rod Diridon, Jr.*
ROD DIRIDON, JR.
City Clerk

Deanna Santana
per DEANNA SANTANA
City Manager
1500 Warburton Avenue
Santa Clara, CA 95050
Telephone: (408) 615-2210
Fax: (408) 241-6771



Attachment 1
SVP System One-Line Diagram
CONFIDENTIAL

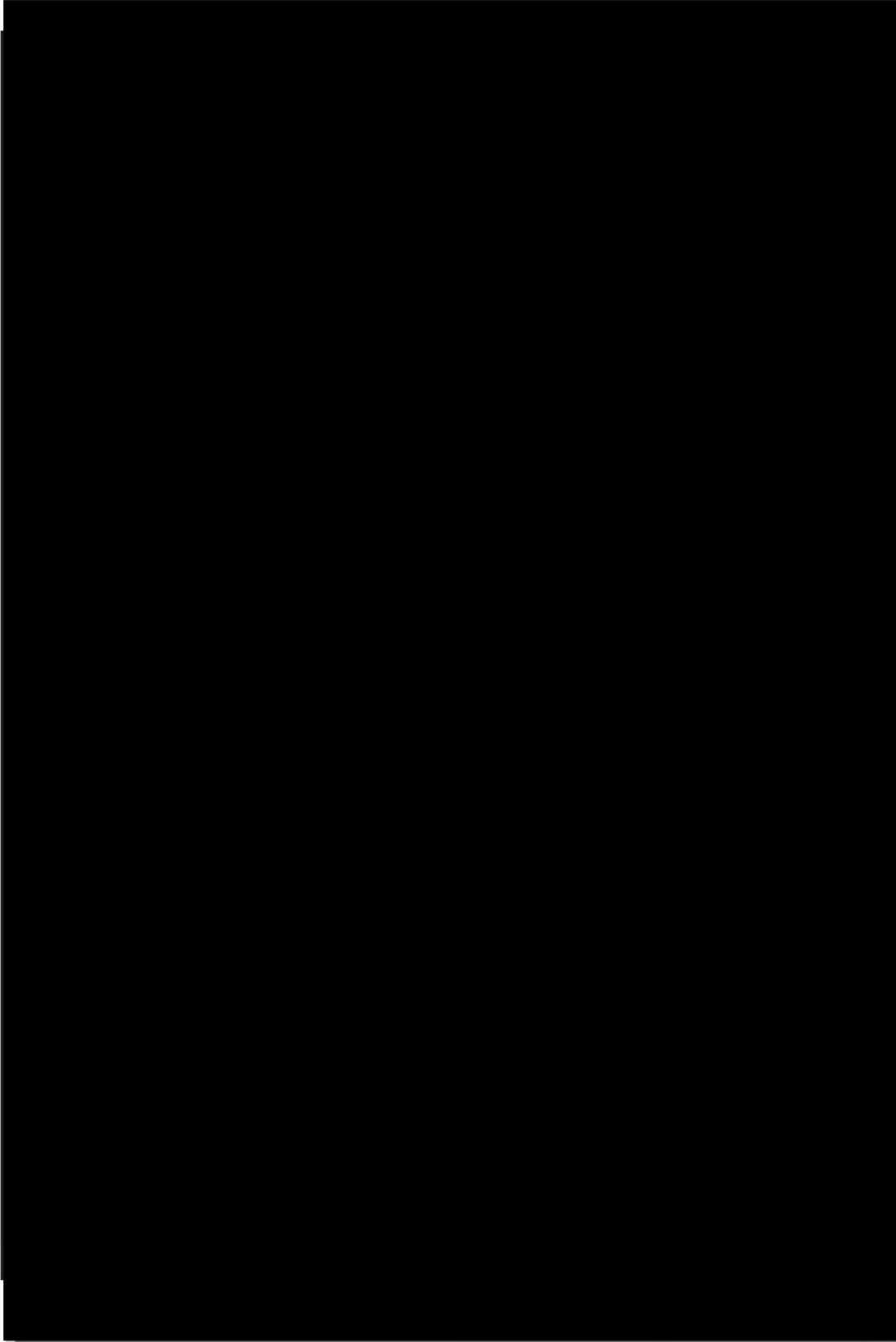




DocuSign Envelope ID: 9BD9E9DA-EC5E-4CD3-9F46-D08AE6E4D203



PLANNING COORDINATOR AGREEMENT



Attachment 2

CAISO and SVP Coordination

1. Interconnections

Applicable standards: FAC-002-2

With respect to interconnections to SVP facilities, SVP will conduct interconnection studies pursuant to its facilities interconnection procedures and will provide facility interconnection information and study results to the CAISO. As appropriate, the CAISO will incorporate information from SVP interconnection studies in its Large Generator Interconnection Procedure (“LGIP”) and TPP studies. SVP and CAISO will jointly evaluate, coordinate and cooperate on interconnection studies. This agreement does not affect either (1) interconnections to the CAISO Controlled Grid facilities which will continue to be governed by the CAISO Tariff and Business Practice Manuals (BPMs), or (2) SVP’s rights and responsibilities with respect to such interconnections.

2. Transmission Planning

Applicable standards: TPL-001-4; TPL-007-1; WECC Regional Criteria TLP-001-WECC-CRT-3.1; WECC BES Inclusion Guideline.

SVP will participate in the CAISO Transmission Planning Process (TPP). SVP will submit to the CAISO the information about the SVP system that the CAISO requires to undertake its TPP. The CAISO will undertake its TPP in accordance with its Tariff and BPMs. Consistent with its responsibility to meet Reliability Standards applicable to a Transmission Planner or Transmission Owner, SVP has the final responsibility and authority over implementing corrective actions, modifications or changes to its facilities.

3. SOLs, Transfer Capability and Stability Limits

Applicable standards: FAC-010-3, FAC-013-2, FAC-014-2

CAISO documents and shares its SOL Methodology for use in developing SOLs within its Planning Authority Area, and includes sharing its SOL Methodology with the SVP system. SVP will establish and provide to CAISO SOLs for the SVP system consistent with the CAISO SOL Methodology. CAISO will adopt SOLs for its Planning Authority Area, incorporating as appropriate the information provided by SVP. SVP will provide CAISO facility ratings for CAISO to include in its transfer capability studies performed under FAC-013-2. CAISO will provide its Transfer Capability Methodology and assessment results to SVP. SVP will provide CAISO SVP’s list of multiple SVP/ Adjacent system contingencies (if any) which result in stability limits on the SVP

system for use by the CAISO as appropriate in carrying out its responsibilities under FAC-014-2.

4. Modeling, Data, and Analysis

Applicable standards: MOD-031-2; MOD-032-1; MOD-033-1

MOD-031-2 Demand and Energy Data;
 MOD-032-1 Data for Power System Modeling and Analysis;
 MOD-033-1 Steady-State and Dynamic System Model Validation

SVP will provide SVP transmission system data, including load, pursuant to the WECC Data Collection Manual and CEC data collection requirements. The CAISO will include this data in its documentation for its Planning Authority Area and/or Balancing Authority Area, developed consistent with the NERC MOD Standards, the ISO Tariff and BPMs, that identify the scope and details of the actual and forecast (a) Demand data, (b) Net Energy for Load data, and (c) controllable DSM data to be reported for system modeling and reliability analyses. The CAISO will use the SVP transmission system load and modeling data provided by SVP as needed to meet its obligations under MOD-031-2, MOD-032-1, and MOD-033-1. SVP currently has 8 MW of contractually interruptible demand (one customer) and 7 MW of standby demand (one customer) on the SVP system. There is currently no Direct Control Load Management (DCLM) load data on the SVP system.

5. UFLS

Applicable standards: PRC-006-2, PRC-006-WECC-CRT-3, PRC-006-3 (10/1/2017)

SVP will participate and/or provide information as necessary for CAISO's studies related to PRC-006 and the WECC Criteria. SVP will participate in and/or provide information as necessary for the CAISO's activities related to PRC-006 and PRC-006-WECC-CRT.

6. Transmission Relay Loadability

Applicable standard: PRC-023-3

CAISO will include the SVP BES Facilities and the SVP Non-BES Facilities covered by this Agreement in its Transmission Register as non-PTO facilities and will include such facilities in its determination of assessments required under PRC-023-3 R6. Upon request, SVP will provide facilities information needed by CAISO to perform its PRC-023-3 R6 evaluations. The CAISO will assist SVP in obtaining access to the CAISO's Transmission Register.



7. Additional Protection and Control (PRC) Standards

Applicable standards: PRC-010-2; PRC-026-1 R1 (1/1/2018), PRC-012-2

- PRC-010-2 Under Voltage Load Shedding (UVLS) (4/2/2017);
- PRC-026-1 R1 (1/1/2018) Relay Performance During Stable Power Swings;
- PRC-012-2 Remedial Action Schemes (FERC approved on 9/20/2017)

8. Outage Coordination

Applicable standard: IRO-017-1 R3 & R4 (4/1/2017)

9. Nuclear

Not Applicable

10. Cyber Security Standards

Applicable Standards:

CIP-002-5.1a – Attachment 1 Impact Rating Criteria 2.3, 2.6, and 2.9;

and possibly CIP-014-2 R2 **only if** the Planning Coordinator is requested by the Transmission Owner to be the unaffiliated third party to verify the Transmission Owner's risk assessment performed in R1.

- CIP-002-5.1a – Cyber Security – BES Cyber System Categorization
- CIP-014-2 R2 – Physical Security (only if requested by the TO)



Attachment 3

Calculation of Annual Service Fee For 2017

Cost of the Long Term Transmission Planning Process						
ABC Level 2 Activities (\$ in thousands) all in Systems Operations	ABC Level 1	ABC Level 2	Indirect	Amount	2014 Factor	Allocations
Develop Infrastructure (DI)	80001					
Regulatory contract procedures	201		100%	\$378	0%	\$0
Manage Generator Interconnection Procedures (GIP) agreements	202	100%		\$818	0%	\$0
Manage GIP	203	100%		\$2,342	0%	\$0
Long Term Transmission Planning - TPP	204	100%		\$4,273	50%	\$2,137
New transmission resources	205	100%		\$552	0%	\$0
Transmission maintenance studies	206	100%		\$499	0%	\$0
Load resource data	207	100%		\$268	0%	\$0
Season assessment	208	100%		\$223	0%	\$0
Queue management	208	100%		\$615	0%	\$0
Annual delivery assessment	210	100%		\$25	0%	\$0
Subtotal: TPP Direct costs (see reference 2)				\$9,993		\$2,137
Total System Operations Direct Costs (see reference 1, Table 22)					(1)	\$48,915
Percentage of TPP to ABC Level 2 Direct Costs [(1)/(2)]					(2)	\$0
Total System Operations Indirect Dollars (see reference 1, Table 22)					(3)	\$88,809
Subtotal: TPP related indirect costs [(3) x (4)]					(4)	\$3,879
Total Direct and Indirect Level 2 TPP costs [(1) + (5)]					(5)	\$6,015
Annual Planning Coordinator Service Charge Calculation (\$ in thousands)						
Total number of transmission circuits in ISO [2015/2016] Transmission Plan	(7)	1,555				
Total number of transmission circuits in Silicon Valley Power system	(8)	5				
TPP cost per PTO transmission circuit in ISO [2015/2016] Transmission Plan [(6) / (7)]	(9)	\$3.87				
Initial Annual Planning Coordinator service charge (\$ in thousands) [(8) x (9)]		\$19,342				

[1] California ISO 2015 GMC Update Cost of Service Study, April 2, 2014

[2] Table 14; California ISO 2015 GMC Update Cost of Service Study, April 2, 2014

Attachment 4

Notices

1. As to the CALIFORNIA INDEPENDENT SYSTEM OPERATOR:

Neil Millar
Executive Director, Infrastructure Development
California Independent System Operator Corporation
Street: 250 Outcropping Way
City / State / Zip: Folsom, CA 95630
Phone: (916) 608-1113
Email: nmillar@caiso.com

2. As to SILICON VALLEY POWER:

City of Santa Clara dba Silicon Valley Power
Attn: Director of Electric Utility
1500 Warburton Ave.
Santa Clara, CA 95050
FAX: 408-244-2990

City of Santa Clara dba Silicon Valley Power
Attn: Division Manager, Engineering
1500 Warburton Ave.
Santa Clara, CA 95050
FAX: 408-244-2990

City of Santa Clara dba Silicon Valley Power
Attn: NERC Compliance Manager
881 Martin Ave.
Santa Clara, CA 95050
FAX: 408-261-2717

CONFIDENTIAL PURSUANT TO 18 C.F.R. § 388.113

This Document Contains Critical Energy/Electric Infrastructure Information (CEII)

DO NOT RELEASE

Attachment B – Confidential Portions of Planning Coordinator Agreement

Planning Coordinator Agreement with Silicon Valley Power and the

California Independent System Operator Corporation

(Contents of Attachment Intentionally Omitted from Public Version)

Attachment C – Declaration of April Gordon
Planning Coordinator Agreement with Silicon Valley Power and the
California Independent System Operator Corporation

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

**California Independent System) Docket No. ER18-____-000
Operator Corporation)**

**DECLARATION OF APRIL GORDON
ON BEHALF OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

I, April Gordon, state as follows:

1. I am employed as Director of Financial Planning and Procurement for the California Independent System Operator Corporation (the "CAISO"). My business address is 250 Outcropping Way, Folsom, California 95630.
2. I am responsible for the CAISO's revenue requirement development and management; rate design; long term planning; corporate procurement and contract management. As part of my duties at the CAISO, I oversee the development of the CAISO's grid management charge.
3. I participated in the creation of the "California ISO – 2015 GMC Update Cost of Service Study – April 2, 2014", attached as Exhibit 1 to my declaration, and the spreadsheets calculating estimated costs that the CAISO will incur to provide planning services to the City of Santa Clara, California, a chartered California municipal corporation doing business as Silicon Valley Power ("SVP"), under the Planning Coordinator Agreement between the CAISO and SVP, attached as Exhibit 2 to my declaration.
4. To the best of my knowledge, the information provided in Exhibits 1 and 2 is a true and accurate description and estimate of the costs that the

CAISO will incur in providing planning services to SVP, under the Planning Coordinator Agreement between the CAISO and SVP, in 2018 for each billing unit identified.

I hereby certify under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief:

Executed on: February 15, 2018

/s/ April Gordon
April Gordon

Exhibit 1 to the Declaration of April Gordon



California ISO

**2015 GMC Update
Cost of Service Study**

April 2, 2014

Table of Contents

Executive Summary 3

The 2012 Cost of Service Study Overview and 4

Activity Based Costing (ABC) 4

Application of ABC to GMC Structure 5

Costing the 2013 Revenue Requirement 13

Summary of Cost Category Percentages 29

Executive Summary

The revenue requirement limit established by the ISO and developed with stakeholders during the 2012 grid management charge (GMC) stakeholder initiative and budget process will expire on December 31, 2014. According to tariff section 11.22.2.5, the ISO is required to seek Federal Energy Regulatory Commission (FERC) approval of another revenue requirement maximum for the period beginning January 1, 2015. To determine whether changes should be made to the revenue requirement cap or the GMC structure, the ISO has updated its 2012 cost of service analysis, which was based on 2010 costs, for 2015 and beyond.

By way of background, the ISO implemented activity based costing (ABC) in 2010, which was utilized for the 2012 cost of service study to restructure the GMC rate design. The new GMC design was vetted through a comprehensive stakeholder process and approved by the ISO Board of Governors (ISO Board) and FERC in 2011 to be effective on January 1, 2012. The structure contains three cost categories: market services, system operations and congestion revenue rights (CRR) services and percentages that are applied to the revenue requirement to determine the amount in the three cost categories upon which rates are set. The market services charge code is designed to recover costs the ISO incurs for running the markets. The system operations charge code is designed to recover costs the ISO incurs for reliably operating the grid in real time. The CRR charge code recovers costs the ISO incurs for running the CRR markets.

The updated 2015 cost of service analysis uses 2013 data to determine the percentages for the three cost categories, as reflected in the table below and is summarized in Exhibit 2. This cost of service analysis also updated the energy imbalance market (EIM) and transmission ownership rights (TOR) rates. The ISO has posted the EIM rate update development and the TOR rate update development in the other papers posted at the same time as this cost of service update.

Summary of Cost Category Percentages

Cost Category Percentages from Cost of Service Studies	2010 Study effective for 2012	2013 Study to effective for 2015	Change
Market Services	27%	27%	-
System Operations	69%	70%	1%
CRR Services	4%	3%	(1%)

The 2012 Cost of Service Study Overview and Activity Based Costing (ABC)

On September 30, 2011, FERC approved the ISO's redesigned GMC with an effective date of January 1, 2012.¹ As part of the 2012 GMC stakeholder initiative that led up to the FERC submission, the ISO conducted a cost of service study based, for the first time, on the recently implemented Activity Based Costing (ABC) model (2012 cost of service study), using 2010 ISO costs.² The ISO then used the 2012 cost of service study to calculate the cost allocation percentages assigned to the three cost of service "buckets": market services, system operations and CRR services, as well as the associated fees including the TOR fee.

This 2015 cost of service study uses the same ABC modeling and cost allocation methodology used to calculate the cost allocation percentages and TOR fee. However, the 2015 cost of service study updates the 2012 analysis by using 2013 data and also incorporates changes to the level 1 and 2 ABC processes that the ISO has made since the 2012 cost of service study. As discussed in more detail below, the ISO in 2011 completed its implementation of all ABC level 2 processes. At the start of 2013, ABC encompassed nine level 1 processes that align with the ISO's core business processes (see chart below). These processes were then broken down into 153 level 2 activities that align with a level 1 process and are a granular breakdown of the core business functions. See Exhibit 1 for a description of the ISO business process framework overview.

¹ See *California Independent System Operator Corp.* 136 FERC ¶61,236 (2011).

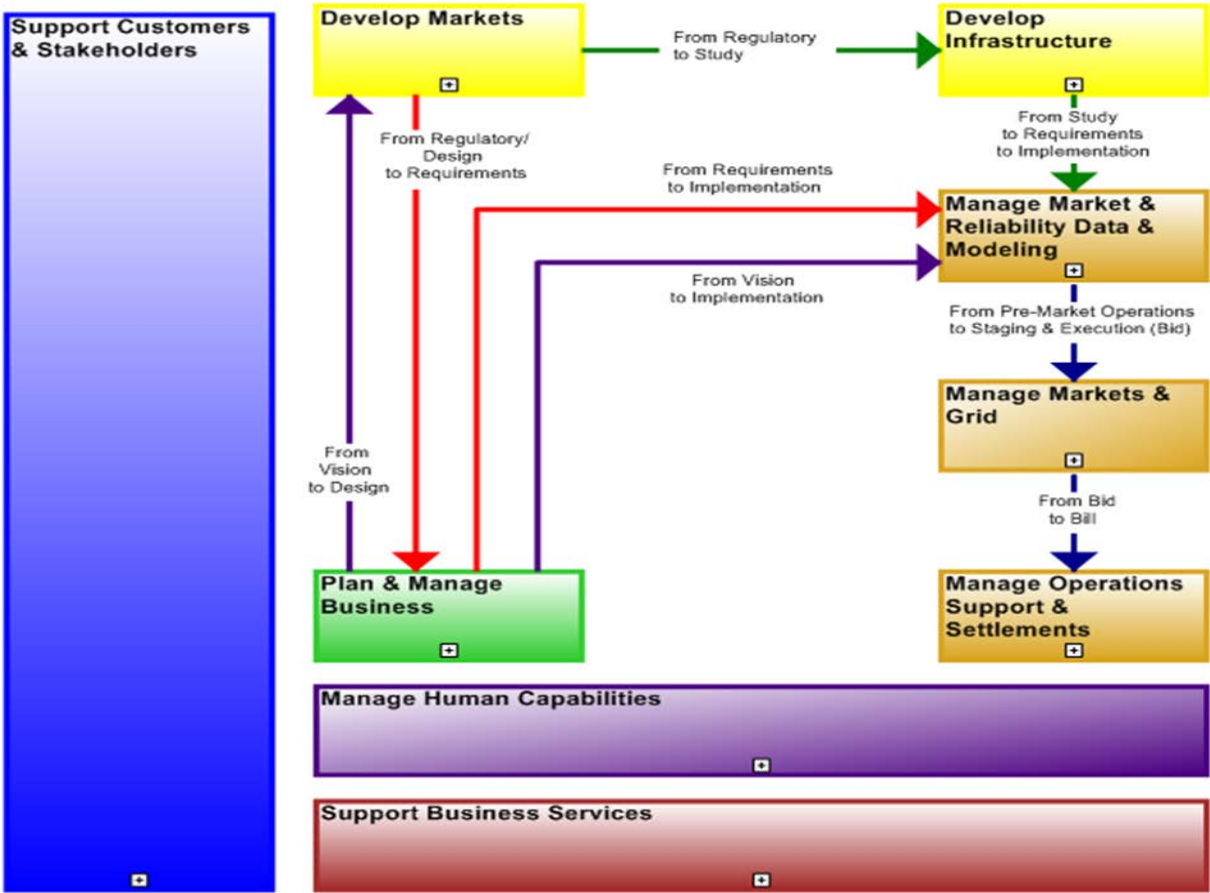
² The 2012 cost of service study can be found at: <http://www.caiso.com/Documents/2012Cost-ServiceStudyDiscussionPaperwithExhibits.pdf>

Application of ABC to GMC Structure

When the ISO, in 2010, conducted the 2012 cost of service study, time reporting for ABC level 1 activities had just been implemented. Full level 2 reporting, using activity codes and time sheet reporting, commenced in 2011 and has now been completed. This process is continually being reviewed and developed, and changes in definitions and levels have occurred since the 2012 cost of service study.

Currently, the ABC analysis has disaggregated the ISO into nine core processes (level 1 activities). Each of the core activities were further broken down into major processes (level 2 activities) that were mapped to the level one activity.

Mapping of ISO Core Business Processes



The level 2 processes discussed in this study are mapped and defined as of January 1, 2013. The level 1 activities can be categorized into two types: (1) direct operating costs —

those that can be directly mapped to a market, grid service or customer; and (2) support or indirect costs — those that support the direct activity.

Table 1 — Level 1 ABC Activities

Level 1 ABC Activity	Direct or support cost	Number of Level 2 activity codes	Level 1 Charge Code
Develop Infrastructure	Direct operating cost	11	80001
Develop Markets	Direct operating cost	9	80002
Manage Market and Reliability Data and Modeling	Direct operating cost	21	80004
Manage Market and Grid	Direct operating cost	13	80005
Manage Operations Support and Settlements	Direct operating cost	19	80006
Support Customers and Stakeholders	Direct operating cost	11	80010
Plan and Manage Business	Support costs	15	80008
Support Business Services	Support costs	46	80009
Manage Human Capabilities	Support costs	8	80003

Mapping of ABC Direct Operating Activities

These activities are defined, linked to specific processes, and measurable. Using the three GMC categories, the level 2 activities were mapped as either (1) all in one category or not in the category (100% or 0%); (2) a split between two categories (50% / 50%); or (3) partially in one category or another (80% or 20%) — or in the case of CRRs, a small portion of the activity (10%).

