California Independent
System Operator Corporation

September 10, 2015

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. 80 and**
**Request for CEII Treatment**
**Docket No. ER15-____-000**

Dear Secretary Bose:

The California Independent System Operator Corporation ("CAISO") submits for filing and acceptance the Planning Coordinator Agreement dated May 14, 2015, between the CAISO and the City and County of San Francisco ("San Francisco") The Planning Coordinator Agreement sets forth the terms under which the CAISO will serve as the Planning Coordinator for the transmission facilities and generation units owned by San Francisco, and connected to those transmission facilities, that are part of the bulk electric system located within CAISO's balancing authority area (collectively, "SF BES Facilities"). Under the Planning Coordinator Agreement, San Francisco 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 CAISO's balancing authority area, and compliance with NERC standards, by allowing the CAISO to serve as San Francisco's Planning Coordinator. The CAISO requests an effective date of November 2, 2015.

## 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. 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. 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 Planner, Resource Planner, and other Planning Coordinators;
>
> (2) coordinates transfer capability (generally one year and beyond) with Transmission Planners, Reliability Coordinator, Transmission Owner, Transmission Operator, Transmission Service Provider, and neighboring Planning Coordinators;
>
> (3) coordinates plans with 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, 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.

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. Because these adjacent systems are not within the CAISO's planning coordinator area boundary, 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, thus, to be represented by a registered Planning Coordinator.

Recently, the CAISO identified several adjacent systems which are not represented by a Planning Coordinator. 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. San Francisco expressed an interest in the CAISO's offer.

After further discussions with San Francisco, the parties negotiated and executed a Planning Coordinator Agreement, whereby the CAISO has agreed to serve as the Planning Coordinator for San Francisco in exchange for a nominal service fee, discussed in detail below. This agreement allows adjacent systems, like San Francisco, to have a Planning Coordinator and, thus, furthers the NERC reliability objective that all transmission owners have a Planning Coordinator.

## 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 San Francisco. 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 San Francisco, 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 SF BES Facilities. In conjunction with these services, the CAISO will be responsible for compliance, as determined by the Commission, NERC, and the Western Electricity Coordinating Council, with all reliability standards applicable to a Planning Coordinator for the SF 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 San Francisco.

San Francisco is responsible for maintaining its registration with NERC as a Transmission Planner and Transmission Owner and for compliance, as determined by the Commission, NERC and the Western Electricity Coordinating Council, with all reliability standards applicable to a Transmission Planner and Transmission Owner for the SF BES Facilities. Consistent with its responsibility to meet these reliability standards, San Francisco is solely responsible for implementing necessary corrective actions, modifications or changes to its 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 an applicable Reliability Standard and to support the party's self-certifications, potential violation reviews or audits.

### C. The CAISO Will Charge San Francisco an Annual Service Fee in Exchange for Its Planning Coordinator Services

The Planning Coordinator Agreement specifies that San Francisco will pay an annual service fee during the initial three year term of the agreement. The fee reflects San Francisco's pro rata share of the CAISO's costs for transmission planning. The CAISO calculated the costs of transmission planning in a 2013 cost of service study that formed the basis of the CAISO's 2015 Grid Management Charge Update. The CAISO allocated costs to San Francisco

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 Michael Epstein in Attachment B.

### D. Other Provisions

The Planning Coordinator Agreement includes a variety of standard provisions that round out the parties' commitment. 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 November 10, 2015.

## V. Request for Confidential Treatment

Included under separate cover with this filing, pursuant to Commission Order Nos. 630 and 630-A, is a copy of the non-public portions of the Planning Coordinator Agreement (specifically, Attachment 1, which is a diagram of San Francisco's bulk electric system facilities). Attachment 1 includes Critical Energy Infrastructure Information ("CEII") (as defined in 18 C.F.R. §388.113) that is being submitted pursuant to 18 C.F.R §388.112. The CAISO seeks CEII treatment for this Attachment because it provides specific, detailed information regarding the production, generation, transmission or distribution of energy going beyond the location of this critical infrastructure, which information could be useful to a person planning an attack on critical infrastructure, and its public disclosure could pose significant security problems as to the facilities referenced therein. For these reasons, the CAISO submits that this information is exempt from mandatory public disclosure requirements under the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, and should be withheld from public disclosure.

## VI. Request for Waivers

The CAISO believes this filing constitutes a new service (Planning Coordinator services) to a new customer (San Francisco), and is thus an initial rate schedule, subject to section 35.12 of the Commission's regulations, 18 C.F.R. § 35.12 (2015). This filing substantially complies with the requirements of section 35.12 of the Commission's regulations, 18 C.F.R. § 35.12 (2015), 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 rules, 18 C.F.R. § 35.13 (2015), 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.

Enclosed for filing is each of the following:

(1) This letter of transmittal; and
(2) Planning Coordinator Agreement (Attachment A); and
(3) Declaration of Michael K. Epstein, Director of Financial Planning (Attachment B).

## VIII. Correspondence

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
E-mail: jspomer@caiso.com

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

## IX. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit the Planning Coordinator Agreement, CAISO Rate Schedule No. 80, to be effective November 10, 2015. If there are any questions concerning this

filing, please contact the undersigned.

Respectfully submitted,

**By: *<u>/s/ John E. Spomer</u>***
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Attorneys for the California Independent
System Operator Corporation

**Attachment A – Clean Tariff Records**

**Planning Coordinator Agreement between**

**The City and County of San Francisco-California ISO**

**California Independent System Operator Corporation**

# PLANNING COORDINATOR AGREEMENT

THIS AGREEMENT is dated this 14th day of May 2015, and is entered into, by and between:

(1) City and County of San Francisco, a municipal corporation ("San Francisco" or "City");

and

(2) 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, currently 250 Outcropping Way, Folsom, California 95630 ("CAISO").

