ALSTON&BIRD LLP

The Atlantic Building
950 F Street, NW
Washington, DC 20004-1404

202-756-3300
Fax: 202-756-3333

Ronald E. Minsk | Direct Dial: 202-756-3496 | Email: ron.minsk@alston.com

February 20, 2008

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

RE: California Independent System Operator Corporation
Docket No. ER08-___-000
Revisions to Grid Management Charge

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act ("FPA"), 16 U.S.C. § 824d, and Section 35.13 of the Commission's Regulations, 18 C.F.R. § 35.13 (2007), the California Independent System Operator Corporation ("CAISO") submits for filing six copies of revisions to its Grid Management Charge ("GMC") rate formula.[1] Two additional copies are enclosed to be time-stamped and returned to our messenger.

The GMC is the rate through which the CAISO recovers its administrative and operating costs, including the costs incurred in establishing the CAISO prior to the commencement of operations. The GMC operates on a formula basis, subject to certain restrictions, i.e., the CAISO is authorized to implement changes to the GMC charges by applying the GMC formula rate to the CAISO's budgeted revenue requirement, as long as the CAISO's annual budget does not exceed $195 million.

The current GMC formula rate was established by the CAISO's filing of minor revisions to the GMC rate formula on July 26, 2006, which were accepted by an order issued on delegated authority on September 6, 2006. That filing established the GMC rate design through the earlier of the implementation of the CAISO's Market Redesign

[1] All capitalized terms used herein and not otherwise defined herein shall have the meanings assigned to such terms in the CAISO's tariff.

and Technology Upgrade ("MRTU"), which was then projected for November 1, 2007, or January 1, 2008.

Because implementation of MRTU was delayed beyond the end of 2007, on October 31, 2007 the CAISO submitted to the Commission for approval the 2008 GMC Rate Design. That rate design continues in effect the 2007 GMC rate design without change as the 2008 GMC Rate Design until the implementation of MRTU or December 31, 2008, whichever date happens sooner. On December 19, 2007, the Commission accepted the 2008 GMC Rate Design for filing, effective January 1, 2008.

The purpose of this filing is to establish a modified GMC rate design to take effect when MRTU goes into effect (the "MRTU GMC Rate Design").

As explained below, the CAISO proposes to make only a small number of changes to the 2008 GMC Rate Design to accommodate changes in the CAISO's market operations under MRTU. In connection with the MRTU GMC Rate Design, this filing updates the CAISO Tariff's cost allocation matrix that allocates the CAISO's costs to the different GMC charges. This update reflects both the changes in the CAISO's market operations associated with implementation of MRTU and the results of an updated cost allocation study conducted by the CAISO. The study, based on 2007 budgeted costs, captures CAISO organizational changes and updates the allocation of such costs to the updated GMC rate structure based on cost causation principles.

The CAISO has conducted an extensive stakeholder process, during which the MRTU GMC Rate Design was discussed with all interested parties. Documents were posted on the CAISO's web site as part of this stakeholder process, including memoranda prepared for the CAISO Board of Governors. The proposal reflected in this filing was approved by the CAISO Board of Governors on December 13, 2007.

The CAISO respectfully submits that the rate formulae contained in the MRTU GMC Rate Design are just, reasonable and neither unduly discriminatory nor unduly preferential. The CAISO requests that the Commission accept the MRTU GMC Rate Design with an effective date coincident with the implementation of MRTU.

I. COMMUNICATIONS

Correspondence and other communications regarding this filing should be directed to:

Judith Sanders
Counsel
California Independent System
Operator Corporation
151 Blue Ravine Road
Folsom, CA 95630
Tel: (916) 351-7143
jsanders@caiso.com

Kenneth G. Jaffe
Ronald E. Minsk
Alston & Bird LLP
950 F Street, NW
Washington, DC 20004
Tel: (202) 756-3300
Fax: (202) 756-3333
kenneth.jaffe@alston.com
ron.minsk@alston.com

II. BACKGROUND

In a September 22, 2005 Order in Docket No. ER04-115, the Commission accepted an offer of proposed settlement that established the GMC rate design from January 1, 2004 through December 31, 2006. In 2006, the CAISO submitted a filing under section 205 proposing to extend the rate design in the settlement agreement, with one minor modification, through the end of 2007 or the implementation of MRTU, whichever came first. The Commission accepted this proposal, thereby approving the 2007 GMC rate design, in an order issued on delegated authority on September 6, 2006.

Because the proposed effective date for the MRTU initiative was postponed beyond the December 31, 2007 termination date for the 2007 GMC, on October 31, 2007, the CAISO submitted a section 205 filing to the Commission to maintain the existing GMC formula rate without any modification until the earlier of the implementation date of MRTU or January 1, 2009. On December 19, 2007, the Commission accepted the 2008 GMC Rate Design for filing, effective January 1, 2008. That rate design currently is in effect.

III. MRTU GMC RATE DESIGN

A. Summary of the MRTU GMC Rate Design

The GMC recovers the CAISO's operating costs through unbundled charges corresponding to the services the CAISO provides. The CAISO's revenue requirement, as reflected in the budget approved by the CAISO's Board of Governors, is allocated among the charges set forth in the formula rate included in the CAISO Tariff, which are paid by customers taking different services from the CAISO. The CAISO's MRTU GMC Rate Design is based on eight distinct charges (which is also true of the current GMC rate design); the CAISO's costs are allocated among these charges on the basis of a

matrix of cost allocation percentages, which is included in the CAISO Tariff. The allocations work in concert with formula billing determinants to create a formula rate. The formula rate will then be applied to the budgeted revenue requirement for 2008 to develop the GMC component charges payable in 2008 upon implementation of MRTU.

B. Modifications to GMC Rate Design & Estimated MRTU GMC Rates

The current GMC rate design uses eight different charges to recover the CAISO's operating costs. Those eight charges are then applied to customers taking different services from the CAISO; customers may or may not be subject to every charge depending on the services they receive from the CAISO. The current GMC charges, and the changes proposed as part of the MRTU GMC Rate Design, are as follows:

- **Core Reliability Services** ("CRS"): This charge recovers costs associated with the reliable operation of a Balancing Authority Area surrounded by other Balancing Authority Areas and achieving minimal disruptions to system operation. In response to requests by holders of Transmission Ownership Rights ("TORs") and the Commission's June 25, 2007 Order on Compliance Filings (ER06-615-003 and 005), the CAISO is proposing to modify how the CRS charge is applied to flows on TORs. As explained in the accompanying testimony of Mr. Ben Arikawa, the cost of providing reliability services to flows on TORs is lower than the cost of services provided to flows on facilities that comprise the CAISO Controlled Grid. This results in a reduction in the application of CRS costs to be applied to flows on TORs. No changes are proposed in the two charges for CRS payable with respect to non-TOR flows: the CRS-Demand Charge (which is applied on a discounted basis to Scheduling Coordinators whose non-coincident peak occurs during off-peak hours) and the CRS-Energy Export Charge.

- **Energy Transmission Services** ("ETS"): This charge represents the scalable portion of Grid Reliability Services, and is a function of the level of use of the transmission system within the Balancing Authority Area and the occurrence of system outages and disruptions. There are currently two charges for ETS: ETS-Net Energy and ETS-Uninstructed Deviations. As explained in Mr. Arikawa's testimony, the CAISO is proposing to modify the billing determinant for the ETS-Uninstructed Deviations Charge to reflect changes in the CAISO's market operations under MRTU and to net uninstructed imbalance energy of Participating Intermittent Resources over the trading month. In addition, the ETS

charge applied to flows on TORs is reduced for the reasons discussed above with respect to the CRS.

- **Congestion Management**: The GMC currently includes a charge to recover the costs the CAISO incurs in providing management and operation of inter-zonal congestion markets. Because congestion management is integrated with the CAISO's operation of the Day Ahead Market under MRTU, this charge is eliminated.

- **Forward Scheduling**: This charge recovers costs associated with the CAISO's processing of forward Schedules for Energy and Ancillary Services submitted by Scheduling Coordinators. Because the CAISO's processing of forward Schedules will change under MRTU, the billing determinants for the Forward Scheduling Charge are modified accordingly.

- **Market Usage**: This charge recovers the CAISO's costs of operating and monitoring markets for Energy and Ancillary Services and determining market clearing prices. The CAISO proposes to modify the billing determinants for the Market Usage Charge to reflect changes in market operations under MRTU. Mirroring the change in the ETS-Uninstructed Deviations charge, the Uninstructed Imbalance Energy for Participating Intermittent Resources will be netted over the trading month. In addition, a second Market Usage charge, Market Usage-Forward Energy, is proposed to be applied to megawatt hours of net Energy purchases and sales in the Day Ahead Market.

- **Settlements, Metering, and Client Relations**: This charge recovers a portion of the CAISO's costs associated with maintaining customer account data, providing account information to customers, calculating market charges, processing Settlement Statements, resolving customer disputes, responding to customer inquiries, and providing customer training. The design of this charge as a fixed monthly fee is unchanged.

In addition to eliminating the congestion management charge, the CAISO proposes as part of the MRTU GMC Rate Design to eliminate the discounted rates for Schedules on the Mohave transmission line and the discounted Forward Scheduling rates that were adopted in the settlement that resolved Docket No. ER04-115-000.

Table 1, below, summarizes the charges comprising the MRTU GMC Rate Design, as well as the billing determinants applicable to each charge. The table also

includes the estimated rate for each charge based on the CAISO's approved budget for 2008 and its current estimate of billing determinants for 2008**.**

Table 1: Summary of Billing Determinants & Estimated GMC Rates

Charge	Billing Determinant		Estimated Rate
CRS-Demand (peak)	Monthly Non-Coincident Peak[2]		$67.6915
CRS-Energy Export	MWhs of exports, excluding the exports on TORs		$0.6740
ETS-Net Energy	MWhs of Metered Balancing Authority Area Load, excluding the Load on TORs		$0.2697
ETS-Uninstructed Deviations	MWhs of net Uninstructed Imbalance Energy		$0.9694
CRS/ETS-TOR	MWhs of Metered Balancing Authority Area Load scheduled on TORs		$0.2173
Forward Scheduling	Sum of number of 1) hourly schedules (including RUC schedules); 2) hourly trades (including trades of IFM uplift obligations); and 3) hourly trades for PGAB		$0.8370
Market Usage	**Market Usage: Ancillary Services and Real Time Energy**	Sum of 1) MWhs of energy scheduled in Day Ahead and Hour Ahead Scheduling Process and in Real Time; 2) MWhs of Instructed Energy; and, 3) MWhs of net Uninstructed Imbalance Energy.	$0.8626
	Market Usage: Forward Energy	MWhs of net Energy purchases and sales in Day Ahead Market	$0.4400
SMCR	Monthly customer charge		$1,000

[2] As under the current GMC rate design, if a Scheduling Coordinator's metered noncoincident peak demand occurs during an off-peak hour, the CRS-Demand rate for that Scheduling Coordinator will be sixty-six percent of the standard rate.

Revised tariff sheets containing the modifications to the component charges of the GMC under the MRTU GMC Rate Design are contained in Attachments A and B to this filing, on a clean and blacklined basis, respectively.

C. Cost Allocation Study

In order to allocate its costs among the revised component charges of the MRTU GMC Rate Design, the CAISO undertook a cost of service study to calculate the cost of each service it provides and to determine how different customers cause costs to be incurred. The CAISO identified all of the activities that it undertakes and the cost of each. It then assigned the costs of each activity to the different functions it performs on behalf of its customers. Based on that information, the CAISO prepared a cost allocation matrix which specifies what percentage of the cost of each activity is attributable to each function. The costs assigned to each function on the basis of the allocation matrix are then divided by a billing determinant to establish the per unit charge for each rate established by the GMC. The results of the study are reflected in revisions to the cost allocation matrix in the Appendix F, Schedule 1 of the CAISO Tariff, which revisions are shown in Attachments A and B to this filing.

The CAISO conducted the cost of service study in the winter and spring of 2007. The CAISO started with the previous cost of service study, which was completed in 2003, and took account both of the process changes anticipated in connection with MRTU and significant changes in the CAISO's organization structure since the 2003 study. The study and its results are described in the testimony of Mr. Arikawa and in the study report that is included among the exhibits he sponsors.

D. Other Changes to the GMC

The CAISO proposes the following changes in the CAISO Tariff to conform to the MRTU market design, implement the revised GMC rate formula and provide consistent treatment and language regarding the GMC:

- Section 11.17 is amended to include the correct title of the defined term CAISO Operating and Capital Reserves Account, to replace each named GMC service category with a reference covering all categories and to clarify the reference to the Appendix F, Schedule 1 of the Tariff.
- Section 11.22.2 is amended to include references to the costs to be recovered by the GMC, with each cost defined in Appendix A, Master Definitions Supplement.
- Section 11.22.2.2 is amended to remove the definition of the term "Operating Costs," which is now called "CAISO Operating Costs" and is defined in Appendix A, Master Definitions Supplement.

- Section 11.22.2.3 is amended to remove the definition of the term "Financing Costs," which is now called "CAISO Financing Costs" and is defined in Appendix A, Master Definitions Supplement.
- Section 11.22.2.4 is amended to remove the definition of the term "Operating and Capital Reserve Costs," which is now called "CAISO Operating and Capital Reserve Costs" and is defined in Appendix A, Master Definitions Supplement.
- Section 11.22.2.5 is amended to include the charges under MRTU, to reference the descriptions of charges in Appendix F, Schedule 1 and remove references to the number of charges.
- Section 11.22.2.5.1 is amended to remove the description of the Core Reliability Services – Demand Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.2 is amended to remove the description of the Core Reliability Services – Energy Exports Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.3 is amended to remove the description of the Energy Transmission Services – Net Energy Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.4 is amended to remove the description of the Energy Transmission Services – Uninstructed Deviations Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.5 is amended to include the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge and a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.6 is amended to remove the description of the Forward Scheduling Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.7 is amended to remove the description of the Market Usage Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.5.7 is amended to remove the description of the Settlements, Metering and Client Relations Charge and include a reference to the description now located in Part A of Appendix F, Schedule 1.
- Section 11.22.2.6 is amended to include the correct titles of defined terms now referenced in Appendix A, Master Definitions Supplement.
- Section 11.22.3 is amended to replace the term "Uninstructed Deviations" with the correct title of the defined term Uninstructed Imbalance Energy and spell out the term "Grid Management Charge."
- Section 11.22.3.1 is amended to replace the term "Uninstructed Deviations" with the correct title of the defined term Uninstructed Imbalance Energy and spell out the term "Grid Management Charge."

- Section 11.22.3.2 is amended to replace the term "Uninstructed Deviations" with the correct title of the defined term Uninstructed Imbalance Energy and spell out the term "Grid Management Charge."
- Section 11.22.3.3 is amended to replace the outdated references to previous charges with the currently proposed charges, to replace "deviations" with the correct title of the defined term Uninstructed Imbalance Energy and spell out the term "Grid Management Charge."
- Section 17.3.3 is amended to include "Settlement" in the title of the section, to include the Grid Management Charge as one of the charges applicable to the use of the Transmission Ownership Right and add a reference to the Tariff sections describing the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge.
- Master Definitions Supplement, Appendix A: the following definitions have been amended, added or deleted:
  - CAISO Financing Costs is added as a defined term as a cost to be recovered through the Grid Management Charge.
  - CAISO Operating and Capital Reserves Account is added as a defined term as a cost to be recovered through the Grid Management Charge.
  - CAISO Operating and Capital Reserves Costs is added as a defined term as a cost to be recovered through the Grid Management Charge.
  - CAISO Operating Costs is added as a defined term as a cost to be recovered through the Grid Management Charge.
  - CAISO Other Costs and Revenues is added as a defined term as a cost to be recovered through the Grid Management Charge.
  - CAISO Startup and Development Costs is added as a defined term as a component of CAISO Financing costs.
  - Congestion Management is deleted to reflect the elimination of that GMC charge.
  - Core Reliability Services – Demand Charge is modified by changing the reference to the CAISO Control Area to the CAISO Balancing Authority Area and to remove a redundant reference to the Tariff.
  - Core Reliability Services – Energy Exports Charge is amended by changing the reference to the CAISO Control Area to the CAISO Balancing Authority Area and to remove a redundant reference to the Tariff.
  - Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights is added to reflect its creation as a new GMC charge.
  - Energy Transmission Services – Net Energy Charge is amended by changing the reference to the Control Area to the Balancing Authority Area and to remove a redundant reference to the Tariff.

  - Energy Transmission Services – Uninstructed Deviations Charge is amended by changing the reference to "uninstructed deviations" to "Uninstructed Imbalance Energy" and to remove a redundant reference to the Tariff.
  - Forward Scheduling Charge is amended to remove references to specific types of schedules that are assessed this charge as these schedules are described in Appendix F, Schedule 1 and to remove a redundant reference to the Tariff.
  - Grid Management Charge is amended to remove references to the specific number of charges, to remove the reference to the Congestion Management Charge, to remove a redundant reference to the Tariff and to include the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge.
  - Market Usage Charge is amended to include a reference to the markets to which the charge is assessed and to remove a redundant reference to the Tariff.
  - Metered Balancing Authority Area Load is added to reflect its use as a GMC billing determinant.
  - Metered Control Area Load is deleted to reflect the change in terminology from "Control Area" to Balancing Authority.
  - Settlements, Metering and Client Relations is amended to remove a redundant reference to the Tariff.
- Appendix F, Schedule 1, Part A is amended to reflect the changes in charges and to state the formula rate for each charge.
- Appendix F, Schedule 1, Part B is amended to limit the application of the quarterly adjustment mechanism to variances in revenue collections greater of 5 percent or $1 million dollars.
- Appendix F, Schedule 1, Part C is amended to reflect the addition of new defined terms related to costs recoverable from the GMC, the application, where possible, of the Commission's Uniform System of Accounts numbering, changes in charges and the change in the application of the quarterly adjustment mechanism.
- Appendix F, Schedule 1, Part D is amended to reflect a revised revenue requirement trigger of $197 million, i.e., if the CAISO's projected revenue requirement exceeds $197 million, it must make a Section 205 filing to adjust GMC charges, and the requirement to make a Section 205 rate filing with an effective date of not later than January 1, 2010, even if the CAISO's revenue requirement remains below $197 million.
- Appendix F, Schedule 1, Part E is amended to reflect changes in charges, correct references to other Tariff sections and updated allocation factors in Tables 1, 2 and 3.

- Appendix F, Schedule 1, Part F is amended to correctly identify the type of schedule subject to the modification to the Forward Scheduling Charge.
- Other minor changes to the Tariff language to correct inconsistent use of capitalized terms that were not defined terms and to correct typographical and grammatical errors.

IV. PROPOSED EFFECTIVE DATE AND REQUEST FOR WAIVER AND SURCHARGE AUTHORITY

The CAISO requests that the MRTU GMC Rate Design take effect on the same date that MRTU is implemented. The CAISO has notified the Commission that the implementation of MRTU will be delayed beyond March 31, 2008, but that a new implementation date has not yet been scheduled. Since it is possible that MRTU may be implemented more than 120 days from the date of this filing, the CAISO respectfully requests that the Commission waive the requirement of 18 C.F.R. § 35.3 that a rate schedule be filed not more than 120 days from the effective date.

Because the CAISO will not be able to announce a new proposed effective date until the CAISO resumes its market simulation activities and is confident that the MRTU software is operating successfully, it is filing clean tariff sheets without indicating a proposed effective date (See Attachment A). Therefore, the CAISO requests waiver of Order No. 614 and applicable provision of Section 35.9 of the Commission's regulations. The CAISO understands that in the absence of a proposed effective date the Commission is not compelled to take any action within the 60-day time frame prescribed by the Federal Power Act. Nevertheless, the CAISO requests the Commission issue an order in this docket within the 60-day time period or as soon thereafter as possible. A timely order will allow for a more orderly transition to MRTU for the CAISO and its Market Participants.