Table 2 — Mapping of ABC Direct Operating Activities to Cost Categories

Mapping of ABC level 2 Direct Operating Activities to Cost Categories						
ABC Level 2 Activities	Cost Code	Market services	System Operations	CRR services	Indirect	Comments
		% of cost to allocate to category				
Definitions used in allocation		100%				the costs are entirely to support the market results and function resulting in a financially binding schedule or ancillary servicer award
			100%			the costs are entirely to support system operations
				100%		the costs are entirely to support the CRR process
					100%	Attributes are not distinguishable to any specific category
		50%	50%			the costs support equally both market and system operations
		45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
		80%	20%			the costs are predominantly market related but have some operational relationship
		20%	80%			the costs are predominantly operational flow based but have some market relationship
Develop Infrastructure (DI) (80001)						

Mapping of ABC level 2 Direct Operating Activities to Cost Categories						
ABC Level 2 Activities	Cost Code	Market services	System Operations	CRR services	Indirect	Comments
% of cost to allocate to category						
Regulatory contract procedures	201				100%	Attributes are not distinguishable to any specific category
Manage generation interconnection project (GIP) agreements	202		100%			managing the building and maintaining of the grid thus the costs are entirely to support system operations
Manage GIP	203		100%			
Long-term transmission planning	204		100%			
New transmission resources	205		100%			
Transmission maintenance studies	206		100%			
Load resource data	207		100%			
Seasonal assessment	208		100%			
Queue management	209		100%			
Annual delivery assessment	210		100%			
Develop Markets (DM) (80002)						
Manage tariff amendments	227				100%	Attributes are not distinguishable to any specific category
Post-order rehearing comp	228				100%	
State / Federal regulatory policy	229				100%	
Business process manual change management process	230				100%	
Develop infrastructure policy	231		100%			managing the building and maintaining of the grid thus the costs are entirely to support system operations
Perform market analysis	232	100%				the costs are entirely to support the market results & function
Develop market design	233	100%				
Regulatory contract negotiations	234				100%	Attributes are not distinguishable to any specific category
Manage Market and Reliability Data and Modeling (MMR) (80004)						
Manage full network model (FNM) maintenance	301	50%	50%			the costs support equally both market and system operations
Plan and develop operations simulator training	302	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
ISO meter certification	303		100%			measuring flows on the grid thus the costs are entirely to support system operations
Energy measure acquisition and analysis (EMMAA) telemetry	304		100%			measuring flows on the grid thus the costs are entirely to support system operations
Metering system configuration for market resources	305		100%			
Manage CRRs	307			100%		the costs are entirely to support the CRR process
Manage credit and collateral	308	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Resource management	309	50%	50%			resource attributes that support both thus the costs support equally both market and system operations
Manage reliability requirements	310		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage operations planning	311		100%			
Manage WECC seasonal studies	312		100%			
Participating intermittent resource projects (PIRP)	313	20%	80%			significantly more operational procedures, thus the costs are predominantly

Mapping of ABC level 2 Direct Operating Activities to Cost Categories						
ABC Level 2 Activities	Cost Code	Market services	System Operations	CRR services	Indirect	Comments
% of cost to allocate to category						
Manage & facilitate procedure maintenance	314	20%	80%			operational flow based but have some market relationship
Procedure administration and reporting	315	20%	80%			
Plan and develop operations training	316	20%	80%			
Execute and track operations training	317	20%	80%			
California Electric Training Advisory Committee (CETAC) activities	318		100%			relates to actual system operations thus the costs are entirely to support system operations
Provide stakeholder training	320				100%	Attributes are not distinguishable to any specific category
SC management	321				100%	
Manage Markets and Grid (MMG) (80005)						
Manage day ahead (DA) market support	352	100%				the costs are entirely to support the market results & function
Operations real time (RT) support	353	50%	50%			the costs support equally both market and system operations
Outage model and management	355		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage DA market	358	50%	50%			while managing market it results in system starting point for operational flows thus the costs support equally both market and system operations
Manage pre and post scheduling	359		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage operations engineering support	362	20%	80%			based on support of DA and RT thus the costs are predominantly operational flow based but have some market relationship
RT market – shift supervisor – manage post DA and pre RT	363	50%	50%			the costs support equally both market and system operations
RT Operations – generation and RT renewables coordinator (GRC) desks - maintain balancing area and manage RT pre dispatch	364	20%	80%			based on support of DA and RT thus the costs are predominantly operational flow based but have some market relationship
RT Operations – transmission desk – manage transmission and electric system	365		100%			relates to actual system operations thus the costs are entirely to support system operations
RT Operations – scheduling desk – manage RT interchange scheduling	366		100%			
Manage Operations Support and Settlements (MOS) (80007)						
Manage price validation & corrections	401	50%	50%			related to proper outage allocation thus the costs support equally both market and system operations
Manage dispute analysis & resolution	402				100%	Attributes are not distinguishable to any specific category
Manage the market quality system (MQS)	403	50%	50%			portion of MQS relates to operational flows thus the costs support equally both market and system operations
Manage data requests	404				100%	Attributes are not distinguishable to any specific category
Manage regulation no pay & deviation penalty calculations	405		100%			measuring actual performance thus the costs are entirely to support system operations
Manage rules of conduct	406				100%	Attributes are not distinguishable to any specific category

Mapping of ABC level 2 Direct Operating Activities to Cost Categories						
ABC Level 2 Activities	Cost Code	Market services	System Operations	CRR services	Indirect	Comments
% of cost to allocate to category						
Periodic meter audits	407		100%			measuring actual performance thus the costs are entirely to support system operations
ISO remote intelligence gateway (RIG) engineering	408		100%			
Manage energy measurement acquisition & analysis	409		100%			
Manage market clearing	411	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage market billing & settlements	412	45%	45%	10%		
Manage reliability must run (RMR) settlements	413		100%			Supports reliability on the grid thus the costs are entirely to support system operations
Manage settlements release cycle	414	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage market performance	417	50%	50%			the costs support equally both market and system operations
Manage dispute analysis and resolution	418				100%	Attributes are not distinguishable to any specific category
Perform market validation	419	50%	50%			the costs support equally both market and system operations
Support Customers and Stakeholders (SCC) (80010)						
Represent ISO externally	539				100%	Attributes are not distinguishable to any specific category
Client inquiries	601				100%	
Account management	602				100%	
Stakeholder processes	603				100%	
Develop participating transmission owners	605		100%			managing the building and maintaining of the grid thus the costs are entirely to support system operations
Service new clients	606				100%	Attributes are not distinguishable to any specific category
Government affairs	609				100%	Attributes are not distinguishable to any specific category
Communications and public relations	610				100%	

Allocation of Debt Service and Capital

Debt service is the aggregation of principle, interest, and a 25 percent debt service reserve on the 2008 and 2009 bonds. The debt service is the capital spent on projects over the last six years because the 2008 bonds rolled up the 2004, 2006 and 2007 bonds. The assets funded were broken down into operations related software, general software and fixed assets. The 2009 bonds funded the corporate headquarters so the debt service was allocated 100 percent to indirect. The revenue requirement also includes cash funded capital. The funds raised from the GMC go to maintaining a long term capital reserve fund, which varies from the capital project budget for that year. The number of and cost for capital projects vary significantly from year to year. The annual budget approves the spending limits for capital but not the projects themselves. A proposed listing is provided but the actual projects are subject to review

and approval by an internal management committee as needed during the year. Because of the uncertainty of the actual projects coming on line, 100 percent of the cash funded capital will be allocated to indirect.

Table 3 — Allocation of Debt Service and Capital to GMC Cost Categories

Allocation of Debt Service and Capital to GMC cost categories					
System	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category					
2008 Bond Debt Service					
Operations Related Software					
Automated Dispatch System (ADS)		100%			RT instructions from market to system operations thus the costs are entirely to support system operations
Automated Load Forecast System (ALFS)	50%	50%			market & operations both need forecasts thus the costs support equally both market and system operations
CRR			100%		the costs are entirely to support the CRR process
DMM & compliance tools (SAS MARS)	50%	50%			the costs support equally both market and system operations
Energy Management System (EMS)		100%			the costs are entirely to support system operations
Existing Transmission Contracts Calculator (ETCC)		100%			This is a balancing authority responsibility
FNM / State estimator	50%	50%			Needed for market and system operations thus the costs support equally both market and system operations
Integrated Forward Market (IFM)	50%	50%			results support both financially binding schedules and system operations thus the costs support equally both market and system operations
MQS	50%	50%			aligns with direct operating process thus the costs support equally both market and system operations
Master file	50%	50%			
Meter Data Acquisition System (MDAS)		100%			data feed reflecting settling actual flow of systems operations performance thus the costs are entirely to support system operations
New Resource Interconnection (RIMs)	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Open Access Same Time Information System (OASIS)	50%	50%			the costs support equally both market and system operations
Operational Meter Analysis & Reporting (OMAR)		100%			same as MDAS thus the costs are entirely to support system operations
PIRP	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Portal	50%	50%			the costs support equally both market and system operations
CAISO Market Results interface (CMRI)	50%	50%			
Process Information System (PI)		100%			the costs are entirely to support system operations
RT markets	20%	80%			support & provide actual dispatches to balance system thus the costs are predominantly operational flow based but have some market relationship
HA Scheduling Protocol (HASP)	50%	50%			includes market power mitigation thus the costs support equally both market and system operations
Resource Adequacy	50%	50%			
RMR application Validation Engine (RAVE)	50%	50%			The costs support equally both market and system operations
Scheduling & Logging for ISO CA (SLIC)	50%	50%			

Allocation of Debt Service and Capital to GMC cost categories					
System	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category					
Control Area Scheduler (CAS)		100%			This is a balancing authority responsibility
Scheduling Infrastructure Business Rules (SIBR)	50%	50%			This contains interface to operations thus the costs support equally both market and system operations
Settlements & Market Clearing (SaMC)	15%	75%	10%		Based on DA and RT charge codes which settle 12 intervals operations hour for operations versus hourly for market thus after a minimum allocation to CRRs the costs are predominantly operational flow based but have some market relationship
General Software and Fixed Assets					
Client relations & engineering analysis tools				100%	Attributes are not distinguishable to any specific category
Local Area Network (LAN), WAN & monitoring (Tivoli)				100%	
Office automation desktop laptop (OA)				100%	
Oracle Corporate Financials				100%	
Security External Physical & ISS (CUDA)				100%	
Storage (EMC symmetrix)				100%	
Land and feasibility studies				100%	
NT servers and WEB servers				100%	
New system equipment				100%	
Office equipment, physical facilities software, furniture & leasehold improvements				100%	
2009 Bond Debt Service					
Iron Point headquarters				100%	Attributes are not distinguishable to any specific category
Cash Funded Capital					
Capital Project fund				100%	Amounts and projects vary yearly thus attributes are not distinguishable to any specific category

Allocation of Non-Payroll Support Costs

For the next step, significant non-payroll costs were pulled out of the operations and maintenance budget and allocated to buckets based on specific charge codes or to indirect costs. (see Table 4 next page)

Table 4 — Allocation of Non-Payroll Support Costs to GMC Cost Categories

Allocation of Non-Payroll Support Costs to GMC Cost Categories					
System	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category					
Technology Division					
Hardware and software maintenance and leases				100%	Attributes are not distinguishable to any specific category
Communications (AT&T)				100%	
Occupancy costs				100%	
Operations Division					
PIRP forecasting costs	20%	80%			Use 80004 activity 313
General Counsel and Administrative Services Division					
Outside legal fees, financial audits and bank fees				100%	Attributes are not distinguishable to any specific category
SSAE 16 audit	45%	45%	10%		Use 80007 activity 412
Operational assessment	TBD	TBD			To be based on total % for 80005
Insurance				100%	Attributes are not distinguishable to any specific category

Allocation of ABC Support activities

The ABC support activities were allocated to indirect.

Table 5 — Allocation of ABC Support activities to GMC Cost Categories

Allocation of ABC support activities to GMC Cost Categories						
System	Cost Code	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category						
Plan and manage business	80008				100%	Attributes are not distinguishable to any specific category
Support business services	80009				100%	
Manage human capabilities	80003				100%	

Allocation of Other Income and Operating Reserve Credit

The remaining revenue requirement components, other income and operating reserve credit, were then analyzed and allocated to buckets based on specific charge codes or to indirect costs.

Table 6 — Allocation of Other Income to GMC Cost Categories

Allocation of Other Income to GMC Cost Categories					
System	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category					
SC application fee				100%	Hardware and software maintenance and leases
MSS penalties				100%	
SC training fees				100%	
PIRP forecasting fees	20%	80%			Use 80004 activity 313
LGIP study fees		100%			Use 80001 activity 203
Interest				100%	Hardware and software maintenance and leases
COI path operator fees	TBD	TBD			To be based on total %s from 80005

Table 7 — Allocation of Operating Reserve Revenue Credit to GMC Cost Categories

Allocation of Operating Reserve Revenue Credit to GMC Cost Categories					
System	Market services	System operations	CRR services	Indirect	Comments
% of cost to allocate to category					
Change in operations and maintenance budget				100%	Hardware and software maintenance and leases
25% debt service reserve on 2008 bonds	TBD	TBD	TBD	TBD	Based on %s from 2008 bonds debt service allocation
25% debt service reserve on 2009 bonds				100%	Hardware and software maintenance and leases
Revenue changes				100%	
Expense changes				100%	

Indirect Costs

Indirect costs are aggregated and then allocated proportional to direct costs. After this mapping is completed it can be applied to the ISO revenue requirement to derive the related cost of service.

Costing the 2013 Revenue Requirement

The allocation matrix of level 2 activities and software was applied to the ISO's 2013 revenue requirement (based on the budget approved by the ISO Board in December 2012) to determine the costs associated with three categories: market services, system operations and CRR services. The 2013 revenue requirement data and employee hours are the most recent information available to both determine the GMC cost category percentage updates and the updated revenue requirement for the ISO's 2015 GMC tariff filing.

Table 8 — Components of the 2013 revenue requirement:

Revenue Requirement	2013 Budget (\$ in thousands)
Operating and maintenance costs	\$ 162,907
Debt service 2008 bonds	24,666
Debt service 2009 bonds	17,847
Cash funded capital	24,000
Other income	(7,900)
Operating reserve	(25,492)
Total Revenue Requirement	\$ 196,028

Completing the analysis required the following steps:

1. Breaking out non-ABC Operating and maintenance (O&M) support costs and applying cost category percentages to these costs;
2. Mapping the ABC direct and support O&M costs into two components: level 2 activities and support costs. This process involved:
 - a. allocating cost centers to level 1 ABC activities
 - b. applying cost category percentages to level 1 support costs
 - c. obtaining time estimates for level 2 activities for those level 1 activities that are direct operating costs
 - d. allocating costs to level 2 activities
 - e. applying cost category percentages;
3. Mapping remaining revenue requirements to cost categories and applying cost category percentages to these costs;
4. Aggregating costs and allocating indirect costs to cost categories based on percentage of direct costs, allocating fees to the three buckets and determining resulting cost category percentages; and
5. Dividing resulting costs by estimated volumes to determine 2013 rates using revised cost category percentages.

Step 1: Breaking Out Non-ABC Support Costs

There are two types of O&M costs; those that are activity related such as costs attributed to personnel, and non-ABC costs such as facilities costs. The O&M budget was broken down into those two categories. The significant non-ABC support costs were removed from the divisions and allocated separately.

Table 9 — Mapping Costs to ABC Activities and Non-ABC Support Costs

Mapping Costs to Direct and Support Activities and Non-ABC Support Costs		2013 Budget (\$ in thousands)		
		Total	ABC Activities	Non-ABC
Division				
Chief Executive Officer	2100	\$ 4,589	\$ 4,589	\$ -
Market and Infrastructure Development	2200	13,991	13,991	
Technology	2400	58,653	38,319	20,334
Operations	2500	42,724	42,021	703
General Counsel and Administrative Services	2600	27,070	19,234	7,836
Market Quality and Renewable Integration	2700	5,871	4,887	984
Policy and Client Services	2800	10,009	10,009	
Total		\$ 162,907	\$ 133,050	\$ 29,857

These budgeted costs were allocated using the percentages shown in *Table 4 — Allocation of Non-Payroll Support Costs to GMC Cost Categories*.

Table 10 — Allocation of Non-ABC Support to Cost Categories

Allocation of Non-ABC support costs									
Non-ABC support costs	Market Services	System Operations	CRRs	Indirect	2013 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Technology Division									
Hardware and software maintenance and leases				100%	\$ 8,941	\$ -	\$ -	\$ -	\$ 8,941
Communications (AT&T)				100%	5,952				5,952
Occupancy costs				100%	5,441				5,441
Operations Division									
PIRP forecasting costs	20%	80%			1,687	337	1,350		
General Counsel and Administrative Services Division									
Outside legal fees, financial audits and bank fees				100%	5,180				5,180
SSAE 16 audit	45%	45%	10%		539	243	243	53	
Operational assessment	17%	83%			200	34	166		
Insurance				100%	1,917				1,917
Total					\$ 29,857	\$ 614	\$ 1,759	\$ 53	\$ 27,431

Step 2: Allocation of O&M Costs

For activity related O&M costs, the recent ABC structure was utilized to allocate costs between the cost categories. ISO activities have been broken out into nine level 1 ABC activities as shown in *Table 1 — Level 1 ABC Activities*. For those direct operating level 1 activities, the associated level 2 activities were mapped to one of the three cost categories as shown in *Table 2 — Mapping of ABC Level 2 Direct Operating Activities to Cost Categories*. The level 1 support activities were allocated to ABC support costs.

The O&M budget is comprised of approximately 103 cost centers. As discussed above, ISO staff has been coding their time to ABC level 1 and level 2 activities since 2011. The time for 2013 was collected and the percentage breakdown of each cost center by the level one and level 2 direct activities was determined. The percentage was applied to the activity budget for the cost center to allocate the cost center activity budget by dollars to the level one and level 2 direct operating activities.

ABC Direct Operating Activities

Table 11 — Mapping Division Hours to Direct Operating Activities

Mapping Division Hours to Direct Operating activities	Percentage of time related to direct operating activities					
	Develop infrastructure (DI)	Develop markets (DM)	Manage market and reliability and data modeling (MMR)	Manage markets and Grid (MMG)	Manage operations support and settlements (MOS)	Support customers and stakeholders (SCS)
Organization Name	80001	80002	80004	80005	80007	80010
Chief Executive Officer (CEO)						
Market and Infrastructure Development (MID)	74%	20%	2%			
Technology (Tech)			4%	3%	1%	
Operations (Ops)			21%	53%	18%	
General Counsel and Administrative Services (GCAS)		2%	4%		1%	
Market Quality and Renewable Integration (MQRI)	3%	46%	3%	6%	33%	
Policy and Client Services (PCS)			7%			87%
Total	8%	4%	9%	19%	7%	6%

The hours were aggregated by level 2 activity.

Table 12 — Mapping Division hours to level 2 activities

ABC Level 2 Activities	Cost Code	ISO Divisions							Total
		CEO 2100	MID 2200	Tech 2400	Ops 2500	GCAS 2600	MQRI 2700	PCS 2800	
Develop Infrastructure (DI) (80001)									
Regulatory contract procedures	201		100%						4%
Manage GIP agreements	202		100%						8%
Manage GIP	203		98%			2%			27%
Long-term transmission planning	204		100%						42%
New transmission resources	205		100%						3%
Transmission maintenance studies	206		100%						4%
Load resource data	207		100%						3%
Seasonal assessment	208		100%						3%
Queue management	209		100%						6%
Annual delivery assessment	210		100%						
Total			99%			1%			100%
Develop Markets (DM) (80002)									
Manage tariff amendments	227					100%			6%
Post-order rehearing comp	228		100%						1%
State / Federal regulatory policy	229		86%		14%				10%
Business process manual change management process	230		15%					85%	1%
Develop infrastructure policy	231		100%						14%
Perform market analysis	232						100%		28%
Develop market design	233						18%		38%
Regulatory contract negotiations	234		82%						2%
Total			59%		1%	6%	34%		100%
Manage Market & Reliability Data & Modeling (MMR) (80004)									
Manage FNM maintenance	301			74%	22%		4%		14%
Plan and develop operations simulator training	302			10%	90%				3%
ISO meter certification	303				100%				4%
EMMAA telemetry	304				100%				1%
Metering system configuration for market resources	305				100%				1%
Manage CRRs	307				100%				5%
Manage credit and collateral	308					100%			6%
Resource management	309				96%		4%		9%
Manage reliability requirements	310		38%		57%		5%		9%
Manage operations planning	311				96%		4%		13%
Manage WECC seasonal studies	312				100%				1%
PIRP	313				100%				
Manage & facilitate procedure maintenance	314				100%				8%
Procedure administration and reporting	315				100%				
Plan and develop operations training	316				95%		5%		7%
Execute and track operations training	317				97%		3%		13%
CETAC activities	318				100%				1%
Provide stakeholder training	320							100%	3%
SC management	321							100%	2%
Total			3%	12%	72%	6%	3%	4%	100%
Manage Markets and Grid (MMG) (80005)									

		ISO Divisions							
ABC Level 2 Activities	Cost Code	CEO 2100	MID 2200	Tech 2400	Ops 2500	GCAS 2600	MQRI 2700	PCS 2800	Total
Manage DA market support	352			94%	6%				
Operations RT support	353			57%	20%		23%		5%
Outage model and management	355				100%				11%
Manage DA market	358				100%				10%
Manage pre and post scheduling	359				100%				4%
Manage operations engineering support	362				100%				4%
RT market – shift supervisor – manage post DA and pre RT	363				100%				8%
RTO – GRC desks - maintain balancing area and manage RT pre dispatch	364				100%				24%
RTO – transmission desk – manage transmission and electric system	365				100%				19%
RTO – scheduling desk – manage RT interchange scheduling	366				100%				15%
Total				3%	96%		1%		100%
Manage Operations Support & Settlements (MOS) (80007)									
Manage price validation & corrections	401			20%	80%				2%
Manage dispute analysis & resolution	402			2%	98%				10%
Manage MQS	403			13%	87%				16%
Manage data requests	404				100%				2%
Manage regulation no pay & deviation penalty calculations	405				100%				
Manage rules of conduct	406				100%				2%
Periodic meter audits	407				100%				
ISO RIG engineering	408				100%				5%
Manage energy measurement acquisition & analysis	409				100%				12%
Manage market clearing	411					100%			2%
Manage market billing & settlements	412				96%	4%			17%
Manage RMR settlements	413				100%				
Manage settlements release cycle	414				100%				11%
Manage market performance	417						100%		3%
Manage dispute analysis and resolution	418							100%	
Perform market validation	419			1%	14%		85%		17%
Total				3%	78%	2%	17%		100%
Support Customers and Stakeholders (SCC) (80010)									
Represent ISO externally	539		16%	40%	1%	29%	7%	7%	3%
Client inquiries	601							100%	14%
Account management	602							100%	10%
Stakeholder processes	603							100%	7%
Develop participating transmission owners	605							100%	
Service new clients	606							100%	3%
Government affairs	609							100%	43%
Communications and public relations	610							100%	20%
Total						1%		98%	100%
Direct O&M			19%	5%	57%	2%	6%	11%	100%

Cost of Direct Operating Activities

These costs were inputs into the allocation matrix shown in *Table 2 — Mapping of ABC Level 2 Direct Operating Activities to Cost Categories* to get the costs to the cost categories.