San Francisco and the 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, the North American Electric Reliability Corporation ("NERC") and the Western Electricity Coordinating Council ("WECC") have developed Reliability Standards, certain of which apply to CAISO and San Francisco, and NERC has delegated to WECC enforcement of the Reliability Standards in the Western United States including California; and

C. WHEREAS, San Francisco 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") (collectively, "SF BES Facilities") but is not a Participating Transmission Owner ("PTO") as that term is defined in the FERC approved tariff of CAISO ("CAISO Tariff"); and

D. WHEREAS, San Francisco's current SF BES Facilities are set forth in the diagram attached as Attachment 1 (Attachment 1 contains Confidential Information and is subject to Section 4.2 herein); and

E. WHEREAS, San Francisco is registered with NERC as a Generation Owner, Transmission Owner, Transmission Operator and Transmission Planner under the name of Hetch Hetchy Water and Power ("HHWP"); and

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

G. WHEREAS, the City has determined that there is a need for San Francisco to identify a Planning Coordinator for its SF BES Facilities, currently and into the foreseeable future; and

H. WHEREAS, CAISO has determined it is qualified to be the Planning Coordinator for San Francisco; and

I. WHEREAS, pursuant to this Agreement, CAISO agrees to be the Planning Coordinator for San Francisco; and

J. WHEREAS, the San Francisco Public Utilities Commission ("SFPUC"), a department of San Francisco, obtained a sole source waiver for CAISO on February 20, 2015; and

K. WHEREAS, approval for this Agreement was obtained when the San Francisco Civil Service Commission approved Contract number PSC 42027-13/14 on August 4, 2014; and

L. WHEREAS, the Parties are entering into this Agreement in order to establish the terms and conditions on which CAISO and San Francisco 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:

(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 SF BES Facilities;

(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 SF BES Facilities.

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

**2.2 Description of San Francisco Responsibilities.** While the Agreement is in effect, San Francisco shall have the following responsibilities:

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

(b) San Francisco will be responsible for compliance, as determined by FERC, NERC and WECC, with all Reliability Standards applicable to a Transmission Planner for the SF BES Facilities.

## 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 San Francisco anticipate coordinating with each other while carrying out their respective responsibilities as a Planning Coordinator and Transmission Planner with respect to the SF BES Facilities. San Francisco 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 San Francisco. For the avoidance of doubt, the Parties clarify that requests for new or modified interconnections to the SF BES Facilities may be processed pursuant to the interconnection procedures adopted by San Francisco 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 San Francisco with respect to interconnections to PTO facilities.

**3.4 San Francisco's Responsibility for its Facilities.** San Francisco 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 Planner and a Transmission Owner, San Francisco has final authority over and is solely responsible for implementing necessary corrective actions, modifications or changes to its facilities.

**3.5 Provision of Data.** San Francisco 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 SF BES Facilities.

**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 audits, 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 audits.

**3.7 Additional Studies or Assessments By CAISO.** San Francisco 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 San Francisco 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.** San Francisco 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 $250,000 during the Current Term of the Agreement.

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

The annual service fee will be based on the number of BES transmission circuits that are owned by San Francisco and included in the CAISO's Transmission Register 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 the 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, San Francisco 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, San Francisco 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 San Francisco will agree in writing on the applicable hourly rate, the scope of work, and a total fee estimate. CAISO shall submit to San Francisco monthly invoices for such studies or assessments consistent with Section 4.1.3 of this 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 San Francisco and include a unique invoice number. San Francisco will provide CAISO with an acceptable form of invoice no later than the Effective Date of the Agreement. Payment shall be made by San Francisco 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 and San Francisco must comply with San Francisco's Sunshine Ordinance, San Francisco Administrative Code §67.

**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, if such FERC filing is required, ("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. Notwithstanding the foregoing, the Parties agree that the San Francisco Controller must certify the availability of funds and notify the CAISO in writing of such before the Agreement may become effective. The Parties may mutually agree in writing to extend the term of the Agreement at any time, provided that, with respect to San Francisco, such agreement must be approved in the same manner as this Agreement and must comply with all applicable San Francisco requirements.

**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 San Francisco, in the event that San Francisco 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 San Francisco written notice of the default, unless excused by reason of Uncontrollable Forces 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 San Francisco. 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 San Francisco 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 San Francisco.** San Francisco 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 San Francisco'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 Termination in the Event of Non-Appropriation.** This Agreement is subject to the budget and fiscal provisions of the San Francisco's Charter. This Agreement will terminate without penalty, liability or expense of any kind to San Francisco at the end of any fiscal year if funds are not appropriated for the next succeeding fiscal year. If funds are appropriated for a portion of the fiscal year, this Agreement will terminate, without penalty, liability or expense of any kind at the end of the term for which funds are appropriated. San Francisco has no obligation to make appropriations for this Agreement in lieu of appropriations for new or other agreements. San Francisco budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. CAISO's assumption of risk of possible non-appropriation is part of the consideration for this Agreement.

In addition, charges for services rendered by CAISO under this Agreement will accrue only after prior written authorization certified by the Controller, and the amount of San Francisco's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization. Except as may be provided by laws governing emergency procedures, officers and employees of San Francisco are not authorized to request, and San Francisco is not required to reimburse the CAISO for, commodities or services beyond the agreed upon contract scope unless the changed scope is authorized by amendment and approved as required by law. Officers and employees of San Francisco are not authorized to offer or promise, nor is San Francisco required to honor, any offered or promised additional funding in excess of the maximum amount of funding for which the contract is certified without certification of the additional amount by the San Francisco Controller. The San Francisco

Controller is not authorized to make payments on any contract for which funds have not been certified as available in the budget or by supplemental appropriation.

**4.4.5 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 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), Section 4.15 (Compliance with San Francisco Laws and Ordinances), Section 4.16 (Taxes), Section 4.19 (Merger), Section 4.20 (Severability) and Section 4.21 (Amendments), (ii) relieve San Francisco 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.