Finally, the CAISO recognizes that if the Commission sets this filing for hearing, the rates will be collected subject to refund, based on the outcome of further Commission proceedings. In the event that the instant filing is set for hearing, the CAISO requests that the Commission grant the CAISO conditional surcharge authority to be exercised if the Commission determines that a different cost allocation should be applied retroactively, with the effect of lowering aggregate GMC charges to some customers and raising them to others. Because the CAISO is not-for-profit entity, with no invested equity, it must have the ability to surcharge the latter customers to enable it to pay refunds to the former. Accordingly, should this filing be set for hearing, an order granting conditional surcharge authority would provide certainty as to the manner in which any possible retroactive refunds are to be funded.

V. CONTENTS OF FILING AND CONDITIONAL REQUEST FOR WAIVER

The instant filing is an abbreviated filing pursuant to 18 CFR § 35.13(a)(2)(iii), which governs submission for rate schedule changes other than rate increases. Because the changes proposed to the existing GMC rate do not affect the revenue requirement recovered through the GMC formula, the CAISO believes it does not constitute a rate increase. Accordingly, this abbreviated filing includes the following, in addition to this transmittal letter:

(1) Attachment A: Clean Revised CAISO Tariff Sheets for MRTU GMC Rate Design
(2) Attachment B: Blacklined Revised CAISO Tariff Sheets for MRTU GMC Rate Design
(3) Attachment C: Testimony of Mr. Ben Arikawa (Exhibit ISO-1)
(4) Attachment D: Exhibits in Support of Mr. Arikawa's Testimony (Exhibits ISO 2 through ISO-20)

In the event the Commission concludes that the abbreviated filing requirements of 18 C.F.R. § 35.13(a)(2)(iii) are not applicable to this filing, the CAISO respectfully requests waiver of any requirements of 18 C.F.R. § 35.13 that are not met by this filing. As good cause for this waiver, the CAISO states that this filing proposes to continue in effect the existing GMC formula and rate design, with the minimum number of changes necessary to work following implementation of the CAISO's MRTU. The CAISO has provided full support for the few changes in the GMC rate formula proposed in the MRTU GMC Rate Design through the testimony of Mr. Arikawa and the accompanying exhibits.

VI. EXPENSES

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

VII. SERVICE

Electronic copies of this filing have been served on each CAISO Scheduling Coordinator, the California Public Utilities Commission, the California Electricity Commission, and the California Electricity Oversight Board. These electronic copies contain full versions of the filing being submitted to the Commission today.

VIII. CONCLUSION

WHEREFORE, the California Independent System Operator Corporation requests that the Commission accept the MRTU GMC Rate Design to be effective and supersede the 2008 GMC Rate Design upon implementation of MRTU.

Respectfully submitted,

Nancy Saracino
General Counsel
Judith Sanders
Counsel
The California Independent System Operator Corporation
151 Blue Ravine Road
Folsom, CA 95630

Kenneth G. Jaffe
Ronald E. Minsk
Alston & Bird LLP
950 F Street, NW
Washington, DC 20004
Tel: (202) 756-3300
Fax: (202) 756-3333

Counsel for the California Independent System Operator Corporation

Attachment A

Clean Sheets
GMC Under MRTU Amendment Filing
4th Replacement CAISO Tariff (MRTU)
February 20, 2008

11.17 CAISO Operating and Capital Reserves Account.

Revenues collected to fund the CAISO financial operating reserves shall be deposited in the CAISO Operating and Capital Reserves Account until such account reaches a level specified by the CAISO Governing Board. The CAISO Operating and Capital Reserves Account shall be calculated separately for each GMC service category. The allocation factors, reassignments and reallocations specified in Appendix F, Schedule 1, Parts E and F, will be accounted for in the development of the CAISO Operating and Capital Reserves Account for each component. If the CAISO Operating and Capital Reserves Account as calculated for such service category is fully funded, surplus funds will be considered an offset to the CAISO's revenue requirement of the next fiscal year.

11.18 Emissions Costs.

11.18.1 Obligation to Pay Emissions Cost Charges.

Each Scheduling Coordinator shall be obligated to pay a charge in accordance with this Section 11.18, which will be used to pay the verified Emissions Costs incurred by an Emissions Eligible Generator during a CAISO Commitment Period. The CAISO shall levy this administrative charge (the Emissions Cost charge) each month, against all Scheduling Coordinators based upon each Scheduling Coordinator's Balancing Authority Area Gross Load and Demand within California outside of the CAISO Balancing Authority Area that is served by exports from the CAISO Balancing Authority Area. Scheduling Coordinators shall make payment for all Emissions Cost charges in accordance with the CAISO Payments Calendar.

11.22 Grid Management Charge.

11.22.1 CAISO's Obligations.

11.22.1.1 FERC's Uniform System of Accounts.

The CAISO shall maintain a set of financial statements and records in accordance with the FERC's Uniform System of Accounts.

11.22.1.2 [NOT USED]

11.22.2 Costs Included in the Grid Management Charge.

The Grid Management Charge shall include the following costs incurred by the CAISO, as described in more detail in Appendix F, Schedule 1:

(1) CAISO Operating Costs;

(2) CAISO Other Costs and Revenues;

(3) CAISO Financing Costs; and

(4) CAISO Operating and Capital Reserves Costs.

11.22.2.1 [NOT USED]

11.22.2.2 [NOT USED]

11.22.2.3 [NOT USED]

11.22.2.4 [NOT USED]

11.22.2.5 Allocation of the Grid Management Charge Among Scheduling Coordinators.

The costs recovered through the Grid Management Charge shall be allocated to the service charges that comprise the Grid Management Charge. If the CAISO's revenue requirement for any service charge changes from the most recent FERC-approved revenue requirement for that service charge, the costs recovered through that service charge shall be delineated in a filing to be made at FERC as set forth in Section 11.22.2.6. The service charges, as described in more detail in Appendix F, Schedule 1, Parts A and F, are as follows:

(1) Core Reliability Services – Demand Charge;

(2) Core Reliability Services – Energy Exports Charge;

(3) Energy Transmission Services – Net Energy Charge;

(4) Energy Transmission Services – Uninstructed Deviations Charge;

(5) Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge;

(6) Forward Scheduling Charge;

(7) Market Usage Charge; and

(8) Settlements, Metering, and Client Relations Charge.

The charges shall be levied separately monthly in arrears on all Scheduling Coordinators based on the billing determinants specified below for each charge in accordance with formulae set out in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.1 Core Reliability Services – Demand Charge.

The Core Reliability Services – Demand Charge for a Scheduling Coordinator's Load that is not associated with Energy Exports is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.2 Core Reliability Services – Energy Exports Charge.

The Core Reliability Services – Energy Exports Charge for the load associated with a Scheduling Coordinator's Energy Exports is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.3 Energy Transmission Services – Net Energy Charge.

The Energy Transmission Services – Net Energy Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.4 Energy Transmission Services – Uninstructed Deviations Charge.

The Energy Transmission Services – Uninstructed Deviations Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's net Uninstructed Imbalance Energy by Settlement Interval, according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.5 Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge.

The Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.6 Forward Scheduling Charge.

The Forward Scheduling Charge for each Scheduling Coordinator is calculated

according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.7 Market Usage Charge.

The Market Usage Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.8 Settlements, Metering, and Client Relations Charge.

The Settlements, Metering, and Client Relations Charge for each Scheduling Coordinator is fixed at $1000.00 per month, per Scheduling Coordinator ID with an invoice value other than $0.00 in the current Trading Month, as indicated in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F. Excess GMC costs related to the provision of these services that are not recovered through this charge are allocated to the other GMC service categories as specified in Appendix F, Schedule 1, Part E.

11.22.2.6 Calculation and Adjustment of the Grid Management Charge.

The charges set forth in Section 11.22.2.5 that comprise the Grid Management Charge shall be calculated through the formula set forth in Appendix F, Schedule 1, Part A. The formula set forth in Appendix F, Schedule 1, Part C sums the CAISO Operating Costs (less any available expense recoveries), CAISO Other Costs and Revenues, CAISO Financing Costs, and CAISO Operating and Capital Reserves Costs associated with each of the CAISO service charges to obtain a total revenue requirement. This revenue requirement is allocated among the charges of the GMC through the application of the factors specified in Appendix F, Schedule 1, Part E.

The revenue requirement for each service then shall be divided by the forecast annual or periodic billing determinant volume to obtain a rate for each service, which will be payable by Scheduling Coordinators as set forth in Section 11.22.2.5. The rates so established will be adjusted annually, through the operation of the formula set forth in Appendix F, Schedule 1, Part A. The CAISO shall post on the CAISO Website each year, before the adjusted rates go into effect, as described in Appendix F, Schedule 1, Part D, data showing the rates adjusted to reflect any change in the annual revenue requirement, variance between forecast and actual costs for the previous year or period, or any surplus revenues from the previous year or period (as defined in Section 11.17), or the inability to recover from a Scheduling Coordinator its share of the Grid Management Charge, or any under-achievement of a forecast of the billing determinant volumes used to establish the rates. The circumstances under which the CAISO is permitted to put the adjusted rates into effect without submitting a filing to the FERC are described in Appendix F, Schedule 1, Part D. Appendix F, Schedule 1, Part B sets forth the conditions under which a quarterly adjustment to the Grid Management Charge will be made.

11.22.2.6.1 Credits and Debits of the Grid Management Charge.

In addition to the adjustments permitted under Section 11.29.7.3.3, the CAISO shall credit or debit, as appropriate, the account of a Scheduling Coordinator for any overpayment or underpayment of the Grid Management Charge that the CAISO determines occurred due to error, omission, or miscalculation by the CAISO or the Scheduling Coordinator.

11.22.3 MSS GMC Charges.

If the CAISO is charging Grid Management Charges for Uninstructed Imbalance Energy, and the Scheduling Coordinator for a Load-following MSS has Uninstructed Imbalance Energy associated with the MSS's resources, then the CAISO will net the Generation and imports into the MSS to match the Demand and exports out of the MSS, and will not assess the Grid Management Charge associated with Uninstructed Imbalance Energy for such portion of Energy that is used to match MSS Demand and net exports.

11.22.3.1 If Generation, above the amount to cover Demand and exports, was sold into the CAISO's Real-Time Market, then the Scheduling Coordinator for the MSS will be charged the Grid Management Charge associated with Uninstructed Imbalance Energy for this quantity.

11.22.3.2 If insufficient Generation and imports was available to cover Demand and exports, and the Scheduling Coordinator for the MSS purchased Uninstructed Imbalance Energy from the CAISO Markets, then such Scheduling Coordinator will be charged the Grid Management Charge associated with Uninstructed Imbalance Energy for this quantity.

11.22.3.3 Grid Management Charges associated with Uninstructed Imbalance Energy (the Energy Transmission Services – Uninstructed Deviations and Market Usage Charges) will be treated on a net basis by Settlement interval. The Core Reliability Services – Demand Charge, Core Reliability Services – Energy Exports Charge, and Energy Transmission Services – Net Energy Charge will be charged based on Metered Balancing Authority Area Load, including exports out of the MSS. Ancillary Service Bids accepted by the CAISO and Instructed Imbalance Energy will be assessed the applicable Market Usage Charges.

17.3.2.3 Exceeds Capacity Limits for TORs as Reflected in TRTC Instructions.

If the TOR Self-Schedule exceeds the capacity limits of the TOR as reflected in TRTC Instructions, the TOR Self-Schedule will not be a valid TOR-Self-Schedule and the CAISO will: (i) remove any scheduling priority for the entire TOR Self-Schedule; (ii) apply the TOR Settlement treatment pursuant to Sections 11.2.1.5 and 11.5.7.1 to the valid balanced portions within the capacity limits of the TOR as reflected in the TRTC Instructions; and (iii) assess any charges and make any payments consistent with the treatment of ordinary Self-Schedules for the portions in excess of the capacity limits of the TOR as reflected in the TRTC Instructions.

17.3.3 Settlement Treatment of Valid TOR Self-Schedules.

The resulting valid TOR Self-Schedules shall have the following Settlement treatment:

(1) The CAISO will apply the TOR Settlement treatment in Sections 11.2.1.5 and 11.5.7.

(2) The CAISO shall base the Marginal Cost of Losses on LMP differentials at the Points of Receipt and Points of Delivery identified in the valid TOR Self-Schedule; provided, however, that if a specific loss percentage exists in applicable agreement between the TOR holder and the CAISO, the CAISO will apply the IFM and RTM Marginal Cost of Losses Credit as provided in Sections 11.2.1.7 and 11.5.7.2.

(3) The CAISO will assess only charges applicable to Ancillary Services, Imbalance Energy, Transmission Losses, and Grid Management Charges for the use of a TOR and will not assess charges for neutrality, UFE, transmission Access Charges, Minimum Load Costs, or other charges that might otherwise be applicable to the Demand or exports served solely over the TOR. The CAISO will assess charges applicable to

Ancillary Services for the use of a TOR only to the extent that the CAISO must procure Ancillary Services for the TOR holder because Ancillary Services are not self-provided by the TOR holder. The CAISO will assess charges applicable to Imbalance Energy for the use of a TOR only if the CAISO must procure Imbalance Energy for the TOR holder. The CAISO will assess Grid Management Charges for the use of a TOR only in accordance with the provisions of Section 11.22 and Appendix F, Schedule 1.

(4) The holders of TORs will not be entitled to an allocation of revenues from the CAISO, including Access Charge revenues; provided that the Scheduling Coordinator for the TOR holder shall be allocated the applicable amount of IFM Marginal Losses Surplus Credit in accordance with the provisions of Section 11.2.1.6, except for any TOR Self-Schedule that received the IFM Marginal Cost of Losses Credit.

(5) Parties with TORs shall continue to pay for Transmission Losses or Ancillary Services requirements in accordance with any Existing Contracts applicable to those TORs as they may be modified or changed in accordance with the terms of the Existing Contract. Any affected Participating TOs shall continue to provide Transmission Losses and any other Ancillary Services to the holder of a TOR subject to an Existing Contract as may be required by the Existing Contract. As described in Section 17.3.3(3) above, the CAISO will charge Scheduling Coordinators submitting the TOR Self-Schedule the charges applicable to Transmission Losses, Ancillary Services, and Imbalance Energy in accordance with the CAISO Tariff (e.g., the Transmission Losses Charge based on the Marginal Cost of Losses), and any shortfall or surplus between the CAISO charges and the provisions of any applicable Existing Contract shall be settled bilaterally between the Existing Contract parties or through the relevant TO Tariff. To enable holders of TORs to determine whether the CAISO's calculations result

CAISO Authorized Inspector	A person authorized by the CAISO to certify, test, inspect and audit meters and Metering Facilities in accordance with the procedures established by the CAISO pursuant to Section 10.
CAISO Bank	The bank appointed by the CAISO from time to time for the purposes of operating the Settlement process.
CAISO CEO	The Chief Executive Officer of the CAISO.
CAISO Clearing Account	The account in the name of the CAISO with the CAISO Bank to which payments are required to be transferred for allocation to CAISO Creditors in accordance with their respective entitlements.
CAISO Code of Conduct	For employees, the code of conduct for officers, employees and substantially full-time consultants and contractors of the CAISO as set out in exhibit A to the CAISO bylaws; for governors, the code of conduct for governors of the CAISO as set out in exhibit B to the CAISO bylaws.
CAISO Commitment Period	The portion of a Commitment Period that is not a Self-Commitment Period.
CAISO Control Center	The control center established by the CAISO pursuant to Section 7.1.
CAISO Controlled Grid	The system of transmission lines and associated facilities of the Participating TOs that have been placed under the CAISO's Operational Control.
CAISO Creditor	A Business Associate to which amounts are payable under the terms of the CAISO Tariff and agreements with the CAISO.
CAISO Debtor	A Business Associate that is required to make a payment to the CAISO under the CAISO Tariff and agreements with the CAISO.
CAISO Demand	Power delivered to Load internal to CAISO Balancing Authority Area.
CAISO Documents	The CAISO Tariff, CAISO bylaws, and any agreement entered into between the CAISO and a Scheduling Coordinator, a Participating TO or any other Market Participant pursuant to the CAISO Tariff.
CAISO Emissions Cost Trust Account	The CAISO Account established pursuant to Section 11.18.2.

CAISO Financing Costs	The CAISO's financing costs that are approved by the CAISO Governing Board, including capital expenditures that may be financed over such period as the CAISO Governing Board shall decide. CAISO Financing Costs shall also include the CAISO Start Up and Development Costs. The amortized amount to be included in the Grid Management Charge shall be equal to the amount necessary to amortize fully all CAISO Start Up and Development Costs over a period of five (5) years, or such longer period as the CAISO Governing Board shall decide. These costs include the requirement to collect an amount in excess of the annual debt service obligations as specified in the rate covenants of the official statements for each CAISO bond offering.
CAISO Forecast of CAISO Demand	The forecast of CAISO Demand made by the CAISO for use in the CAISO Markets.
CAISO Governing Board	The Board of Governors established to govern the affairs of the CAISO.

CAISO Operating and Capital Reserves Account	The account in the name of the CAISO with the CAISO Bank to which revenues collected to fund the CAISO financial operating reserves are transferred, in accordance with Section 11.17. Such financial operating reserves shall be utilized to minimize the impact of any variance between forecast and actual costs throughout the year.
CAISO Operating and Capital Reserves Costs	The CAISO's annual budgeted cost of cash funded capital and project expenditures and the amount (positive or negative) sufficient to maintain the CAISO Operating and Capital Reserves Account at the level specified by (1) the rate covenants of the official statements for each CAISO bond offering, (2) the CAISO Governing Board, or (3) the FERC.
CAISO Operating Costs	The CAISO's budgeted annual operating costs, which shall include all staffing costs including remuneration of contractors and consultants, salaries, benefits and any incentive programs for employees, costs of operating, replacing and maintaining CAISO systems, lease payments on facilities and equipment necessary for the CAISO to carry out its business, and annual costs of financing the CAISO's working capital and other operating costs.
CAISO Operations Date	March 31, 1998.
CAISO Other Costs and Revenues	Other costs and revenues that are recovered through, or are offsets to, the CAISO revenue requirement, including special charges, fines, penalties, other interest expenses, reimbursements, and interest earnings.
CAISO Outage Coordination Office	The office established by the CAISO to coordinate Maintenance Outages in accordance with Section 9.3.
CAISO Payments Calendar	A calendar published by the CAISO showing the dates on which Settlement Statements will be published by the CAISO and the Payment Dates by which Invoices issued under the CAISO Tariff must be paid.

CAISO Planning Standards	Reliability Criteria that: (1) address specifics not covered in the NERC and WECC planning standards; (2) provide interpretations of the NERC and WECC planning standards specific to the CAISO Controlled Grid; and (3) identify whether specific criteria should be adopted that are more stringent than the NERC and WECC planning standards.
CAISO Protocols	The rules, protocols, procedures and standards promulgated by the CAISO (as amended from time to time) to be complied with by the CAISO, Scheduling Coordinators, Participating TOs and all other Market Participants in relation to the operation of the CAISO Controlled Grid and the participation in the markets for Energy and Ancillary Services in accordance with the CAISO Tariff.
CAISO Register	The register of all the transmission lines, associated facilities and other necessary components that are at the relevant time being subject to the CAISO's Operational Control.
CAISO Reserve Account	The account established for the purpose of holding cash deposits which may be used in or towards clearing the CAISO Clearing Account.
CAISO Start Up and Development Costs	The CAISO's costs outstanding to the credit of the CAISO Memorandum Account plus any additional start up or development costs incurred after the date of Resolution E 3459 (July 17, 1996), plus any additional capital expenditure incurred by the CAISO in 1998.
CAISO Surplus Account	The account established by the CAISO pursuant to Section 11.29.9.6.3.
CAISO Tariff	The California Independent System Operator Corporation Operating Agreement and Tariff, dated March 31, 1997, as it may be modified from time to time.
CAISO Website	The CAISO internet home page at http://www.caiso.com or such other internet address as the CAISO shall publish from time to time.