Table 13 — Allocation of Division Costs to Direct Operating Activities

Mapping costs to direct and support activities & Other costs	Allocation of direct operating costs (\$ in thousands)						
	Develop infrastructure (DI)	Develop markets (DM)	Manage market and reliability and data modeling (MMR)	Manage markets and Grid (MMG)	Manage operations support and settlements (MOS)	Support customers and stakeholders (SCS)	Direct operating activities
Organization Name	80001	80002	80004	80005	80007	80010	Total
Chief Executive Officer (CEO)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Market and Infrastructure Development (MID)	9,726	3,340	352		3	37	13,458
Technology (Tech)	26		1,305	802	215	99	2,447
Operations (Ops)	3	79	7,491	24,689	5,509	4	37,775
General Counsel and Administrative Services (GCAS)	62	355	583		153	65	1,218
Market Quality and Renewable Integration (MQRI)	176	1,997	293	286	1,229	16	3,997
Policy and Client Services (PCS)		28	452		24	8,965	9,469
Total	\$ 9,993	\$ 5,799	\$ 10,476	\$ 25,777	\$ 7,133	\$ 9,186	\$ 68,364

The costs were aggregated by level 2 activity.

Table 14 — Allocation of Division Costs to Level 2 activity

ABC Level 2 Activities	Cost Code	ISO Divisions							Total
		CEO 2100	MID 2200	Tech 2400	Ops 2500	GCAS2 2600	MQRI 2700	PCS 2800	
Develop Infrastructure (DI) (80001)									
Regulatory contract procedures	201	\$ -	\$ 378	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 378
Manage GIP agreements	202		818						818
Manage GIP	203		2,251	26	3	62			2,342
Long-term transmission planning	204		4,273						4,273
New transmission resources	205		376				176		552
Transmission maintenance studies	206		499						499
Load resource data	207		268						268
Seasonal assessment	208		223						223
Queue management	209		615						615
Annual delivery assessment	210		25						25
Total			9,726	26	3	62	176		9,993
Develop Markets (DM) (80002)									
Manage tariff amendments	227					355			355
Post-order rehearing comp	228		30						30
State / Federal regulatory policy	229		485		79				564
Business process manual change management process	230		5					28	33
Develop infrastructure policy	231		829						829
Perform market analysis	232		2				1,602		1,604
Develop market design	233		1,847				395		2,242
Regulatory contract negotiations	234		142						142
Total			3,340		79	355	1,997	28	5,799
Manage Market & Reliability Data & Modeling (MMR) (80004)									

ABC Level 2 Activities	Cost Code	ISO Divisions							Total
		CEO 2100	MID 2200	Tech 2400	Ops 2500	GCAS2 2600	MQRI 2700	PCS 2800	
Manage FNM maintenance	301			1,274	377		73		1,723
Plan and develop operations simulator training	302			31	269				300
ISO meter certification	303				416				416
EMMAA telemetry	304				100				100
Metering system configuration for market resources	305				70				70
Manage CRRs	307				574				574
Manage credit and collateral	308					583			583
Resource management	309				875		35		910
Manage reliability requirements	310		352		535		44		930
Manage operations planning	311				1,262		59		1,322
Manage WECC seasonal studies	312				71				71
PIRP	313				1				1
Manage & facilitate procedure maintenance	314				841				841
Procedure administration and reporting	315				11				11
Plan and develop operations training	316				679		35		714
Execute and track operations training	317				1,336		47		1,384
CETAC activities	318				73				73
Provide stakeholder training	320							286	286
SC management	321							167	167
Total			352	1,305	7,490	583	293	453	10,476
Manage Markets and Grid (MMG) (80005)									
Manage DA market support	352			107	8				115
Operations RT support	353			695	250		286		1,231
Outage model and management	355				2,921				2,921
Manage DA market	358				2,564				2,564
Manage pre and post scheduling	359				974				974
Manage operations engineering support	362				1,148				1,148
RT market – shift supervisor – manage post DA and pre RT	363				2,021				2,021
RTO – GRC desks - maintain balancing area and manage RT pre dispatch	364				6,093				6,093
RTO – transmission desk – manage transmission and electric system	365				4,956				4,956
RTO – scheduling desk – manage RT interchange scheduling	366				3,754				3,754
Total				802	24,689		286		25,777
Manage Operations Support & Settlements (MOS) (80007)									
Manage price validation & corrections	401			31	125				156
Manage dispute analysis & resolution	402			16	709				725
Manage MQS	403			150	992				1,142
Manage data requests	404				97				97
Manage regulation no pay & deviation penalty calculations	405				8				8
Manage rules of conduct	406				165				165
Periodic meter audits	407				4				4
ISO RIG engineering	408				332				332
Manage energy measurement acquisition & analysis	409				926				926
Manage market clearing	411					111			111
Manage market billing & settlements	412				1,160	42			1,202
Manage RMR settlements	413				10				10

ABC Level 2 Activities	Cost Code	ISO Divisions							
		CEO 2100	MID 2200	Tech 2400	Ops 2500	GCAS2 2600	MQRI 2700	PCS 2800	Total
Manage settlements release cycle	414				807				807
Manage market performance	417						208		208
Manage dispute analysis and resolution	418							24	24
Perform market validation	419		3	18	175		1,020		1,216
Total			3	215	5,510	153	1,228	24	7,133
Support Customers and Stakeholders (SCC) (80010)									
Represent ISO externally	539		36	88	3	65	16	16	224
Client inquiries	601							1,318	1,318
Account management	602							889	889
Stakeholder processes	603				1			665	666
Develop participating transmission owners	605							8	8
Service new clients	606							299	299
Government affairs	609			10				3,979	3,989
Communications and public relations	610							1,793	1,793
Total			36	98	4	65	16	8,967	9,186
Direct O&M			\$ 13,458	\$ 2,447	\$ 37,775	\$ 1,218	\$ 3,997	\$ 9,469	\$ 68,364

For direct operating activities the costs were aggregated at level 2 and allocated to the cost category identified in *Table 2 — Mapping of ABC Level 2 Direct Operating Activities to Cost Categories*.

Table 15 — Mapping ABC Direct Operating Activities to Cost Categories

ABC Direct Operating Activities										
ABC Level 2 Activities	Cost Code	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
% of costs allocated to activity						Cost of category \$ in thousands				
Develop Infrastructure (DI) (80001)										
Regulatory contract procedures	201				100%	\$ 378	\$ -	\$ -	\$ -	\$ 378
Manage GIP agreements	202		100%			818		818		
Manage GIP	203		100%			2,342		2,342		
Long-term transmission planning	204		100%			4,273		4,273		
New transmission resources	205		100%			552		552		
Transmission maintenance studies	206		100%			499		499		
Load resource data	207		100%			268		268		
Seasonal assessment	208		100%			223		223		
Queue management	209		100%			615		615		
Annual delivery assessment	210		100%			25		25		
Total DI						9,993		9,615		378
Develop Markets (DM) (80002)										
Manage tariff amendments	227				100%	355				355
Post-order rehearing comp	228				100%	30				30
State / Federal regulatory policy	229				100%	564				564
Business process manual change management process	230				100%	33				33
Develop infrastructure policy	231		100%			829		829		
Perform market analysis	232	100%				1,604	1,604			
Develop market design	233	100%				2,242	2,242			
Regulatory contract negotiations	234				100%	142				142

ABC Direct Operating Activities										
ABC Level 2 Activities	Cost Code	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
					% of costs allocated to activity		Cost of category \$ in thousands			
Total DM						5,799	3,846	829		1,124
Manage Market & Reliability Data & Modeling (MMR) (80004)										
Manage FNM maintenance	301	50%	50%			1,724	862	862		
Plan and develop operations simulator training	302	20%	80%			300	60	240		
ISO meter certification	303		100%			416		416		
EMMAA telemetry	304		100%			100		100		
Metering system configuration for market resources	305		100%			70		70		
Manage CRRs	307			100%		574			574	
Manage credit and collateral	308	45%	45%	10%		583	262	262	59	
Resource management	309	50%	50%			910	455	455		
Manage reliability requirements	310		100%			931		931		
Manage operations planning	311		100%			1,321		1,321		
Manage WECC seasonal studies	312		100%			71		71		
PIRP	313	20%	80%			1		1		
Manage & facilitate procedure maintenance	314	20%	80%			841	168	673		
Procedure administration and reporting	315	20%	80%			11	2	9		
Plan and develop operations training	316	20%	80%			714	143	571		
Execute and track operations training	317	20%	80%			1,383	277	1,106		
CETAC activities	318		100%			73		73		
Provide stakeholder training	320				100%	286				286
SC management	321				100%	167				167
Total MMR						10,476	2,229	7,161	633	453
Manage Markets and Grid (MMG) (80005)										
Manage DA market support	352	100%				115	115			
Operations RT support	353	50%	50%			1,231	616	615		
Outage model and management	355		100%			2,921		2,921		
Manage DA market	358	50%	50%			2,564	1,282	1,282		
Manage pre and post scheduling	359		100%			974		974		
Manage operations engineering support	362	20%	80%			1,148	230	918		
RT market – shift supervisor – manage post DA and pre RT	363	50%	50%			2,021	1,011	1,010		
RTO – GRC desks - maintain balancing area and manage RT pre dispatch	364	20%	80%			6,093	1,219	4,874		
RTO – transmission desk – manage transmission and electric system	365		100%			4,956		4,956		
RTO – scheduling desk – manage RT interchange scheduling	366		100%			3,754		3,754		
Total MMG						25,777	4,473	21,304	-	-
Total MMG %						100%	17%	83%		
Manage Operations Support & Settlements (MOS) (80007)										
Manage price validation and corrections	401	50%	50%			156	78	78		
Manage dispute analysis & resolution	402				100%	725				725
Manage MQS	403	50%	50%			1,142	571	571		
Manage data requests	404				100%	97				97
Manage regulation no pay & deviation penalty calculations	405		100%			8		8		

ABC Direct Operating Activities										
ABC Level 2 Activities	Cost Code	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
					% of costs allocated to activity		Cost of category \$ in thousands			
Manage rules of conduct	406				100%	165				165
Periodic meter audits	407		100%			4		4		
ISO RIG engineering	408		100%			332		332		
Manage energy measurement acquisition & analysis	409		100%			926		926		
Manage market clearing	411	45%	45%	10%		111	50	50	11	
Manage market billing & settlements	412	45%	45%	10%		1,202	541	541	120	
Manage RMR settlements	413		100%			10		10		
Manage settlements release cycle	414	45%	45%	10%		807	363	363	81	
Manage market performance	417	50%	50%			208	104	104		
Manage dispute analysis and resolution	418				100%	24				24
Perform market validation	419	50%	50%			1,216	608	608		
Total MOS						7,133	2,315	3,595	212	1,011
Support Customers and Stakeholders (SCC) (80010)										
Represent ISO externally	539				100%	224				224
Client inquiries	601				100%	1,318				1,318
Account management	602				100%	889				889
Stakeholder processes	603				100%	666				666
Develop participating transmission owners	605		100%			8		8		
Service new clients	606				100%	299				299
Government affairs	609				100%	3,989				3,989
Communications and public relations	610				100%	1,793				1,793
Total SCC						9,297		8		9,297
Total Direct O&M						\$ 68,364	\$ 12,863	\$ 42,512	\$ 845	\$ 12,144
Direct O&M %						100%	19%	62%	1%	18%

ABC Support Activities

The same process yielded the following percentages for the three support activities.

Table 16 — Mapping Division Hours to Support Activities

Mapping support activities	Percentage of time related to support operating activities		
	Manage human capabilities (MHC)	Plan and manage business (PMB)	Support Business Services (SBS)
Organization Name	80003	80008	80009
Chief Executive Officer	0%	14%	86%
Market and Infrastructure Development	0%	0%	3%
Technology	0%	9%	83%
Operations	0%	1%	8%
General Counsel and Administrative Services	21%	7%	64%
Market Quality and Renewable Integration	0%	2%	7%
Policy and Client Services	0%	0%	5%
Total	2%	5%	40%

These costs were inputs into the allocation matrix shown in *Table 5 — Allocation of ABC Support activities to GMC Cost Categories* to get the costs to the cost categories.

Table 17 — Mapping Division Costs to Support Activities

Mapping support activities	Percentage of time related to support operating activities			
	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
Organization Name	80003	80008	80009	Total
Chief Executive Officer	\$ -	\$ 1,838	\$ 2,751	\$ 4,589
Market and Infrastructure Development			533	533
Technology		4,911	30,961	35,872
Operations	5	1,109	3,132	4,246
General Counsel and Administrative Services	4,918	1,891	11,207	18,016
16Market Quality and Renewable Integration		213	677	890
Policy and Client Services	1	11	528	540
Total	\$ 4,924	\$ 9,973	\$ 49,789	\$ 64,686

For support activities the costs were aggregated and allocated as shown in *Table 5 — Allocation of ABC Support activities to GMC Cost Categories*.

Table 18 — Mapping ABC Support Activities to Cost Categories

Allocation of ABC Support Activities									
ABC Level 1 Activities	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Manage Human Capabilities (80003)				100%	\$ 4,924				\$ 4,924
Plan & Manage Business (80008)				100%	9,973				9,973
Support Business Services (80009)				100%	49,789				49,789
Total					\$ 64,686				\$ 64,686

Step 3 — Allocating Remaining Revenue Requirements to Cost Categories

Debt Service and Cash Funded Capital

The allocation of costs is based on the percentage allocation in *Table 3 — Allocation of Debt Service and Capital to GMC Cost Categories*. (see Table 19 below)

Table 19 — Mapping Debt Service and Cash Funded Capital to Cost Categories

Debt Service and Capital									
System	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Operations Related Software									
ADS		100%			\$ 30	\$ -	\$ 30	\$ -	\$ -
ALFS	50%	50%			79	40	39		
CRRs			100%		855			855	
DMM & compliance Tools	50%	50%			478	239	239		
EMS		100%			1,923		1,923		
ETCC		100%			5		5		
FNM / State estimator	50%	50%			182	91	91		
IFM	50%	50%			6,365	3,183	3,182		
MQS	50%	50%			1,013	506	507		
Master file	50%	50%			409	205	204		
MDAS		100%			15		15		
NRI	20%	80%			219	44	175		
OASIS	50%	50%			66	33	33		
OMAR		100%			96		96		
PIRP	20%	80%			45	9	36		
Portal	50%	50%			473	236	237		
CMRI	50%	50%			411	206	205		
PI		100%			137		137		
RT market	20%	80%			1,271	254	1,017		
HASP	50%	50%			1,270	635	635		
Resource Adequacy	50%	50%			43	21	22		
RAVE	50%	50%			5	3	2		
SLIC	50%	50%			295	147	148		
CAS		100%			47		47		
SIBR	50%	50%			1,801	900	901		
SaMC	15%	75%	10%		3,407	511	2,555	341	
Total operations related software					20,940	7,263	12,481	1,196	
General Software and Fixed Assets									
Client relations & engineering analysis tools				100%	154				154
LAN, WAN & monitoring				100%	650				650
OA				100%	80				80
Oracle Corporate Financials				100%	606				606
CUDA				100%	99				99
Storage				100%	889				889
Land & feasibility studies				100%	238				238
NT servers and WEB servers				100%	232				232
New system equipment				100%	400				400
Office equip, furniture and leasehold imp				100%	378				378
Total general software and fixed assets				100%	4,204	239	239		3,726
Total 2008 bond debt service \$					\$ 24,666	\$ 7,263	\$ 12,481	\$ 1,196	\$ 3,726
Total 2008 bond debt service %					100%	29%	51%	5%	15%

Debt Service and Capital									
System	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
2009 Bond debt service									
Iron Point headquarters				100%	\$ 17,847				\$ 17,847
Cash Funded Capital									
Capital Project fund				100%	\$ 24,000				\$ 24,000

Miscellaneous Revenue

The components of other revenue were reviewed and all revenues allocated pursuant to *Table 6 — Allocation of Other Income to GMC Cost Categories.*

Table 20 — Mapping Miscellaneous Revenue to Cost Categories

Allocation of Miscellaneous Revenue									
Type	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
SC application fee				100%	\$ 100	\$ -	\$ -		\$ 100
MSS penalties				100%	250				250
SC training fees				100%	150				150
Intermittent resource forecasting fee	20%	80%			1,600	320	1,280		
LGIP study fees		100%			2,000		2,000		
Interest				100%	1,800				1,800
COI path operator fees	17%	83%			2,000	340	1,660		
Total miscellaneous revenue					\$ 7,900	\$ 660	\$ 4,940		\$ 2,300

Operating Reserve Credit

The components of the operating reserve credit were reviewed and allocated pursuant to *Table 7 — Allocation of Operating Reserve Revenue Credit to GMC Cost Categories.* (see Table 21 below)

Table 21 — Mapping Reserve Credit to Cost Categories

Allocation of Operating reserve credit									
Type	Market Services	System Operations	CRR Services	Indirect	2013 Budget	Market Services	System Operations	CRR Services	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Decrease in 15% reserve for O&M				100%	\$ 21	\$ -	\$ -	\$ -	\$ 21
25% debt service reserve 2008 bonds	29%	51%	5%	15%	5,680	1,647	2,897	284	852
25% debt service reserve 2009 bonds				100%	3,570				3,570
Revenue changes				100%	9,266				9,266
Expense changes				100%	6,955				6,955
Total					\$ 25,492	\$ 1,647	\$ 2,897	\$ 284	\$ 20,664

Step 4 — Aggregating Revenue Requirement into Cost Categories

The individual revenue requirements were aggregated and indirect costs allocated based on the total of direct costs. See Exhibit 2 for a summary of the cost of service study.

Table 22 — Mapping Revenue Requirement to Cost Categories

Revenue Requirement (\$ in thousands)	2013 Budget	Market Services	System Operations	CRR Services	Indirect
Direct O&M \$	\$ 68,364	\$ 12,863	\$ 42,512	\$ 845	\$ 12,144
Support O&M \$	64,686				64,686
Non-ABC support O&M \$	29,857	614	1,759	53	27,431
Total O&M	162,907	13,477	44,271	898	104,261
Debt Service 2008 bonds	24,666	7,263	12,481	1,196	3,726
Debt Service 2009 bonds	17,847				17,847
Debt Service 2008 bonds	24,000				24,000
Total debt service and capital	66,513	7,263	12,481	1,196	45,573
Other income	(7,900)	(660)	(4,940)		(2,300)
Operating reserve	(25,492)	(1,647)	(2,897)	(284)	(20,664)
Total before allocation of indirect	196,028	18,433	48,915	1,810	126,870
Allocate indirect based on direct cost %		27%	70%	3%	
Allocate indirect		34,255	88,809	3,806	(126,870)
Total Revenue to Collect \$	\$ 196,028	\$ 52,688	\$ 137,724	\$ 5,616	
Total Cost Category percentages	100%	27%	70%	3%	

Step 5 — Calculation of 2013 Rates Using New Cost Category Percentages

Although not necessary to determine the cost category percentages, the rates are needed to determine the EIM fee are covered in a separate paper and summarized in Exhibit 2. The GMC rates are determined by first estimating fees as shown in the following table.

Table 23 — Estimation of Fee Revenue and mapping of Fees to Cost Categories

Fee	Estimated 2013 volumes	Rate	Revenue (in thousands)	Cost Category
Bid segment fees	40,659,200	\$0.005 per bid	\$ 203	Market Services
Inter-SC trades	2,750,910	\$1.00 per trade	2,781	
SCID fees	173	\$1,000 per month	2,079	
TOR charges	3,679,322	\$0.27 per MWh	993	System Operations
CRR auction bid fee	186,318	\$1.00 per bid	186	CRR Services
Total Fees			\$ 6,242	

Then the fees are deducted from the revenue requirement resulting in the remaining revenue requirement to collect. The remaining amount to collect is divided by the estimated volumes of billing determinants for each cost category to determine the respective rates.

Table 24 — 2013 GMC Rates Using Revised Cost Category Percentages

Revenue Requirement	2013 Budget	Market Services	System Operations	CRR Services
Revenue Requirement in thousands of \$	\$ 196,028	\$ 52,688	\$ 137,724	\$ 5,616
Less Fees				
Bid segment fees	(203)	(203)		
Inter-SC trade fees	(2,781)	(2,781)		
SCID fees	(2,079)	(2,079)		
TOR charges	(993)		(993)	
CRR auction bid fees	(186)			(186)
Total fees	(6,242)	(5,063)	(993)	(186)
Remaining revenue requirement to collect	\$ 189,786	\$ 47,625	\$ 136,731	\$ 5,430
Estimated volumes in thousands of MWh		514,168	474,712	566,649
Less grandfathered contracts			(7,179)	
Estimated volumes		514,168	467,533	566,649
2013 rates using revised percentages		\$ 0.0926	\$ 0.2925	\$ 0.0096

Summary of Cost Category Percentages

The results of the cost of service analysis for the cost category percentages that will go into effect in 2015 are as reflected in the following table.