**4.4.6 Transition Assistance.** Except in the case of a termination for a default by San Francisco, if San Francisco so requests, the CAISO will reasonably assist San Francisco to transition to another Planning Coordinator, including providing data and assistance, provided that San Francisco will reimburse the 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 the CAISO as a Planning Coordinator for the violation of one or more Reliability Standards, and the conduct or omission(s) of San Francisco contributed, in whole or in part, to the violation(s) at issue, then the CAISO may recover from San Francisco that portion of the penalty that resulted from San Francisco'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 San Francisco, 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, reasonable levels of Commercial General Liability, Workers' Compensation, Commercial Auto Liability and Professional Liability insurance coverage. Upon request, CAISO shall provide San Francisco with copies of its certificates of insurance evidencing the coverage maintained pursuant to this Section 4.8 and shall name San Francisco as an additional insured to the extent of its insurable interest. CAISO's insurance policies shall require third party insurers providing Commercial General Liability, Workers' Compensation, Commercial Auto Liability and Professional Liability insurance coverage supporting this Agreement to waive any rights of subrogation or recovery in favor of San Francisco.

**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 San Francisco 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 San Francisco, 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 San Francisco 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 either San Francisco or 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 Compliance with San Francisco Laws and Ordinances.** San Francisco is required to advise contracting parties of certain state and local rules and ordinances that these parties must adhere to during the course of performance of a contract with San Francisco. CAISO acknowledges that it has read and understands the rules and ordinances specified in Attachment 5 hereto, and that it complies with these provisions to the extent they are applicable to CAISO's performance of services under this Agreement.

**4.16 Taxes.** Payment of any taxes, including possessory interest taxes and California sales and use taxes, levied upon or as a result of this Agreement, or the services delivered pursuant hereto, shall be the obligation of the CAISO.

**4.17 Subcontracting.** Neither Party may subcontract this Agreement, or 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.

**4.18 Non-Discrimination.** In the performance of this Agreement, CAISO agrees not to discriminate against any employee, San Francisco employee working with CAISO, applicant for employment with CAISO, or against any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations, on the basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age, height, weight, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status), or association with members of such protected classes, or in retaliation for opposition to discrimination against such classes.

**4.19 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.

**4.20 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.

**4.21 Amendments.** This Agreement and the Attachments hereto may be amended from time to time by the mutual agreement of the Parties in writing, but in the case of San Francisco, such mutual written agreement must be executed and approved in the same manner as this Agreement. If FERC filing is required for this Agreement, amendments that require FERC approval shall not take effect until FERC has accepted such amendments for filing and made them effective. If FERC filing is not required for this Agreement, an amendment shall become effective in accordance with its terms.

If FERC filing is required for this Agreement, 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 San Francisco 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.

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

Name: Eric Schmitt _____

Title: VP, Operations _____

Date: 5/7/2015 _____

**City and County of San Francisco**

By: _____

Name: _____

Title: _____

Date: _____

Approved as to Form:

Dennis J. Herrera
City Attorney

By: _____
Jeanne M. Solé
Deputy City Attorney

DocuSign Envelope ID: 92134135-C864-4999-B2FD-9764364F3F1A



**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: _____

Name: _____

Title: _____

Date: _____

**City and County of San Francisco**

By: _____

Name: Harlan L. Kelly, Jr.

Title: General Manager, San Francisco Public Utilities Commission

Date: May 14, 2015

Approved as to Form:

Dennis J. Herrera
City Attorney

By: _____
Jeanne M. Solé
Deputy City Attorney

## Attachment 1

## Diagram

Hetch Hetchy Water & Power (HHWP) System

CRITICAL ENERGY INFRASTRUCTURE INFORMATION

REDACTED PURSUANT TO

18 C.F.R. § 388.112

## Attachment 2

## CAISO and San Francisco Coordination

### 1. Interconnections

Affected standards: FAC-002-1; FAC-002-2 (effective 1/1/2016), which will replace FAC-002-1

With respect to interconnections to HHWP facilities, HHWP 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 HHWP interconnection studies in its Large Generator Interconnection Procedure ("LGIP") and TPP studies. HHWP 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 BPMs, or (2) HHWP's rights and responsibilities with respect to such interconnections.

### 2. Transmission Planning

Affected standards: TPL-001-4 (enforcement date: 1/1/2016), which will replace the four existing TPL standards (TLP-001-0.1, TLP-002-0b, TLP-003-0b, TLP-004-0a), which will be retired on 12/31/2015. WECC Regional Criteria TLP-001-WECC-CRT-2.1

HHWP will participate in the CAISO TPP. HHWP will submit to the CAISO the information about the HHWP 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, HHWP has the final responsibility and authority over implementing corrective actions, modifications or changes to its facilities.

### 3. SOLs, Transfer Capability and Stability Limits

Affected standards: FAC-010-2.1, FAC-013-2, FAC-014-2

CAISO will document and share its SOL Methodology for use in developing SOLs within its Planning Authority Area, including the HHWP system. HHWP will establish and provide to CAISO SOLs for the HHWP system consistent with the CAISO SOL Methodology. CAISO will adopt SOLs for its Planning Authority Area, incorporating as appropriate the information provided by HHWP.

HHWP 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 HHWP. HHWP will provide CAISO HHWP's list of multiple HHWP/Adjacent system contingencies (if any) which result in stability limits on the HHWP system (see TPL-003) for use by the CAISO as appropriate in carrying out its responsibilities under FAC-014-2.