Commercial Operation	The status of a Generating Unit at a Generating Facility that has commenced generating electricity for sale, excluding electricity generated during Trial Operation.
Commercial Operation Date	The date on which a Generating Unit at a Generating Facility commences Commercial Operation as agreed to by the applicable Participating TO and the Interconnection Customer pursuant to Appendix E to the Standard Large Generator Interconnection Agreement.
Commitment Interval	The fifteen minute period of time for which the CAISO commits units through the Real-Time Unit Commitment process.
Commitment Period	The consecutive Time Periods within a Trading Day with an "On" Commitment Status.
Commitment Status	The "On" or "Off" state for each unit in each Time Period.
Competitive Constraints Run (CCR)	The first optimization run of the MPM-RRD process through which all pre-designated competitive Constraints are enforced.
Condition 1 RMR Unit	A resource operating pursuant to Condition 1 of its RMR Contract.
Condition 2 RMR Unit	A resource operating pursuant to Condition 2 of its RMR Contract.
Congestion	A characteristic of the transmission system produced by a binding Constraint to the optimum economic dispatch to meet Demand such that the LMP, exclusive of Marginal Cost of Losses, at different Locations of the transmission system is not equal.
Congestion Charge	A charge attributable to the Marginal Cost of Congestion at a given pricing PNode.
Congestion Data Summary	A report issued by the CAISO on the schedule set forth in the Business Practice Manual that sets forth historic Congestion on the CAISO Controlled Grid.
Congestion Management	The alleviation of Congestion in accordance with applicable CAISO procedures, the CAISO Tariff, and Good Utility Practice.

Congestion Revenue Right (CRR)	A CRR Obligation or CRR Option.
Connected Entity	A Participating TO or any party that owns or operates facilities that are electrically interconnected with the CAISO Controlled Grid.
Constrained Output Generator (COG)	A Generating Unit that, due to operational characteristics, can only be dispatched in one of two states: either turned completely Off, or turned On and run at a fixed capacity level.
Constraints	Physical and operational limitations on the transfer of electrical power through transmission facilities.
Contingency	A potential Outage that is unplanned, viewed as possible or eventually probable, which is taken into account when considering approval of other requested Outages or while operating the CAISO Balancing Authority Area.
Contingency Flag	The daily Bid component that indicates that the Spinning Reserves and Non-Spinning Reserves being offered in the CAISO Market are Contingency Only reserves.
Contingency Only	A resource providing Operating Reserve capacity that may be Dispatched by the CAISO only in the event of a Contingency or System Emergency.
Contract Reference Number (CRN)	The Bid component that indicates the specific contract identification number issued by the CAISO to Scheduling Coordinators transactions under Existing Contracts or TORs.
Control Area	Balancing Authority Area
Control Area Gross Load	Balancing Authority Area Gross Load
Control Area Operator	Balancing Authority
Converted Rights	Those transmission service rights as defined in Section 4.3.1.6.
Core Reliability Services – Demand Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of providing a basic, non-scalable level of reliable operation for the CAISO Balancing Authority Area and meeting regional and national reliability requirements. The formula for determining the Core Reliability Services – Demand Charge is set forth in Appendix F, Schedule 1, Part A.

Core Reliability Services – Energy Export Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of providing a basic, non-scalable level of reliable operation for the CAISO Balancing Authority Area and meeting regional and national reliability requirements. The formula for determining the Core Reliability Services – Energy Exports Charge is set forth in Appendix F, Schedule 1, Part A.
Core Reliability Services/ Energy Transmission Services – Transmission Ownership Rights Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of providing reliability services to Transmission Ownership Rights within the CAISO Balancing Authority Area. The formula for determining the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge is set forth in Appendix F, Schedule 1, Part A.
CPUC	The California Public Utilities Commission, or its successor.
CPUC Load Serving Entity	Any entity serving retail Load in the CAISO Balancing Authority Area under the jurisdiction of the CPUC, including an electrical corporation under section 218 of the California Public Utilities Code, an electric service provider under section 218.3 of the California Public Utilities Code, and a community choice aggregator under section 331.1 of the California Public Utilities Code.
Credit Margin	The quantity equal to Expected Congestion Revenue minus Fifth Percentile Congestion Revenue.
Credit Rating Default Probability	The 5 year median default probability based on a rating agency's credit rating as listed in the Credit Rating Default Probabilities table in Section A-2.2 of the CAISO Credit Policy & Procedures Guide.
Critical Energy Infrastructure Information (CEII)	Critical Energy Infrastructure Information shall have the meaning given the term in the regulations of FERC at 18 C.F.R. § 388.12, et seq.
Critical Protective System	Facilities and sites with protective relay systems and Remedial Action Schemes that the CAISO determines may have a direct impact on the ability of the CAISO to maintain system security and over which the CAISO exercises Operational Control.
CRN	Contract Reference Number
CRR	Congestion Revenue Rights
CRR Allocation	The process of nominations and awards held monthly and annually through which the CAISO will distribute CRRs to Candidate CRR Holders.

Energy Supply Bid	The quantity (MWh) and a price ($) at or above which a resource has agreed to sell the next increment of Energy for a specified interval of time.
Energy Transmission Services – Net Energy Charge	The component of the Grid Management Charge that provides, in conjunction with the Energy Transmission Services – Uninstructed Deviations Charge, for the recovery of the CAISO's costs of providing reliability on a scalable basis, i.e., a function of the intensity of the use of the transmission system within the Balancing Authority Area and the occurrence of system outages and disruptions. The formula for determining the Energy Transmission Services – Net Energy Charge is set forth in Appendix F, Schedule 1, Part A.
Energy Transmission Services – Uninstructed Deviations Charge	The component of the Grid Management Charge that provides, in conjunction with the Energy Transmission Services – Net Energy Charge, for the recovery of the CAISO's costs of providing reliability on a scalable basis, in particular for the costs associated with balancing transmission flows that result from Uninstructed Imbalance Energy. The formula for determining the Energy Transmission Services – Uninstructed Deviations Charge is set forth in Appendix F, Schedule 1, Part A.
Engineering & Procurement (E&P) Agreement	An agreement that authorizes the Participating TO to begin engineering and procurement of long lead-time items necessary for the establishment of the interconnection in order to advance the implementation of the Interconnection Request.
Entitlements	The right of a Participating TO obtained through contract or other means to use another entity's transmission facilities for the transmission of Energy.
Environmental Dispatch	Dispatch designed to meet the requirements of air quality and other environmental legislation and environmental agencies having authority or jurisdiction over the CAISO.

Fixed CRRs	Congestion Revenue Rights that are used in the running of an SFT to represent known encumbrances on the transmission system and which may include some or all of the following: previously allocated or awarded Monthly CRRs, Seasonal CRRs, Long Term CRRs, and Merchant Transmission CRRs, Existing Transmission Contracts, and Converted Rights.
FNM	Full Network Model
Forbidden Operating Region	A pair of lower and higher operating levels between which a resource cannot operate stably. The Forbidden Operating Regions lie between a resource's Minimum Operating Limit and Maximum Operating Limit and cannot overlap.
Forced Outage	An Outage for which sufficient notice cannot be given to allow the Outage to be factored into the Day-Ahead Market, HASP or RTM bidding processes.
Forecast Fee	The charge imposed on a Participating Intermittent Resource pursuant to the terms of Appendix F, Schedule 4.
Forward Scheduling Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs of providing the ability to Scheduling Coordinators to submit a Bid for Energy and Ancillary Services and the cost of processing accepted Ancillary Services Bids. The formula for determining the Forward Scheduling Charge is set forth in Appendix F, Schedule 1, Part A.

Grid Management Charge (GMC) The CAISO monthly charge on all Scheduling Coordinators that provides for the recovery of the CAISO's costs listed in Section 11.22.2 through the service charges described in Section 11.22.2.5 calculated in accordance with the formula rate set forth in Appendix F, Schedule 1, Part A. The charges that comprise the Grid Management Charge consist of: 1) the Core Reliability Services – Demand Charge, 2) the Core Reliability Services – Energy Exports Charge, 3) the Energy Transmission Services – Net Energy Charge, 4) the Energy Transmission Services – Uninstructed Deviations Charge, 5) the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge, 6) the Forward Scheduling Charge, 7) the Market Usage Charge, and 8) the Settlements, Metering, and Client Relations Charge.

Gross Load For the purposes of calculating the transmission Access Charge, Gross Load is all Energy (adjusted for distribution losses) delivered transmission facilities or directly connected to the Distribution System of a Utility Distribution Company or MSS Operator located in a PTO Service Territory. Gross Load shall exclude (1) Load with respect to which the Wheeling Access Charge is payable, (2) Load that is exempt from the Access Charge pursuant to Section 4.1, Appendix I, and the portion of the Load of an individual retail customer of a Utility Distribution Company, Small Utility Distribution Company or MSS Operator that is served by a Generating Unit that: (a) is located on the customer's site or provides service to the customers site through arrangements as authorized by Section 218 of the California Public Utilities Code; (b) is a qualifying small power production facility or qualifying cogeneration facility, as those terms are defined in the FERC's regulations implementing Section 201 of the Public Utility Regulatory Policies Act of 1978; and (c) secures Standby Service from a Participating TO under terms approved by a Local Regulatory Authority or FERC, as applicable, or can be curtailed concurrently with an Outage of the Generating Unit serving the Load. Gross Load forecasts consistent with filed Transmission Revenue Requirements will be provided by each Participating TO to the CAISO.

Market Notice	An electronic notice issued by the CAISO that the CAISO posts on the CAISO Website and provides by e-mail to those registered with the CAISO to receive CAISO e-mail notices.
Market Participant	An entity, including a Scheduling Coordinator, who either: (1) participates in the CAISO Markets through the buying, selling, transmission, or distribution of Energy, Capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; or (2) is a CRR Holder or Candidate CRR Holder.
Market Power Mitigation-Reliability Requirement Determination (MPM-RRD)	The two-optimization run process conducted in both the Day-Ahead Market and the HASP that determines the need for the CAISO to employ market power mitigation measures or Dispatch RMR Units.
Market Surveillance Committee (MSC)	The committee established under Appendix P.2.
Market Usage Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs for processing Day-Ahead, Hour-Ahead Scheduling Process and Real-Time Bids, maintaining the Open Access Same-Time Information System, monitoring market performance, ensuring generator compliance with market rules as defined in the CAISO Tariff and the Business Practice Manuals, and determining LMPs. The formula for determining the Market Usage Charge is set forth in Appendix F, Schedule 1, Part A.
Master File	A file containing information regarding Generating Units, Loads and other resources, or its successor.

Metered Balancing Authority Area Load

For purposes of calculating and billing the Grid Management Charge, Metered Balancing Authority Area Load is:
(a) all metered Demand for Energy of Scheduling Coordinators for the supply of Loads in the CAISO's Balancing Authority Area, plus (b) all Energy for exports by Scheduling Coordinators from the CAISO Balancing Authority Area; less (c) Energy associated with the Load of a retail customer of a Scheduling Coordinator, Utility Distribution Company, Small Utility Distribution Company or Metered Subsystem that is served by a Generating Unit that: (i) is located on the same site as the customer's Load or provides service to the customer's Load through arrangements as authorized by Section 218 of the California Public Utilities Code; (ii) is a qualifying small power production facility or qualifying cogeneration facility, as those terms are defined in FERC's regulations implementing Section 201 of the Public Utility Regulatory Policies Act of 1978; and (iii) the customer secures Standby Service from a Participating TO under terms approved by a Local Regulatory Authority or FERC, as applicable, or the customer's Load can be curtailed concurrently with an Outage of the Generating Unit.

Metered Control Area Load

Metered Balancing Authority Area Load.

Metered Quantities

For each Direct Access End-User, the actual metered amount of MWh and MW; for each Participating Generator the actual metered amounts of MWh, MW, MVar and MVarh.

Metered Subsystem (MSS)

A geographically contiguous system located within a single zone which has been operating as an electric utility for a number of years prior to the CAISO Operations Date as a municipal utility, water district, irrigation district, state agency or federal power marketing authority subsumed within the CAISO Balancing Authority Area and encompassed by CAISO certified revenue quality meters at each interface point with the CAISO Controlled Grid and CAISO certified revenue quality meters on all Generating Units or, if aggregated, each individual resource and Participating Load internal to the system, which is operated in accordance with a MSS Agreement described in Section 4.9.1.

Settlements, Metering, and Client Relations Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs of maintaining customer account data, providing account information to customers, responding to customer inquiries, calculating market charges, resolving customer disputes, and the costs associated with the CAISO's Settlement, billing, and metering activities. Because this is a fixed charge per Scheduling Coordinator ID, costs associated with activities listed above also are allocated to other charges under the Grid Management Charge according to formula set forth in Appendix F, Schedule 1, Part A.
Settlement Statement	Any one of the following: Initial Settlement Statement T+38BD, Initial Settlement Statement Reissue, Recalculation Settlement Statement and Recalculation Settlement Statement T+76BD.
Settlement Statement Re-run	The re-calculation of a Settlement Statement in accordance with the provisions of the CAISO Tariff.
SFT	Simultaneous Feasibility Test
Shadow Price	The marginal value of relieving a particular Constraint.
Short Start Unit	A Generating Unit that has a cycle time less than five hours (Start-Up Time plus Minimum Run Time is less than five hours), has a Start-Up Time less than two hours, and can be fully optimized with respect to this cycle time.
Short-Term Unit Commitment (STUC)	The Unit Commitment procedure run at approximately T-52.5 minutes for a Time Horizon of approximately five (5) hours. The STUC determines whether some Medium Start Units need to be started early enough to meet the Demand within the STUC Time Horizon using the CAISO Forecast of CAISO Demand. The STUC produces a Unit Commitment solution for every 15-minute interval within the STUC Time Horizon and issues binding Start-Up Instructions only as necessary.

CAISO TARIFF APPENDIX F
Schedule 1

Grid Management Charge

Part A – Monthly Calculation of Grid Management Charge (GMC)

The Grid Management Charge consists of the following separate service charges: (1) the Core Reliability Services – Demand Charge, (2) the Core Reliability Services – Energy Exports Charge; (3) Energy Transmission Services – Net Energy Charge, (4) the Energy Transmission Services – Uninstructed Deviations Charge, (5) the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge, (6) the Forward Scheduling Charge, (7) the Market Usage Charge, and (8) the Settlements, Metering, and Client Relations Charge.

1. The rate in $/MW for the Core Reliability Services – Demand Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total of the forecasted Scheduling Coordinators' metered non-coincident peak hourly demand in MW for all months during the year (excluding the portion of such Demand associated with Energy Exports, if any, as may be modified in accordance with Part F of this Schedule 1), reduced by thirty-four percent (34%) of the sum of all Scheduling Coordinators' metered non-coincident peak Demands occurring during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400, every day, including Sundays and holidays; provided that if a Scheduling Coordinator's metered non-coincident peak Demand hour during the month occurs during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400, every day, the rate shall be sixty-six percent (66%) of the standard Core Reliability Services – Demand Charge rate.

2. The rate in $/MWh for the Core Reliability Services – Energy Exports Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total of the forecasted Scheduling Coordinators' metered volume of Energy Exports in MWh, excluding each Scheduling Coordinator's Energy Exports associated with Transmission Ownership Rights.

3. The rate in $/MWh for the Energy Transmission Services – Net Energy Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total annual forecasted Metered Balancing Authority Area Load, excluding each Scheduling Coordinator's Metered Balancing Authority Area Load associated with Transmission Ownership Rights.

4. The rate in $/MWh for the Energy Transmission Services – Uninstructed Deviations Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the absolute value of total annual forecasted net Uninstructed Imbalance Energy (netted within a Settlement Interval summed over the calendar month) in MWh; provided that the rate for each Scheduling Coordinator's Participating Intermittent Resources will be assessed against the Uninstructed Imbalance Energy of such Participating Intermittent Resources netted over the Trading Month.

5. The rate in $/MWh for the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total annual forecasted Metered Balancing Authority Area Load associated with Transmission Ownership Rights.

6. The rate in $ per Schedule or $ per Inter-SC Trade for the Forward Scheduling Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the annual forecasted number of non-zero MW Day-Ahead and HASP Schedules, as may be modified in accordance with Part F of this Schedule 1, including all awarded Ancillary Service and Residual Unit Commitment Bids and all Inter-SC Trades, including Inter-SC Trades of IFM Load Uplift Obligations. This charge will be assessed separately with respect to Schedules and Inter-SC Trades.

7. The rate in $/MWh for the Market Usage Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the annual forecasted total purchases and sales (including out-of-market transactions) of Ancillary Services, Energy, Instructed Imbalance Energy, and net Uninstructed Imbalance Energy (with Uninstructed Imbalance Energy for Participating Intermittent Resources netted over the Trading Month and all other Uninstructed Imbalance Energy being netted within a Settlement Interval) in MWh. A Market Usage Charge rate will be calculated separately for two sets of CAISO Markets: (i) the Ancillary Services and RTM rate will be based on MWh of purchases and sales of Ancillary Services in the DAM, the HASP, and the RTM, MWh of Instructed Imbalance Energy, and MWh of Uninstructed Imbalance Energy netted over the Settlement Interval; and (ii) the rate for the Day-Ahead Market for Energy will be based on MWh of net Energy purchases or sales in the DAM.

8. The rate for the Settlements, Metering, and Client Relations Charge will be fixed at $1000.00 per month, per Scheduling Coordinator ID Code (SCID) with an invoice value other than $0.00 in the current Trading Month.

For a Scheduling Coordinator for a Load following MSS, the GMC service charges set forth in above shall be applied as set forth in Section 11.22.3 of the CAISO Tariff.

The rates for the foregoing charges shall be adjusted automatically each year, effective January 1 for the following twelve months, in the manner set forth in Part D of this Schedule.

Part B – Quarterly Adjustment, If Required

Each component rate of the Grid Management Charge will be adjusted automatically on a quarterly basis, up or down, so that rates reflect the annual revenue requirement as stated in the CAISO's filing or posting on the CAISO Website, as applicable, if the estimated revenue collections for that component, on an annual basis, change by more than five percent (5%) or $1 million, whichever is greater, during the year. Such adjustment may be implemented not more than once per calendar quarter, and will be effective the first day of the next calendar month.

The rates will be adjusted according to the formulae listed in Appendix F, Schedule 1, Part A with the billing determinant(s) readjusted on a going-forward basis to reflect the change of more than five percent (5%) or $1 million, whichever is greater, from the estimated revenue collections provided in the annual informational filing.

Part C – Costs Recovered through the GMC

As provided in Section 11.22.2 of the CAISO Tariff, the Grid Management Charge includes the following costs, as projected in the CAISO's budget for the year to which the Grid Management Charge applies:

- CAISO Operating Costs;
- CAISO Other Costs and Revenues, including penalties, interest earnings and other revenues;
- CAISO Financing Costs, including debt service on CAISO Start Up and Development Costs and subsequent capital expenditures; and
- CAISO Operating and Capital Reserves Costs.

Such costs, for the CAISO as a whole, are allocated to the service charges that comprise the Grid Management Charge: (1) Core Reliability Services - Demand Charge, (2) Core Reliability Services – Energy Exports Charge, (3) Energy Transmission Services – Net Energy Charge, (4) Energy Transmission Services – Uninstructed Deviations Charge, (5) Core Reliability Services/ Energy Transmission Services – Transmission Ownership Rights Charge, (6) Forward Scheduling Charge, (7) Market Usage Charge, and (8) Settlements, Metering, and Client Relations Charge, according to the factors listed in Part E of this Schedule 1, and

adjusted annually for:

- any surplus revenues from the previous year as deposited in the CAISO Operating and Capital Reserves Account, or deficiency of revenues, as recorded in a memorandum account;

divided by:

- forecasted annual billing determinant volumes;

adjusted quarterly for:

- a change in the volume estimate used to calculate the individual Grid Management Charge components, if, on an annual basis, the change is five percent (5%) or $1 million, whichever is greater, from the estimated revenue collections provided in the annual informational filing.