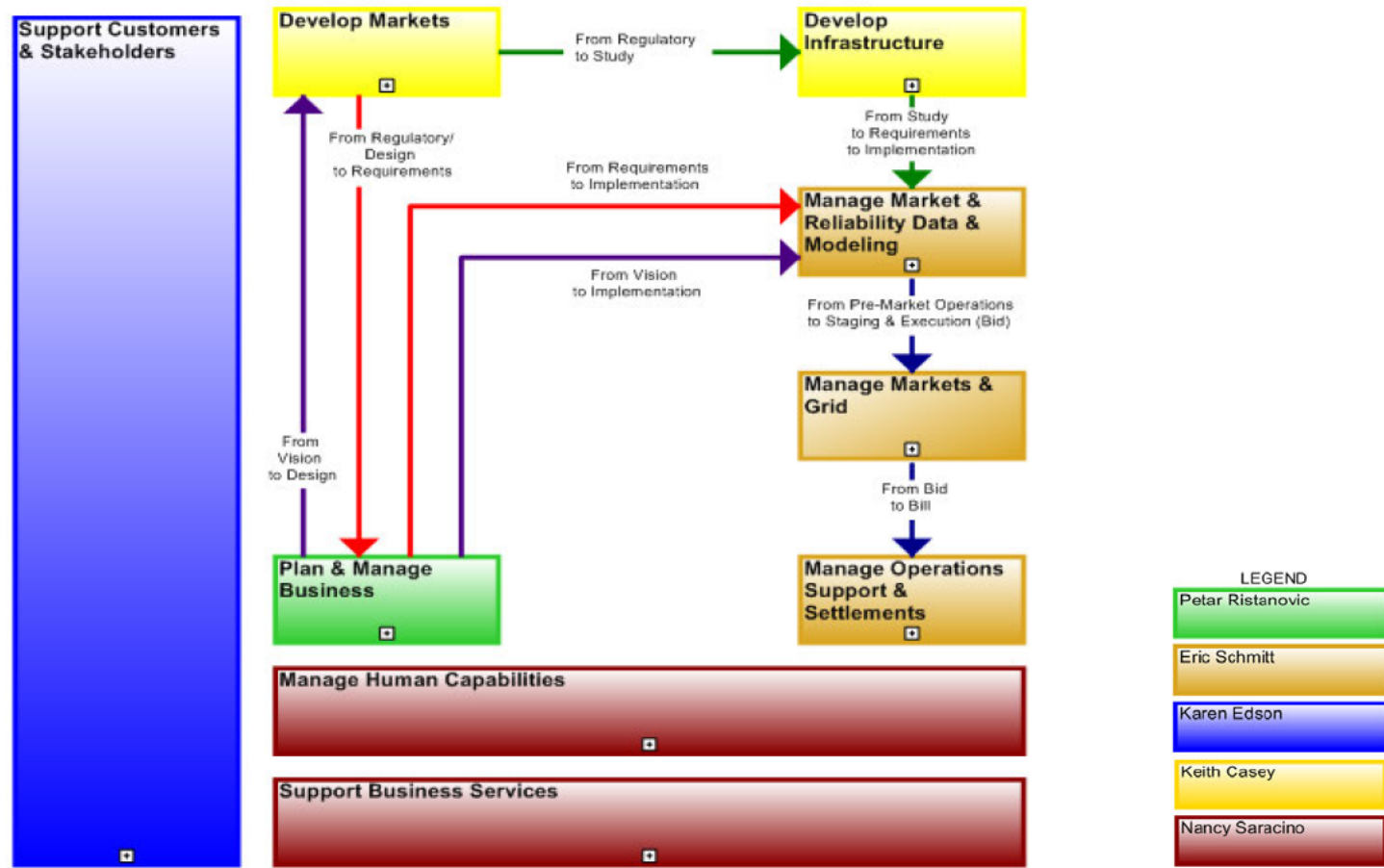
Summary of Cost Category Percentages for 2015

Category	Percentage
Market Services	27%
System Operations	70%
CRR Services	3%

CAISO Business Process Framework Overview v4.0 (9/12/2013)

- Illustrates high-level information streams between each of the Level I processes
- Shows how core processes in three supporting groups apply to all of the processes at the ISO
- Groups the Level II processes into logical groupings at executive ownership levels

Business Process Framework Overview

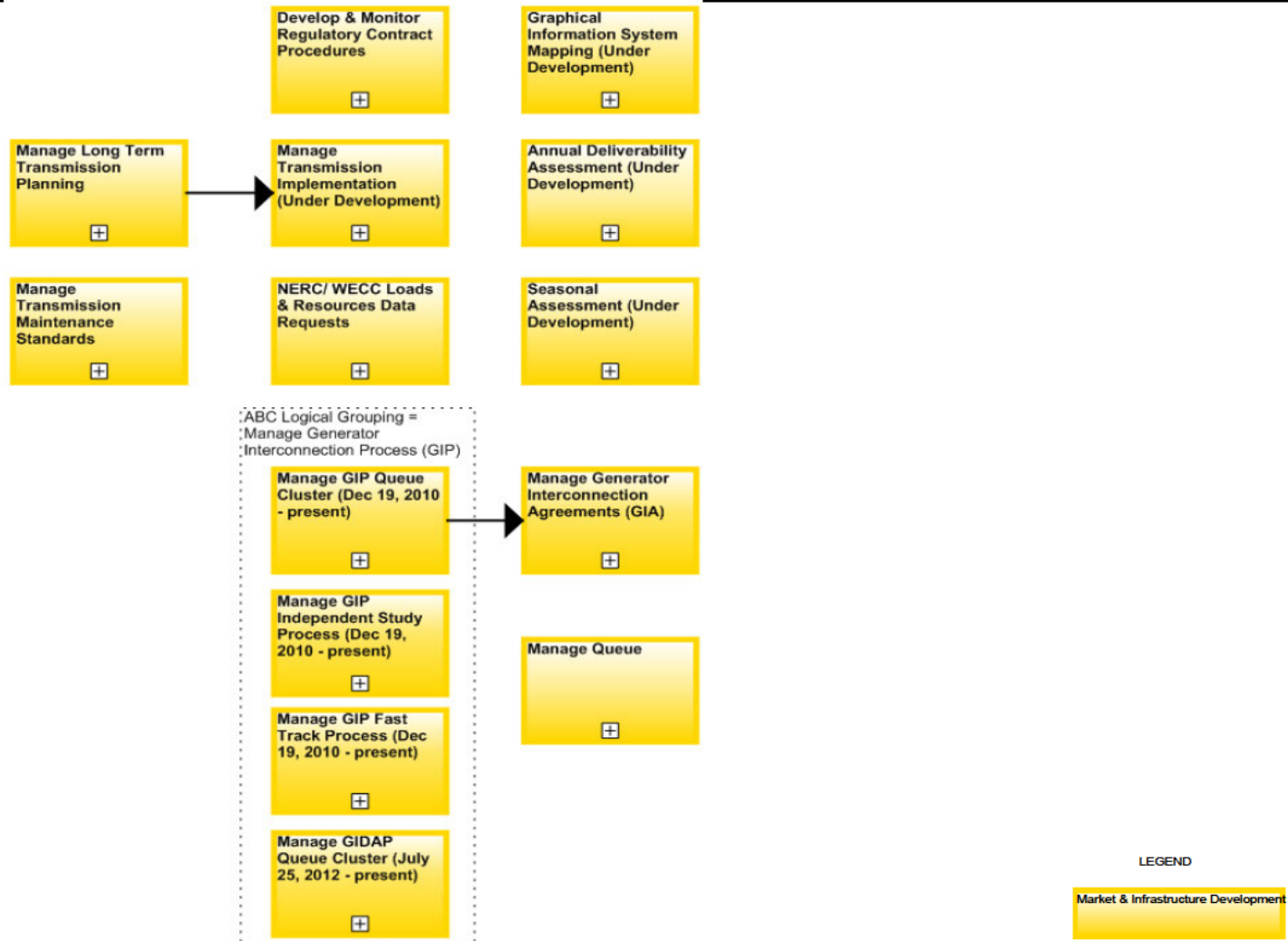


Last Updated: 07/17/13

Process Name	Process Owner	Key Activities
Develop Infrastructure (DI) (80001)	VP, Market Infrastructure & Development	Transmission Planning, Grid Assets Reviews, and Interconnections
Develop Markets (DM) (80002)	VP, Market Infrastructure & Development	Regulatory, Market, Policy, and Product Design
Manage Human Capabilities (MHC) (80003)	VP, General Counsel & Chief Administration Officer	Employee Lifecycle, Training, and Organizational Development
Manage Market & Reliability Data & Modeling (MMR) (80004)	VP, Operations	Resource Data Setup and Changes, Procedures, Training, Base Model Setup, and Congestion Revenue Rights
Manage Markets & Grid (MMG) (80005)	VP, Operations	Outages, Day Ahead Market, Interchange Scheduling, Real Time- Hour Ahead, Real Time, Generation and Transmission and Emergency Operations
Manage Operations Support & Settlements (MOS) (80007)	VP, Operations	Operations Data Analysis, Billing & Settlements, and Disputes
Plan & Manage Business (PMB) (80008)	VP, Technology	Strategic Planning, Governance, Budgeting, Project Management
Support Business Services (SBS) (80009)	VP, General Counsel & Chief Administration Officer	General, IT, Financial, Legal, Compliance, Audit and Market Monitoring Support Services
Support Customers & Stakeholders (SCS) (80010)	VP, Policy & Client Services	Client, Account and Stakeholder Processes, Government Affairs, and Communications

Develop Infrastructure (DI) (80001)

- Enables the ISO to take a proactive approach to transmission planning by facilitating the building of needed projects
- Provides an important platform for success in addressing future challenges, though an enhanced planning process
- Satisfies compliance requirements, meets other regulatory and policy goals, and participates in joint regional planning groups



Last Updated: 8/6/13

Processes	Process Owner Title	Process Descriptions
Develop & Monitor Regulatory Contract Procedures (201)	Director, Infrastructure Contracts & Management	IP&C is responsible for managing all regulatory contracting mechanisms for the CAISO. Contracts staff works with internal and external personnel to secure the necessary approvals, prepare the requested agreement, initiate and track the agreement execution process, notify internal staff as necessary for implementation, and maintains all official files.
Manage Generator Interconnection Agreements (GIA) (202) also includes GIA Downsize Amendments (211)	Director, Infrastructure Contracts & Management	Depicts the ISO oversight and implementation of the Federal Energy Regulatory Commission (FERC) approved Generator Interconnection Agreement (GIA).
Manage Generator Interconnection Process (GIP) (203)		Grouping of 4 GIP processes
Manage GIDAP Queue Cluster (July 25, 2012 - present) (203)	Manager, Interconnection Resources	This diagram depicts the Generation Interconnection and Deliverability Allocation Procedures (GIDAP). The objective of this process is to implement the requirements for both Small and Large Generating Facility Interconnections to the CAISO controlled grid and to provide a process for allocating Transmission Plan Deliverability for Interconnection requests starting with Queue Cluster 5 and for subsequent clusters. GIDAP applies also to subsequent requests submitted for the Independent Study process, or Fast track Process.
Manage GIP Fast Track Process (Dec 19, 2010 - present) (203)	Manager, Interconnection Resources	Depicts the ISO Grid Assets oversight and implementation of the FERC approved GIP for Interconnection Requests that meet the criteria for the Fast Track Process. Only provisions of the GIP that are superceded by Independent Study Process are detailed here.
Manage GIP Independent Study Process (Dec 19, 2010 - present) (203)	Manager, Interconnection Resources	Depicts the ISO Grid Assets oversight and implementation of the FERC approved GIP for Interconnection Requests that meet the criteria for the Independent Study Process. Only provisions of the GIP that are superceded by Independent Study Process are detailed here.
Manage GIP Queue Cluster (Dec 19, 2010 - present) (203)	Manager, Interconnection Resources	Depicts the ISO Grid Assets oversight and implementation of the Federal Energy Regulatory Commission (FERC) approved Generation Interconnection Procedures (GIP) for Queue Cluster Tariff Section 25 Appendix Y, effective date of December 19, 2010. Includes Phase I and Phase II Interconnection Studies.
Manage Long Term Transmission Planning (204)	Managers, Regional Transmission (North, South)	This process is responsible for: 1) CAISO Transmission Plan: Produce a forward-looking, coordinated transmission plan that provides for full NERC/WECC compliance obligations as well as proactive infrastructure planning initiatives, including economic transmission that facilitates a robust and efficient market 2) Support CPUC Resource Adequacy (RA) through the determination of all LCR requirements for the CAISO Controlled Grid; the determination of all import, zonal, and inter-zonal allocations that are used to define RA obligations for the LSEs 3) Generator Interconnection Study obligations 4) Renewable Integration analysis to assess operational reliability and infrastructure requirements to meet 33% requirements by 2020 5) On an annual basis, assess and validate feasibility of all Long-term CRRs 6) Perform annual congestion studies to a) Define and summarize term "significant and reoccurring" congestion b) Develop mitigation plan c) Provide the upgrade and congestion costs 7) Conduct Deliverability and Locational Capacity Studies in support of the CPUC resource adequacy requirements 9) Generation and transmission reliability assessment (i.e., Planning Reserve Margin and transmission probabilistic planning) 9) Sub-regional/Regional/National work on Planning Issues through NERC, FERC, and WECC 10) Special projects; Represent the ISO in technical groups and committees
Manage Transmission Implementation (205)	Director, Infrastructure Contracts & Management	Major tasks by all ISO departments to incorporate all various types of transmission projects into the grid infrastructure. Additional detail provided in department specific process flow diagrams. Not all tasks are performed for every type of transmission project.

Develop Infrastructure (DI) (80001) (Continued)

- Enables the ISO to take a proactive approach to transmission planning by facilitating the building of needed projects
- Provides an important platform for success in addressing future challenges, though an enhanced planning process
- Satisfies compliance requirements, meets other regulatory and policy goals, and participates in joint regional planning groups

Processes	Process Owner	Process Descriptions
Manage Transmission Maintenance Standards (206)	Director, Grid Assets	Depicts the ISO Grid Assets oversight and review activities as coordinated with the participating transmission owners to manage the ISO Transmission Maintenance Standards (Transmission Control Agreement Appendix C), mandated by Public Utilities Code 348 and adopted by the ISO. The ISO Transmission Maintenance Standards consist of five major elements: 1) PTO Maintenance Practices - PTO provides and ISO adopts as appropriate a detailed description of the PTO's maintenance program; 2) Standardized Maintenance Reporting – summary of maintenance and inspection tasks planned and performed during the reporting period and the PTO identifies and explains differences between the planned maintenance activities and actual performed maintenance; 3) Annual Maintenance Reviews – ISO conducts field inspections to verify maintenance activities and records to support documented practices and to visually observe the condition of facilities; 4) Availability Measures – statistical analysis, using annual PTO frequency and duration of forced outage data, to quantify the availability performance of transmission circuits under the ISO's operational control. 5) Oversight and review by internal and external technical experts via the ISO Transmission Maintenance Coordination Committee (TMCC) to ensure these standards remain effective and current to the industry.
NERC/ WECC Loads & Resources Data Requests (207)	Director, Grid Assets	Depicts the process for developing templates and documentation, requesting demand response & energy efficiency data from LSEs, and compiling the actual, DR, EE, and forecasts using the WECC template.
Seasonal Assessment (208)	Director, Grid Assets	Depicts the process for seasonal assessment.
Manage Queue (209)	Director, Infrastructure Contracts & Management	Depicts the process for ongoing management of the Generator Queue (post-study). There are six tariff tracking requirements.
Annual Deliverability Assessment (Under Development) (210)	Director, Grid Assets	The process covers an annual assessment methodology for determining and allocating resource adequacy deliverability for distributed generation resources.
Graphical Information System Mapping (Under Development)	Director, Grid Assets	Depicts the process to create specific detailed transmission maps for internal and external requests.

Develop Markets (DM) (80002)

- Designs and implements value-added enhancements to the wholesale market design
- Improves the ISO's abilities to review and analyze the efficiency and quality of market results
- Creates a framework that will accommodate demand response participation in the ISO market

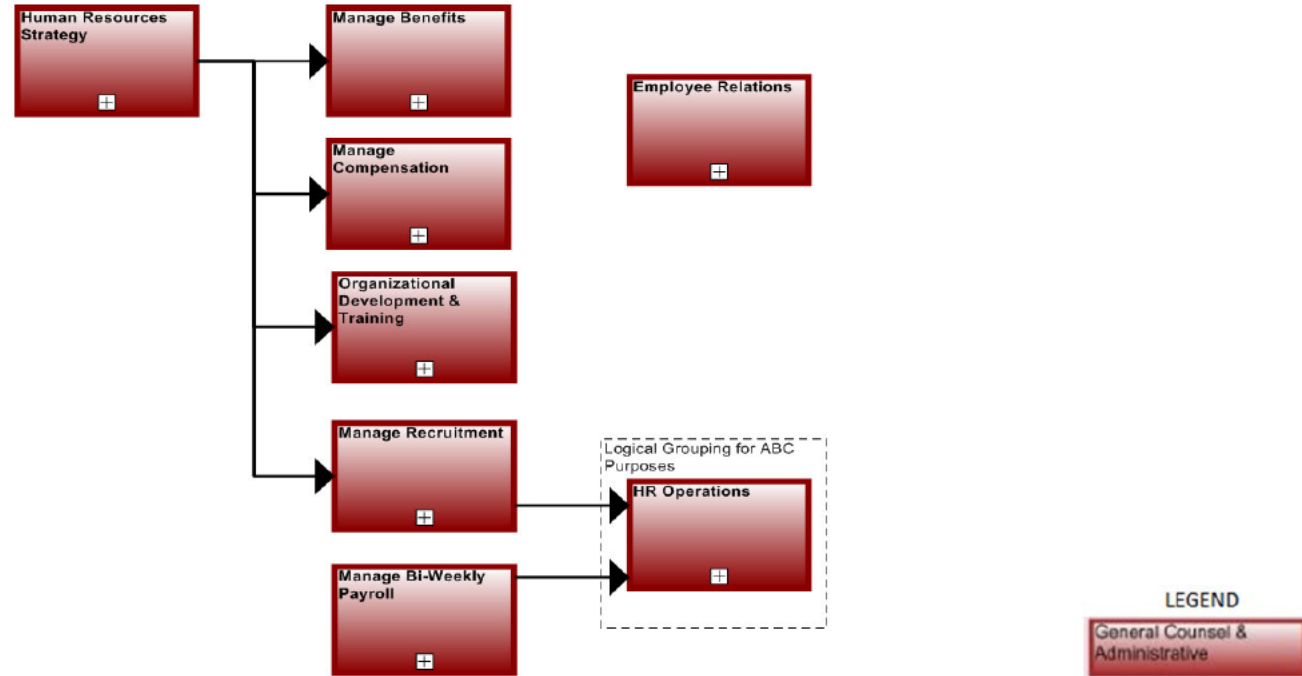


Last Updated: 4/8/13

Processes	Process Owner	Process Descriptions
Manage Regulatory Filings (226)	Deputy General Counsel - Regulatory	The Draft and Review Filing sub process collects all relevant information needed from the project team to prepare an initial draft which is then reviewed by the project team and legal for quality and accuracy, completion of the evidence, strength of the case as well as whether the order sought enables the business process.
Manage Tariff Amendments (227)	Assistant General Counsel - Tariff & Compliance	Draft tariff language is published for review and comment prior to filing with FERC in a tariff amendment filing. Market participants have a minimum of one week to review and comment. Stakeholder meeting (usually conference call) is held to discuss written comments and to respond to questions raised on the call. If time permits, revised tariff language may be published prior to FERC filing. This process is not followed when filing tariff language on compliance with FERC directive unless compliance time frame is more than 30 days. Developing and stakeholdering tariff language is one the elements of the tariff amendment process. A member of the legal department will be assigned to a stakeholder initiative to provide legal advice. In addition, legal team member drafts the other documents in support of tariff amendment filing and produces drafts for internal review based on agreed upon schedule.
Manage Post Order, Rehearing, and Compliance (228)	Deputy General Counsel - Regulatory	Depicts the Legal procedures that are trigger by a FERC order. Includes seeking rehearing and/or compliance filing if necessary.
Develop State/ Federal Regulatory Policy (229)	Director, Market & Infrastructure Policy	This process is responsible for the development of corporate and regulatory policies related to the physical infrastructure of the electric power system. Staff engages with stakeholders and Federal or State regulatory agencies to produce new regulatory policy, necessary CAISO tariff provisions, and implementation of required business processes.
BPM Change Management (230)	Director, Customer Service & Stakeholder Affairs	Depicts the required activities for managing modifications and additions to Business Practice Manuals (BPMs). BPMs were created to guide ISO operations post MRTU launch and document the consistent and transparent manner in which the ISO will adhere to Tariff provisions. Revision requests for the BPMs may be submitted by stakeholders or an internal ISO department.
Infrastructure Policy (231) and Market Design (233)	Director, Market & Infrastructure Policy	This process includes the design and specification of efficient and effective wholesale electricity spot markets including the identification and development of new products and services as well as the development of solutions to existing market performance issues. This process also covers the formulation of market policies and designs which encourage infrastructure investment.
Perform Market Analysis (232)	Manager, Market Development & Analysis	This process is concerned with the identification and analysis of a market design issue, as it progresses throughout the organization potentially leading up to a Conceptual Design specification and FERC tariff filing.
Regulatory Contract Negotiations (234)	Director, Infrastructure Contracts & Management	IP&C is responsible for the negotiation, drafting, and administration of the CAISO pro-forma and special agreements with market participants and operators of other control areas. These contract negotiations accommodate the other party's request to the extent the negotiations/provisions of the contract are within the framework of the CAISO's Tariff, policies and procedures, and acceptable to FERC and other market participants.