**4. Modeling**

Affected standards: MOD-016-1.1, MOD-017-0.1, MOD-018-0 and MOD-019-0.1, which will be replaced by MOD-031-1 (effective 7/1/2016); MOD-032-1 R1 (effective 7/1/2015); MOD-032-1 R2, R3, R4 (effective 7/1/2016)

HHWP will provide HHWP transmission system 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, developed consistent with its Tariff and BPMs, that identifies 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 HHWP transmission system load data provided by HHWP as needed to meet its obligations under MOD-016-1.1, MOD-017-0.1 and MOD-018.0. MOD-019-0.1 is not applicable because there are no HHWP interruptible demands or DCLM load data on the HHWP system.

**5. UFLS**

Affected standards and regional criteria: PRC-006-1, PRC-006-WECC-CRT-1. PRC-006-2 (effective 10/1/2015), which will replace PRC-006-1

HHWP will participate and/or provide information as necessary for CAISO's studies related to PRC-006. HHWP will participate and/or provide information as necessary for the CAISO's activities related to PRC-006-WECC-CRT-1.

**6. Transmission Relay Loadability**

Affected standards: PRC-023-3

CAISO will include the HHWP system 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, HHWP will provide facilities information needed by CAISO to perform its PRC-023-3 evaluations.

**7. Nuclear**

Not Applicable.

# Attachment 3

## Calculation of Annual Service Fee For 2014

**Table 1 – TPP Cost Calculation Using 2015 GMC Update Cost of Service Study[1]**

| Cost of Long Term Transmission Planning[2] | | | | | |
|---|---|---|---|---|---|
| **ABC Level 2 Activities (*$ in thousands*) all in Systems Operations** | **ABC Level 1** | **ABC Level 2** | **Amount** | **2014 Factor** | **Allocation** |
| Regulatory contract procedures | 80001 | 201 | $378 | 0% | - |
| Manage Generator Interconnection Procedures (GIP) agreements | 80001 | 202 | $818 | 0% | - |
| Manage GIP | 80001 | 203 | $2,342 | 0% | - |
| **Long Term Transmission Planning – TPP** | **80001** | **204** | **$4,273** | **50%** | **$2,137** |
| New transmission resources | 80001 | 205 | $552 | 0% | - |
| Transmission maintenance studies | 80001 | 206 | $499 | 0% | - |
| Load resource data | 80001 | 207 | $268 | 0% | - |
| Season assessment | 80001 | 208 | $223 | 0% | - |
| Queue management | 80001 | 209 | $615 | 0% | - |
| Annual Delivery Assessment | 80001 | 210 | 25 | 0% | - |
| **Subtotal: TPP Direct costs (see reference 2)** | | | **$9,993** | | **(1) $2,137** |
| Total System Operations Direct Costs (see reference 1, Table 22) | | | | | (2) $48,915 |
| Percentage of TPP to ABC level 2 Direct Costs [(1)/(2)] | | | | | (3) 4.37% |
| Total System Operations Indirect Dollars (see reference 1, Table 22 | | | | | (4) $88,809 |
| **Subtotal: TPP related indirect costs [(3) x (4)]** | | | | | **(5) $3,879** |
| **Total Direct and Indirect level 2 TPP costs [(1) + (5)]** | | | | | **(6) $6,016** |

| **Annual Planning Coordinator Service Charge Calculation (*$ in thousands*)** | |
|---|---|
| Total number of transmission circuits in ISO 2012/2013 Transmission Plan | (7) 1533 |
| Total number of transmission circuits in San Francisco system | (8) 6 |
| TPP cost per transmission circuit in ISO 2013/2014 Transmission Plan [(6) / (7)] | (9) $3.92 |
| **Initial Annual Planning Coordinator service charge ($ in 1000s) [(8) x (9)]** | **$23.545** |

[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:

Regulatory Contracts
250 Outcropping Way
Folsom, CA 95630
Telephone: (916) 351-4400
Electronic mail: RegulatoryContracts@caiso.com

2. As to the CITY AND COUNTY OF SAN FRANCISCO:

Daniel Mason
NERC Compliance Manager
Hetch Hetchy Water and Power
PO Box 160
Moccasin, CA 95347
Telephone: (209) 989-2579
Electronic mail: DMason@sfwater.org

## Attachment 5

### Applicable Local Rules and Ordinances

1. Section 21.34 of San Francisco's Administrative Code;

2. Section 21.35 of San Francisco's Administrative Code;

3. Section 15.103 of the City of San Francisco's Charter; Article III, Chapter 2, and Section 1.126 of San Francisco's Campaign and Governmental Conduct Code; and Section 87100 et seq. and Section 1090 et seq. of the Government Code of the State of California;

4. Section 12F.5 of San Francisco's Administrative Code;

5. Chapter 12G of San Francisco's Administrative Code;

6. Sections 12M.2 and 12M.3 of San Francisco's Administrative Code; and

7. Chapters 12B and 12C of San Francisco's Administrative Code.

### Possessory Interest Tax Provisions

The CAISO recognizes and understands that this Agreement may create a "possessory interest" for property tax purposes. Generally, such a possessory interest is not created unless the Agreement entitles the CAISO to possession, occupancy, or use of San Francisco property for private gain. If such a possessory interest is created, then the following shall apply:

1) The CAISO, on behalf of itself and any permitted successors and assigns, recognizes and understands that the CAISO, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest;

2) The CAISO, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a "change in ownership" for purposes of real property taxes, and therefore may result in a revaluation of any possessory interest created by this Agreement. The CAISO accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the San Francisco to the County Assessor the information required by Revenue and Taxation Code section 480.5, as amended from time to time, and any successor provision.

3) The CAISO, on behalf of itself and any permitted successors and assigns, recognizes and understands that other events also may cause a change of ownership of the possessory interest and result in the revaluation of the possessory interest. (see, e.g., Rev. & Tax. Code section 64, as amended from time to time). The CAISO accordingly agrees on behalf of itself and its permitted successors and assigns to report any change in ownership to the County Assessor, the State Board of Equalization or other public agency as required by law.