The Grid Management Charge revenue requirement formula is as follows:

Grid Management Charge revenue requirement =

CAISO Operating Costs + CAISO Financing Costs + CAISO Other Costs and Revenues + CAISO Operating and Capital Reserves Costs,

[The “USoA” reference below is the FERC Uniform System of Accounts, and is intended to include subsequent re-numbering or re-designation of the same accounts or subaccounts.]

Where,

(1) CAISO Operating Costs include:

(a) Transmission expenses (USoA 560-574);

(b) Regional market expenses (USoA 575 subaccounts);

(c) Customer accounting expenses (USoA 901-905);

(d) Customer service and informational expenses (USoA 906-910);

(e) Sales expenses (USoA 911-917);

(f) Administrative & general expenses (USoA 920-935);

(g) Taxes other than income taxes that relate to CAISO operating income (USoA 408.1); and

(h) Miscellaneous, non-operating expenses, penalties and other deductions (USoA 426 subaccounts).

(2) CAISO Financing Costs include:

(a) For any fiscal year, scheduled principal and interest payments, sinking fund payments related to balloon maturities, repayment of commercial paper notes, net payments required pursuant to a payment obligation, or payments due on any CAISO notes. This amount includes the current year accrued principal and interest payments due in the first one hundred twenty (120) days of the following year.

(b) The debt service coverage requirement, which is a percentage of the senior lien debt service, i.e., all debt service that has a first lien on CAISO net operating revenues. The coverage requirement is twenty-five percent (25%), unless otherwise specified by the rate covenants of the official statements for each CAISO bond offering.

(3) CAISO Other Costs and Revenues include:

(a) Interest earnings (USoA 419) on CAISO Operating and Capital Reserves Account balances, excluding interest on bond or note proceeds specifically designated for capital projects or capitalized interest.

(b) Miscellaneous revenues (USoA 421 and 456 subaccounts), including but not limited to Scheduling Coordinator application and training fees, WECC Reliability Coordinator reimbursements, and fines assessed and collected by the CAISO.

(c) Other interest expenses (USoA 431) not provided for elsewhere.

(4) CAISO Operating and Capital Reserves Costs include:

(a) The projected CAISO Operating and Capital Reserves Account balance for December 31 of the prior year less the reserve requirement. If such amount is negative, the amount may be divided by two, so that the reserve is replenished within a two-year period. The reserve requirement is fifteen percent (15%) of annual CAISO Operating Costs, unless otherwise specified by (1) the rate covenants of the official statements for each CAISO bond offering, (2) the CAISO Governing Board or (3) the FERC.

(b) Funding from current year revenues for approved capital and projects initiated in the fiscal year.

A separate revenue requirement shall be established for each component of the Grid Management Charge by developing the revenue requirement for the CAISO as a whole and then assigning such costs to the service categories using the allocation factors provided in Appendix F, Schedule 1, Part E.

Part D – Information Requirements

Budget Schedule

The CAISO will convene, prior to the commencement of the annual budget process, an initial meeting with stakeholders to: (a) receive ideas to control CAISO costs; (b) receive ideas for projects to be considered in the capital budget development process; and, (c) receive suggestions for reordering CAISO priorities in the coming year.

Within two (2) weeks of the initial meeting, the ideas presented by the stakeholders shall be communicated in writing to the CAISO's officers, directors and managers as part of the budget development process, and a copy of this communication shall be made available to stakeholders.

Subsequent to the initial submission of the draft budget to the finance committee of the CAISO Governing Board, the CAISO will provide stakeholders with the following information: (a) proposed capital budget with indicative projects for the next subsequent calendar year, a budget-to-actual review for capital expenditures for the previous calendar year, and a budget-to-actual review of current year capital costs; and, (b) expenditures and activities in detail for the next subsequent calendar year (in the form of a draft of the budget book for the CAISO Governing Board), budget-to-actual review of expenditures and activities for the previous calendar year, and a budget-to-actual review of expenditures for the current year. Certain of this detailed information which is deemed commercially sensitive will only be made available to parties that pay the CAISO's GMC (or regulators) who execute a confidentiality agreement.

The CAISO shall provide such materials on a timely basis to provide stakeholders at least one full committee meeting cycle to review and prepare comments on the draft annual budget to the finance committee of the CAISO Governing Board.

At least one month prior to the CAISO Governing Board meeting scheduled to consider approval of the proposed budget, the CAISO will hold a meeting open to all stakeholders to discuss the details of the CAISO's budget and revenue requirement for the forthcoming year. To the extent that such a meeting will deal with complex matters of budgetary and policy import, the CAISO will endeavor to host a workshop on the CAISO's budget preparation process in advance of the meeting to better prepare stakeholders.

Prior to a final recommendation by the finance committee of the CAISO Governing Board on the CAISO's draft annual budget, the CAISO shall respond in writing to all written comments on the draft annual budget submitted by stakeholders and/or the CAISO shall issue a revised draft budget indicating in detail the manner in which the stakeholders' comments have been taken into consideration.

The CAISO will provide no fewer than forty-five (45) days for stakeholder review of its annual budget between initial budget posting and final approval of the budget by the CAISO Governing Board.

Budget Posting

After the approval of the annual budget by the CAISO Governing Board, the CAISO will post on the CAISO Website the CAISO operating and capital budget to be effective during the subsequent fiscal year, and the billing determinant volumes used to develop the rate for each component of the Grid Management Charge, together with workpapers showing the calculation of such rates.

Annual Filing

If the Grid Management Charge revenue requirement for any Budget Year does not exceed $197 million, the CAISO shall not be required to make a Section 205 filing to adjust the GMC charges calculated in accordance with this Schedule 1 to collect such revenue requirement. In order for the CAISO to adjust the GMC charges to collect a Grid Management Charge revenue requirement for a Budget Year that exceeds $197 million, the CAISO must submit an application to the FERC under FPA Section 205. In any event, the CAISO shall submit a filing under FPA Section 205 for approval of the Grid Management Charge to be effective no later than January 1, 2010. In such filing, the CAISO may revise the Grid Management Charge rates set forth in this Schedule 1, but shall not be required to do so.

Periodic Financial Reports

The CAISO will create periodic financial reports consisting of an income statement, balance sheet, statement of operating reserves, and such other reports as are required by the CAISO Governing Board. The periodic financial reports will be posted on the CAISO Website not less than quarterly.

Part E – Cost Allocation

1. The Grid Management Charge revenue requirement, determined in accordance with Part C of this Schedule 1, shall be allocated to the service charges specified in Part A of this Schedule 1 as follows, subject to Section 2 of this Part E and to Part F of this Schedule 1. Expenses projected to be recorded in each cost center shall be allocated among the charges in accordance with the allocation factors listed in Table 1 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1. In the event the CAISO budgets for projected expenditures for cost centers are not specified in Table 1 to Schedule 1, such expenditures shall be allocated based on the allocation factors for the respective CAISO division hosting that newly-created cost center. Such divisional allocation factors are specified in Table 1 to this Schedule 1.

Debt service expenditures for the CAISO's existing bond offerings shall be allocated among the charges in accordance with the allocation factors listed in Table 1 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1. Capital expenditures shall be allocated among the charges in accordance with the allocation factors listed in Table 2 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1, for the system for which the capital expenditure is projected to be made.

Any costs allocated by the factors listed in Table 1 and Table 2 to the Settlements, Metering, and Client Relations Charge category that would remain un-recovered after the assessment of the charge for that service specified in Section 8 of Part A of this Schedule 1 on forecasted billing determinant volumes shall be reallocated to the remaining GMC service categories in the ratios set forth in Table 3 to this Schedule 1.

The cost allocation factors in Tables 1, 2, and 3 to this Schedule 1 include the following association of factors to the components of the Grid Management Charge, subject to Part F of this Schedule 1:

CRS: This factor is the allocation of costs to the Core Reliability Services – Demand Charge and Core Reliability Services - Energy Exports Charge.

ETS: This factor is the allocation of costs to the Energy Transmission Services – Net Energy Charge and Energy Transmission Services – Uninstructed Deviations Charge, subject to Section 2 of this Part E.

CRS/ETS TOR: This factor is the allocation of costs to Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge for the assessment of the Core Reliability Services – Demand Charge, Core Reliability Services – Energy Exports Charge, and the Energy Transmission Services – Net Energy Charge to Metered Balancing Authority Area Load served over Transmission Ownership Rights.

FS: This factor is the allocation of costs to the Forward Scheduling Charge.

MU: This factor is the allocation of costs to the Market Usage Charge, except for the application of the Market Usage Charge to purchases or sales of Energy in the Day-Ahead Market.

MU-FE: This factor is the allocation of costs to the Market Usage Charge as applied to net purchases or sales of Energy in the Day-Ahead Market.

SMCR: This factor is the allocation of costs to the Settlements, Metering, and Client Relations Charge.

2. The allocation of costs in accordance with Section 1 and Tables 1 and 2 of this Part E shall be adjusted as follows:

Costs allocated to the Energy Transmission Services (ETS) category in the following tables are further apportioned to the Energy Transmission Services – Net Energy Charge and Energy Transmission Services – Uninstructed Deviations Charge subcategories in eighty percent (80%) and twenty percent (20%) ratios, respectively.

Table 1
O&M, Debt Service, and Other Expense Recoveries Cost Allocation Factors

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2111	CEO-General	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2121	Market Monitoring	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
2122	Market Surveillance Committee (Non-labor costs only)	25.00%	0.00%	0.00%	0.00%	75.00%	0.00%	0.00%	100.00%
2211	Planning and Infrastructure Development	53.25%	46.75%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2221	Regional Transmission-North	57.67%	42.33%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2231	Regional Transmission-South	54.60%	45.40%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2241	Grid Assets	68.34%	31.66%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2242	Generator Interconnections	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2251	Network Applications	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2311	CFO General	37.33%	14.40%	0.42%	3.96%	10.70%	5.12%	28.05%	100.00%
2321	Accounting	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2331	Financial Planning and Treasury	31.41%	12.20%	0.36%	3.46%	10.76%	2.86%	38.95%	100.00%
2341	Human Resources	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%
2351	Facilities	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%
2361	Procurement and Vendor Management	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2371	Enterprise Risk Management	34.73%	11.83%	0.38%	5.53%	9.35%	6.78%	31.40%	100.00%
2372	Internal Audit	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2373	Information Security	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2374	Physical Security	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2411	Information Technology-General	35.13%	8.03%	0.35%	8.08%	11.07%	4.65%	32.69%	100.00%
2412	Asset Management (Non-Labor costs only)	32.40%	9.79%	0.33%	7.51%	12.78%	5.37%	31.83%	100.00%
2421	IT Projects	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2431	IT Project Management	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2441	Software Quality Assurance	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2451	IT Support & Operations	37.26%	10.02%	0.39%	9.71%	12.49%	2.34%	27.78%	100.00%
2452	System & Database Administration	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2453	Data Center & Operations	40.24%	18.35%	0.49%	2.44%	14.15%	1.64%	22.70%	100.00%
2454	Architecture & Systems Engineering	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2462	EMS Information Technology	94.09%	2.45%	0.80%	0.00%	1.33%	0.00%	1.33%	100.00%
2463	Operations Information Technology	31.43%	9.40%	0.33%	13.67%	26.52%	0.00%	18.65%	100.00%
2464	Corporate Systems	32.52%	10.30%	0.32%	1.22%	10.23%	1.92%	43.49%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2511	Operations-General	46.52%	16.54%	0.75%	1.33%	15.19%	2.09%	17.58%	100.00%
2521	Grid Operations	68.53%	24.09%	1.42%	0.00%	5.96%	0.00%	0.00%	100.00%
2522	Real-Time Operations	60.99%	29.70%	1.20%	0.00%	8.11%	0.00%	0.00%	100.00%
2523	Scheduling	65.75%	32.87%	1.38%	0.00%	0.00%	0.00%	0.00%	100.00%
2524	Outage Management	94.00%	0.37%	4.17%	0.00%	1.47%	0.00%	0.00%	100.00%
2531	Alhambra Grid Operations	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2541	Market Services	5.38%	0.00%	0.00%	5.02%	44.24%	7.90%	37.46%	100.00%
2542	Market Operations	5.14%	0.00%	0.00%	13.08%	56.08%	20.56%	5.14%	100.00%
2543	Billing and Settlements	12.56%	0.00%	0.00%	0.00%	0.00%	0.00%	87.44%	100.00%
2544	Settlement Projects	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
2545	Market Information	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
2551	Operations Support	38.68%	19.64%	0.00%	0.00%	1.76%	0.00%	39.92%	100.00%
2552	Operations Data and Compliance	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
2553	Operations Procedures and Training	63.23%	36.77%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2554	Model & Contract Implementation	35.54%	0.00%	0.00%	0.00%	8.77%	0.00%	55.69%	100.00%
2555	Information Engineering & Analysis	8.80%	46.39%	0.00%	0.00%	0.00%	0.00%	44.82%	100.00%
2561	Reliability Coordination	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2611	General Counsel-General	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2621	Asst General Counsel-Corporate	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2631	Asst General Counsel-Regulatory	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2641	Asst General Counsel Tariff & Compliance	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2651	Asst Corporate Secretary	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2711	Market Development-Program Mgmt-General	18.92%	21.45%	0.04%	8.86%	42.78%	0.43%	7.51%	100.00%
2721	Market and Product Development	7.43%	14.86%	0.00%	7.43%	62.86%	0.00%	7.43%	100.00%
2722	Tariff and Regulatory/Policy Development	0.00%	9.34%	0.00%	18.69%	71.97%	0.00%	0.00%	100.00%
2723	Infrastructure Policy & Contracts	45.42%	44.49%	0.00%	0.00%	0.00%	0.00%	10.09%	100.00%
2731	Program Office	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2741	MRTU Program	10.30%	4.25%	0.12%	19.93%	10.75%	16.19%	38.46%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2811	External Affairs-General	12.89%	5.00%	0.15%	1.42%	4.41%	1.17%	74.96%	100.00%
2821	Communications & Public Relations	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2822	Information Products & Services	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
2831	State/Federal Affairs	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2841	Customer Services and Industry Affairs	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%

Financing and Capital Project Budgets								
	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
1998/2000 Bond Financed Capital	29.96%	8.36%	0.31%	11.78%	16.47%	1.07%	32.05%	100.00%
2004 Bond Financed Capital	16.20%	5.07%	0.17%	17.67%	10.90%	14.09%	35.90%	100.00%
2007 Bond Financed Capital	13.44%	5.08%	0.15%	19.05%	10.48%	15.71%	36.09%	100.00%
Other Revenues and Expense Credits								
SC Application and Training Fees	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
WECC Reimbursement/NERC Reimbursement	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
COI Path Operator Fee	71.81%	28.19%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Large Generator Interconnection Project	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Interest Earnings	34.78%	12.18%	0.38%	7.33%	12.98%	5.30%	27.06%	100.00%

Table 2

Capital Cost Allocation Factors

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Ancillary Services Management (ASM) Component of SA	14.88%	0.00%	0.12%	40.00%	45.00%	0.00%	0.00%	100.00%
Application Development Tools	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Automated Dispatch System (ADS)	49.59%	0.00%	0.41%	25.00%	20.00%	0.00%	5.00%	100.00%
Automated Load Forecast System (ALFS)	69.42%	0.00%	0.58%	10.00%	20.00%	0.00%	0.00%	100.00%
Automatic Mitigation Procedure (AMP)	0.00%	84.30%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Backup systems (Legato/Quantum)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Balance of Business Systems (BBS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Balancing Energy Ex Post Price (BEEP) Component of SA	49.59%	2.83%	0.43%	20.00%	27.14%	0.00%	0.00%	100.00%
Bill's Interchange Schedule (BITS)	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
CAISO Outage Modeling Tool (COMT)	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
CaseWise (process modeling tool)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
CHASE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Client Relations Tools	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Common Information Model (CIM)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Compliance	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
Congestion Management (CONG) Component of SA	0.00%	28.34%	0.23%	0.00%	71.43%	0.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Reform-DSOW	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Congestion Revenue Rights (CRR)	0.00%	22.67%	0.19%	0.00%	77.14%	0.00%	0.00%	100.00%
DataWarehouse	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
Dept. of Market Analysis Tools (SAS/MARS)	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
Dispute Tracking System (Remedy)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Documentum	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Electronic Tagging (Etag)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Energy Management System (EMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Engineering Analysis Tools	59.51%	39.67%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Evaluation of Market Separation	0.00%	14.17%	0.12%	0.00%	85.71%	0.00%	0.00%	100.00%
Existing Transmission Contracts Calculator (ETCC)	24.79%	4.25%	0.24%	20.00%	30.71%	0.00%	20.00%	100.00%
FERC Study Software	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	0.00%	17.00%	0.14%	15.00%	57.86%	0.00%	10.00%	100.00%
Global Resource Reliability Management Application (GRRMA)	74.38%	14.88%	0.74%	0.00%	10.00%	0.00%	0.00%	100.00%
Grid Operations Training Simulator (GOTS)	62.48%	36.70%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
Human Resources	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
IBM Contract (also known as Outsourced Contracts)	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%
Integrated Forward Market (IFM)	9.92%	0.00%	0.08%	35.00%	0.00%	55.00%	0.00%	100.00%
Internal Development	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Interzonal Congestion Management reform - Real Time	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Land and Building Costs	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Local Area Network (LAN)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Locational Marginal Pricing (LMPM)	9.92%	0.00%	0.08%	35.00%	55.00%	0.00%	0.00%	100.00%
Market Quality System (MQS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Masterfile	19.84%	0.00%	0.16%	20.00%	55.00%	0.00%	5.00%	100.00%
Meter Data Acquisition System (MDAS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Miscellaneous (2004 related capital)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Monitoring (Tivoli)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
MRTU Capital	12.68%	4.68%	0.14%	19.01%	10.75%	15.41%	37.33%	100.00%
Network Applications	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New Resource Interconnection (NRI)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New System Equipment (replacement of owned equipment)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
NT/web servers	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
NT-servers	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Office Automation - desktop/laptop (OA)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Open Access Same-Time Information System (OASIS)	9.92%	2.83%	0.11%	25.00%	42.14%	0.00%	20.00%	100.00%
Operational Meter Analysis and Reporting (OMAR)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Oracle Corporate Financials	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Oracle Enterprise Manager (OEM)	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Licenses	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Market Financials BBS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Out of Sequence Market Operation Settlements Information System (OOS)	4.96%	4.96%	0.08%	0.00%	90.00%	0.00%	0.00%	100.00%
Outage Scheduler (OS)	49.59%	5.67%	0.46%	10.00%	34.29%	0.00%	0.00%	100.00%
Participating Intermittent Resource Project (PIRP)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Physical Facilities Software Application/Furniture/Leasehold Improvements	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Portal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Post Transaction Repository (PTR)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Process Information System (PI)	79.34%	0.00%	0.66%	0.00%	10.00%	0.00%	10.00%	100.00%
Rational Buyer	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Energy Dispatch System (REDS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Nodal Market	34.71%	0.00%	0.29%	10.00%	55.00%	0.00%	0.00%	100.00%
Reliability Management System (RMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Adequacy	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Register (RR)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
RMR Application Validation Engine (RAVE)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Scheduling & Logging for ISO California (SLIC)	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
Scheduling & Tagging Next Generation (STiNG)	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Scheduling Architecture (SA)	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
Scheduling Infrastructure (SI)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Scheduling Infrastructure Business Rules (SIBR)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Security Constrained Economic Dispatch (SCED)	0.00%	39.67%	0.33%	0.00%	60.00%	0.00%	0.00%	100.00%
Security- External/Physical	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Security-ISS (CUDA)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Settlements and Market Clearing	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Sign Board (Symon Board maint.)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Startup Costs through 3/31/98, Working Capital-3 months	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Storage (EMC symmetrix)	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
System Equipment Buyouts (lease buyouts)	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%
Tactical Emergency Management System (TEMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Telephone/PBX	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Training Systems	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Transmission Map Plotting & Display	49.59%	49.59%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Treasury Workstation/Investment Program	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%
Trustee Costs, Interest-Capitalized, User Groups	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
Utilities - System i.e. Print drivers	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Vitria (Middleware)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Wide Area Network (WAN)	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

Table 3

Reallocation Factors for Projected Unrecovered Portion of Settlements, Metering, and Client Relations Revenue Requirement

	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Functional Association of Settlements, Metering, and Client Relations	0.00%	65.68%	0.25%	0.70%	23.73%	9.64%	0.00	100.00

Part F – Other Modifications to the Rates

Consistent with a Settlement Agreement accepted by the FERC in Docket Nos. ER04-115-000, et al., GMC rates and charges shall be calculated consistent with the following additional requirements:

1. The Forward Scheduling Charge assessed against Inter-SC Trades submitted by Pacific Gas and Electric Company solely in its role as Path 15 facilitator will be reduced by excluding sixty-five percent (65%) of the number of such Inter-SC Trades from the Forward Scheduling Charge. Such excluded Inter-SC Trades shall not be included in the denominator upon which the Forward Scheduling Charge is calculated.