Manage Human Capabilities (MHC) (80003)

- Comprises the objective of institutional sustainability (people, technology)
- Develops a talent pool to leverage expert technical knowledge and leadership skills
- Creates a work environment that supports and nurtures the ISO's goals

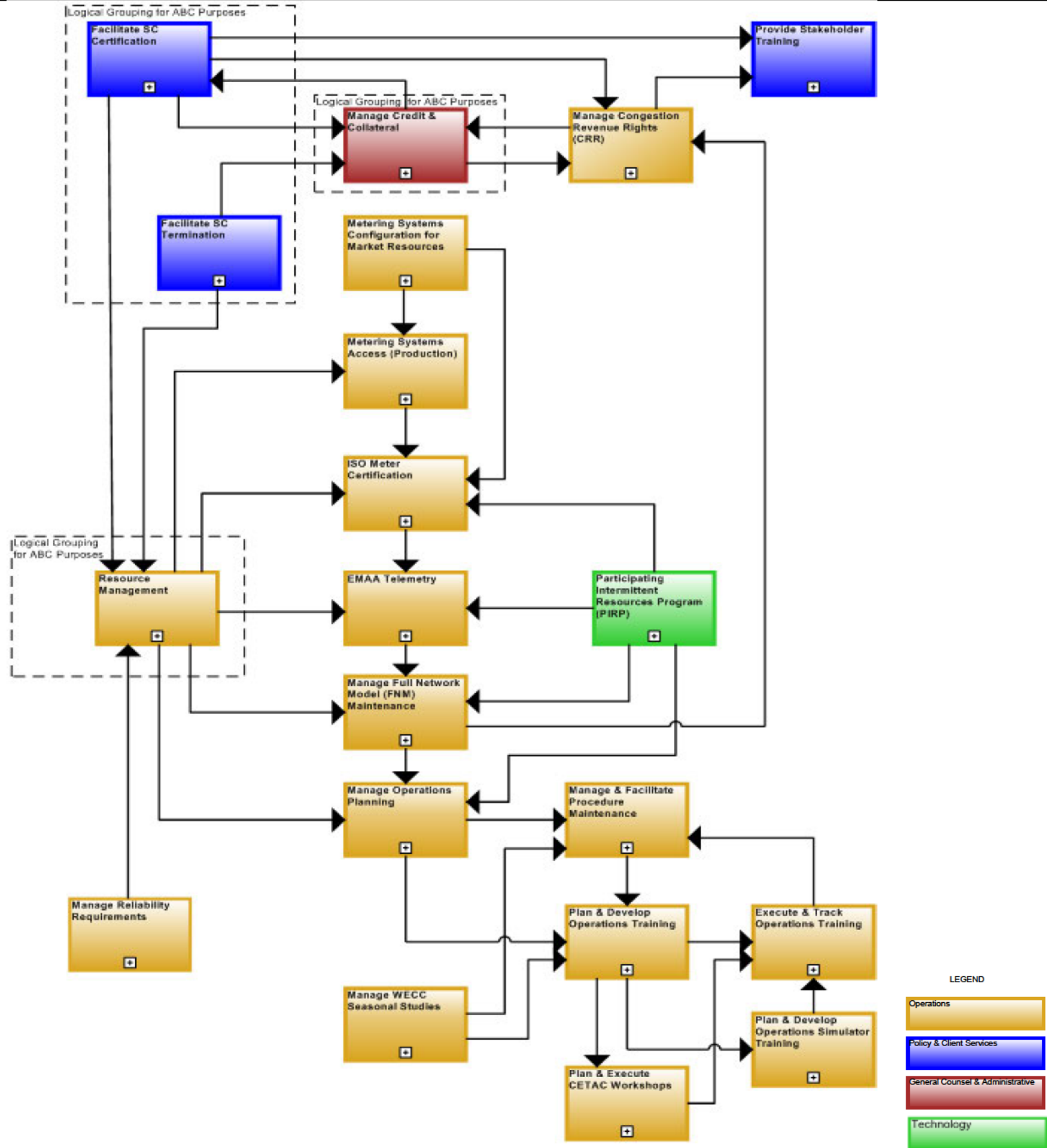


Last Updated: 7/17/13

Processes	Process Owner	Process Descriptions
Human Resources Strategy (251)	VP, Human Resources	Human Resources delivers competitive Human Resources programs and policies to ensure the organization's ability to promote quality treatment of employees and management practices that enable the CAISO to attract, retain, develop, and engage a dedicated and inspired world-class team. The Programs and Services delivered by HR include: 1) Learning & Organizational Development 2) Compensation 3) Employee Benefits 4) Review, validate and file employees' Pay-For-Performance Plans (PFPP) 5) Review STPIP for all employees and make recommendations to officers as necessary 6) Employee Health and Safety Compliance 7) Employee Relations 8) Payroll Administration 9) Employee Recruitment (job posting; job interviews; offer letters; relocation; summer internship program) 10) Employee Life-Cycle 11) Administration of HR Policies and Systems
Manage Benefits (252)	Manager, Compensation & Benefits	Depicts the activities surrounding the development and review of programs including health & welfare benefits, employee benefits, retirement, leave of absence, and workers compensation.
Manage Compensation (253)	Manager, Compensation & Benefits	Depicts the activities surrounding the development and review of programs including compensation, executive compensation, job descriptions, and annual merit/equity and incentive programs.
Manage Bi-Weekly Payroll (254)	Manager, Compensation & Benefits	Depicts the key activities from the time a timecard is submitted through ESS until a paycheck is issued to an employee.
HR Operations (255)	Manager, Human Resources Operations	Logical grouping for ABC purposes. Includes: - Manage Immigration Process - New Candidates with Non-immigrant Visas - Manage Immigration Process for New Candidates that have been identified through the HR- Recruiting process and have existing H1B or TN or CPT or OPT visas or are relocating from a foreign country and need a new visa - Manage Immigration Process - Existing Employees with Non-immigrant Visas - Process applies to existing employees who have non-immigrant visas and require H1B or CPT/OPT extensions and conversions - Manage Immigration Process - Existing Employee Conversions to Permanent Resident - Manage Consultant On Boarding - This diagram depicts the process flow for bringing on board contractor and consultant resources. The scope of the process does not include contractors brought in through CoreStaff. This process starts with the request for resources from the Business Unit and ends with the resource being cleared to bring on board.
Manage Recruitment (256)	Manager, Human Resources Operations	This process details the processes related to the sourcing, screening and hiring of employees at the ISO. Executes the strategy identified by division executives related to workforce planning. Ancillary processes include managing relocation and immigration. This hierarchy also represents the functional decomposition of manage HR administration sub-function which is part of managing human resources function.
Employee Relations (257)	Manager, Human Resources Operations	This process details ensuring the workplace environment allows for maximum productivity and satisfaction. This is achieved by: Addressing employee and/manager concerns, coaching for employees/managers, conducting investigations and providing recommendations on remediations, ensuring ISO is compliant with employment-related laws, marketing the ISO internally/externally as a best place to work.
Organizational Development & Training (258)	Sr Learning & Leadership Development Consultant	This processes depicts the required activities for fulfilling the corporate-wide Training and Development (T&D) requirements. The process involves the following: 1) Consult with manager to identify T&D opportunity or Problem 2) Perform environmental scan 3) Perform initial analysis 4) Design and develop T&D intervention 5) Deploy T&D intervention 6) Track, evaluate and make necessary adjustments to (T&D) intervention

Manage Market & Reliability Data & Modeling (MMR) (80004)

- Checks and rechecks network modeling policies and protocols to reduce non-market energy dispatches
- Assures that models reflect all grid constraints and produce timely and accurate prices results
- Improves the visibility and transparency of the ISO's business while keeping monitoring and reporting duties secure



Last Updated: 3/13/13

Processes	Process Owner	Process Descriptions
Manage Full Network Model (FNM) Maintenance (301)	Manager, Model & Contract Implementation	Depicts the required activities to maintain and update the Full Network Model (FNM) – the computer-based model that provides technical specifics of the ISO control area transmission network. The FNM includes a combination of physical network data and commercial data needed to support the reliability goals of the ISO and ensure that network constraints are enforced and feasible operational schedules identified.
Plan & Develop Operations Simulator Training (302)	Manager, Operations Training	Depicts the activities performed by the Operation Training team to plan and develop operations simulator training.
ISO Meter Certification (303)	Manager, Model & Contract Implementation	Depicts the process of certifying new metered entities to provide meter data in the ISO's markets.
EMA Telemetry (304)	Manager, Model & Contract Implementation	Depicts the process for configuring and testing telemetry for new or existing generators including PDR. The process describes how RIG engineers review documentation to develop point lists, finalize data point lists with generators, and submit the point lists to EMS for QAS testing. RIG engineers then verify the QAS output, perform point-to-point testing and work with MCI to setup A/S testing.
Metering Systems Configuration for Market Resources (305)	Manager, Market Services Meter Engineering & Analysis	Depicts the process of establishing meter communications with ISO MEs, performing resource mappings, configuring resources for ISO programs or special calculations, and providing access to raw meter data.
Metering Systems Access (Production) (306)	Manager, Market Services Meter Engineering & Analysis	Depicts the process for managing secured access to SQMD for both internal and external requests.

Manage Market & Reliability Data & Modeling (MMR) (80004) (Continued)

- Checks and rechecks network modeling policies and protocols to reduce non-market energy dispatches
- Assures that models reflect all grid constraints and produce timely and accurate prices results
- Improves the visibility and transparency of the ISO's business while keeping monitoring and reporting duties secure

Processes	Process Owner	Process Descriptions
Manage Congestion Revenue Rights (CRR) (307)	Manager, Market Settlement Validation & Resolution	<p>Depicts the required activities for the allocation and auction of Congestion Revenue Rights (CRRs) to market participants as well as the trading of these rights in the secondary market. The allocation and auction processes occur both annually (prior to the start of a new calendar year) and monthly (prior to the start of a new month). Sub processes include:</p> <ol style="list-style-type: none"> (1) Set up of the CRR market (2) Receive CRR allocation and auction submissions (3) Run the CRR market, and (4) Perform secondary market trading. <p>CRRs are financial rights to receive a portion of the revenue associated with resolving congestion on the ISO system. They are defined between a source and sink location on the grid and enable holders to manage the variability of congestion costs connected to the use of locational marginal pricing. CRRs are allocated to Load Serving Entities (LSEs) and auctioned to all creditworthy participants. They are available with annual and monthly terms and can be bought and sold by holders within the Secondary Registration System available on the ISO Portal.</p>
Manage Credit & Collateral (308)	Manager, Treasury & Credit	<p>Logical grouping for ABC purposes. Includes:</p> <p>Manage Credit - Depicts the required activities to ensure that Market Participants comply with CAISO credit policy by ensuring that a Market Participant's Aggregate Credit Limit ("ACL"; i.e., unsecured credit plus posted financial security) exceeds their Estimated Aggregate Liability ("EAL").</p> <p>Determine Liabilities The process of determining what a Market Participant's EAL is (i.e., how much the Market Participant owes the CAISO market). This process includes aggregating inputs from multiple operational system sources such as settlements and CRR and projecting the EAL over the full cash clearing cycle.</p> <p>Compare Limits versus Liabilities The weekly process of ensuring that a Market Participant's ACL exceeds their EAL. For Market Participant's whose EAL is 90% or more of their ACL, CAISO initiates a request that the Market Participant post additional financial security.</p> <p>Manage Collateral - The process of setting a Market Participant's ACL by determining any unsecured credit that the Market Participant may be eligible for as well as receiving and posting other forms of financial security from the Market Participant.</p>
Resource Management (309)	Manager, Model & Contract Implementation	<p>Logical grouping for ABC purposes. Includes:</p> <p>- Manage Entity & Resource Maintenance Updates</p> <p>- Manage New Resource Implementation - Depicts the process followed to manage the implementation of all types of resources according to required timelines and in compliance with Tariff and Controls. This process encompasses activities performed from Customer Request to Final Certification to participate in the ISO Market.</p> <p>- Manage TRTC (Transmission Rights Transmission Curtailments) Instructions - Depicts the activities performed by the Model & Contract Implementation (MCI) team to manage TRTC instructions. The use of ETC or TOR transmission rights must be scheduled in both CAISO Market and Interchange Scheduling systems by a responsible SC. The responsible SC is determined by the RPTO or NPTO, which notifies the ISO using TRTC instructions. The responsible SC schedules ETC/TORs using market resources registered as source or sink for the ETC/TOR rights, in the CAISO Master File.</p> <p>Any transfer or sale of ETC rights must first be coordinated by the ETC rights holder through the RPTO. The RPTO then revises its TRTC (Transmission Reservation Transmission Contracts) instructions to the CAISO, to reflect any approved transfer, accordingly. Only the responsible SC, as registered with the CAISO, may receive any congestion charge rebate associated with the use of ETC rights.</p> <p>- Manage SC-Requested Resource Testing</p> <p>- Manage Resource Performance Verification - Depicts process for auditing resource performance and conducting unannounced compliance testing.</p>
Manage Reliability Requirements (310)	Manager, Model & Contract Implementation	<p>Depicts the required activities to support the Resource Adequacy program adopted by the California Public Utilities Commission (CPUC) and other local regulatory agencies in compliance with California mandates. The RA program ensures that sufficient resources are available to meet the expected peak demand and provides for reliable power delivery throughout the ISO Control Area.</p> <p>Annual and monthly supply plans submitted by Market Participants (MPs) and Load Serving Entities (LSEs) are reviewed in conjunction with ISO studies regarding local capacity requirements and generation deliverability studies. Analysis of this data is used to create annual and monthly Resource Adequacy Capacity Reports.</p>
Manage Operations Planning (311)	Director, Operations Engineering Services	Provide operating procedures and tools, and training information, to address transmission and generator operational issues in the operating horizon (from 2 days to 1 year).
Manage WECC Seasonal Studies (312)	Director, Operations Engineering Services	Perform WECC Seasonal Studies 3 x per year. Develop System Operating Limits (SOL's) for Southern California Import Transmission (SCIT) and California Oregon Intertie (COI) paths, and implement them for each season.
Participating Intermittent Resources Program (PIRP) (313)	VP, Technology	This is the process required for a qualified Eligible Intermittent Resource (EIR) to become a Participating Intermittent Resource (PIR), and the subsequent annual requirements to maintain PIR status.
Manage & Facilitate Procedure Maintenance (314) and Manage procedure administration, and reporting (315)	Manager, Operations Process & Procedures	Depicts the required activities for managing the development, review, and modification of ISO Operating Procedures. Operating Procedures were created to guide ISO grid operations and document the consistent and transparent manner in which the ISO will adhere to Tariff provisions. Revision requests for the Operating Procedures may be submitted by stakeholders or an internal ISO department.
Plan & Develop Operations Training (316)	Manager, Operations Training	Depicts the required activities for managing the design, development, and delivery of operations (Grid and Market) related training courses, simulator scenarios and training programs to real-time personnel, Operators-in-training (OITs), other ISO departments, and external entities in form of Grid Ops Training, Summer Workshops, and on-the-job training (OJT).
Execute & Track Operations Training (317)	Manager, Operations Training	Depicts the process for conducting required training throughout the year, including planned and ad hoc training. Also includes activities related to reporting training completion to regulatory agencies.
Plan & Execute CETAC Workshops (318)	Manager, Operations Training	The California ISO in conjunction with the California Electric Training Advisory Committee (CETAC) plans, develops and delivers Grid Operator training on an annual basis to provide a learning forum and opportunity for enhanced communications between operating entities involved with the reliable operation of the grid. Workshop courses are largely focused in areas to prepare for managing summer peak system loads. Planning and coordination activities start over 1 year in advance and the workshops are delivered over a 5 week period starting in March or April each year.

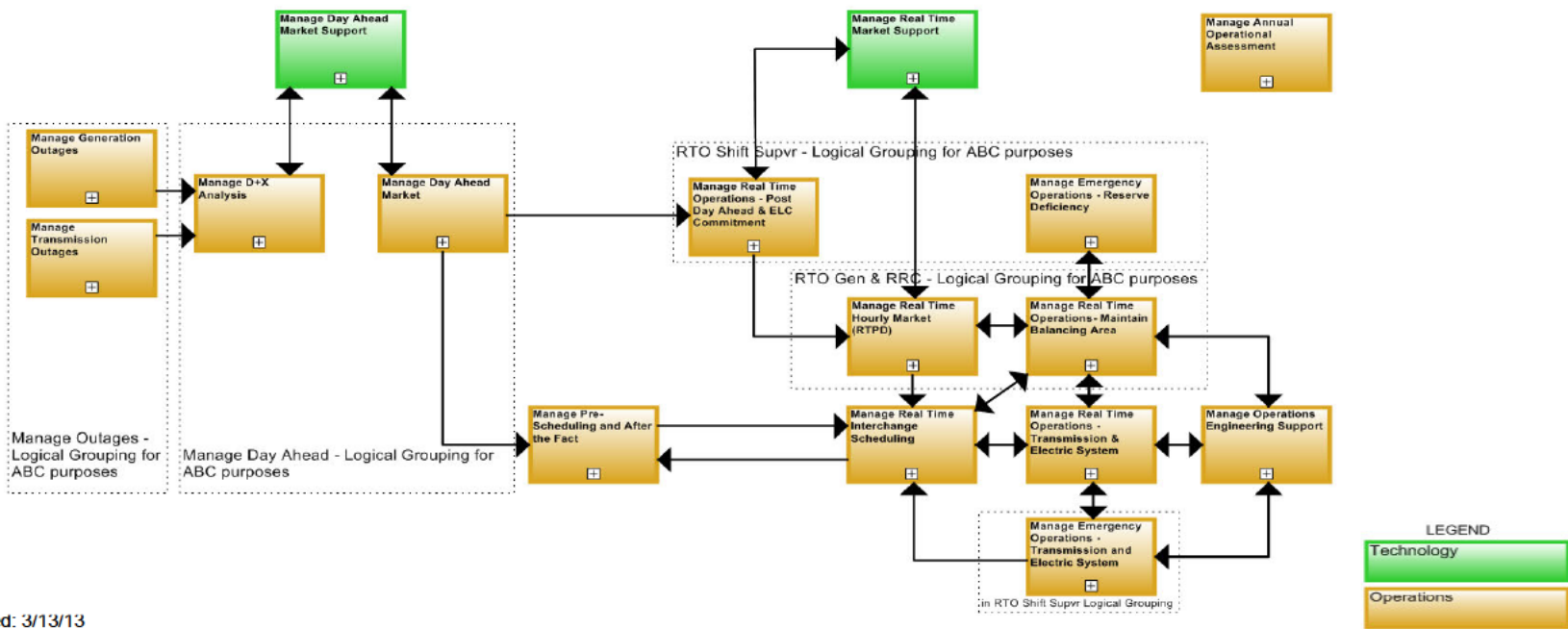
Manage Market & Reliability Data & Modeling (MMR) (80004) (Continued)

- Checks and rechecks network modeling policies and protocols to reduce non-market energy dispatches
- Assures that models reflect all grid constraints and produce timely and accurate prices results
- Improves the visibility and transparency of the ISO's business while keeping monitoring and reporting duties secure

Processes	Process Owner	Process Descriptions
Provide Stakeholder Training (320)	Manager, Customer Service	This process describes detailed steps for providing stakeholder training.
SC Management (321)		Grouping of 2 SC processes
Facilitate SC Certification (321)	Manager, Customer Service	<p>This Process defines the Scheduling Coordinator (SC) certification process and identifies all the requirements which are needed to complete SC certification. Customer Services oversees the SC certification process and ensures that all requirements are fulfilled prior to letting the SC submit schedules in the CAISO market. CAISO managers that are responsible for the certification requirement manually sign off the SC Checklist when the requirement is fulfilled. On completion, the Client Representative submits a change management request (CMR) to initiate the SC setup in CAISO systems. The Client Representative sends an internal notification as well as creating a Market Notice introducing the new SC in the CAISO market. This process describes the steps for SC Applicants to establish Financial Security as a part of their certification process.</p> <p>This process describes the certification requirements for SC Applicants. These requirements include establishing Financial Security, establishing Network Interface, getting access to Application, attending Training, completing Market Proficiency Test, completing Real Time and Contact Drills, Submitting SC Emergency Plan, registering Interchange ID, submitting Network Connectivity Security Agreement, submitting Acknowledgement Forms, etc.</p> <p>SC Applicants becoming certified for Inter-SC trades or Non-dynamic Energy Imports into the CAISO Control Area do not have post security during the certification phase. Once they go live Finance monitor their activity and they may be asked to post collateral at that time.</p> <p>Other SC Applicants must have an Approved Credit Rating as set forth in the CAISO Tariff.</p> <p>In the absence of an Approved credit rating, an SC can estimate their security obligation using the calculator.</p>
Facilitate SC Termination (321)	Manager, Customer Service	This process describes how to handle voluntary or involuntary termination of a Scheduling Coordinator (SC).

Manage Markets & Grid (MMG) (80005)

- Manages transmission and generation outages to ensure continuous flow of power to all customers
- Includes dutiful execution of the Day Ahead Market and Interchange Scheduling
- Ensures all local capacity requirements are met and the power is delivered in the least cost possible by avoiding congested areas
- Manages Real Time Scheduling to ensure that load is balanced to generation and that dispatch instructions are generated
- Operates the Day Ahead and Real Time energy markets
- Performs Generation and Transmission Dispatch



Last Updated: 3/13/13

Processes	Process Owner	Process Descriptions
Manage Day Ahead Market Support (352)	Manager, Market Engineering Support	Depicts the activities performed by the Power Systems Technology Operations (PSTO) team to support the Day Ahead market.
Manage Real Time Market Support (353)	Manager, Market Engineering Support	Depicts the activities performed by the Power Systems Technology Operations (PSTO) team to support the Real Time market.
Outage Model and Management (355)		Grouping of 2 outage activities
Manage Generation Outages (355)	Director, Day-Ahead Market & Real-Time Operations Support	Depicts the required activities to coordinate and manage planned and forced generation outages to best ensure system reliability while successfully meeting demand and managing system congestion.
Manage Transmission Outages (355)	Director, Day-Ahead Market & Real-Time Operations Support	Depicts the required activities to coordinate and manage planned and forced transmission outages to best ensure system reliability while successfully meeting demand and managing system congestion. This process also involves handling of the outage data (text format) in the SLIC Application which will be entered into the EMS Outage Scheduler and the Siemens Outage Scheduler through a direct input method. This outage data is essential for both the Outage schedulers to correctly solve based upon the changes in grid topology. This process also documents the manual data entry procedure until suitable automation is in place.
Manage Day Ahead Market (358)		Grouping of 2 day ahead activities
Manage D+X Analysis (358)	Director, Day-Ahead Market & Real-Time Operations Support	This diagram depicts the analysis activities which occur after the Day Ahead Market (D+1) has been run. Currently the D+2 run is run "today" for 2 days out and utilizes the appropriate outages and load forecasts for that D+2 date, but utilizes the D+1 Master File and Bid data. The D+2 run includes MPM-RRD, IFM and RUC- results are reported but not published externally. The Day Ahead operators run the D+2 processes and are supported by Market Operations and Engineering to analyze the pricing, binding constraints and other outputs. The objective for the analysis is to discover any issues or inconsistencies in the outputs which can be resolved before reaching the D+1 run.
Manage Day Ahead Market (358)	Director, Day-Ahead Market & Real-Time Operations Support	Depicts the required activities to run the Day-Ahead Market (DAM) and includes the tasks that occur in the three hour window - between the close of the DAM at 10 am and publication of results at 1 pm - in support of the next day's grid operation. The DAM commits generation, manages congestion, procures reserves and clears market bids. Sub-processes include: 1) Receive and validate bids 2) Run DAM systems of Market Power Mitigation (MPM), Reliability Requirement Determination (RRD), the Integrated Forward Market (IFM), Residual Unit Commitment (RUC) and Extreme Long-Start Commitment (ELC) 3) Publish results
Manage Pre-Scheduling and After the Fact (359)	Director, Day-Ahead Market & Real-Time Operations Support	The Manage Pre & Post Scheduling process involves validating and approving requests for interchange schedules (RFIs), resolving Net Scheduled Interchange (NSI) and Net Actual Interchange (NAI) discrepancies After the Fact (ATF). During the Prescheduling time frame, Scheduling Services ensures that the inter-tie schedules submitted prior to the operating day have valid e-Tags, have Day Ahead Market awards, conform to all market and contractual obligations and are checked out with Adjacent Balancing Authorities (ABAs) and WECC Interchange (WIT) in accordance with NERC policies. During the After the Fact time frame, Scheduling Services ensures that checkouts are performed with Adjacent Balancing Authorities and any potential NAI and/or NSI discrepancies are identified and resolved prior to the Settlements process.
Manage Operations Engineering Support (362)	Director, Operations Engineering Services	Depicts the activities surrounding engineering support of real time operations, which could include analysis as well as tool and procedure updates.
Real Time Operations - Shift Supervisor - Post Day Ahead and Pre Real Time and Manage Emergency Operations (363)		Grouping of 3 real time operations shift supervisor activities
Manage Real Time Operations - Post Day Ahead & ELC Commitment (363)	Director, Real-Time Operations	Depicts the required activities to prepare for running the Real-Time Market. Grid Operations performs the following: (1) Reviews and adjusts Day-Ahead schedules as needed (2) Manages the real-time bidding process and (3) Prepares for the Real-Time Market hourly intervals process. Time horizon represented by the full process is Trade Hour minus 30 minutes Trade Hour plus 240 minutes.
Manage Emergency Operations - Reserve Deficiency (363)	Director, Real-Time Operations	Details the actions taken as a response to forecasted or existing Operating Reserve deficiencies. The order of the actions taken may vary due to system conditions or other operational issues. The scope of the process includes the escalation and de-escalation through stages of Alerts, Warnings, and levels of Emergency in order to prevent further depletion of reserves or degradation to the system.
Manage Emergency Operations - Transmission & Electric System (363)	Director, Real-Time Operations	This process includes stages of emergency situations ranging from reserve shortages, to load shedding, to brown/black restoration, etc. As well as system restoration steps.