4) The CAISO further agrees to provide such other information as may be requested by the City to enable the City to comply with any reporting requirements for possessory interests that are imposed by applicable law.

**Attachment B – Declaration of Michael K. Epstein**

**Planning Coordinator Agreement between**

**The City and County of San Francisco-California ISO**

**California Independent System Operator Corporation**

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

| | | |
|---|---|---|
| **California Independent System Operator Corporation** | **)** **)** | **Docket No. ER15-___-000** |

**DECLARATION OF MICHAEL K. EPSTEIN**
**ON BEHALF OF THE**
**CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

I, Michael K. Epstein, state as follows:

1. I am employed as Director of Financial Planning for the California Independent System Operator Corporation (the "CAISO"). My business address is 250 Outcropping Way, Folsom, California 95630. I am responsible for the CAISO's budget preparation and management; long term planning; accounting for the FERC refund case; market cash settlements; and audit coordination for all the CAISO's settlement and operations activities. As part of my duties at the CAISO, I oversee the development of the CAISO's grid management charge.

2. The document "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 and County of San Francisco ("San Francisco") under the Planning Coordinator Agreement between the CAISO and San Francisco, attached as Exhibit 2 to my declaration, were prepared under my supervision.

3. 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 San Francisco under the Planning Coordinator Agreement between the CAISO and San Francisco," in 2015 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: September 10, 2015

/s/ Michael K. Epstein
Michael K. Epstein

**Exhibit 1 to Declaration of Michael K. Epstein**

**California ISO – 2015 GMC Update Cost of Service Study**

# California ISO

# 2015 GMC Update
# Cost of Service Study

## April 2, 2014

## Table of Contents

# 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. 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. 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.

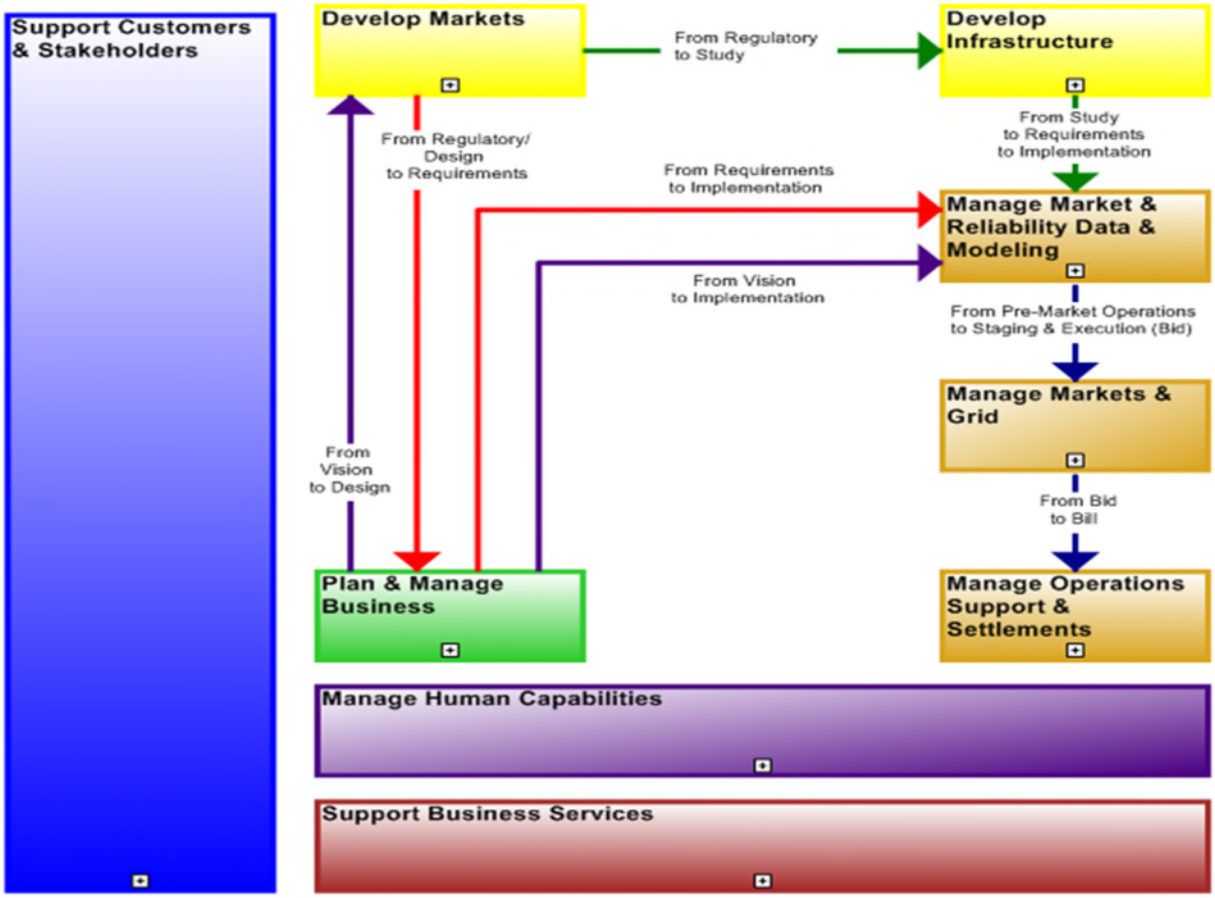
This 2015 cost of service study uses the same ABC modeling and cost allocation methodology used to calculate the cost allocation percentages and TOR fee. However, the 2015 cost of service study updates the 2012 analysis by using 2013 data and also incorporates changes to the level 1 and 2 ABC processes 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.