Attachment B

Blacklines
GMC Under MRTU Amendment Filing
4th Replacement CAISO Tariff (MRTU)
February 20, 2008

* * *

11.17 CAISO Operating and Capital Reserves Account.

Revenues collected to fund the CAISO financial operating reserves shall be deposited in ~~an~~the CAISO Operating and Capital Reserves Account until such account reaches a level specified by the CAISO Governing Board. The CAISO Operating and Capital Reserves Account shall be calculated separately for each GMC service category ~~(Core Reliability Services – Demand, Core Reliability Services – Energy Export, Energy Transmission Services – Net Energy, Energy Transmission Services – Uninstructed Deviations, Forward Scheduling, Congestion Management, Market Usage, and Settlements, Metering and Client Relations)~~. The allocation factors, reassignments and reallocations specified in Appendix F, Schedule 1, Parts E and F, will be accounted for in the development of the CAISO Operating and Capital Reserves Account for each component. If the CAISO Operating and Capital Reserves Account as calculated for such service category is fully funded, surplus funds will be considered an offset to the CAISO's revenue requirement of the next fiscal year.

* * *

11.22 Grid Management Charge.

*** * ***

11.22.2 Costs Included in the Grid Management Charge.

The Grid Management Charge shall include the following costs incurred by the CAISO, as described in more detail in Appendix F, Schedule 1:

(1) CAISO Operating Costs;

(2) CAISO Other Costs and Revenues;

(3) CAISO Financing Costs; and

(4) CAISO Operating and Capital Reserves Costs.

11.22.2.1 [NOT USED]

11.22.2.2 [NOT USED]~~Operating Costs.~~

~~Budgeted annual operating costs, which shall include all staffing costs including remuneration of contractors and consultants, salaries, benefits and any incentive programs for employees, costs of operating, replacing and maintaining CAISO systems, lease payments on facilities and equipment necessary for the CAISO to carry out its business, and annual costs of financing the CAISO's working capital and other operating costs ("Operating Costs").~~

11.22.2.3 [NOT USED]~~Financing Costs.~~

~~The financing costs that are approved by the CAISO Governing Board, including capital expenditures that may be financed over such period as the CAISO Governing Board shall decide. Financing Costs shall also include the CAISO start up and development costs standing to the credit of the CAISO Memorandum Account plus any additional start up or development costs incurred after the date of Resolution E-3459 (July 17, 1996), plus any additional capital expenditure incurred by the CAISO in 1998 ("Start Up and Development Costs"). The amortized amount to be included in the Grid Management Charge shall be equal to the amount necessary to amortize fully all Start Up and Development Costs over a period of five (5) years, or such longer period as the CAISO Governing Board shall decide ("Financing Costs").~~

11.22.2.4 [NOT USED]~~Operating and Capital Reserves Cost.~~

~~The budgeted annual cost of pay-as-you-go capital expenditures and reasonable coverage of debt service obligations. Such reserves shall be utilized to minimize the impact of any variance between forecast and actual costs throughout the year ("Operating and Capital Reserves Costs").~~

11.22.2.5 Allocation of the Grid Management Charge Among Scheduling Coordinators.

The costs recovered through the Grid Management Charge shall be allocated to the ~~eight~~ service charges that comprise the Grid Management Charge. If the CAISO's revenue requirement for any service charge changes from the most recent FERC-approved revenue requirement for that service charge, the costs recovered through that service charge shall be delineated in a filing to be made at FERC as set forth in Section 11.22.2.6. The ~~eight~~ service charges, as described in more detail in Appendix F, Schedule 1, Parts A and F, are as follows:

(1) Core Reliability Services – Demand Charge;~~,~~

(2) Core Reliability Services – Energy Exports Charge;

(3) Energy Transmission Services – Net Energy Charge;~~,~~

(4) Energy Transmission Services – Uninstructed Deviations Charge;~~,~~

(5) Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge;

(6~~5~~) Forward Scheduling Charge;~~,~~

~~(6) Congestion Management Charge,~~

(7) Market Usage Charge;~~,~~ and

(8) Settlements, Metering, and Client Relations Charge.

The ~~eight~~ charges shall be levied separately monthly in arrears on all Scheduling Coordinators based on the billing determinants specified below for each charge in accordance with formulae set out in Appendix F, Schedule 1, Part A ~~of this Tariff~~, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.1 Core Reliability Services – Demand Charge.

The Core Reliability Services – Demand Charge for a Scheduling Coordinator's Load that is not associated with Energy Exports is calculated ~~using the Scheduling Coordinator's metered non-coincident peak hourly Demand during the month (in megawatts) less the volume of Energy Exports included in the Scheduling Coordinator's non-coincident peak hourly Demand for the month, if any; provided that if the Scheduling Coordinator's metered non-coincident peak hour during the month occurs during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400 the rate shall be sixty-six (66) percent of the standard CRS rate. The standard rate for the Core Reliability Services – Demand Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total of the forecasted metered non-coincident peak hourly Demand for all months during the year (excluding the portion of such Demand associated with Energy Exports, if any), reduced by thirty-four (34) percent of the sum of all Scheduling Coordinators' metered non-coincident peak hour during the month occurs between the hour ending 2300 and the hour~~

~~ending 0600,~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.2 Core Reliability Services – Energy Exports Charge.

The Core Reliability Services – Energy Exports Charge for the load associated with a Scheduling Coordinator's Energy Exports is calculated ~~using the Scheduling Coordinator's metered volume of Energy Exports (in megawatt-hours). The rate for the Core Reliability Services – Energy Exports Charge is determined by dividing the GMC costs allocated to the Core Reliability Services service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge,~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.3 Energy Transmission Services – Net Energy Charge.

The Energy Transmission Services – Net Energy Charge for each Scheduling Coordinator is calculated ~~using that Scheduling Coordinator's Metered Control Area Load (in megawatt-hours). The rate for the Energy Transmission Services Net Energy Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted Metered Control Area Load,~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.4 Energy Transmission Services – Uninstructed Deviations Charge.

The Energy Transmission Services – Uninstructed Deviations Charge for each Scheduling Coordinator is calculated using that Scheduling Coordinator's net ~~u~~Uninstructed Imbalance Energy~~deviations~~ by Settlement Interval. ~~The rate for the Energy Transmission Services Uninstructed Deviations Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted net uninstructed deviations by Settlement Interval~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.5 Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge.

The Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.6~~5~~ Forward Scheduling Charge.

The Forward Scheduling Charge for each Scheduling Coordinator is calculated ~~using the sum of that Scheduling Coordinator's final hour-ahead Schedules, including all awarded Ancillary Services bids, with a value other than 0.03 MW. The Forward Scheduling Charge attributable to final hour-ahead Schedules for Inter-Scheduling Coordinating Energy and Ancillary Service Trades for each Scheduling Coordinator is fifty (50) percent of the standard Forward Scheduling Charge. The rate for the Forward Scheduling Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted final hour-ahead Schedules and awarded Ancillary Service bids submitted to the CAISO,~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~.

11.22.2.5.7~~6~~ Market Usage Charge.

The Market Usage Charge for each Scheduling Coordinator is calculated ~~using the absolute value of the Scheduling Coordinator's market purchases and sales of Ancillary Services, Supplemental Energy, Instructed Imbalance Energy, and net Uninstructed Imbalance Energy (with uninstructed deviations being netted by Settlement Interval). For a Scheduling Coordinator for a Load following MSS, Instructed Imbalance Energy associated with Load following instructions will not be assessed the Market Usage Charge for Instructed Imbalance Energy and will be netted with Uninstructed Imbalance Energy for determining the Market Usage Charge for net Uninstructed Imbalance Energy. The rate for the Market Usage Charge is determined by dividing the GMC costs allocated to this service category, including a specified percentage of the costs for the Settlements, Metering, and Client Relations Charge determined to be in excess of what is recovered by that charge, by the total forecasted number of market purchases~~

~~and sales,~~ according to the formula in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F.

11.22.2.5.8~~7~~ Settlements, Metering, and Client Relations Charge.

The Settlements, Metering, and Client Relations Charge for each Scheduling Coordinator is fixed at $10~~5~~00.00 per month, per Scheduling Coordinator ID with an invoice value other than $0.00 in the current ~~t~~Trading~~e~~ ~~m~~Month, as indicated in Appendix F, Schedule 1, Part A, subject to the requirements set out in Appendix F, Schedule 1, Part F ~~of this Tariff~~. Excess GMC costs related to the provision of these services that are not recovered through this charge are allocated to the other GMC service categories as specified ~~above and~~ in Appendix F, Schedule 1, Part E ~~of this Tariff~~.

11.22.2.6 Calculation and Adjustment of the Grid Management Charge.

The ~~eight~~ charges set forth in Section 11.22.2.5 that comprise the Grid Management Charge shall be calculated through the formula set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~. The formula set forth in Appendix F, Schedule 1, Part C ~~of this Tariff~~ sums the CAISO Operating Costs (less any available expense recoveries), CAISO Other Costs and Revenues, CAISO Financing Costs, and CAISO Operating and Capital Reserves Costs associated with each of the ~~eight~~ CAISO service charges to obtain a total revenue requirement. This revenue requirement is allocated among the ~~eight~~ charges of the GMC through the application of the factors specified in Appendix F, Schedule 1, Part E ~~of this Tariff~~.

The revenue requirement for each service then shall be divided by the forecast annual or periodic billing determinant volume to obtain a rate for each service, which will be payable by Scheduling Coordinators as set forth in Section 11.22.2.5. The rates so established will be adjusted annually, through the operation of the formula set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~. The CAISO shall post on ~~its~~ the CAISO ~~w~~Website each year, before the adjusted rates go into effect, as described in Appendix F, Schedule 1, Part D ~~of this Tariff~~, data showing the rates adjusted to reflect any change in the annual revenue requirement, variance between forecast and actual costs for the previous year or period, or any surplus revenues from the previous year or period (as defined in Section 11.17), or the inability to recover from a Scheduling Coordinator its share of the Grid Management Charge, or any under-achievement of a forecast of the billing determinant volumes used to establish the rates. The circumstances under which the CAISO is permitted to put the adjusted rates into effect without submitting

a filing to the FERC are described in Appendix F, Schedule 1, Part D ~~of this Tariff~~. Appendix F, Schedule 1, Part B ~~of this Tariff~~ sets forth the conditions under which a quarterly adjustment to the Grid Management Charge will be made.

* * *

11.22.3 MSS GMC Charges.

If the CAISO is charging Grid Management Charges for Uninstructed Imbalance Energy~~Deviations~~, and the Scheduling Coordinator for a Load-following MSS has Uninstructed Imbalance Energy~~Deviations~~ associated with the MSS's resources, then the CAISO will net the Generation and imports into the MSS to match the Demand and exports out of the MSS, and will not assess the Grid Management Charge associated with Uninstructed Imbalance Energy~~Deviations~~ for such portion of Energy that is used to match MSS Demand and net exports.

11.22.3.1 If Generation, above the amount to cover Demand and exports, was sold into the CAISO's Real-Time Market, then the Scheduling Coordinator for the MSS will be charged the Grid Management Charge associated with Uninstructed Imbalance Energy~~Deviations~~ for this quantity.

11.22.3.2 If insufficient Generation and imports was available to cover Demand and exports, and the Scheduling Coordinator for the MSS purchased Uninstructed Imbalance Energy from the CAISO Markets, then such Scheduling Coordinator will be charged the Grid Management Charge associated with Uninstructed Imbalance Energy~~Deviations~~ for this quantity.

11.22.3.3 ~~Only~~ Grid Management Charges associated with Uninstructed Imbalance Energy~~deviations~~ (the ~~Ancillary Services and Real-Time Energy Operations Charge (ASREO)~~ Energy Transmission Services – Uninstructed Deviations and Market Usage Charges) will be treated on a net basis by Settlement interval. The Core Reliability Services – Demand Charge, Core Reliability Services – Energy Exports Charge, and Energy Transmission Services – Net Energy Charge~~. GMC for Control Area Services (CAS)~~ will be charged based on Metered Balancing Authority Area~~Gross~~ Load, including ~~and~~ exports out of the MSS. ~~The Scheduling Coordinator for the MSS Operator will be assessed the GMC Congestion Management Charge (CONG) in accordance with Section 11.22.2.5.~~ Ancillary Service Bids

accepted by the CAISO and Instructed Imbalance Energy~~,~~ will be assessed the applicable Market Usage Charges~~GMC ASREO~~.

* * *

17.3.3 Settlement Treatment of Valid TOR Self-Schedules.

The resulting valid TOR Self-Schedules shall have the following Settlement treatment:

(1) The CAISO will apply the TOR Settlement treatment in Sections 11.2.1.5 and 11.5.7.

(2) The CAISO shall base the Marginal Cost of Losses on LMP differentials at the Points of Receipt and Points of Delivery identified in the valid TOR Self-Schedule; provided, however, that if a specific loss percentage exists in applicable agreement between the TOR holder and the CAISO, the CAISO will apply the IFM and RTM Marginal Cost of Losses Credit as provided in Sections 11.2.1.7 and 11.5.7.2.

(3) The CAISO will assess only charges applicable to Ancillary Services, Imbalance Energy, ~~and~~ Transmission Losses, and Grid Management Charges for the use of a TOR and will not assess charges for neutrality, UFE, transmission Access Charges, Minimum Load Costs, or other charges that might otherwise be applicable to the Demand or exports served solely over the TOR. The CAISO will assess charges applicable to Ancillary Services for the use of a TOR only to the extent that the CAISO must procure Ancillary Services for the TOR holder because Ancillary Services are not self-provided by the TOR holder. The CAISO will assess charges applicable to Imbalance Energy for the use of a TOR only if the CAISO must procure Imbalance Energy for the TOR holder. The CAISO will assess Grid Management Charges for the use of a TOR only in accordance with the provisions of Section 11.22 and Appendix F, Schedule 1.

(4) The holders of TORs will not be entitled to an allocation of revenues from the CAISO, including Access Charge revenues; provided that the Scheduling

Coordinator for the TOR holder shall be allocated the applicable amount of IFM Marginal Losses Surplus Credit in accordance with the provisions of Section 11.2.1.6, except for any TOR Self-Schedule that received the IFM Marginal Cost of Losses Credit.

(5) Parties with TORs shall continue to pay for Transmission Losses or Ancillary Services requirements in accordance with any Existing Contracts applicable to those TORs as they may be modified or changed in accordance with the terms of the Existing Contract. Any affected Participating TOs shall continue to provide Transmission Losses and any other Ancillary Services to the holder of a TOR subject to an Existing Contract as may be required by the Existing Contract. As described in Section 17.3.3(3) above, the CAISO will charge Scheduling Coordinators submitting the TOR Self-Schedule the charges applicable to Transmission Losses, Ancillary Services, and Imbalance Energy in accordance with the CAISO Tariff (e.g., the Transmission Losses Charge based on the Marginal Cost of Losses), and any shortfall or surplus between the CAISO charges and the provisions of any applicable Existing Contract shall be settled bilaterally between the Existing Contract parties or through the relevant TO Tariff. To enable holders of TORs to determine whether the CAISO's calculations result in any associated shortfall or surplus and to enable the parties to the Existing Contracts to settle the differences bilaterally or through the relevant TO Tariff, the CAISO shall calculate and provide the Scheduling Coordinator's Settlements the amounts paid for the MCL for the amounts of MWh submitted with a valid TOR Self-Schedule. Each Participating TO will be responsible for recovering any deficits or crediting any surpluses associated with differences in Transmission Losses and Transmission Loss requirements and/or Ancillary Services requirements, through its bilateral arrangements or its Transmission Owner Tariff.

* * *

CAISO TARIFF APPENDIX A

Master Definitions Supplement

* * *

CAISO Financing Costs	The CAISO's financing costs that are approved by the CAISO Governing Board, including capital expenditures that may be financed over such period as the CAISO Governing Board shall decide. CAISO Financing Costs shall also include the CAISO Start Up and Development Costs. The amortized amount to be included in the Grid Management Charge shall be equal to the amount necessary to amortize fully all CAISO Start Up and Development Costs over a period of five (5) years, or such longer period as the CAISO Governing Board shall decide. These costs include the requirement to collect an amount in excess of the annual debt service obligations as specified in the rate covenants of the official statements for each CAISO bond offering.

* * *

CAISO Operating and Capital Reserves Account	The account in the name of the CAISO with the CAISO Bank to which revenues collected to fund the CAISO financial operating reserves are transferred, in accordance with Section 11.17. Such financial operating reserves shall be utilized to minimize the impact of any variance between forecast and actual costs throughout the year.
CAISO Operating and Capital Reserves Costs	The CAISO's annual budgeted cost of cash funded capital and project expenditures and the amount (positive or negative) sufficient to maintain the CAISO Operating and Capital Reserves Account at the level specified by (1) the rate covenants of the official statements for each CAISO bond offering, (2) the CAISO Governing Board, or (3) the FERC.
CAISO Operating Costs	The CAISO's budgeted annual operating costs, which shall include all staffing costs including remuneration of contractors and consultants, salaries, benefits and any incentive programs for employees, costs of operating, replacing and maintaining CAISO systems, lease payments on facilities and equipment necessary for the CAISO to carry out its business, and annual costs of financing the CAISO's working capital and other operating costs.

* * *

CAISO Other Costs and Revenues	Other costs and revenues that are recovered through, or are offsets to, the CAISO revenue requirement, including special charges, fines, penalties, other interest expenses, reimbursements, and interest earnings.

* * *

CAISO Start Up and Development Costs	The CAISO's costs outstanding to the credit of the CAISO Memorandum Account plus any additional start up or development costs incurred after the date of Resolution E 3459 (July 17, 1996), plus any additional capital expenditure incurred by the CAISO in 1998.

* * *

~~**Congestion Management Charge**~~	~~The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of operating the Congestion Management process including, but not limited to, the management and operation of Congestion markets, taking Congestion Revenue Rights, Transmission Ownership Rights, and Existing Contracts into account, and determining the price for mitigating Congestion for flows on Congested paths.~~

* * *

Core Reliability Services – Demand Charge	~~A~~ The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of providing a basic, non-scalable level of reliable operation for the CAISO ~~Control~~Balancing Authority Area and meeting regional and national reliability requirements. The formula for determining the Core Reliability Services – Demand Charge is set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~.

* * *

Core Reliability Services – Energy Export Charge	~~A~~ The component of the Grid Management Charge that provides for the recovery of the CAISO's costs of providing a basic, non-scalable level of reliable operation for the CAISO ~~Control~~Balancing Authority Area and meeting regional and national reliability requirements. The formula for determining the Core Reliability Services – Energy Exports Charge is set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~.

* * *

Core Reliability Services/	The component of the Grid Management Charge that provides for the

Energy Transmission Services – Transmission Ownership Rights Charge

recovery of the CAISO's costs of providing reliability services to Transmission Ownership Rights within the CAISO Balancing Authority Area. The formula for determining the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge is set forth in Appendix F, Schedule 1, Part A.

* * *

Energy Transmission Services – Net Energy Charge

The component of the Grid Management Charge that provides, in conjunction with the Energy Transmission Services – Uninstructed Deviations Charge, for the recovery of the CAISO's costs of providing reliability on a scalable basis, i.e., a function of the intensity of the use of the transmission system within the ~~Control~~Balancing Authority Area and the occurrence of system outages and disruptions. The formula for determining the Energy Transmission Services – Net Energy Charge is set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~.