Manage Markets & Grid (MMG) (80005) (Continued)

- Manages transmission and generation outages to ensure continuous flow of power to all customers
- Includes dutiful execution of the Day Ahead Market and Interchange Scheduling
- Ensures all local capacity requirements are met and the power is delivered in the least cost possible by avoiding congested areas
- Manages Real Time Scheduling to ensure that load is balanced to generation and that dispatch instructions are generated
- Operates the Day Ahead and Real Time energy markets
- Performs Generation and Transmission Dispatch

Processes	Process Owner	Process Descriptions
Real Time Operations - Generation and Real Time Renewables Coordinator (GRRRC) desks - Maintain Balancing area and manage real time pre deipatch (RPTD) (364)		Grouping of 2 real time operations GRRRC desks activities
Manage Real Time Operations - Maintain Balancing Area (364)	Director, Real-Time Operations	Depicts the required activities for executing the 5 minute dispatches as well for monitoring and mitigating ACE, AGC, reserves, contingencies, exceptional dispatch, etc
Manage Real Time Hourly Market (RTPD) (364)	Director, Real-Time Operations	Depicts the required activities to run the Real-Time Market following its close and the receipt of all real-time bids. Grid Operations performs the following: (1) Run the Real-Time Market Power Mitigation (MPM) and Reliability Requirements Determination (RRD) processes (2) Manage the Hour-Ahead Scheduling Process (HASP) and (3) Run unit commitment processes - Short-Term Unit Commitment (STUC) runs hourly looking 5 hours ahead, Real-Time Unit Commitment (RTUC) runs every 15 minutes, and Real-Time Economic Dispatch (RTED) runs every five minutes for imbalance energy needs. The time horizon represented by the full process is Trade Hour minus 45 minutes to Trade Hour plus 60 minutes.
Manage Real Time Operations - Transmission & Electric System (365)	Director, Real-Time Operations	The Transmission Dispatch desk focuses largely on the reliability of the system. There are 2 desks in Folsom, one of which focuses on 500kv lines and the other 230 kv lines. There are 2 desks in Alhambra, one of which focuses on SCE 220kv lines and the other SDG&E 230kv lines. The Lead Transmission Dispatch desk manages changes which impact the market model including but not limited to biasing, TCORs, monitoring pricing and congestion. These activities are represented on a separate diagram.
Manage Real Time Interchange Scheduling (366)	Director, Real-Time Operations	The Manage Interchange Scheduling process involves Real Time Schedulers validating and approving requests for interchange schedules (RFIs), implementing approved schedules in Real Time and resolving Net Scheduled Interchange (NSI) and Net Actual Interchange (NAI) discrepancies both prior to schedule implementation in EMS as well as at the End of Day (after midnight). During the Real Time/ Intra Hour Change time frames, Real Time Schedulers update and adjustment inter-tie schedules which includes validation of e-Tags, confirmation of ISO market awards, conform to all market and contractual obligations and are checked out with Adjacent Balancing Authorities (ABAs) and WECC Interchange (WIT) in accordance with NERC policies. During the End of Day time frame, Real Time Schedulers ensure that checkouts are performed with Adjacent Balancing Authorities and any potential NAI and/or NSI discrepancies are identified.
Manage Annual Operational Assessment (367)	Director, System Operations	Per Tariff 22.1.2.2, Review of Compliance with Operations Policies and Procedures, an annual independent review is conducted of the CAISO management's compliance with its operations policies and procedures and presented to the CAISO Governing Board. A market notice is posted to allow Market Participants to input topics for review. Report is available upon request to Market Participants.

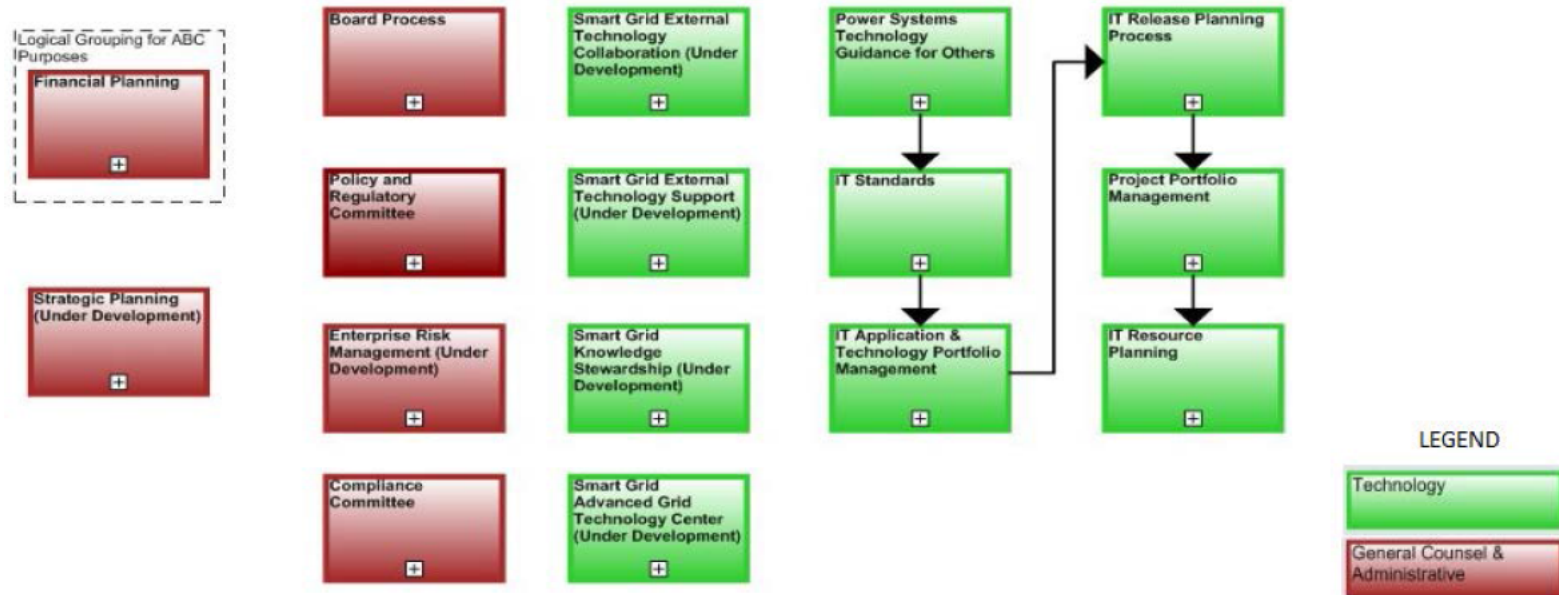
Manage Operations Support & Settlements (MOS) (80007) (Continued)

- Improves market efficiency by finding the most cost effective way of doing business
- Lowers the financial risk of participating in the wholesale market that in turn lowers the cost of doing business with the ISO
- Translates lower costs into less overhead for ISO customers who can pass the savings to ratepayers

Processes	Process Owner	Process Descriptions
Manage RMR Settlements (413)	Manager, Market Settlement Production	Depicts the process of running the RMR Owner invoice extraction, acceptance, and validation process and generating the CAISO RMR invoices for RMR Owners and PTOs.
Manage Settlements Quarterly Release Cycle (414)	Manager, Market Settlement Design & Configuration	Depicts the activities related to making non-project-related configuration changes to Settlements systems including, but not limited to, disputes, enhancements, FERC rulings, and Tariff amendments.
Market Issues Steering Committee (416)	Director, Market Services	The CAISO Market Issue Management policy provides the framework by which a cross function team of Operations, Information Technology and Market and Infrastructure Development can successfully manage issues associated with market functionality, processes or policy. It aims to ensure the following: <ul style="list-style-type: none"> - Identification of critical issue that have occurred and highlighted through internal analysis, or external inquiry - Determination of the root cause of identified issue - Determination of Market and Business Impact - Short and Long term resolution of the issue - Introduction of monitoring and control mechanisms - Prevention of future incidents through proactive issue identification
Perform Market Reporting (417)	Manager, Market Development & Analysis	Depicts the required activities to monitor and report on the daily, routine performance of the ISO markets to identify operations trends and anomalies and monitor ongoing issues. Market performance is summarized within daily internal reports and monthly reports to the Board of Governors and FERC.
Manage Good Faith Negotiation (GFN) Requests (418)	Director, Customer Service & Stakeholder Affairs	Depicts the activities around processing good faith negotiation (GFN) requests received from market participants.
Manage Price Corrections (419)	Manager, Market Settlement Production	Depicts the process of providing corrected pricing data for the Day Ahead or Real Time markets.

Plan & Manage Business (PMB) (80008)

- Aligns the strategic planning process more closely with budget planning
- Defines, creates and nurtures a culture of cost-consciousness as well as enhancing services while not adding costs
- Allows stakeholders to participate in ISO governance where costs and reliability issues are balanced



Last Updated: 3/25/13

Processes	Process Owner	Process Descriptions
Financial Planning (451)	Director, Financial Planning	Logical grouping for ABC purposes. Includes: Financial Planning, Budgeting & Rates - This process presents the milestones needed to complete the Operating & Maintenance and Capital Projects. This would ensure development of a comprehensive, well thought-out budget to meet CAISO needs. Manage Financial Planning - Depicts the process for long-term financial planning beyond the yearly budget. Considers the long-term rate structure for the ISO, looks at out years to develop the 10-year budget forecast, and includes the process of issuing bonds.
IT Application & Technology Portfolio Management (452)	Manager, IT Architecture	This process identifies new or potential upgrade target technologies for implementation into the ISO's computing infrastructure (includes data architecture).
IT Resource Planning (453)	Manager, Program Lifecycle & Process	Depicts the process of resource planning of human resources among various projects or operational activities, maximizing the utilization of available personnel resources to achieve business goals.
Project Portfolio Management (454)	Manager, Program Lifecycle & Process	Depicts Program Office driven activities from portfolio and release planning through to software development and funding activities.
Power Systems Technology Guidance for Others (455)	Director, Power Systems Technology Development	Provides all technical guidance activities (answering questions, following up with vendors, reviewing technical requirements or designs, etc.).
IT Standards (456)	Manager, IT Architecture	Process is executed every time there is a request for software, hardware, technology, or a need when a new capability identified.
IT Release Planning Process (457)	Manager, Program Lifecycle & Process	Depicts the process of managing IT release planning.
Enterprise Risk Management (459)	Director, Internal Audit	This process depicts activities engaged in across business functions to identify risks and opportunities in the ISO's internal and external environments that would impact its business objectives, evaluate them to determine residual risk exposure, and develop and monitor enterprise risk mitigation strategies to address them. It leverages information across all business functions, and is a key input into the strategic planning process.
Compliance Committee (460)	VP, General Counsel & Chief Administrative Officer	Depicts the Compliance Committee activities which could include decisions as well as inputs to the Corporate Governance processes (ELT, Board of Governors, etc).
Board Process (461)	Assistant Corporate Secretary	Depicts the activities involved in the planning of regularly scheduled Board meetings, including agenda topic development, memo and presentation drafting, executive review of materials, delivery of materials to the Board, presentation dry run, and post-meeting activities.
Smart Grid External Technology Collaboration (462)		Grouping of 2 Smart Grid Technology collaboration activities
Smart Grid External Technology Collaboration (462)	Director, Smart Grid Technology Development	There is a large demand from technology innovators, vendors, and other stakeholders for the ISO to review new technologies, capabilities and in some cases engage directly in pilots to prove assumptions on the way to commercialization and use in ISO production. It is important for the ISO to be responsive to these vendors to demonstrate our support of the state goals and the advancement of technology as it applies to the ISO. ISO staff also increases its know of what technologies and capabilities are emerging (knowledge stewardship) and demonstrates directly how we are furthering smart grid capabilities. The smart grid team meets with technology providers to see their technology and assess how it may help with ISO challenges. We also evaluate pilots and demonstration projects and participate in the developing business case and project scope. Often we are requested to lead or participate in collaboration meetings on smart grid issues, etc. (e.g. telemetry using smart grid technology).
Smart Grid External Technology Support (462)	Director, Smart Grid Technology Development	The research community is working to advance smart grid technology to manage renewable integration and enable resources and capabilities to smooth the transition and further enable end users of energy to have more control in their energy use and cost. The ISO needs to understand and support this research to ensure it includes ISO needs and also to learn from others experiences. The smart grid team develops a high-level plan for what types of research we should support. We evaluate proposals and provide support letters where warranted. We take an advisory role in external research programs and support ISO data requests for the studies. We engage in organized research of EPRI and the CEC.
Smart Grid Knowledge Stewardship (464)	Director, Smart Grid Technology Development	Knowledge stewardship focuses on building the expertise of the smart grid team and the ISO organization as a whole as well as external stakeholders. As the grid evolves, we need to have an understanding of smart technologies and the capabilities they enable as well as the impact and opportunities these technologies may have for the ISO so we can take advantage of the capabilities and prepare for any impacts. The smart grid team provides content for presentations, FAQ lists, and other collateral to the communications info bank. We participate in research forums and conferences as well as researching independently to understand the evolving technologies. Externally, we present to regulatory agencies including the CPUC and CEC speak on panels and at industry events. We also collaboratively develop the renewable lecture series with training and are responsibility for the content and delivery of the key messages.
Smart Grid Advanced Grid Technology Center (465)	Director, Smart Grid Technology Development	The advanced grid technology center provides visitors with information about smart grid technologies and capabilities enabled by a smart grid. This enables the ISO to educate a variety stakeholders about smart grid and its relevance to the ISO. The exhibit format currently offered provides some level of education. The vision is to extend the technology center to include real demonstrations as feasible. The technology center required support to ensure all monitors are working as well as providing tours as requested. We develop and maintain a script and are working on planning for upgrades to the center.

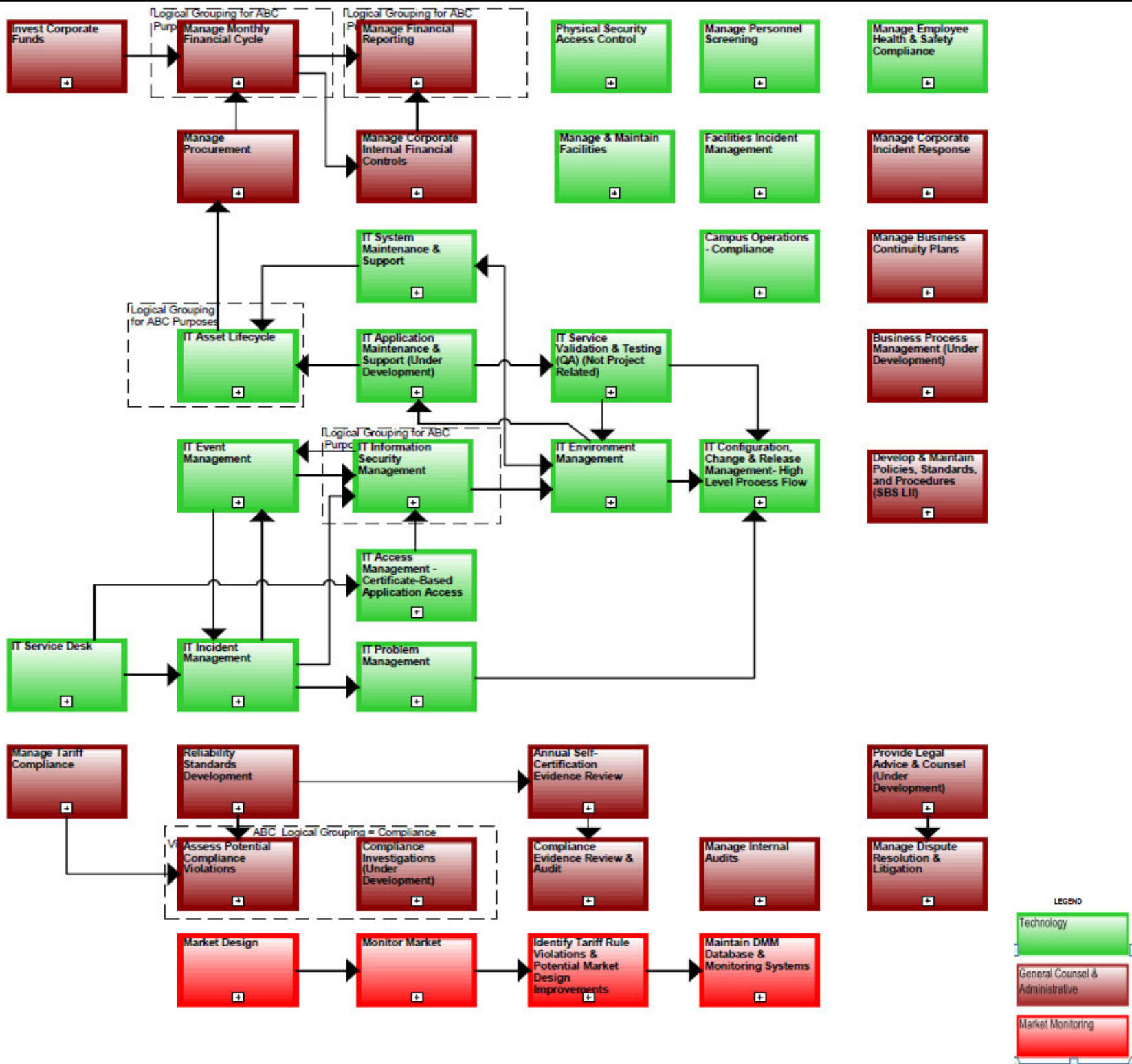
Plan & Manage Business (PMB) (80008)

- Aligns the strategic planning process more closely with budget planning
- Defines, creates and nurtures a culture of cost-consciousness as well as enhancing services while not adding costs
- Allows stakeholders to participate in ISO governance where costs and reliability issues are balanced

Processes	Process Owner	Process Descriptions
Policy and Regulatory Committee	Deputy General Counsel - Regulatory	This process ensures consistency of ISO policy positions and coordination of approaches across ISO activities in order to enhance organizational effectiveness. To accomplish this, the process performs timely triage when new issues are identified, and provides guidance as needed to in-progress policy and implementation activities.
Strategic Planning	VP, General Counsel & Chief Administrative Officer	The process by which the ISO gathers internal and external inputs, evaluates them against the existing five-year strategy, updates strategic objectives and corporate initiatives, defines annual corporate goals, and aligns internal business strategies and resources to successfully implement the corporate initiatives and achieve strategic objectives. Also included in this process is the manner by which the ISO monitors and reports on corporate performance, as well as maintaining the corporate dashboard.