# 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% | | | The costs support equally both market and system operations |
| RMR application Validation Engine (RAVE) | 50% | 50% | | | |
| 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) | | |
|---|---|---|---|---|
| **Division** | | **Total** | **ABC Activities** | **Non-ABC** |
| 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 infra-structure (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 stake-holders (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 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CEO 2100 | MID 2200 | Tech 2400 | Ops 2500 | GCAS 2600 | MQRI 2700 | PCS 2800 | Total |
| **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 infra-structure (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 stake-holders (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**

| | | ISO Divisions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **ABC Level 2 Activities** | **Cost Code** | **CEO 2100** | **MID 2200** | **Tech 2400** | **Ops 2500** | **GCAS2 2600** | **MQRI 2700** | **PCS 2800** | **Total** |
| **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)** | | | | | | | | | |

| | | ISO Divisions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **ABC Level 2 Activities** | **Cost Code** | **CEO 2100** | **MID 2200** | **Tech 2400** | **Ops 2500** | **GCAS2 2600** | **MQRI 2700** | **PCS 2800** | **Total** |
| 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 SSC** | | | | | | **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 | 505 | 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% |

**Exhibit 2 to Declaration of Michael K. Epstein**

**Long Term Transmission Planning Coordinator Cost Calculations**

## Long Term Transmission Planning Cost Calculation

As of 7/30/2015

**2015 GMC update meeting April 17, 2014 Cost of service Study**

http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=72F94714-E777-4666-96B5-2948F249F67C

**Exhibit 2 - 2013 Cost of Service Study Summary**

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

**Cost of Long Term Transmission Planning (LTPP)**

| ABC Level 2 Activities ($ in thousands) all in Systems Operations | Code | System Operations | Indirect | Amount | LTPP Factor | Allocation to LTPP |
|---|---|---|---|---|---|---|
| **From Page 2 - 2013 ABC Level 2 Direct Costs** | | | | | | |
| **Develop Infrastructure (DI)** | **80001** | | | | | |
| **Regulatory contract procedures** | 201 | | 100% | $ 378 | 0% | $ - |
| Manage Generator Interconnection Proceedures (GIP) agreements | 202 | 100% | | $ 818 | 0% | - |
| Manage GIP | 203 | 100% | | $ 2,342 | 0% | - |
| **Long Term Transmission Planning - LTPP** | **204** | **100%** | | **$ 4,273** | **50%** | **2,137** |
| New transmission resources | 205 | 100% | | $ 552 | 0% | - |
| Transmission maintenance studies | 206 | 100% | | $ 499 | 0% | - |
| Load resource data | 207 | 100% | | $ 268 | 0% | - |
| Season assessment | 208 | 100% | | $ 223 | 0% | - |
| Queue management | 208 | 100% | | $ 615 | 0% | - |
| Annual delivery assessment | 210 | 100% | | $ 25 | 0% | - |
| **Total LTPP Direct costs (activity 204 = $4,273 x factor of 50%)** | | | | **$ 9,993** | | **$ 2,137** |
| **From Page 1 - 2013 Revenue Requirement using 2013 ABC Data** | | | | | | |
| Total System Operations Costs before allocation of indirect costs | | | | | | $ 48,915 |
| Percentage of LTPP costs to ABC level 2 Direct Costs ($2,137 / $48,915) | | | | | | 4.37% |
| Total System Operations Indirect Dollars Allocated | | | | | | $ 88,809 |
| **LTPP allocated indirect costs (4.37% x $88,809)** | | | | | | **$ 3,879** |
| **Total Long Term Transmission Planning costs ($2,137 + $3,879)** | | | | | | **$ 6,015** |

**Annual Planning Coordinator Service Charge Calculation**

| | |
|---|---|
| Total number of transmission circuits in ISO 2012/2013 Transmission Plan | 1,533 |
| Total number of transmission circuits in Hetch Hetchy system | 6 |
| LTPP cost per transmission circuit in ISO 2012/2013 Transmission Plan | $ 3.92 |
| **Annual Planning Coordinator service charge ($ in 1000s)** | **$ 23.544** |

## 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%** |

**Total Number of Transmission Circuits**

| Number of Circuits by PTO | # of Circuits |
|---|---|
| PG&E | 1,125 |
| SCE | 190 |
| SDG&E | 200 |
| VEA | 16 |
| TBC | 1 |
| WASN | 1 |
| Total ISO Grid | 1,533 |
| CCSF | 6 |

**DeShazo, Gary**

**From:** Rutty, Steve
**Sent:** Tuesday, March 17, 2015 12:44 PM
**To:** DeShazo, Gary
**Subject:** ISO Lines and mileages

Gary, here are the lines and mileages as of Dec 31, 2014.

60 kV class includes 55, 60, 66, 69, 70, and 92kV
115 kV class includes 115, 138, and 161 kV
230 kV class includes 220 and 230 kV
500 kV class includes 500 kV

| As of Dec 31, 2014 | No. of 500kV Lines | No. of 230kV Lines | No. of 115kV Lines | No. of 69kV Lines | No of +/- 200 kV DC Lines | Totals |
|---|---|---|---|---|---|---|
| PGAE | 18 | 193 | 470 | 444 | | 1125 |
| SCE | 30 | 143 | 13 | 4 | | 190 |
| SDGE | 7 | 27 | 32 | 134 | | 200 |
| TBC | | | | | 1 | 1 |
| WASN | 1 | | | | | 1 |
| VEA | | 4 | 12 | | | 16 |
| | 56 | 367 | 527 | 582 | 1 | 1533 |

| | 500kV Line Miles | 230kV Line Miles | 115kV Line Miles | 69kV Line Miles | +/- 200 kV DC Line Miles | Totals |
|---|---|---|---|---|---|---|
| PGAE | 1285.36 | 5038.63 | 5753 | 5196.4 | | 17273.39 |
| SCE | 1687.59 | 3339.7 | 666.46 | 112.14 | | 5805.89 |
| SDGE | 365.06 | 536.23 | 254.34 | 894.66 | | 2050.29 |