Energy Transmission Services – Uninstructed Deviations Charge

The component of the Grid Management Charge that provides, in conjunction with the Energy Transmission Services – Net Energy Charge, for the recovery of the CAISO's costs of providing reliability on a scalable basis, in particular for the costs associated with balancing transmission flows that result from ~~u~~Uninstructed Imbalance Energy ~~deviations~~. The formula for determining the Energy Transmission Services – Uninstructed Deviations Charge is set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~.

* * *

Forward Scheduling Charge

The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to, the costs of providing the ability to Scheduling Coordinators to submit a Bid for Energy and Ancillary Services and the cost of processing accepted Ancillary Services Bids. ~~For purposes of the Forward Scheduling Charge, a schedule is represented by each final HASP Schedule with a value other than 0 MW submitted to the scheduling infrastructure/scheduling application system (Import, Export, Load, Generation, Inter-SC Trades, and Ancillary Services, including self-provided Ancillary Services) submitted to the CAISO's Markets.~~ The formula for determining the Forward Scheduling Charge is set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~.

* * *

Grid Management Charge (GMC)

The CAISO monthly charge on all Scheduling Coordinators that provides for the recovery of the CAISO's costs listed in Section 11.22.2 through the ~~eight~~ service charges described in Section 11.22.2.5 calculated in accordance with the formula rate set forth in Appendix F, Schedule 1, Part A ~~of this Tariff~~. The ~~eight~~ charges that comprise the Grid Management Charge consist of: 1) the Core Reliability Services – Demand Charge, 2) the Core Reliability Services – Energy Exports Charge, 3) the Energy Transmission Services – Net Energy Charge, 4) the Energy Transmission Services – Uninstructed Deviations Charge, 5) the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge, 6) the Forward Scheduling Charge, ~~6) the Congestion Management Charge,~~ 7) the Market Usage Charge, and 8) the Settlements, Metering, and Client Relations Charge.

* * *

Market Usage Charge

The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs for processing Day-Ahead, Hour-Ahead Scheduling Process and Real-Time Bids, maintaining the Open Access Same-Time Information System, monitoring market performance, ensuring generator compliance with market rules as defined in the CAISO Tariff and the Business Practice Manuals, and determining LMPs. The formula for determining the Market Usage Charge is set forth in Appendix F, Schedule 1, Part A~~of this Tariff~~.

* * *

Metered Balancing Authority Area Load

For purposes of calculating and billing the Grid Management Charge, Metered Balancing Authority Area Load is:
(a) all metered Demand for Energy of Scheduling Coordinators for the supply of Loads in the CAISO's Balancing Authority Area, plus (b) all Energy for exports by Scheduling Coordinators from the CAISO Balancing Authority Area; less (c) Energy associated with the Load of a retail customer of a Scheduling Coordinator, Utility Distribution Company, Small Utility Distribution Company or Metered Subsystem that is served by a Generating Unit that: (i) is located on the same site as the customer's Load or provides service to the customer's Load through arrangements as authorized by Section 218 of the California Public Utilities Code; (ii) is a qualifying small power production facility or

qualifying cogeneration facility, as those terms are defined in FERC's regulations implementing Section 201 of the Public Utility Regulatory Policies Act of 1978; and (iii) the customer secures Standby Service from a Participating TO under terms approved by a Local Regulatory Authority or FERC, as applicable, or the customer's Load can be curtailed concurrently with an Outage of the Generating Unit.

Metered Control Area Load

Metered Balancing Authority Area Load.~~For purposes of calculating and billing the Grid Management Charge, Metered Control Area Load is: (a) all metered Demand for Energy of Scheduling Coordinators for the supply of Loads in the CAISO's Control Area, plus (b) all Energy for exports by Scheduling Coordinators from the CAISO Control Area; less (c) Energy associated with the Load of a retail customer of a Scheduling Coordinator, Utility Distribution Company, Small Utility Distribution Company or Metered Subsystem that is served by a Generating Unit that: (i) is located on the same site as the customer's Load or provides service to the customer's Load through arrangements as authorized by Section 218 of the California Public Utilities Code; (ii) is a qualifying small power production facility or qualifying cogeneration facility, as those terms are defined in FERC's regulations implementing Section 201 of the Public Utility Regulatory Policies Act of 1978; and (iii) the customer secures Standby Service from a Participating TO under terms approved by a Local Regulatory Authority or FERC, as applicable, or the customer's Load can be curtailed concurrently with an outage of the Generating Unit.~~

* * *

Settlements, Metering, and Client Relations Charge

The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs of maintaining customer account data, providing account information to customers, responding to customer inquiries, calculating market charges, resolving customer disputes, and the costs associated with the CAISO's Settlement, billing, and metering activities. Because this is a fixed charge per Scheduling Coordinator ID, costs associated with activities listed above also are allocated to other charges under the Grid Management Charge according to formula set forth in Appendix F, Schedule 1, Part A~~ of this Tariff~~.

* * *

CAISO TARIFF APPENDIX F

Rate Schedules

*** * ***

CAISO TARIFF APPENDIX F
Schedule 1

Grid Management Charge

Part A – Monthly Calculation of Grid Management Charge (GMC)

The Grid Management Charge consists of the following~~eight~~ separate service charges: (1) the Core Reliability Services – Demand Charge, (2) the Core Reliability Services – Energy Exports Charge; (3) Energy Transmission Services – Net Energy Charge, (4) the Energy Transmission Services – Uninstructed Deviations Charge, (5) the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge, (6) the Forward Scheduling Charge, ~~(6) the Congestion Management Charge,~~ (7) the Market Usage Charge, and (8) the Settlements, Metering, and Client Relations Charge.

1. The rate in $/MW for the Core Reliability Services – Demand Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total of the forecasted Scheduling Coordinators' metered non-coincident peak hourly demand in MW for all months during the year (excluding the portion of such Demand associated with Energy Exports, if any, as may be modified in accordance with Part F of this Schedule 1), reduced by thirty-four ~~(34)~~ percent (34%) of the sum of all Scheduling Coordinators' metered non-coincident peak~~s~~ Demands occurring during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400, every day, including Sundays and holidays; provided that if a Scheduling Coordinator's metered non-coincident peak Demand hour during the month occurs during the hours ending 0100 through 0600, or during the hours ending 2300 through 2400, every day, the rate shall be sixty-six ~~(66)~~ percent (66%) of the standard Core Reliability Services – Demand Charge rate.

2. The rate in $/MWh for the Core Reliability Services – Energy Exports Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total of the forecasted Scheduling Coordinators' metered volume of Energy Exports in MWh, ~~as may be modified in accordance with Part F of this Schedule 1, for all months during the year~~excluding each Scheduling Coordinator's Energy Exports associated with Transmission Ownership Rights.

3. The rate in $/MWh for the Energy Transmission Services – Net Energy Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total annual forecasted Metered ~~Control~~Balancing Authority Area Load, excluding each Scheduling Coordinator's Metered Balancing Authority Area Load associated with Transmission Ownership Rights.

4. The rate in $/MWh for the Energy Transmission Services – Uninstructed Deviations Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the absolute value of total annual forecasted net ~~u~~Uninstructed

Imbalance Energydeviations (netted within a Settlement Interval summed over the calendar month) in MWh; provided that the rate for each Scheduling Coordinator's Participating Intermittent Resources will be assessed against the Uninstructed Imbalance Energy of such Participating Intermittent Resources netted over the Trading Month.

5. The rate in $/MWh for the Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total annual forecasted Metered Balancing Authority Area Load associated with Transmission Ownership Rights.

6. The rate in $ per Schedule or $ per Inter-SC Trade for the Forward Scheduling Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the annual forecasted number of non-zero MW Day-Ahead and HASPFinal Hour-Ahead Schedules, as may be modified in accordance with Part F of this Schedule 1, including all awarded Ancillary Service and Residual Unit Commitment bBids and all Inter-SC Trades, including Inter-SC Trades of IFM Load Uplift Obligations. This charge will be assessed separately with respect to Schedules and Inter-SC Trades.; provided that the Forward Scheduling charge attributable to Final Hour-Ahead Schedules for Inter-Scheduling Coordinator Energy and Ancillary Service Trades for each Scheduling Coordinator is fifty (50) percent of the standard Forward Scheduling Charge.

6. The rate in $/MWh for the Congestion Management Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the total annual forecasted Scheduling Coordinators' inter-zonal scheduled flow (excluding flows pursuant to Existing Contracts) per path in MWh.

7. The rate in $/MWh for the Market Usage Charge will be calculated by dividing the GMC costs, as determined in accordance with Part C of this Schedule 1, allocated to this service category in accordance with Part E of this Schedule 1, by the annual forecasted total purchases and sales (including out-of-market transactions) of Ancillary Services, Supplemental Energy, Instructed Imbalance Energy, and net Uninstructed Imbalance Energy (with uUninstructed Imbalance Energydeviations for Participating Intermittent Resources netted over the Trading Month and all other Uninstructed Imbalance Energy being netted within a Settlement Interval summed over the calendar month) in MWh. A Market Usage Charge rate will be calculated separately for two sets of CAISO Markets: (i) the Ancillary Services and RTM rate will be based on MWh of purchases and sales of Ancillary Services in the DAM, the HASP, and the RTM, MWh of Instructed Imbalance Energy, and MWh of Uninstructed Imbalance Energy netted over the Settlement Interval; and (ii) the rate for the Day-Ahead Market for Energy will be based on MWh of net Energy purchases or sales in the DAM.

8. The rate for the Settlements, Metering, and Client Relations Charge will be fixed at $10500.00 per month, per Scheduling Coordinator ID Codedentification Number ("SC ID") with an invoice value other than $0.00 in the current tTradinge mMonth.

For a Scheduling Coordinator for a Load following MSS, the GMC service charges set forth in above shall be applied as set forth in Section 11.22.3 of the CAISO Tariff.

The rates for the foregoing charges shall be adjusted automatically each year, effective January 1 for the following twelve months, in the manner set forth in Part D of this Schedule.

Part B – Quarterly Adjustment, If Required

Each component rate of the Grid Management Charge will be adjusted automatically on a quarterly basis, up or down, so that rates reflect the annual revenue requirement as stated in the CAISO's filing or posting on the CAISO Website, as applicable, if the estimated revenue collectionsbilling determinant volumes for that component, on an annual basis, change by more than five percent (5%) or $1 million, whichever is

greater,~~more~~ during the year. Such adjustment may be implemented not more than once per calendar quarter, and will be effective the first day of the next calendar month.

The rates will be adjusted ~~in accordance with the following formula:~~

~~A~~according to the formulae listed in Appendix F, Schedule 1, Part A with the billing determinant(s) readjusted on a going-forward basis to reflect the change of more than five percent (5%) or $1 million, whichever is greater, ~~change~~ from the estimated revenue collections~~billing determinant~~ provided in the annual informational filing.

Part C – Costs Recovered through the GMC

As provided in Section ~~8~~11.22.2 of the CAISO Tariff, the Grid Management Charge includes the following costs, as projected in the CAISO's budget for the year to which the Grid Management Charge applies:

- CAISO Operating ~~c~~Costs; ~~(as defined in Section 8.2.2)~~
- CAISO Other Costs and Revenues, including penalties, interest earnings and other revenues;
- CAISO Financing ~~c~~Costs ~~(as defined in Section 8.2.3)~~, including debt service on CAISO Start- Up and Development ~~c~~Costs and subsequent capital expenditures; and
- CAISO Operating and Capital Reserves ~~c~~Costs. ~~(as defined in Section 8.2.3)~~

Such costs, for the CAISO as a whole, are allocated to the ~~eight~~ service charges that comprise the Grid Management Charge: (1) Core Reliability Services - Demand Charge, (2) Core Reliability Services – Energy Exports Charge, (3) Energy Transmission Services – Net Energy Charge, (4) Energy Transmission Services – Uninstructed Deviations Charge, (5) Core Reliability Services/ Energy Transmission Services – Transmission Ownership Rights Charge, (6) Forward Scheduling Charge, ~~(6) Congestion Management Charge,~~ (7) Market Usage Charge, and (8) Settlements, Metering, and Client Relations Charge, according to the factors listed in Part E of this Schedule 1, and

adjusted annually for:

- any surplus revenues from the previous year as deposited in the CAISO Operating and Capital Reserves Account, ~~as defined under Section 8.5,~~ or deficiency of revenues, as recorded in a memorandum account;

divided by:

- forecasted annual billing determinant volumes;

adjusted quarterly for:

- a change in the volume estimate used to calculate the individual Grid Management Charge components, if, on an annual basis, the change is five percent (5%) or $1 million, ~~more~~whichever is greater, from the estimated revenue collections provided in the annual informational filing.

The Grid Management Charge revenue requirement formula is as follows:

Grid Management Charge revenue requirement =

CAISO Operating Costs + CAISO Financing Costs + CAISO Other Costs and Revenues + CAISO Operating and Capital Reserves Costs,

~~Operating Expenses + Debt Service + [(Coverage Requirement x Senior Lien Debt Service) and/or (Cash Funded Capital Expenditures)] – Interest Earnings – Other Revenues – Reserve Transfer~~

[The "USoA" reference below is the FERC Uniform System of Accounts, and is intended to include subsequent re-numbering or re-designation of the same accounts or subaccounts.]

Where,

(1) CAISO Operating ~~Expenses~~ Costs include:~~= O&M Expenses plus Taxes Other Than Income Taxes and Penalties~~

(a) ~~O&M Expenses =~~ Transmission ~~O&M E~~expenses (USoA~~ccounts~~ 560-574);

(b) ~~plus~~Regional market expenses (USoA 575 subaccounts);

(c) Customer ~~A~~accounting ~~E~~expenses (USoA~~ccounts~~ 901-905);

(d) ~~plus~~ Customer ~~S~~service and ~~I~~informational ~~E~~expenses (USoA~~ccounts~~ 906-910);

(e) ~~plus~~ Sales ~~E~~expenses (USoA~~ccounts~~ 911-917);

(f) ~~plus~~ Administrative & ~~G~~general ~~E~~expenses (USoA~~ccounts~~ 920-935);

(g) Taxes ~~O~~other ~~T~~than ~~I~~income ~~T~~taxes ~~= those taxes other than income taxes which~~that relate to CAISO operating income (USoA~~ccount~~ 408.1); and

(h) Miscellaneous, non-operating expenses, penalties and other deductions~~Penalties = payments by the CAISO for penalties or fines incurred for violation of WECC reliability criteria~~ (USoA~~ccount~~ 426~~.3~~ subaccounts).

(2) CAISO Financing Costs include:

(a) ~~Debt Service = f~~For any fiscal year, scheduled principal and interest payments, sinking fund payments related to balloon maturities, repayment of commercial paper notes, net payments required pursuant to a payment obligation, or payments due on any CAISO notes. This amount includes the current year accrued principal and interest payments due in ~~April~~ the first one hundred twenty (120) days of the following year.

(b) The debt service ~~C~~coverage ~~R~~requirement, which is a ~~= 25%~~percentage of the ~~S~~senior ~~L~~lien ~~D~~debt ~~S~~service, i.e., all debt service that has a first lien on CAISO net operating revenues. The coverage requirement is twenty-five percent (25%), unless otherwise specified by the rate covenants of the official statements for each CAISO bond offering.

~~•Senior Lien Debt Service = all Debt Service that has a first lien on CAISO Net Operating Revenues (Account 128 subaccounts).~~

~~•Cash Funded Capital Expenditures = Post current fiscal year capital additions (Accounts 301-399) funded on a pay-as-you-go basis.~~

(3) CAISO Other Costs and Revenues include:

(a) ~~Interest Earnings =~~ Interest earnings (USoA 419) on CAISO Operating and Capital Reserves Account balances ~~(Account 419), excluding.~~ ~~I~~interest on bond or note proceeds specifically designated for capital projects or capitalized interest ~~is excluded~~.

(b) Miscellaneous revenues (USoA 421 and 456 subaccounts), ~~Other Revenues = Amounts booked to Account 456 subaccounts. Such amounts~~ including ~~are~~ but not limited to Scheduling Coordinator application and training fees, WECC ~~r~~Reliability ~~c~~Coordinator reimbursements, and fines assessed and collected by the CAISO.

(c) Other interest expenses (USoA 431) not provided for elsewhere.

(4) CAISO Operating and Capital Reserves Costs include:

(a) ~~Reserve Transfer = t~~The projected CAISO Operating and Capital ~~r~~Reserves Account balance for December 31 of the prior year less the ~~R~~reserve ~~R~~requirement ~~as adopted by the CAISO Governing Board and FERC~~. If such

amount is negative, the amount may be divided by two, so that the reserve is replenished within a two-year period. ~~(Account 128 subaccounts)~~ The reserve requirement is fifteen percent (15%) of annual CAISO Operating Costs, unless otherwise specified by (1) the rate covenants of the official statements for each CAISO bond offering, (2) the CAISO Governing Board or (3) the FERC.

(b) Funding from current year revenues for approved capital and projects initiated in the fiscal year.

~~Reserve Requirement = 15% of Annual Operating Expenses.~~

A separate revenue requirement shall be established for each component of the Grid Management Charge by developing the revenue requirement for the CAISO as a whole and then assigning such costs to the ~~seven~~ service categories using the allocation factors provided in Appendix F, Schedule 1, Part E ~~of this Tariff~~.

Part D – Information Requirements

Budget Schedule

The CAISO will convene, prior to the commencement of the ~~A~~annual ~~B~~budget process, an initial meeting with stakeholders to: (a) receive ideas to control CAISO costs; (b) receive ideas for projects to be considered in the capital budget development process; and, (c) receive suggestions for reordering CAISO priorities in the coming year.

Within two (2) weeks of the initial meeting, the ideas presented by the stakeholders shall be communicated in writing to the CAISO's officers, directors and managers as part of the budget development process, and a copy of this communication shall be made available to stakeholders.

Subsequent to the initial submission of the draft budget to the finance committee of the CAISO Governing Board, the CAISO will provide stakeholders with the following information: (a) proposed capital budget with indicative projects for the next subsequent calendar year, a budget-to-actual review for capital expenditures for the previous calendar year, and a budget-to-actual review of current year capital costs; and, (b) expenditures and activities in detail for the next subsequent calendar year (in the form of a draft of the budget book for the CAISO Governing Board), budget-to-actual review of expenditures and activities for the previous calendar year, and a budget-to-actual review of expenditures for the current year. Certain of this detailed information which is deemed commercially sensitive will only be made available to parties that pay the CAISO's GMC (or regulators) who execute a confidentiality agreement.

The CAISO shall provide such materials on a timely basis to provide stakeholders at least one full committee meeting cycle to review and prepare comments on the draft annual budget to the finance committee of the CAISO Governing Board. At least one month prior to the CAISO Governing Board meeting scheduled to consider approval of the proposed budget, the CAISO will hold a meeting open to all stakeholders to discuss the details of the CAISO's budget and revenue requirement for the forthcoming year. To the extent that such a meeting will deal with complex matters of budgetary and policy import, the CAISO will endeavor to host a workshop on the CAISO's budget preparation process in advance of the meeting to better prepare stakeholders.

Prior to a final recommendation by the finance committee of the CAISO Governing Board on the CAISO's draft annual budget, the CAISO shall respond in writing to all written comments on the draft annual budget submitted by stakeholders and/or the CAISO shall issue a revised draft budget indicating in detail the manner in which the stakeholders' comments have been taken into consideration.

The CAISO will provide no fewer than forty-five (45) days for stakeholder review of its annual budget between initial budget posting and final approval of the budget by the CAISO Governing Board.

Budget Posting

After the approval of the annual budget by the CAISO Governing Board, the CAISO will post on the CAISO Website the CAISO operating and capital budget to be effective during the subsequent fiscal year, and the billing determinant volumes used to develop the rate for each component of the Grid Management Charge, together with workpapers showing the calculation of such rates.