Support Business Services (SBS) (80009)

- Comprises the objective of institutional sustainability (people, technology) along with the Manage Human Capabilities process
- Supports well-defined, measured and controlled processes, disciplined business decision making, quality assurance and efficient implementations
- Expands the ISO's enterprise risk management initiative, and supports the development of defined and measurable controls



Last Updated: 11/1/13

Processes	Process Owner	Process Descriptions
Manage Monthly Financial Cycle (501)	Controller	<p>Logical grouping for ABC purposes. Includes:</p> <p>Manage Corporate Billing & Collections (Accounts Receivable) - This process details the Corporate Accounts Receivables activities which include invoicing, processing payments and bank deposits.</p> <p>Manage Accounts Payable (Invoices) - This process details the</p> <ul style="list-style-type: none"> - Invoice/PO validations for accuracy - Approval of payment sum in line with the business rules - Accurate and timely disbursements to vendors <p>Manage Accounts Payable (Expense Reports) - Depicts the activities required to process employee expense reports including auditing, review, approval, and payment.</p> <p>Manage Monthly Financials - This process details the collection, analysis and reporting of monthly financial data in an organized and timely manner for management and business units. Key phases include creating journal entries, validating data in modules, and then reconciling data in the general ledger, and consolidating financial information for review by the Financial Services group.</p>
Invest Corporate Funds (502)	Treasurer	<p>This process involves the short-term and intermediate term (up to 5 years) investing of ISO funds sourced from GMC collections. Investing is done within the parameters of the Board approved investment policy. The ISO must maintain adequate liquidity to pay obligations as they come due. Short-term funds are typically invested in bank balances and money market funds. Where cash is not required in the short-term, other investment types are used including corporate and government bonds, where yields are typically higher. Investments are procured through several broker-dealers. The ISO also manages funds related to its bond issuances, including unspent bond proceeds, and reserve funds related to the repayment of the debt.</p>

Support Business Services (SBS) (80009) (Continued)

- Comprises the objective of institutional sustainability (people, technology) along with the Manage Human Capabilities process
- Supports well-defined, measured and controlled processes, disciplined business decision making, quality assurance and efficient implementations
- Expands the ISO's enterprise risk management initiative, and supports the development of defined and measurable controls

Processes	Process Owner	Process Descriptions
Manage Financial Reporting (503)	Controller	<p>Depicts the monthly, quarterly, and annual sub-processes needed to complete the financial reporting cycle.</p> <p>Logical Grouping for ABC purposes. Includes:</p> <p>Monthly Business Unit Reports - Process for generating monthly business unit reports, comparing Actuals vs. Budget, and sending the reports to the business units for review.</p> <p>Quarterly Board Reports - Process of gathering quarter-end close.</p> <p>Quarterly FERC Form 3Q - Process of gathering month-end close and other financial data to create the FERC Form 3Q.</p> <p>Annual Sales and Use Tax Filing - Process for filling out the Annual Sales and Use Tax Filing, seeking approval, and filing the forms with the State or County Tax Agency.</p> <p>Annual 1099 Misc Income Filing - Process of updating the Oracle AP module with updates for 1099 information, reviewing the 1099 information, running Oracle processes, and providing the Form B to vendors.</p> <p>Annual 1099 Interest Income Filing - Process of gathering gathering the amount of interest paid to customers, and determining the reportable amounts for the year. Accounting then creates and mails 1099 forms to customers and 1096 forms to the IRS.</p> <p>Annual 571L Property Tax Filing - Process for filling out the Annual Property Tax Filing Form 571L, seeking approval, and filing the forms with the Tax Assessor.</p> <p>Annual Audited Financial Statements - process of gathering month-end close information from the year and other financial data to create the Annual Audited Financial Statements.</p> <p>Annual FERC Form 1 - Process of gathering month-end close and other financial data to create the FERC Form 1</p> <p>Annual FERC Form 582 - Process for gathering and reconciling FERC fee data. After submitting the data to FERC, the ISO reviews the FERC bill and sends additional invoices for fees to ISO Participants if needed.</p> <p>Annual 990/ 199 Income Tax Filing - process of gathering tax-related data to create Form 990 and Form 199.</p>
IT Application Maintenance & Support (504)	Director, IT Infrastructure Engineering & Network Operations	<p>All application support and maintenance not directly related to a project, Incident Management or Problem Management. Patching – normally patch Test, Stage and Production</p> <p>Break Fix – as needed with production fixes first and all others second.</p> <p>Daily maintenance is performed in terms of monitoring and proactive activities of log file , space management, application stop and start and error log review. Also have account management (create, remove, update). Backups and restores.</p> <p>Changes deployed. Includes IT Storage Commission, IT Operations Support- Infrastructure, Phone System Management, Network Applications Management.</p>
IT Asset Lifecycle (505)	Manager, Asset Management	<p>Logical grouping for ABC purposes. Includes:</p> <p>IT Asset Lifecycle - Acquisition, and IT Asset Lifecycle - End of Use</p> <p>Business practices that join financial, contractual and inventory functions to support life cycle management and strategic decision making for the IT environment. Assets include all elements of software and hardware that are found in the business environment.</p>
IT Configuration, Change & Release Management- High Level Process Flow (508)	Manager, Data Center & Operations	<p>Depicts the process to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes to a controlled IT infrastructure, in order to minimize the number and impact of any related incidents upon implementation of changes.</p> <p>Provides the framework by which each IT Unit can successfully manage all infrastructure changes to their respective information systems. It aims to ensure the following:</p> <ul style="list-style-type: none"> • All company software and hardware changes to controlled CAISO infrastructure computing environments will be planned, managed, communicated, tested, and documented. • A standard and consistent process to reduce the risk of errors that a change could introduce to the environment. • Integrity in the controlled CAISO infrastructure computing environments. • Consistent communications across divisional boundaries. • Changes are authorized properly, stakeholders are notified, and there is a tracking mechanism and audit trail for each change.
IT Environment Management (509)	Manager, Technology Systems Support	Provides the framework to manage IT system environment usage for projects, enhancements, maintenance and training.
IT Event Management (510)	Manager, IT Architecture	Create new monitoring to detect and analyze events
IT Incident Management (511)	Manager, Critical Systems	<p>Depicts the process to ensure restoration to a normal service operation as quickly as possible while minimizing the impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained. Also provides the framework by which IT can successfully manage incidents associated with applications and the infrastructure. It aims to ensure the following:</p> <ul style="list-style-type: none"> • Normal service operation is restored as quickly as possible. • Adverse impacts on business operations are minimized. • The agreed upon levels of service quality and availability are maintained <p>Includes IT Incident Escalation Notification Flow Severity 1 and 2</p>
IT Information Security Management (512)	Manager, Information Security	<p>Logical grouping for ABC purposes. Includes:</p> <p>- IT Information Security Management - Daily CCA Access Review - Ensure validation of critical cyber assets, daily. Align IT and business security to ensure information security is managed effectively in all services and service management activities</p> <p>- IT Information Security Management - Quarterly Access Review - Ensure validation of critical cyber assets, quarterly. Align IT and business security to ensure information security is managed effectively in all services and service management activities</p> <p>- IT Information Security Management- Awareness and Training - Align IT and business security to ensure information security is managed effectively in all services and service management activities</p>
IT Problem Management (513)	Manager, Data Center & Operations	<p>Depicts the process to resolve the root cause of IT problems. These may involve system tuning, changing operating system or device parameters, or even refactoring the application software to resolve poor performance due to poor design or bad coding practices.</p> <p>Provides the framework by which IT can successfully manage problems associated with applications and the infrastructure. It aims to ensure the following:</p> <ul style="list-style-type: none"> • Identification of problems based on incidents that have occurred • Determination of the root cause of identified problems • Resolution of the problems • Introduction of monitoring and control mechanisms • Prevention of future incidents through proactive problem identification
IT Service Desk (514)	Manager, IT Operations - Service Desk	The objectives of the Service Desk are: 1) Providing a single (informed) point of contact for customers and 2) Facilitating the restoration of normal operational service with minimal business impact on the customer within agreed SLA levels and business priorities. Resumes "normal service" to the user as soon as possible using existing knowledge or tools or using the incident management process. Service request fulfillment for the end user. Includes Deskside Support and Request Fulfillment (MACs)

Support Business Services (SBS) (80009) (Continued)

- Comprises the objective of institutional sustainability (people, technology) along with the Manage Human Capabilities process
- Supports well-defined, measured and controlled processes, disciplined business decision making, quality assurance and efficient implementations
- Expands the ISO's enterprise risk management initiative, and supports the development of defined and measurable controls

Processes	Process Owner	Process Descriptions
IT Service Validation & Testing (QA) (Not Project Related) (516)	Manager, Software Quality Assurance	For an enhancement: 1. Request for a software modification comes in from the Business Unit or possibly a MP 2. Request turns into a requirements document, if big enough it becomes a project if not it becomes an enhancement. 3. QA builds test cases based of the requirements. 4. Code is validated as it goes from Test to Stage with QA sign off for a Production release, Business Unit UAT is also done in Stage. 5. Once deployed to production a Business Unit SME validates in Production. For a defect fix/CMR: 1. Issue is identified by QA, Business SME or MP, a defect is written against the software. 2. Code is fixed and deployed to Test, QA validates against the defect which was written. 3. QA validates the defect and it is closed, code proceeds to Stage and Production. 4. Once deployed to production a Business Unit SME validates in Production.
IT System Maintenance & Support (517) and IT non-Production Environment Support (518)	Director, IT Infrastructure Engineering & Network Operations	All system maintenance and support not directly related to a project, Incident Management or Problem Management. Patching – normally patch Test, Stage and Production Break Fix – as needed with production fixes first and all others second. Daily maintenance is performed in terms of monitoring and proactive activities of log file , space management, application stop and start and error log review. Also have account management (create, remove, update). Backups and restores. Changes deployed. Includes IT Storage Commission, IT Operations Support- Infrastructure, Phone System Management, Network Applications Management
IT Access Management - Certificate-Based Application Access (519)	Manager, Corporate Systems	Depicts the process of providing certificate-based access to IT systems
Manage & Maintain Facilities (520)	Manager, Facilities	Depicts process for managing and maintaining CAISO facilities.
Facilities Incident Management (521)	Manager, Facilities	Depicts the process for managing facilities incidents (Sev 1 - 4).
Manage Corporate Incident Response (522)	Manager, Standardization & Quality	Depicts how the ISO will implement the Incident Command System (ICS) to manage an incident that affects business across the organization. Once implemented, the Incident Management Team uses this process to stabilize, mitigate, and terminate an incident.
Manage Business Continuity Plans (523)	Manager, Standardization & Quality	Depicts the process for identifying and evaluating the impacts of significant events that may adversely affect our business, assets, or employees, and to document, test, and train on mitigation strategies.
Campus Operations - Compliance (524)	Manager, Facilities	Depicts process for ensuring all ISO facilities and related activities meet compliance requirements.
Physical Security Access Control (525)	Manager, Physical Security	Depicts the process of identifying visitors to ISO facilities and determining their access requirements for badge issuance. Includes the monitoring of active badges and ensuring that badges have been deactivated for visitors and contractors who no longer require access.
Manage Personnel Screening (526)	Manager, Physical Security	Depicts the process for screening employee and contractor resources prior to badge issuance as well as initiation of the 7-year background check process and background checks due to self-reports. Also includes activities required to perform personnel risk assessments and drug screenings.
Manage Employee Health & Safety Compliance (527)	Manager, Physical Security	Depicts the core functions and activities of the Safety Department as required by Federal, State and Local law as it pertains to employee health and safety. Reinforces and builds the safety culture within the ISO by: 1) Compliance with all regulations related to safety 2) Implementing best practices to maximize safety 3) Conduct investigations related to safety concerns and make recommendations 4) Proactively audit the workplace to identify potential hazards 5) Training employees on general and job-specific safety topics
Manage Procurement (528)	Manager, Procurement & Vendor Management	This process starts with identification of Business requirements or changes to an approved project and details various activities from project package preparation & approval, commercial contract finalization, vendor selection to delivery of goods/services to business units as a part of corporate procurement activity. This is a sub-process of Procurement & Vendor Management process. The lifecycle of procurement process requires participation from many internal and external support areas including but not limited to business units, Vendors, IT Asset Lifecycle-Acquisition process, and Manage Accounts Payable (invoices) process.
Provide Legal Advice & Counsel (529)	VP, General Counsel & Chief Administrative Officer	Depicts the process of providing legal advice and counsel to other business units in the ISO.
Manage Dispute Resolution & Litigation (530)	Assistant General Counsel - Litigation & Mandatory Standards	This process deals with Managing Litigation after it is received by the Legal Department at CAISO.
Reliability Standards Development (532)	Director, Corporate Compliance	Depicts actions needed for managing changes to standards and the development of new standards for NERC and WECC reliability.
Compliance Evidence Review & Audit (533)	Director, Corporate Compliance	Depicts the process where the Compliance Team reviews evidence supporting the ISO's compliance with NERC and WECC reliability standards for the audit period.
Compliance Violations (534)		Grouping of 2 compliance violation activities
Compliance Investigations (534)	Director, Corporate Compliance	Depicts the formal and rigorous process for investigating potential compliance violations.
Assess Potential Compliance Violations (534)	Director, Corporate Compliance	Depicts the actions needed for notification and discovery of potential compliance violations, including preliminary assessment, reporting, and mitigation.
Manage Tariff Compliance (535)	Director, Corporate Compliance	Depicts the process of managing compliance with the ISO tariff.
Manage Internal Audits (536)	Director, Internal Audits	Depicts the approval and performance activities required for the scheduling, planning, conducting, documenting, and follow-up for deficiencies identified during internal audits.
Monitor Market (537)	Manager, Monitoring & Reporting	This process flow describes the market monitoring procedures followed for reviewing market behavior and market results. The process involves review of specific CAISO markets (real time, ancillary services, day-ahead congestion management etc.) on a daily basis to identify any anomalies or potentially inefficient market outcomes.
Identify Tariff Rule Violations & Potential Market Design Improvements (538)	Manager, Analysis & Mitigation	This process performs the following: 1) Identify and review potential violations of CAISO Tariff or market rules 2) Identify ineffective market design, provide recommendations, and /or refer internally for further assessment 3) Refer potential violations of Rules of Conduct to FERC 4) Recommend potential rule changes to CAISO
Annual Self-Certification Evidence Review (541)	Director, Corporate Compliance	Depicts the annual review process of the ISO's compliance with the NERC and WECC actively monitored reliability standards.
Manage Corporate Internal Financial Controls (542)	Controller	This process details the periodic review of Internal controls on the processes that directly impact the presentation and review of the financial statements of the company Briefly it involves, (a) Identification of gaps & design/implementation of new internal controls (b) Determination of Operating effectiveness of existing internal controls (c) Controls adherence audit & review of the status to ensure compliance
Market Design (543)	Manager, Analysis & Mitigation	This process depicts how proposed changes to the market design are reviewed.
Maintain DMM Database & Monitoring Systems (544)	Manager, Monitoring & Reporting	This process deals with the maintenance of DMM Database for timely and accurate management of market data which is an essential input for all of DMM's core functions. DMM maintains a DMM Datamart (P008) that contains market data received from a variety of sources.

Support Business Services (SBS) (80009) (Continued)

- Comprises the objective of institutional sustainability (people, technology) along with the Manage Human Capabilities process
- Supports well-defined, measured and controlled processes, disciplined business decision making, quality assurance and efficient implementations
- Expands the ISO's enterprise risk management initiative, and supports the development of defined and measurable controls

Processes	Process Owner	Process Descriptions
Business Process Management (545)	Manager, Standardization & Quality	The Business Process Framework process is the development and application of the ISO's business architecture and process improvement methodology. Application of the methodology for process design, improvement, and efficiency are covered under this process. This process inherently covers the maintenance and administration of the ISO's Business Process Framework and associated processes.
Records Management (546)	Manager, Standardization & Quality	The records management program ensures that records created and received in the normal course of business are managed in accordance with federal and state laws and pertinent regulations and business requirements from creation to final disposition.
Develop & Maintain Policies, Procedures and Standards (547)	Director, Business Planning & Operations	This process ensures consistency in the development and maintenance of ISO policies, procedures, and standards, while increasing organizational effectiveness by ensuring adherence to a timeline requirements.

Support Customers & Stakeholders (SCS) (80010)

- Provides the highest quality of service to its customers, market participants and stakeholders
- Includes timely resolution of customer issues, corporate-wide customer relationship management and streamlined access to market information
- Provides a market design to accommodate renewables and demand response, while keeping costs reasonable and maintaining grid reliability



Last Updated: 3/13/13

Processes	Process Owner	Process Descriptions
Representing the ISO Externally (539) also includes ISO Outreach (604)	Director, Customer Service & Stakeholder Affairs	This process describes how CAISO employees should handle any policy or technical questions received from external sources.
Manage Client Inquiries (601) also includes Support Clients (607) and TP Mapping (608)	Manager, Customer Service	This process aims to improve Customer Service and ensure that CAISO's Scheduling Coordinators' (SC's) issues and inquiries get resolved in a timely manner. 1. Each SCs is assigned a Client Representative (CR). SC either calls Client Representative to raise inquiry or issue or directly logs the query in TRAIN through external web interface. 2. CAISO uses TRAIN to route the inquiry along the company. 3. Customer Services will either resolve the inquiry internally or will route it to a business unit using ownership matrix. 4. Assigned Business Unit plans and provides resolution back to Customer Services 5. Customer Services communicated the resolution to SC and closes the ticket in TRAIN Issues that fall outside the bid to bill processes, example CAISO policy issues, are handled by Accounts Managers (AM).
Strategic Client Account Management (602)	Manager, Customer Service	ISO Account Managers develop high-level relationships with clients, with the goal of supporting quality dialogue between the ISO and key customers. Tasks include: fast response to customer inquiries on major projects and policy matters, working in concert with customer staff to arrange senior level meetings and their agendas, coordinating the interaction with senior stakeholders and their ISO management peers, overseeing the response by the ISO to stakeholder questions, contributing to individual client interactions within the stakeholder process, and reporting to management on key customer issues, particularly on policy matters that will be addressed by the Board.
Manage Stakeholder Process (603)	Director, Customer Service & Stakeholder Affairs	Administer the stakeholder process in compliance with a set of quality control guidelines for the consistent management of meetings, documents, stakeholder comments and general process structure. Working with other depts, CSIA staff plans each engagement, from conception through the final Board meeting. A master engagement plan is created to guide the stakeholder process for each major initiative. A team is formed between CSIA and the functional organization leading the stakeholder process. Customer engagements, whether they be meetings, papers or conference calls, are planned and executed by these teams. A feedback loop at the end of each meeting helps to validate success, and sets the stage for ongoing improvements.
Government Affairs Process (609)	Directors, Federal Affairs & State Affairs	Depicts the activities required to perform the following: 1) Respond to inquiries from government and regulatory entities 2) Develop strategy jointly with ISO divisions 3) Maintain relationships with government and regulatory entities 4) Address concerns 5) Communicate the ISO's position to government and regulatory entities 6) Communicate government and regulatory entity positions internally at the ISO 7) Monitor the governmental environment 8) Develop work plans to implement ISO initiatives and strategies
Communications & Public Relations (610)	Director, Communications & Public Relations	The Communications and Public Relations Department presents a single, consistent and timely ISO voice and provides a broad range of clear, correct, and useful information to employees, stakeholders, media and the public-at-large. Corporate communication materials are developed and distributed by the department. These include brochures, information kits, annual reports, articles, news releases, market notices and broadcast productions. The team manages three websites: Internet, Market Participant Portal and Intranet sites. The department also develops new products and services, conducting stakeholder focus groups to identify and meet the business needs of market participants. Media relations provided by the department extends to newspaper, radio and TV as well as trade media and international news outlets. CommPR spokespersons provide 24/7 support to media and promote electricity conservation during peak periods of stress on the grid. The department trains in emergency preparedness and performs crisis communication management. All corporate events are coordinated by the department and the team also facilitates tours and speaking engagements.

2013 Revenue Requirement using 2013 ABC data						Split of Mkt Svcs			Split of Sys Ops		
Revenue Requirement	2013 Budget	Market Services	System Operations	CRR Services	Indirect	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services
Direct O&M	\$ 68,364	\$ 12,863	\$ 42,512	\$ 845	\$ 12,144	\$ 12,863	\$ 8,075	\$ 4,788	\$ 42,512	\$ 14,093	\$ 28,419
Support O&M	64,686	-	-	-	64,686	-	-	-	-	-	-
Non-ABC support O&M	29,857	614	1,759	53	27,431	614	553	61	1,759	1,653	106
Total O&M	162,907	13,477	44,271	898	104,261	13,477	8,628	4,849	44,271	15,746	28,525
Debt Service 2008 bonds	24,666	7,263	12,481	1,196	3,726	7,263	3,152	4,111	12,481	10,555	1,926
Debt Service 2009 bonds	17,847	-	-	-	17,847	-	-	-	-	-	-
Cash funded capital	24,000	-	-	-	24,000	-	-	-	-	-	-
Total debt service & capital	66,513	7,263	12,481	1,196	45,573	7,263	3,152	4,111	12,481	10,555	1,926
Other income	(7,900)	(660)	(4,940)	-	(2,300)	(660)	(544)	(116)	(4,940)	(1,878)	(3,062)
Operating reserve credit	(25,492)	(1,647)	(2,897)	(284)	(20,664)	(1,647)	(708)	(939)	(2,897)	(2,462)	(435)
Total before allocation of indirect costs	196,028	18,433	48,915	1,810	126,870	18,433	10,528	7,905	48,915	21,961	26,954
Total Direct Costs %		27%	70%	3%		100%	57%	43%	100%	45%	55%
Allocate indirect	-	34,255	88,809	3,806	(126,870)	34,255	19,525	14,730	88,809	39,964	48,845
Total revenue requirement	\$ 196,028	\$ 52,688	\$ 137,724	\$ 5,616		\$ 52,688	\$ 30,053	\$ 22,635	\$ 137,724	\$ 61,925	\$ 75,799
Service category percentages	100%	27%	70%	3%							
Total RR	\$ 196,028	\$ 52,688	\$ 137,724	\$ 5,616		\$ 52,688	\$ 30,053	\$ 22,635	\$ 137,724	\$ 61,925	\$ 75,799
Less Fees											
Market bid fees	(203)	(203)	-	-		(203)	(102)	(101)	-	-	-
InterSC-trade fees	(2,781)	(2,781)	-	-		(2,781)	-	(2,781)	-	-	-
SCID fees	(2,079)	(2,079)	-	-		(2,079)	(1,040)	(1,039)	-	-	-
TORs	(993)	-	(993)	-		-	-	-	(993)	(993)	-
CRR auction bid fees	(186)	-	-	(186)		-	-	-	-	-	-
Total fees	(6,242)	(5,063)	(993)	(186)		(5,063)	(1,142)	(3,921)	(993)	(993)	-
Net revenue requirement for rates	\$ 189,786	\$ 47,625	\$ 136,731	\$ 5,430		\$ 47,625	\$ 28,911	\$ 18,714	\$ 136,731	\$ 60,932	\$ 75,799
Net revenue requirement for rates %						100%	61%	39%	100%	45%	55%
Estimated volumes		514,168	474,712	566,649		514,168	514,168	514,168	474,712	474,712	474,712
Less grandfathered generation		-	(7,179)	-		-	-	-	(7,179)	(7,179)	(7,179)
Estimated volumes		514,168	467,533	566,649		514,168	514,168	514,168	467,533	467,533	467,533
2013 rates with new ABC		\$ 0.0926	\$ 0.2925	\$ 0.0096		\$ 0.0926	\$ 0.0562	\$ 0.0364	\$ 0.2925	\$ 0.1303	\$ 0.1621
EIM (combined as one rate)	Real Time Combined	Real Time Market	Real Time Dispatch			Real Time Market			Real Time Dispatch		
Costs	\$ 89,843	\$ 28,911	\$ 60,932			\$ 28,911			\$ 60,932		
Percentage of costs	100%	32%	68%			61%			45%		
EIM Rate using component rates	\$ 0.1865	\$ 0.0562	\$ 0.1303			\$ 0.0926	\$ 0.0562		\$ 0.2925	\$ 0.1303	
EIM rate rounded	\$ 0.19										