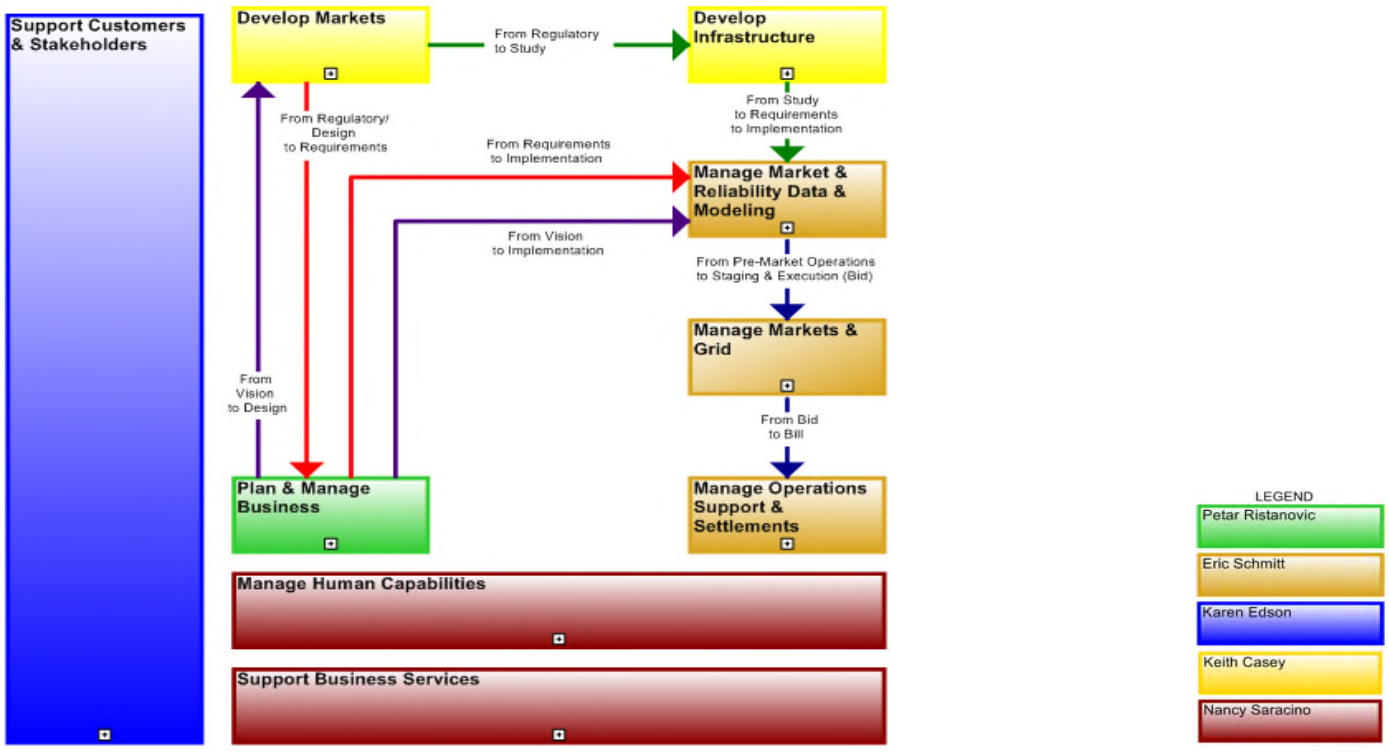
| | | | | | |
|---|---|---|---|---|---|
| | **Develop Infrastructure** | | | | |
| | Based on ABC Direct Operating Activities from 2013 Budget | | | | |
| | Using 2013 actual time (amounts in thousands) | | | | |
| Code | ABC Level 2 Activities | ABC costs | Less LGIP study fees | Net | |
| | | | | | |
| 80001 | **Develop Infrastructure (DI)** | | | | |
| 201 | Regulatory contract procedures | $ 378 | $ - | $ 378 | |
| 202 | Manage Generator Interconnection Proceedures (GIP) agreements | 818 | - | 818 | |
| 203 | Manage GIP | 2,342 | | 2,342 | |
| 204 | Long Term Transmission Planning | 4,273 | - | 4,273 | |
| 205 | New transmission resources | 552 | - | 552 | |
| 206 | Transmission maintenance studies | 499 | - | 499 | |
| 207 | Load resource data | 268 | - | 268 | |
| 208 | Season assessment | 223 | - | 223 | |
| 209 | Queue management | 615 | - | 615 | |
| 210 | Annual delivery assessment | 25 | - | 25 | |
| | **Total** | **$ 9,993** | **$ -** | **$ 9,993** | |
| | | - | | | |

| | |
|---|---|
| 201 | IP&C is responsible for managing all regulatory contracting mechanisms for the ISO. 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. |
| 202 | Depicts the ISO oversight and implementation of the FERC approved Generator Interconnection Agreement (GIA). |
| 203 | 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 ISO 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.<br>Depicts the ISO Grid Assets oversight and implementation of the FERC approved Generator Interconnection Proceedures (GIP) for Interconnection Requests that meet the criteria for the Fast Track Process. Only provisions of the GIP that are superceeded by Independent Study Process are detailed here.<br>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 superceeded by Independent Study Process are detailed here.<br>Depicts the ISO Grid Assets oversight and implementation of the FERC approved GIP for Queue Cluster Tariff Section 25 Appendix Y, effective date of December 19, 2010. Includes Phase I and Phase II Interconnection Studies. |
| 204 | This process is responsible for:<br>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<br>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<br>3) Generator Interconnection Study obligations<br>4) Renewable Integration analysis to assess operational reliability and infrastructure requirements to meet 33% requirements by 2020<br>5) On an annual basis, assess and validate feasibility of all Long-term CRRs<br>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<br>7) Conduct Deliverability and Locational Capacity Studies in support of the CPUC resource adequacy requirements<br>8) Generation and transmission reliability assessment (i.e., Planning Reserve Margin and transmission probabilistic planning)<br>9) Sub-regional/Regional/National work on Planning Issues through NERC, FERC, and WECC<br>10) Special projects; Represent the ISO in technical groups and committees |
| 205 | Major tasks by all ISO departments to incorporate all various types of tranmission projects into the grid infrastructure. Additional detail provided in deptartment specific process flow diagrams. Not all tasks are performed for every type of transmission project. |
| 206 | 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:<br>1) PTO Maintenance Practices - PTO provides and ISO adopts as appropriate a detailed description of the PTO's maintenance program;<br>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;<br>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;<br>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.<br>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. |
| 207 | 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. |
| 208 | Depicts the process for seasonal assessment. |
| 209 | Depicts the process for ongoing management of the Generator Queue (post-study). There are six tariff tracking requirements. |