Annual Filing

If the Grid Management Charge revenue requirement for any Budget Year ~~2008~~ does not exceed $197~~5~~ million, the CAISO shall not be required to make a Section 205 filing to adjust the GMC charges calculated in accordance with this Schedule 1 to collect such ~~R~~revenue ~~R~~requirement. In order for the CAISO to adjust the GMC charges to collect a Grid Management Charge revenue requirement for a Budget Year ~~2009~~ that exceeds $197~~5~~ million, the CAISO must submit an application to the FERC under FPA Section 205. In any event, the CAISO shall submit a filing under FPA Section 205 for approval of the Grid Management Charge ~~charges~~ to be effective ~~the earlier of~~no later than January 1, 2010~~9. or the effective date of amendments to the ISO Tariff implementing a new market design based on a nodal system of Congestion Management employing locational marginal pricing, such as the ISO's Market Redesign and Technology Upgrade ("MRTU").~~ In such filing, the CAISO may revise the Grid Management Charge rates set forth in this Schedule 1, but shall not be required to do so.

Periodic Financial Reports

~~———~~The CAISO will create periodic financial reports consisting of an income statement, balance sheet, statement of operating reserves, and such other reports as are required by the CAISO Governing Board. The periodic financial reports will be posted on the CAISO~~'s~~ Website not less than quarterly.

Part E – Cost Allocation

1. The Grid Management Charge revenue requirement, determined in accordance with Part C of this Schedule 1, shall be allocated to the ~~eight~~ service charges specified in Part A of this Schedule 1 as follows, subject to Section 2 of this Part E and to Part F of this Schedule 1. Expenses projected to be recorded in each cost center shall be allocated among the ~~eight~~ charges in accordance with the allocation factors listed in Table 1 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1. In the event the CAISO budgets for projected expenditures for cost centers are not specified in Table 1 to Schedule 1, such expenditures shall be allocated based on the allocation factors for the respective CAISO division hosting that newly-created cost center. Such divisional allocation factors are specified in Table 1 to this Schedule 1.

Debt service expenditures for the CAISO's existing~~year 2000 (or subsequently refinanced)~~ bond offerings shall be allocated among the ~~eight~~ charges in accordance with the allocation factors listed in Table 1 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1. Capital expenditures shall be allocated among the ~~eight~~ charges in accordance with the allocation factors listed in Table 2 to this Schedule 1, subject to Section 2 of this Part E and to Part F of this Schedule 1, for the system for which the capital expenditure is projected to be made.

Any costs allocated by the factors listed in Table 1 and Table 2 to the Settlements, Metering, and Client Relations Charge category that would remain un-recovered after the assessment of the charge for that service specified in Section 8 of Part A of this Schedule 1 on forecasted billing determinant volumes shall be reallocated to the remaining GMC service categories in the ratios set forth in Table 3 to this Schedule 1.

The cost allocation factors in Tables 1, 2, and 3 to this Schedule 1 include the following association of factors to the components of the Grid Management Charge, subject to Part F of this Schedule 1:

CRS: This factor is the allocation of costs to the Core Reliability Services – Demand Charge and Core Reliability Services - Energy Exports Charge.

ETS: This factor is the allocation of costs to the Energy Transmission Services – Net Energy Charge and Energy Transmission Services – Uninstructed Deviations Charge, subject to Section 2 of this Part E.

CRS/ETS TOR: This factor is the allocation of costs to Core Reliability Services/Energy Transmission Services – Transmission Ownership Rights Charge for the assessment of the Core Reliability Services – Demand Charge, Core Reliability Services – Energy Exports Charge, and the Energy Transmission

Services – Net Energy Charge to Metered Balancing Authority Area Load served over Transmission Ownership Rights.

FS: This factor is the allocation of costs to the Forward Scheduling Charge.

MU: This factor is the allocation of costs to the Market Usage Charge, except for the application of the Market Usage Charge to purchases or sales of Energy in the Day-Ahead Market.

MU-FE: This factor is the allocation of costs to the Market Usage Charge as applied to net purchases or sales of Energy in the Day-Ahead Market.

SMCR: This factor is the allocation of costs to the Settlements, Metering, and Client Relations Charge.

2. The allocation of costs in accordance with Section 1 and Tables 1 and 2 of this Part E shall be adjusted as follows:

Costs allocated to the Energy Transmission Services (ETS) category in the following tables are further apportioned to the Energy Transmission Services – Net Energy Charge and Energy Transmission Services – Uninstructed Deviations Charge subcategories in eighty percent (80%) and twenty percent (20%) ratios, respectively.

~~Twenty (20) percent of the costs allocated to the Forward Scheduling Charge in the following Tables shall be reallocated to the Congestion Management Charge. A portion of the costs allocated to the Forward Scheduling Charge, associated with the fifty (50) percent reduction in the standard Forward Scheduling Charge to be applied to Final Hour-Ahead Schedules for Inter-Scheduling Coordinator Energy and Ancillary Service Trades as specified in Part A of this Schedule 1, shall be reallocated to the remaining GMC service categories in the ratios set forth in Table 3 to this Schedule 1.~~

Table 1
O&M, Debt Service, and Other Expense Recoveries Cost Allocation Factors

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2111	CEO-General	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2121	Market Monitoring	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
2122	Market Surveillance Committee (Non-labor costs only)	25.00%	0.00%	0.00%	0.00%	75.00%	0.00%	0.00%	100.00%
2211	Planning and Infrastructure Development	53.25%	46.75%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2221	Regional Transmission-North	57.67%	42.33%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2231	Regional Transmission-South	54.60%	45.40%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2241	Grid Assets	68.34%	31.66%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2242	Generator Interconnections	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2251	Network	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
	Applications								
2311	CFO General	37.33%	14.40%	0.42%	3.96%	10.70%	5.12%	28.05%	100.00%
2321	Accounting	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2331	Financial Planning and Treasury	31.41%	12.20%	0.36%	3.46%	10.76%	2.86%	38.95%	100.00%
2341	Human Resources	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%
2351	Facilities	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%
2361	Procurement and Vendor Management	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2371	Enterprise Risk Management	34.73%	11.83%	0.38%	5.53%	9.35%	6.78%	31.40%	100.00%
2372	Internal Audit	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2373	Information Security	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2374	Physical Security	40.85%	16.67%	0.47%	3.01%	10.06%	6.00%	22.94%	100.00%
2411	Information Technology-General	35.13%	8.03%	0.35%	8.08%	11.07%	4.65%	32.69%	100.00%
2412	Asset Management (Non-Labor costs only)	32.40%	9.79%	0.33%	7.51%	12.78%	5.37%	31.83%	100.00%
2421	IT Projects	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2431	IT Project Management	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2441	Software Quality Assurance	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2451	IT Support & Operations	37.26%	10.02%	0.39%	9.71%	12.49%	2.34%	27.78%	100.00%
2452	System & Database Administration	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2453	Data Center & Operations	40.24%	18.35%	0.49%	2.44%	14.15%	1.64%	22.70%	100.00%
2454	Architecture & Systems Engineering	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2462	EMS Information Technology	94.09%	2.45%	0.80%	0.00%	1.33%	0.00%	1.33%	100.00%
2463	Operations Information Technology	31.43%	9.40%	0.33%	13.67%	26.52%	0.00%	18.65%	100.00%
2464	Corporate Systems	32.52%	10.30%	0.32%	1.22%	10.23%	1.92%	43.49%	100.00%
2511	Operations-General	46.52%	16.54%	0.75%	1.33%	15.19%	2.09%	17.58%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
2521	Grid Operations	68.53%	24.09%	1.42%	0.00%	5.96%	0.00%	0.00%	100.00%
2522	Real-Time Operations	60.99%	29.70%	1.20%	0.00%	8.11%	0.00%	0.00%	100.00%
2523	Scheduling	65.75%	32.87%	1.38%	0.00%	0.00%	0.00%	0.00%	100.00%
2524	Outage Management	94.00%	0.37%	4.17%	0.00%	1.47%	0.00%	0.00%	100.00%
2531	Alhambra Grid Operations	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2541	Market Services	5.38%	0.00%	0.00%	5.02%	44.24%	7.90%	37.46%	100.00%
2542	Market Operations	5.14%	0.00%	0.00%	13.08%	56.08%	20.56%	5.14%	100.00%
2543	Billing and Settlements	12.56%	0.00%	0.00%	0.00%	0.00%	0.00%	87.44%	100.00%
2544	Settlement Projects	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
2545	Market Information	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
2551	Operations Support	38.68%	19.64%	0.00%	0.00%	1.76%	0.00%	39.92%	100.00%
2552	Operations Data and Compliance	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
2553	Operations Procedures and Training	63.23%	36.77%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2554	Model & Contract Implementation	35.54%	0.00%	0.00%	0.00%	8.77%	0.00%	55.69%	100.00%
2555	Information Engineering & Analysis	8.80%	46.39%	0.00%	0.00%	0.00%	0.00%	44.82%	100.00%
2561	Reliability Coordination	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
2611	General Counsel-General	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2621	Asst General Counsel-Corporate	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2631	Asst General Counsel-Regulatory	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2641	Asst General Counsel Tariff & Compliance	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2651	Asst Corporate Secretary	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2711	Market Development-	18.92%	21.45%	0.04%	8.86%	42.78%	0.43%	7.51%	100.00%

CC#	Cost Center Name	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
	Program Mgmt-General								
2721	Market and Product Development	7.43%	14.86%	0.00%	7.43%	62.86%	0.00%	7.43%	100.00%
2722	Tariff and Regulatory/Policy Development	0.00%	9.34%	0.00%	18.69%	71.97%	0.00%	0.00%	100.00%
2723	Infrastructure Policy & Contracts	45.42%	44.49%	0.00%	0.00%	0.00%	0.00%	10.09%	100.00%
2731	Program Office	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2741	MRTU Program	10.30%	4.25%	0.12%	19.93%	10.75%	16.19%	38.46%	100.00%
2811	External Affairs-General	12.89%	5.00%	0.15%	1.42%	4.41%	1.17%	74.96%	100.00%
2821	Communications & Public Relations	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2822	Information Products & Services	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
2831	State/Federal Affairs	38.89%	15.11%	0.44%	4.29%	13.32%	3.54%	24.42%	100.00%
2841	Customer Services and Industry Affairs	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%

Financing and Capital Project Budgets								
	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
1998/2000 Bond Financed Capital	29.96%	8.36%	0.31%	11.78%	16.47%	1.07%	32.05%	100.00%
2004 Bond Financed Capital	16.20%	5.07%	0.17%	17.67%	10.90%	14.09%	35.90%	100.00%
2007 Bond Financed Capital	13.44%	5.08%	0.15%	19.05%	10.48%	15.71%	36.09%	100.00%
Other Revenues and Expense Credits								
SC Application and Training Fees	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
WECC Reimbursement/NERC Reimbursement	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
COI Path Operator Fee	71.81%	28.19%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Large Generator Interconnection Project	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Interest Earnings	34.78%	12.18%	0.38%	7.33%	12.98%	5.30%	27.06%	100.00%

CC #	Cost Center	CRS	ETS	FS	CM	MU	SMCR	Total
1100	CEO Division	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1111	CEO - General	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1241	MD02	6.95%	0%	13.86%	10.91%	28.38%	39.90%	100%
1521	Grid Planning	62.50%	37.50%	0%	0%	0%	0%	100%
1300	Finance Division	44.04%	21.49%	3.62%	4.22%	10.31%	16.32%	100%
1311	CFO - General	44.04%	21.49%	3.62%	4.22%	10.31%	16.32%	100%
1321	Accounting	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1331	Financial Planning and Treasury	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1351	Facilities	44.06%	21.47%	3.51%	3.93%	10.21%	16.81%	100%
1361	Security & Corporate Services	44.06%	21.47%	3.51%	3.93%	10.21%	16.81%	100%

1400	Information Services Division	38.25%	7.16%	9.74%	4.78%	9.23%	30.85%	100%
1411	Chief Information Officer	38.25%	7.16%	9.74%	4.78%	9.23%	30.85%	100%
1422	Corporate & Enterprise Applications	33.28%	7.06%	1.16%	25.28%	12.58%	20.63%	100%
1424	Asset Management	35.30%	6.12%	10.91%	4.88%	10.50%	32.29%	100%
1431	End User Support	37.80%	14.44%	8.29%	3.5%	9.32%	26.65%	100%
1432	Computer Operations and Infrastructure Services	34.15%	9.21%	11.76%	3.08%	8.69%	33.11%	100%
1433	Network Services	43.38%	11.88%	9.39%	2.61%	9.23%	23.51%	100%
1441	Outsourced Contracts	42.25%	10.62%	10.25%	2.53%	9.07%	25.28%	100%
1442	Production Support	25.09%	0.17%	17.98%	2.62%	7.52%	46.62%	100%
1451	Information Support Services	25.09%	0.17%	17.98%	2.62%	7.52%	46.62%	100%
1461	Control Systems	96.44%	2.44%	0%	0%	0.56%	0.56%	100%
1462	Field Data Acquisition System (FDAS)	21.43%	0%	0%	0%	0%	78.57%	100%
1463	Operations Systems Services	50.44%	2.91%	6.01%	1.21%	5.95%	33.49%	100%
1466	Enterprise Applications	47.98%	7.30%	1.19%	1.34%	3.47%	38.72%	100%
1467	Settlement Systems Services	27.34%	11.20%	1.83%	2.05%	5.32%	52.25%	100%
1468	Corporate Application Support and Administration	44.06%	21.47%	3.51%	3.93%	10.21%	16.81%	100%
1469	Analytical and Reporting Applications	10%	0%	0%	65%	25%	0%	100%
1471	IT Planning	25.09%	0.17%	17.98%	2.62%	7.52%	46.62%	100%

~~1481~~	~~Markets and Scheduling System Services~~	~~46.85%~~	~~2.86%~~	~~23.68%~~	~~2.5%~~	~~17.64%~~	~~6.48%~~	~~100%~~
~~1482~~	~~Market Systems Support Services~~	~~44.94%~~	~~1.05%~~	~~18.51%~~	~~6.17%~~	~~23.78%~~	~~5.54%~~	~~100%~~
~~1500~~	~~Grid Operations- Division~~	~~66.71%~~	~~33.29%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1511~~	~~VP Grid Operations~~	~~66.71%~~	~~33.29%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1542~~	~~Outage Coordination~~	~~95.11%~~	~~4.89%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1543~~	~~Loads and Resources~~	~~48.95%~~	~~51.05%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1544~~	~~Real-Time Scheduling~~	~~60%~~	~~40%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1545~~	~~Grid Operations~~	~~67.47%~~	~~32.53%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1546~~	~~Security Coordination~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1547~~	~~Engineering and Maintenance~~	~~46.42%~~	~~53.58%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1548~~	~~OSAT Group - General~~	~~93.2%~~	~~6.80%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1549~~	~~Operations Training~~	~~50.48%~~	~~49.52%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1554~~	~~Special Projects Engineering~~	~~42.86%~~	~~57.14%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1555~~	~~Operations Support Group~~	~~55.56%~~	~~44.44%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1558~~	~~Transmission Maintenance~~	~~58.46%~~	~~41.54%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1559~~	~~Operations Application Support~~	~~60%~~	~~40%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1561~~	~~Operations Engineering South~~	~~65.32%~~	~~34.68%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1562~~	~~Operations Engineering North~~	~~55.15%~~	~~44.85%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1563~~	~~Operations Coordination~~	~~74.55%~~	~~25.45%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1564~~	~~Operations Scheduling~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~1565~~	~~Pre-Scheduling and Support~~	~~76.92%~~	~~23.08%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~

1566	Regional Coordination - General	100%	0%	0%	0%	0%	0%	100%
1600	Legal and Regulatory Division	35.80%	21.78%	3.73%	7.18%	16.97%	14.54%	100%
1611	VP General Counsel - General	35.80	21.78%	3.73%	7.18%	16.97%	14.54%	100%
1631	Legal and Regulatory	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1641	Market Analysis	15.32%	26.33%	0%	19.90%	31.38%	7.07%	100%
1642	Market Surveillance Committee	25%	25%	0%	25%	25%	0%	100%
1651	CAISO Governing Board	44.01%	21.51%	3.78%	4.61%	10.45%	15.63%	100%
1661	Compliance - General	21.90%	20.37%	11.90%	0%	28.50%	17.33%	100%
1662	Compliance - Audits	8.33%	0%	0%	0%	50%	41.67%	100%
1700	Market Services Division	17.14%	2.43%	9.46%	9.39%	20.35%	41.23%	100%
1711	VP Market Services - General	17.14%	2.43%	9.46%	9.39%	20.35%	41.23%	100%
1721	Billing and Settlements - General	25%	0%	0%	0%	0%	75%	100%
1722	Business Development Support	0%	0%	0%	0%	0%	100%	100%
1723	RMR Settlements	80.30%	19.70%	0%	0%	0%	0%	100%
1724	BBS - PSS	0%	0%	0%	0%	0%	100%	100%
1725	BBS - FSS	0%	0%	0%	0%	0%	100%	100%
1731	Contracts and Special Projects	43.17%	6.83%	0%	0%	0%	50%	100%
1741	Client Relations	0%	0%	0%	0%	0%	100%	100%
1751	Market Operations - General	30.66%	0%	15.33%	15.33%	34.85%	3.83%	100%

~~1752~~	~~Manager of Markets~~	~~27.31%~~	~~5.46%~~	~~27.31%~~	~~21.84%~~	~~18.08%~~	~~0%~~	~~100%~~
~~1753~~	~~Market Engineering~~	~~21.32%~~	~~0%~~	~~0%~~	~~28.43%~~	~~43.15%~~	~~7.11%~~	~~100%~~
~~1755~~	~~Business Solutions~~	~~5.91%~~	~~0%~~	~~47.27%~~	~~11.82%~~	~~29.10%~~	~~5.91%~~	~~100%~~
~~1756~~	~~Market Quality - General~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~70.93%~~	~~29.07%~~	~~100%~~
~~1757~~	~~Market Integration~~	~~7.38%~~	~~0%~~	~~29.52%~~	~~29.52%~~	~~26.20%~~	~~7.38%~~	~~100%~~
~~1800~~	~~Corporate and Strategic Development Division~~	~~44.04%~~	~~21.49%~~	~~3.62%~~	~~4.21%~~	~~10.31%~~	~~16.33%~~	~~100%~~
~~1811~~	~~VP Corporate and Strategic Development - General~~	~~44.04%~~	~~21.49%~~	~~3.62%~~	~~4.21%~~	~~10.31%~~	~~16.33%~~	~~100%~~
~~1821~~	~~Communications~~	~~44.01%~~	~~22.51%~~	~~3.78%~~	~~4.61%~~	~~10.45%~~	~~15.63%~~	~~100%~~
~~1831~~	~~Strategic Development~~	~~44.01%~~	~~22.51%~~	~~3.78%~~	~~4.61%~~	~~10.45%~~	~~15.63%~~	~~100%~~
~~1841~~	~~Human Resources~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~1851~~	~~Project Office~~	~~44.01%~~	~~21.51%~~	~~3.78%~~	~~4.61%~~	~~10.45%~~	~~15.63%~~	~~100%~~
~~1861~~	~~Regulatory Policy~~	~~44.01%~~	~~21.51%~~	~~3.78%~~	~~4.61%~~	~~10.45%~~	~~15.63%~~	~~100%~~
~~Other Revenue and Credits~~								
	~~SC Application and Training Fees~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
	~~WECC Reimbursement/NERC Reimbursement~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
	~~Interest Earnings~~	~~36.64%~~	~~12.29%~~	~~9.34%~~	~~4.97%~~	~~11.47%~~	~~25.30%~~	~~100%~~
~~Debt Service Related Allocations~~		~~33.49%~~	~~7.93%~~	~~15.26%~~	~~5.19%~~	~~9.44%~~	~~28.69%~~	~~100%~~