2013 ABC Level 2 Direct Costs											Split of Market Services		Split of System Operations		Split of Market Services			Split of System Operations			
ABC Level 2 Activities	Code	Market services	System Operations	CRR Services	Indirect	2013 Budget	Market services	System Operations	CRR Services	Indirect	Real Time Market	Day Ahead Market	Real Time Dispatch	Balancing Area Services	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services	
Develop Infrastructure (DI)	80001																				
Regulatory contract procedures	201				100%	\$ 378	\$ -	\$ -	\$ -	\$ 378					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Man Gen Intercon Proj (GIP) agrmts	202		100%			818	-	818	-	-				100%	-	-	-	818	-	818	
Manage GIP	203		100%			2,342	-	2,342	-	-				100%	-	-	-	2,342	-	2,342	
LT Transmission Planning	204		100%			4,273	-	4,273	-	-				100%	-	-	-	4,273	-	4,273	
New transmission resources	205		100%			552	-	552	-	-				100%	-	-	-	552	-	552	
Transmission maintenance studies	206		100%			499	-	499	-	-				100%	-	-	-	499	-	499	
Load resource data	207		100%			268	-	268	-	-				100%	-	-	-	268	-	268	
Season assessment	208		100%			223	-	223	-	-				100%	-	-	-	223	-	223	
Queue management	209		100%			615	-	615	-	-				100%	-	-	-	615	-	615	
Annual Delivery Assessment	210		100%			25	-	25	-	-				100%	-	-	-	25	-	25	
Total DI						9,993	-	9,615	-	378					-	-	-	9,615	-	9,615	
Develop Markets (DM)	80002																				
Manage Tariff Amendm	227				100%	355	-	-	-	355					-	-	-	-	-	-	
Post order rehearing	228				100%	30	-	-	-	30					-	-	-	-	-	-	
Develop State/Fed regulatory policy	229				100%	564	-	-	-	564					-	-	-	-	-	-	
BPM change management process	230				100%	33	-	-	-	33					-	-	-	-	-	-	
Develop infrastructure policy	231		100%			829	-	829	-	-				100%	-	-	-	829	-	829	
Perform market analysis	232	100%				1,604	1,604	-	-	-	50%	50%			1,604	802	802	-	-	-	
Develop market design	233	100%				2,242	2,242	-	-	-	50%	50%			2,242	1,121	1,121	-	-	-	
Regulatory contract negotiations	234				100%	142	-	-	-	142					-	-	-	-	-	-	
Total DM						5,799	3,846	829	-	1,124					3,846	1,923	1,923	829	-	829	
Man Mkt & Rel Data & Model (MMR)	80004																				
Manage FNM maintenance	301	50%	50%			1,724	862	862	-	-	50%	50%	100%		862	431	431	862	862	-	
Plan & develop ops sim training	302	20%	80%			300	60	240	-	-	100%		100%		60	60	-	240	240	-	
ISO meter certification	303		100%			416	-	416	-	-				100%	-	-	-	416	-	416	
Energy measure (EMAA) telemetry	304		100%			100	-	100	-	-				100%	-	-	-	100	-	100	
Metering sys config for mkt res	305		100%			70	-	70	-	-			100%		-	-	-	70	70	-	
Manage CRRs	307			100%		574	-	-	574	-					-	-	-	-	-	-	
Manage credit and collateral	308	45%	45%	10%		583	262	262	59	-	50%	50%	100%		262	131	131	262	262	-	
Resource management	309	50%	50%			910	455	455	-	-	80%	20%	20%	80%	455	364	91	455	91	364	
Manage reliability requirements	310		100%			931	-	931	-	-				100%	-	-	-	931	-	931	
Manage operations planning	311		100%			1,321	-	1,321	-	-				100%	-	-	-	1,321	-	1,321	
Manage WECC seasonal studies	312		100%			71	-	71	-	-				100%	-	-	-	71	-	71	
PIRP	313	20%	80%			1	-	1	-	-	100%		100%		-	-	-	1	1	-	
Man & facilitate procedure maint	314	20%	80%			841	168	673	-	-	100%			100%	168	168	-	673	-	673	
Procedure Admin & Reporting	315	20%	80%			11	2	9	-	-	100%		100%		2	2	-	9	-	9	
Plan & develop operations training	316	20%	80%			714	143	571	-	-	100%		100%		143	143	-	571	571	-	
Execute & track operations training	317	20%	80%			1,383	277	1,106	-	-	100%		100%		277	277	-	1,106	1,106	-	
CETAC activity	318		100%			73	-	73	-	-				100%	-	-	-	73	-	73	
Provide stakeholder training	320				100%	286	-	-	-	286					-	-	-	-	-	-	
SC management	321				100%	167	-	-	-	167					-	-	-	-	-	-	
Total MMR						10,476	2,229	7,161	633	453					2,229	1,576	653	7,161	3,203	3,958	

2013 ABC Level 2 Direct Costs											Split of Market Services		Split of System Operations		Split of Market Services			Split of System Operations			
ABC Level 2 Activities	Code	Market services	System Operations	CRR Services	Indirect	2013 Budget	Market services	System Operations	CRR Services	Indirect	Real Time Market	Day Ahead Market	Real Time Dispatch	Balancing Area Services	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services	
Manage Market & Grid (MMG)	80005																				
Manage DA market support	352	100%				115	115	-	-	-		100%			115	-	115	-	-	-	-
Manage RT market support	353	50%	50%			1,231	616	615	-	-	100%		100%		616	616	-	615	615	-	-
Outage & model management	355		100%			2,921	-	2,921	-	-				100%	-	-	-	2,921	-	2,921	-
Manage DA market	358	50%	50%			2,564	1,282	1,282	-	-		100%	80%	20%	1,282	-	1,282	1,282	1,026	256	-
Manage pre & post scheduling	359		100%			974	-	974	-	-				100%	-	-	-	974	-	974	-
Manage ops engineering support	362	20%	80%			1,148	230	918	-	-	50%	50%	100%		230	115	115	918	918	-	-
RT Mkt - shift supervisor: Post DA & Pre RT & Manage Emergency Ops	363	50%	50%			2,021	1,011	1,010	-	-	100%		20%	80%	1,011	1,011	-	1,010	202	808	-
RT Ops - Gen & RRC: Maintain Balancing Area & Manage RTPD	364	20%	80%			6,093	1,219	4,874	-	-	100%		100%		1,219	1,219	-	4,874	4,874	-	-
RT Ops - Transmission: Transmission & Electric System	365		100%			4,956	-	4,956	-	-				100%	-	-	-	4,956	-	4,956	-
RT Ops - Scheduling Desk - Manage RT Interchange Scheduling	366		100%			3,754	-	3,754	-	-				100%	-	-	-	3,754	-	3,754	-
Total MMG						25,777	4,473	21,304	-	-					4,473	2,961	1,512	21,304	7,635	13,669	-
MMG %s						100%	17%	83%							100%	66%	34%	100%	36%	64%	-
Man Ops Sup & Settlements (MOS)	80007																				
Man price validation & corrections	401	50%	50%			156	78	78	-	-	50%	50%	100%		78	39	39	78	78	-	-
Man dispute analysis & resolution	402				100%	725	-	-	-	725					-	-	-	-	-	-	-
Manage MQS	403	50%	50%			1,142	571	571	-	-	80%	20%	100%		571	457	114	571	571	-	-
Manage data requests	404				100%	97	-	-	-	97					-	-	-	-	-	-	-
Man reg no pay & deviation pen calc	405		100%			8	-	8	-	-				100%	-	-	-	8	-	8	-
Manage rules of conduct	406				100%	165	-	-	-	165					-	-	-	-	-	-	-
Periodic Meter Audit	407		100%			4	-	4	-	-			100%		-	-	-	4	4	-	-
ISO RIG engineering	408		100%			332	-	332	-	-				100%	-	-	-	332	-	332	-
Manage EMEA	409		100%			926	-	926	-	-				100%	-	-	-	926	926	-	-
Manage market clearing	411	45%	45%	10%		111	50	50	11	-	80%	20%	100%		50	40	10	50	50	-	-
Manage mkt billing & settlements	412	45%	45%	10%		1,202	541	541	120	-	80%	20%	100%		541	433	108	541	541	-	-
Manage RMR settlements	413		100%			10	-	10	-	-				100%	-	-	-	10	10	-	-
Manage settlements release cycle	414	45%	45%	10%		807	363	363	81	-	80%	20%	100%		363	290	73	363	363	-	-
Manage market performance	417	50%	50%			208	104	104	-	-	50%	50%	100%		104	52	52	104	104	-	-
Man dispute analysis & resolution	418				100%	24	-	-	-	24					-	-	-	-	-	-	-
Perform mkt validation	419	50%	50%			1,216	608	608	-	-	50%	50%	100%		608	304	304	608	608	-	-
Total MOS						7,133	2,315	3,595	212	1,011					2,315	1,615	700	3,595	3,255	340	-
Support Cust & Stakeholders (SCS)	80010																				
Represent ISO	539				100%	224	-	-	-	224					-	-	-	-	-	-	-
Client Inquiries	601				100%	1,318	-	-	-	1,318					-	-	-	-	-	-	-
Account management	602				100%	889	-	-	-	889					-	-	-	-	-	-	-
Stakeholder Processes	603				100%	666	-	-	-	666					-	-	-	-	-	-	-
Develop PTOs	605		100%			8	-	8	-	-				100%	-	-	-	8	-	8	-
Serve New Customers	606				100%	299	-	-	-	299					-	-	-	-	-	-	-
Government Affairs	609				100%	3,989	-	-	-	3,989					-	-	-	-	-	-	-
Commun & Public Relations	610				100%	1,793	-	-	-	1,793					-	-	-	-	-	-	-
Total SCS						9,186	-	8	-	9,178					-	-	-	8	-	8	-
Total Direct O&M						\$ 68,364	\$ 12,863	\$ 42,512	\$ 845	\$ 12,144					\$ 12,863	\$ 8,075	\$ 4,788	\$ 42,512	\$ 14,093	\$ 28,419	-
Direct O&M %						100%	19%	62%	1%	18%					100%	63%	37%	100%	33%	67%	-

2013 ABC support costs, non-ABC support costs, other revenue and operating reserve credit											Split of Market Services		Split of System Operations		Split of Market Services			Split of System Operations			
ABC Level 1 Activities or Division	Market services	System Operations	CRR Services	Indirect	2013 Budget	Market services	System Operations	CRR Services	Indirect	Comments	Real Time Market	Day Ahead Market	Real Time Dispatch	Balancing Area Services	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services	
ABC Support costs																					
Man Human Capabilities (MHC) (80003)				100%	\$ 4,924	\$ -	\$ -		\$ 4,924						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Plan & Manage Business (PMB) (80008)				100%	9,973	-	-		9,973						-	-	-	-	-	-	
Support Business Services (SBS) (80009)				100%	49,789	-	-		49,789						-	-	-	-	-	-	
Total Support Activities					\$ 64,686	\$ -	\$ -	\$ -	\$ 64,686						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Non-ABC Support costs																					
Technology																					
Hardware & software maint & leases				100%	\$ 8,941	\$ -	\$ -	\$ -	\$ 8,941						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Communications (AT&T)				100%	5,952	-	-	-	5,952						-	-	-	-	-	-	
Occupancy				100%	5,441	-	-	-	5,441						-	-	-	-	-	-	
Operations & MQRI																					
Intermittent resource forecasting fee	20%	80%			1,687	337	1,350	-	-	use 80004 #313	100%		100%		337	337	-	1,350	1,350	-	
General Counsel																					
Legal, audit & bank fees				100%	5,180	-	-	-	5,180						-	-	-	-	-	-	
Professional fees - SSAE 16 audit	45%	45%	10%		539	243	243	53	-	use 80007 #412	80%	20%	100%		243	194	49	243	243	-	
Professional fees - operations audit	17%	83%			200	34	166	-	-	use 80005 total	66%	34%	36%	64%	34	22	12	166	60	106	
Insurance				100%	1,917	-	-	-	1,917						-	-	-	-	-	-	
Total non-ABC support costs					\$ 29,857	\$ 614	\$ 1,759	\$ 53	\$ 27,431						\$ 614	\$ 553	\$ 61	\$ 1,759	\$ 1,653	\$ 106	
Other revenue																					
SC application fee				100%	\$ 100	\$ -	\$ -	\$ -	\$ 100						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
MSS penalties				100%	250	-	-	-	250						-	-	-	-	-	-	
SC training fees				100%	150	-	-	-	150						-	-	-	-	-	-	
Intermittent resource forecasting fee	20%	80%			1,600	320	1,280	-	-	use 80004 #313	100%		100%		320	320	-	1,280	1,280	-	
LGIP study fees		100%			2,000	-	2,000	-	-	use 80001 #203				100%	-	-	-	2,000	-	2,000	
Interest				100%	1,800	-	-	-	1,800						-	-	-	-	-	-	
COI path operator fees	17%	83%			2,000	340	1,660	-	-	use 80005 total	66%	34%	36%	64%	340	224	116	1,660	598	1,062	
Total other revenue					\$ 7,900	\$ 660	\$ 4,940	\$ -	\$ 2,300						\$ 660	\$ 544	\$ 116	\$ 4,940	\$ 1,878	\$ 3,062	
Operating reserve credit																					
Decrease in 15% reserve for O&M				100%	\$ 21	\$ -	\$ -	\$ -	\$ 21						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
25% debt service reserve 2008 bonds	29%	51%	5%	15%	5,680	1,647	2,897	284	852	use debt service allocation	43%	57%	85%	15%	1,647	708	939	2,897	2,462	435	
25% debt service reserve 2009 bonds				100%	3,570	-	-	-	3,570	use debt service allocation					-	-	-	-	-	-	
Revenue changes				100%	9,266	-	-	-	9,266						-	-	-	-	-	-	
Expense changes				100%	6,955	-	-	-	6,955						-	-	-	-	-	-	
Total operating reserve credit					\$ 25,492	\$ 1,647	\$ 2,897	\$ 284	\$ 20,664						\$ 1,647	\$ 708	\$ 939	\$ 2,897	\$ 2,462	\$ 435	

2013 Debt Service 2008 & 2009 Bonds and Cash Funded Capital										Split of Market Services		Split of System Operations		Split of Market Services			Split of System Operations		
System / Type	Market Services	System Operations	CRR Svcs	Indirect	2013 Budget	Market services	System Operations	CRR Svcs	Indirect	Real Time Market	Day Ahead Market	Real Time Dispatch	Balancing Area Services	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services
Debt Service 2008 Bonds																			
Operations Related Software																			
Automated Dispatch System (ADS)		100%			\$ 30	\$ -	\$ 30	\$ -	\$ -					\$ -	\$ -	\$ -	\$ 30	\$ 30	\$ -
Automated Load Forecast System (ALFS)	50%	50%			79	40	39	-	-	100%				40	40	-	39	39	-
Congestion Revenue Rights (CRR)			100%		855	-	-	855	-					-	-	-	-	-	-
DMM & compliance Tools (SAS MARS)	50%	50%			478	239	239	-	-	50%	50%			239	120	119	239	239	-
Energy Management System (EMS)		100%			1,923	-	1,923	-	-					-	-	-	1,923	385	1,538
Exist Transmiss Contracts Calculator (ETCC)		100%			5	-	5	-	-					-	-	-	5	-	5
Full Network Model / State estimator	50%	50%			182	91	91	-	-	100%				91	91	-	91	91	-
Integrated Forward Market (IFM) RTN	50%	50%			6,365	3,183	3,182	-	-		100%			3,183	-	3,183	3,182	3,182	-
Market Quality System (MQS)	50%	50%			1,013	506	507	-	-	80%	20%			506	405	101	507	507	-
Master file	50%	50%			409	205	204	-	-	100%				205	205	-	204	204	-
Meter Data Acquisition System (MDAS)		100%			15	-	15	-	-					-	-	-	15	15	-
New Res Interconnection (Rims) or (NRI)	20%	80%			219	44	175	-	-		100%			44	-	44	175	-	175
Open Access Same Time Info System (OASIS)	50%	50%			66	33	33	-	-	100%				33	33	-	33	33	-
Ops Meter Analysis & Reporting (OMAR)		100%			96	-	96	-	-					-	-	-	96	96	-
Participating Intermittant Res Project (PIRP)	20%	80%			45	9	36	-	-	100%				9	9	-	36	36	-
Portal	50%	50%			473	236	237	-	-	80%	20%			236	189	47	237	237	-
CAISO Market Results interface (CMRI)	50%	50%			411	206	205	-	-	80%	20%			206	165	41	205	205	-
Process Information System (PI)		100%			137	-	137	-	-					-	-	-	137	-	137
RT markets (RTMA) split off 50% into HASP	20%	80%			1,271	254	1,017	-	-	100%				254	254	-	1,017	1,017	-
HA Market (HASP) split off 50% from RTMA	50%	50%			1,270	635	635	-	-	100%				635	635	-	635	635	-
Resource Adequacy	50%	50%			43	21	22	-	-		100%			21	-	21	22	-	22
RMR application Validation Engine (RAVE)	50%	50%			5	3	2	-	-		100%			3	-	3	2	-	2
Scheduling & Logging for ISO CA (SLIC)	50%	50%			295	147	148	-	-	100%				147	147	-	148	148	-
Control Area Scheduler (CAS)		100%			47	-	47	-	-					-	-	-	47	-	47
Sched Infrastructure Business Rules (SIBR)	50%	50%			1,801	900	901	-	-	50%	50%			900	450	450	901	901	-
Settlements & Mkt Clearing (SaMC)	15%	75%	10%		3,407	511	2,555	341	-	80%	20%			511	409	102	2,555	2,555	-
Total Operations related software					20,940	7,263	12,481	1,196	-					7,263	3,152	4,111	12,481	10,555	1,926
General Software & Fixed Assets																			
Client relations & engineering analysis tools			100%		154	-	-	-	154					-	-	-	-	-	-
LAN, WAN & monitoring (Tivoli)			100%		650	-	-	-	650					-	-	-	-	-	-
Office automation desktop laptop (OA)			100%		80	-	-	-	80					-	-	-	-	-	-
Oracle Corporate Financials			100%		606	-	-	-	606					-	-	-	-	-	-
Security External Physical & ISS (CUDA)			100%		99	-	-	-	99					-	-	-	-	-	-
Storage (EMC symmetrix)			100%		889	-	-	-	889					-	-	-	-	-	-
Land & feasibility studies			100%		238	-	-	-	238					-	-	-	-	-	-
NT servers & WEB servers			100%		232	-	-	-	232					-	-	-	-	-	-
New system equipment			100%		400	-	-	-	400					-	-	-	-	-	-
Office equip, furniture & leasehold imp			100%		378	-	-	-	378					-	-	-	-	-	-
Total fixed assets					3,726	-	-	-	3,726					-	-	-	-	-	-
Total debt service 2008 Bonds					\$ 24,666	\$ 7,263	\$ 12,481	\$ 1,196	\$ 3,726					\$ 7,263	\$ 3,152	\$ 4,111	\$ 12,481	\$ 10,555	\$ 1,926
Total debt service 2008 Bonds %					100%	29%	51%	5%	15%					100%	43%	57%	100%	85%	15%

2013 Debt Service 2008 & 2009 Bonds and Cash Funded Capital										Split of Market Services		Split of System Operations		Split of Market Services			Split of System Operations			
System / Type	Market Services	System Operations	CRR Svcs	Indirect	2013 Budget	Market services	System Operations	CRR Svcs	Indirect	Real Time Market	Day Ahead Market	Real Time Dispatch	Balancing Area Services	Total	Real Time Market	Day Ahead Market	Total	Real Time Dispatch	Balancing Area Services	
Debt Service 2009 Bonds																				
Building, land & feasibility studies	0%	0%	0%	100%	\$ 17,847	\$ -	\$ -	\$ -	\$ 17,847					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total debt service 2009 Bonds					\$ 17,847	\$ -	\$ -	\$ -	\$ 17,847					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cash Funded Capital	0%	0%	0%	100%	\$ 24,000	\$ -	\$ -	\$ -	\$ 24,000					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Exhibit 2 to the Declaration of April Gordon

Long Term Transmission Planning Cost Calculation

Reference Documents

2013 Cost of Service Study and 2015 GMC Update

<http://www.aiso.com/informed/Pages/StakeholderProcesses/Budget-GridManagementCharge.aspx>

2013 Cost of Service Study Work Papers

http://www.aiso.com/Documents/Exhibit2-2013Cost-ServiceStudySummaryMar6_2014.pdf

Cost of Long Term Transmission Planning (LTPP)

(amounts in thousands)

Component	Code	System Operations	Indirect	Amount	LTPP Factor	Allocation to LTPP	Identifier	Formula
Allocation of Direct Costs (ABC Level 2 Activities)								
Develop Infrastructure	80001							
Develop & Monitor Regulatory Contract Procedures	201		100%	\$ 378	0%	\$ -		
Manage Generator Interconnection Agreements (GIA)	202	100%		\$ 818	0%	-		
Manage Generator Interconnection Process (GIP)	203	100%		\$ 2,342	0%	-		
Manage Long Term Transmission Planning	204	100%		\$ 4,273	50%	2,137		
Manage Transmission and Resource Implementation	205	100%		\$ 552	0%	-		
Manage Transmission Maintenance Standards	206	100%		\$ 499	0%	-		
NERC/ WECC Loads & Resources Data Requests	207	100%		\$ 268	0%	-		
Seasonal Assessment	208	100%		\$ 223	0%	-		
Manage Queue	209	100%		\$ 615	0%	-		
Annual delivery assessment	210	100%		\$ 25	0%	-		
				Total LTPP Direct Costs		\$ 2,137	(1)	= \$4,273 x factor of 50%

Note: Information pulled from the 2013 Cost of Service Study Work Papers.

Allocation of Indirect Costs

Total Direct Net System Operations Costs (before allocation of indirect costs)	\$ 48,915	(2)		
Percentage of LTPP costs to ABC level 2 Direct Costs	4.37%	(3)	= (1) / (2)	
Total System Operations Indirect Dollars Allocated	\$ 88,809	(4)		
Total LTPP Indirect Costs	\$ 3,879	(5)	= (3) * (4)	
Total Long Term Transmission Planning Costs	\$ 6,015	(6)	= (1) + (5)	

Note: Information pulled from the 2013 Cost of Service Study Work Paper.

Annual Planning Coordinator Service Charge Calculation

Total number of transmission circuits in ISO 2017 Transmission Plan	1,564	(7)		
LTPP cost per transmission circuit in ISO 2017 Transmission Plan	\$ 3.85	(8)	= (6) / (7)	
Total number of transmission circuits in Silicon Valley Power system	5	(9)		
Annual Planning Coordinator Service Charge (\$ in 1000s)	\$ 19,231	(10)	= (8) * (9)	

Long Term Transmission Planning Processes

Exhibit 1 - Business Process Framework v4.0 with Charge codes

http://www.caiso.com/documents/Exhibit1-BusinessProcessFrameworkV4_0-ChargeCodesJan29_2014.pdf

From Page 2 - Develop Infrastructure (DI) 80001

Manage Long Term Transmission Plan activity code 204

Component of LTPP	%
1) ISO Transmission Plan: Produce a forward-looking, coordinated transmission plan that provides for full NERC/WECC compliance obligations as well as proactive infrastructure planning initiatives, including economic transmission that facilitates a robust and efficient market	50%
2) Support CPUC Resource Adequacy (RA) through the determination of all LCR requirements for the ISO Controlled Grid; the determination of all import, zonal, and inter-zonal allocations that are used to define RA obligations for the LSEs	5%
3) Generator Interconnection Study obligations	5%
4) Renewable Integration analysis to assess operational reliability and infrastructure requirements to meet 33% requirements by 2020	5%
5) On an annual basis, assess and validate feasibility of all Long-term CRRs	5%
6) Perform annual congestion studies to a) Define and summarize term "significant and reoccurring" congestion b) Develop mitigation plan c) Provide the upgrade and congestion costs	10%
7) Conduct Deliverability and Locational Capacity Studies in support of the CPUC resource adequacy requirements	5%
8) Generation and transmission reliability assessment (i.e., Planning Reserve Margin and transmission probabilistic planning)	5%
9) Sub-regional/Regional/National work on Planning Issues through NERC, FERC, and WECC	5%
10) Special projects; Represent the ISO in technical groups and committees	5%
Total	100%