# CAISO Business Process Framework Overview v3.2 (8/6/2013)

- 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

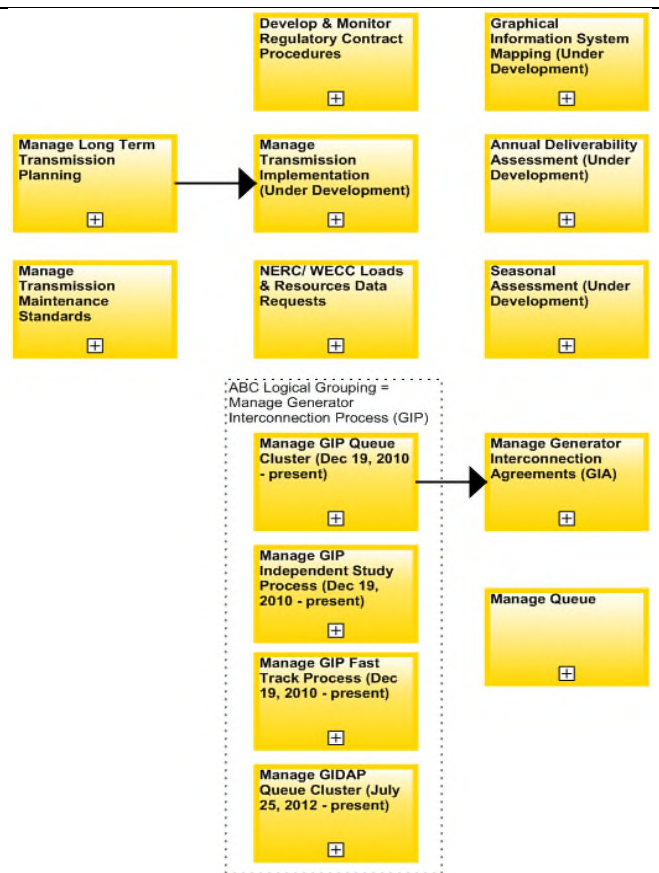



Last Updated: 07/17/13

| Process Name | Code | Process Owner | Key Activities |
|---|---|---|---|
| Develop Infrastructure (DI) | 80001 | VP, Market Infrastructure & Development | Transmission Planning, Grid Assets Reviews & Interconnections |
| Develop Markets (DM) | 80002 | VP, Market Infrastructure & Development | Regulatory, Market, Policy & Product Design |
| Manage Human Capabilities (MHC) | 80003 | VP, General Counsel & Chief Administration Officer | Employee Lifecycle, Training & Organizational Development |
| Manage Market & Reliability Data & Modeling (MMR) | 80004 | VP, Operations | Resource Data Setup & Changes, Procedures, Training, Base Model Setup & CRRs |
| Manage Markets & Grid (MMG) | 80005 | VP, Operations | Outages, DA Market, Interchange Scheduling, RT HA, RT Generation & Transmission & Emergency Operations |
| Manage Operations Support & Settlements (MOS) | 80007 | VP, Operations | Operations Data Analysis, Billing & Settlements & 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 & Market Monitoring Support Services |
| Support Customers & Stakeholders (SCS) | 80010 | VP, Policy & Client Services | Client, Account & Stakeholder Processes, Government Affairs & 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




LEGEND

Market & Infrastructure Development

Last Updated: 8/6/13

| Processes | Code | 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 | Director, Infrastructure Contracts & Management | Depicts the ISO oversight and implementation of the Federal Energy Regulatory Commission (FERC) approved Generator Interconnection Agreement (GIA). |
| 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 superceeded 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 superceeded 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:<br>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<br>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<br>3) Generator Interconnection Study obligations<br>4) Renewable Integration analysis to assess operational reliability and infrastructure requirements to meet 33% requirements by 2020<br>5) On an annual basis, assess and validate feasibility of all Long-term CRRs<br>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<br>7) Conduct Deliverability and Locational Capacity Studies in support of the CPUC resource adequacy requirements<br>9) Generation and transmission reliability assessment (i.e., Planning Reserve Margin and transmission probabilistic planning)<br>9) Sub-regional/Regional/National work on Planning Issues through NERC, FERC, and WECC<br>10) Special projects; Represent the ISO in technical groups and committees |
| Manage Transmission Implementation (Under Development) | 205 | Director, Infrastructure Contracts & Management | Major tasks by all ISO departments to incorporate all various types of tranmission projects into the grid infrastructure.<br>Additional detail provided in deptartment specific process flow diagrams.<br>Not all tasks are performed for every type of transmission project. |
| 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:<br>1) PTO Maintenance Practices - PTO provides and ISO adopts as appropriate a detailed description of the PTO's maintenance program;<br>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;<br>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;<br>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.<br>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 (Under Development) | 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).<br>There are six tariff tracking requirements. |
| Annual Deliverability Assessment | 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) | n/a | Director, Grid Assets | Depicts the process to create specific detailed transmission maps for internal and external requests. |