Table 2

Capital Cost Allocation Factors

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Ancillary Services Management (ASM) Component of SA	14.88%	0.00%	0.12%	40.00%	45.00%	0.00%	0.00%	100.00%
Application Development Tools	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Automated Dispatch System (ADS)	49.59%	0.00%	0.41%	25.00%	20.00%	0.00%	5.00%	100.00%
Automated Load Forecast System (ALFS)	69.42%	0.00%	0.58%	10.00%	20.00%	0.00%	0.00%	100.00%
Automatic Mitigation Procedure	0.00%	84.30%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
(AMP)								
Backup systems (Legato/Quantum)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Balance of Business Systems (BBS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Balancing Energy Ex Post Price (BEEP) Component of SA	49.59%	2.83%	0.43%	20.00%	27.14%	0.00%	0.00%	100.00%
Bill's Interchange Schedule (BITS)	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
CAISO Outage Modeling Tool (COMT)	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
CaseWise (process modeling tool)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
CHASE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Client Relations Tools	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Common Information Model (CIM)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Compliance	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
Congestion Management (CONG) Component of SA	0.00%	28.34%	0.23%	0.00%	71.43%	0.00%	0.00%	100.00%
Congestion Reform-DSOW	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Congestion Revenue Rights (CRR)	0.00%	22.67%	0.19%	0.00%	77.14%	0.00%	0.00%	100.00%
DataWarehouse	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
Dept. of Market Analysis Tools (SAS/MARS)	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
Dispute Tracking System (Remedy)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Documentum	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Electronic Tagging (Etag)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Energy Management System (EMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Engineering Analysis Tools	59.51%	39.67%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Evaluation of Market Separation	0.00%	14.17%	0.12%	0.00%	85.71%	0.00%	0.00%	100.00%
Existing Transmission Contracts Calculator (ETCC)	24.79%	4.25%	0.24%	20.00%	30.71%	0.00%	20.00%	100.00%
FERC Study Software	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	0.00%	17.00%	0.14%	15.00%	57.86%	0.00%	10.00%	100.00%
Global Resource Reliability Management Application (GRRMA)	74.38%	14.88%	0.74%	0.00%	10.00%	0.00%	0.00%	100.00%
Grid Operations Training Simulator (GOTS)	62.48%	36.70%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
Human Resources	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
IBM Contract (also known as Outsourced Contracts)	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%
Integrated Forward Market (IFM)	9.92%	0.00%	0.08%	35.00%	0.00%	55.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Internal Development	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Interzonal Congestion Management reform - Real Time	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Land and Building Costs	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Local Area Network (LAN)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Locational Marginal Pricing (LMPM)	9.92%	0.00%	0.08%	35.00%	55.00%	0.00%	0.00%	100.00%
Market Quality System (MQS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Masterfile	19.84%	0.00%	0.16%	20.00%	55.00%	0.00%	5.00%	100.00%
Meter Data Acquisition System (MDAS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Miscellaneous (2004 related capital)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Monitoring (Tivoli)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
MRTU Capital	12.68%	4.68%	0.14%	19.01%	10.75%	15.41%	37.33%	100.00%
Network Applications	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New Resource Interconnection (NRI)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New System Equipment (replacement of owned equipment)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
NT/web servers	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
NT-servers	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office Automation - desktop/laptop (OA)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Open Access Same-Time Information System (OASIS)	9.92%	2.83%	0.11%	25.00%	42.14%	0.00%	20.00%	100.00%
Operational Meter Analysis and Reporting (OMAR)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Oracle Corporate Financials	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Oracle Enterprise Manager (OEM)	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Licenses	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Market Financials BBS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Out of Sequence Market Operation Settlements Information System (OOS)	4.96%	4.96%	0.08%	0.00%	90.00%	0.00%	0.00%	100.00%
Outage Scheduler (OS)	49.59%	5.67%	0.46%	10.00%	34.29%	0.00%	0.00%	100.00%
Participating Intermittent Resource Project (PIRP)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Physical Facilities Software Application/Furniture/Leasehold Improvements	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Portal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Post Transaction Repository (PTR)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Process Information System (PI)	79.34%	0.00%	0.66%	0.00%	10.00%	0.00%	10.00%	100.00%
Rational Buyer	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Real Time Energy Dispatch System (REDS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Nodal Market	34.71%	0.00%	0.29%	10.00%	55.00%	0.00%	0.00%	100.00%
Reliability Management System (RMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Adequacy	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Register (RR)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
RMR Application Validation Engine (RAVE)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Scheduling & Logging for ISO California (SLIC)	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
Scheduling & Tagging Next Generation (STiNG)	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Scheduling Architecture (SA)	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
Scheduling Infrastructure (SI)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Scheduling Infrastructure Business Rules (SIBR)	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Security Constrained Economic Dispatch (SCED)	0.00%	39.67%	0.33%	0.00%	60.00%	0.00%	0.00%	100.00%
Security- External/Physical	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Security-ISS (CUDA)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Settlements and Market Clearing	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Sign Board (Symon Board maint.)	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Startup Costs through 3/31/98, Working Capital-3 months	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Storage (EMC symmetrix)	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
System Equipment Buyouts (lease buyouts)	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%
Tactical Emergency Management System (TEMS)	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Telephone/PBX	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Training Systems	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Transmission Map Plotting & Display	49.59%	49.59%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Treasury Workstation/Investment Program	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%
Trustee Costs, Interest-Capitalized, User Groups	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
Utilities - System i.e. Print drivers	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Vitria (Middleware)	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Wide Area Network (WAN)	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

~~System~~	~~CRS~~	~~ETS~~	~~FS~~	~~CM~~	~~MU~~	~~SMCR~~	~~Total~~
~~ACC Upgrades (Communication between CAISO & IOUs)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Ancillary Services Management (ASM) Component of SA~~	~~15%~~	~~0%~~	~~40%~~	~~0%~~	~~45%~~	~~0%~~	~~100%~~
~~Application Development Tools~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Automated Dispatch System (ADS)~~	~~50%~~	~~0%~~	~~25%~~	~~0%~~	~~20%~~	~~5%~~	~~100%~~
~~Automated Load Forecast System (ALFS)~~	~~70%~~	~~0%~~	~~10%~~	~~0%~~	~~20%~~	~~0%~~	~~100%~~
~~Automatic Mitigation Procedure (AMP)~~	~~85%~~	~~0%~~	~~0%~~	~~0%~~	~~15%~~	~~0%~~	~~100%~~
~~Backup systems (Legato/Quantum)~~	~~23%~~	~~0%~~	~~22%~~	~~3%~~	~~7%~~	~~45%~~	~~100%~~
~~Balance of Business Systems (BBS)~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Balancing Energy Ex Post Price (BEEP) Component of SA~~	~~50%~~	~~0%~~	~~20%~~	~~10%~~	~~20%~~	~~0%~~	~~100%~~
~~Bill's Interchange Schedule (BITS)~~	~~85%~~	~~0%~~	~~0%~~	~~0%~~	~~15%~~	~~0%~~	~~100%~~
~~CaseWise (process modeling tool)~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~CHASE~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Common Information Model (CIM)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Congestion Management (CONG) (Component of SA)~~	~~10%~~	~~0%~~	~~0%~~	~~65%~~	~~25%~~	~~0%~~	~~100%~~

~~Congestion Reform-DSOW~~	~~50%~~	~~0%~~	~~0%~~	~~50%~~	~~0%~~	~~0%~~	~~100%~~
~~Congestion Revenue Rights (CRR)~~	~~0%~~	~~0%~~	~~0%~~	~~80%~~	~~20%~~	~~0%~~	~~100%~~
~~DataWarehouse~~	~~24.46%~~	~~18.27%~~	~~6.40%~~	~~8.74%~~	~~24.30%~~	~~17.82%~~	~~100%~~
~~Dept. of Market Analysis Tools (SAS/MARS)~~	~~15.32%~~	~~26.33%~~	~~0%~~	~~19.90%~~	~~31.38%~~	~~7.07%~~	~~100%~~
~~Dispute Tracking System (Remedy)~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Documentum~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Electronic Tagging (Etag)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Energy Management System (EMS)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Engineering Analysis Tools~~	~~60%~~	~~40%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Evaluation of Market Separation~~	~~0%~~	~~0%~~	~~0%~~	~~50%~~	~~50%~~	~~0%~~	~~100%~~
~~Existing Transmission Contracts Calculator (ETCC)~~	~~25%~~	~~0%~~	~~20%~~	~~15%~~	~~20%~~	~~20%~~	~~100%~~
~~FERC Study Software~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~0%~~	~~100%~~
~~Firm Transmission Right (FTR) and Secondary Registration System (SRS)~~	~~0%~~	~~0%~~	~~15%~~	~~60%~~	~~15%~~	~~10%~~	~~100%~~
~~Global Resource Reliability Management Application (GRRMA)~~	~~75%~~	~~15%~~	~~0%~~	~~0%~~	~~10%~~	~~0%~~	~~100%~~
~~Grid Operations Training Simulator (GOTS)~~	~~56%~~	~~44%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,~~	~~0%~~	~~0%~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Human Resources~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~

~~IBM Contract~~	~~37.26%~~	~~14.44%~~	~~9.54%~~	~~3.52%~~	~~9.10%~~	~~26.13%~~	~~100%~~
~~Integrated Forward Market (IFM)~~	~~10%~~	~~0%~~	~~35%~~	~~0%~~	~~55%~~	~~0%~~	~~100%~~
~~Internal Development~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Interzonal Congestion Management reform - Real Time~~	~~50%~~	~~0%~~	~~0%~~	~~50%~~	~~0%~~	~~0%~~	~~100%~~
~~Land and Building Costs~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Local Area Network (LAN)~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Locational Marginal Pricing (LMPM)~~	~~10%~~	~~0%~~	~~35%~~	~~0%~~	~~55%~~	~~0%~~	~~100%~~
~~Market Transaction System (MTS)~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~0%~~	~~100%~~
~~Masterfile~~	~~20%~~	~~0%~~	~~20%~~	~~0%~~	~~55%~~	~~5%~~	~~100%~~
~~MD02 Capital~~	~~6.95%~~	~~0%~~	~~13.86%~~	~~10.91%~~	~~28.38%~~	~~39.90%~~	~~100%~~
~~Meter Data Acquisition System (RMDAPS)~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Miscellaneous (2004 related projects)~~	~~23.46%~~	~~0%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Monitoring (Tivoli)~~	~~23.46%~~	~~0%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~New Resource Interconnection (NRI)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~New System Equipment (replacement of owned equipment)~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~NT/web servers~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~NT-servers~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Oracle Enterprise Manager (OEM)~~	~~27%~~	~~0.%~~	~~18%~~	~~5%~~	~~9%~~	~~41%~~	~~100%~~
~~Office Automation - desktop/laptop (OA)~~	~~44%~~	~~27%~~	~~4%~~	~~4%~~	~~10%~~	~~17%~~	~~100%~~
~~Office equipment (scanner, printer, copier, fax, Communication Equipment)~~	~~44%~~	~~21%~~	~~4%~~	~~4%~~	~~10%~~	~~17%~~	~~100%~~

~~Open Access Same Time Information System (OASIS)~~	~~10%~~	~~0%~~	~~25%~~	~~10%~~	~~35%~~	~~20%~~	~~100%~~
~~Operational Meter Analysis and Reporting (OMAR)~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Oracle Corporate Financials~~	~~44%~~	~~21%~~	~~4%~~	~~4%~~	~~10%~~	~~17%~~	~~100%~~
~~Oracle Licenses~~	~~27%~~	~~0%~~	~~18%~~	~~5%~~	~~9%~~	~~41%~~	~~100%~~
~~Oracle Market Financials BBS~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Out of Sequence Market Operation Settlements Information System (OOS)~~	~~5%~~	~~5%~~	~~0%~~	~~0%~~	~~90%~~	~~0%~~	~~100%~~
~~Outage Scheduler (OS)~~	~~50%~~	~~0%~~	~~10%~~	~~20%~~	~~20%~~	~~0%~~	~~100%~~
~~Participating Intermittent Resource Project (PIRP)~~	~~0%~~	~~0%~~	~~93.92%~~	~~0%~~	~~6.08%~~	~~0%~~	~~100%~~
~~Physical Facilities Software Application/Furniture/Leasehold Improvements~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Process Information System (PI)~~	~~80%~~	~~0%~~	~~0%~~	~~0%~~	~~10%~~	~~10%~~	~~100%~~
~~Rational Buyer~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Real Time Energy Dispatch System (REDS)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Real Time Nodal Market~~	~~35%~~	~~0%~~	~~10%~~	~~0%~~	~~55%~~	~~0%~~	~~100%~~
~~Reliability Management System (RMS)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~

~~Remedy (related to Transmission Registry, New Resource Interconnection, and Resource Registry)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Resource Register (RR)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~RMR Application Validation Engine (RAVE)~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Scheduling & Logging for CAISO California (SLIC)~~	~~65%~~	~~0%~~	~~15%~~	~~5%~~	~~15%~~	~~0%~~	~~100%~~
~~Scheduling Architecture (SA)~~	~~23.96%~~	~~0%~~	~~19.84%~~	~~25.87%~~	~~30.33%~~	~~0%~~	~~100%~~
~~Scheduling Infrastructure (SI)~~	~~0%~~	~~0%~~	~~93.92%~~	~~0%~~	~~6.08%~~	~~0%~~	~~100%~~
~~Scheduling Infrastructure Business Rules (SIBR)~~	~~0%~~	~~0%~~	~~93.92%~~	~~0%~~	~~6.08%~~	~~0%~~	~~100%~~
~~Security Constrained Economic Dispatch (SCED)~~	~~40%~~	~~0%~~	~~0%~~	~~0%~~	~~60%~~	~~0%~~	~~100%~~
~~Security- External/Physical~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Security-ISS (CUDA)~~	~~23%~~	~~0%~~	~~22%~~	~~3%~~	~~7%~~	~~45%~~	~~100%~~
~~Settlements and Market Clearing~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~	~~100%~~
~~Sign Board (Symon Board maint.)~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Startup Costs through 3/31/98, Working Capital-3 months~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Storage (EMC symmetrix)~~	~~18.67%~~	~~9.55%~~	~~13.71%~~	~~4.21%~~	~~11.77%~~	~~42.09%~~	~~100%~~
~~System Equipment Buyouts (lease buyouts)~~	~~43.27%~~	~~1.02%~~	~~7.34%~~	~~1.79%~~	~~11.03%~~	~~35.56%~~	~~100%~~

~~Telephone/PBX~~	~~44.06%~~	~~21.47%~~	~~3.51%~~	~~3.93%~~	~~10.21%~~	~~16.81%~~	~~100%~~
~~Training Systems~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation~~	~~100%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Transmission Map Plotting & Display~~	~~50%~~	~~50%~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~	~~100%~~
~~Trustee Costs, Interest-Capitalized, User Groups~~	~~53.60%~~	~~0.55%~~	~~10.62%~~	~~15.74%~~	~~17.48%~~	~~2%~~	~~100%~~
~~Utilities – System i.e. Print drivers~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Vitria (Middleware)~~	~~23.46%~~	~~0.18%~~	~~21.78%~~	~~2.68%~~	~~6.86%~~	~~45.04%~~	~~100%~~
~~Wide Area Network (WAN)~~	~~40.80%~~	~~2.14%~~	~~18.68%~~	~~1.31%~~	~~7.60%~~	~~29.48%~~	~~100%~~
~~Capital Expenditures for Systems not Specified~~	~~32.20%~~	~~7.40%~~	~~15%~~	~~5.50%~~	~~10.60%~~	~~29.30%~~	~~100%~~

Table 3

Reallocation Factors for Projected Unrecovered Portion of Settlements, Metering, and Client Relations Revenue Requirement

	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Functional Association of Settlements, Metering, and Client Relations	0.00%	65.68%	0.25%	0.70%	23.73%	9.64%	0.00	100.00

	~~CRS~~	~~ETS~~	~~FS~~	~~CM~~	~~MU~~	~~SMCR~~	~~Total~~
~~Functional Association of Settlements, Metering, and Client Relations~~	~~0.0%~~	~~70.34%~~	~~0.0%~~	~~8.23%~~	~~21.43%~~	~~0.0%~~	~~100.0%~~

Part F – Other Modifications to the Rates

Consistent with a Settlement Agreement accepted by the FERC in Docket Nos. ER04-115-000, et al., GMC rates and charges shall be calculated consistent with the following additional requirements: ~~during the period that the GMC rates and charges specified in that Settlement Agreement remain in effect:~~

~~1. The GMC chargeable to a Scheduling Coordinator for transactions representing transfers from the Mohave generation facility to the Loads of the Mohave co-owners located outside of the CAISO~~

~~Control Area, will be reduced by excluding 65 percent of those Loads from the Energy Transmission Services Net Energy Charge and the Core Reliability Services – Energy Exports Charge. Such excluded Load shall not be included in the denominators used to calculate the rates for the Energy Transmission Services – Net Energy Charge and the Core Reliability Services – Energy Export Charge.~~

1~~2~~. The Forward Scheduling Charge assessed against Inter-SC Trades~~Schedules~~ submitted by Pacific Gas ~~&~~and Electric Company solely in its role as Path 15 facilitator will be reduced by excluding sixty-five percent (65%) ~~percent~~ of the number of such Inter-SC Trades~~Schedules~~ from the Forward Scheduling Charge. Such excluded Inter-SC Trades~~Schedules~~ shall not be included in the denominator upon which the Forward Scheduling Charge is calculated.

* * *

Attachment C

Testimony of
Ben Arikawa

Exhibit ISO-1

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System	)	
Operator Corporation	)	Docket No. ER08-___-000

DIRECT TESTIMONY OF
BEN ARIKAWA
ON BEHALF OF
THE CALIFORNIA INDEPENDENT SYSTEM
OPERATOR CORPORATION

QUALIFICATIONS AND INTRODUCTION

Q. Please state your name and business address.

A. My name is Ben Arikawa. My business address is California Independent System Operator, 151 Blue Ravine Road, Folsom, California 95630.

Q. By whom and in what capacity are you employed?

A. I am employed by the California Independent System Operator as a Senior Consultant.

Q. What are your duties at the California Independent System Operator?

A. As a Senior Consultant, my responsibilities include managing internal and stakeholder projects related to the existing Grid Management Charge ("GMC"), performing and maintaining billing determinant and monthly revenue forecasts, developing and maintaining relationships with Market Participants with respect to GMC issues and leading efforts to redesign the GMC. Specifically, with regard to the development of the 2008 GMC, I was responsible for leading the project to update the GMC to incorporate changes in market design resulting from the implementation of Market Redesign and Technology Upgrade ("MRTU").

Q. Please describe your educational background.

A. I hold a Bachelor of Arts degree in History from California State University, Fresno, and a Master of Arts degree in Economics from University of California, Davis. I have completed all coursework relevant to the Doctor of Philosophy degree in Economics, but have not completed the dissertation. I also attended the Inter-university Consortium for Political and Social Research at the University of

Michigan while at the University of California, Davis. I also am a Certified Treasury Professional ("CTP").

Q. Please describe your professional background.

A. I began my professional career in the Resource Planning Department of the Sacramento Municipal Utility District, where I attained the position of Senior Economist. I then taught Economics at the California State University, Fresno for an academic year. After teaching, I was employed by the California Public Utilities Commission in, what was then, the Transportation Division. The Western Area Power Administration employed me as a rate economist before I joined the California Energy Commission ("CEC"). At that Commission I worked on resource planning issues, financial analysis and retail electricity price forecasts. I joined the California Electricity Oversight Board ("EOB") in 1999. My responsibilities there included monitoring and providing analysis of issues relating to the cost and provision of electric services in California. Since June 2002, I have been employed by the CAISO.

I am also on the advisory committee to the Center for the Study of Energy Markets.

Q. Have you testified or participated in other regulatory proceedings?

A. Yes, while at the CEC, I presented testimony on the valuation of generation assets of the California investor-owned utilities before the California Public Utilities Commission ("CPUC"). I also testified numerous times before the CEC on matters including the potential responses of large consumers to the restructuring

of the electricity industry in California, the effects of capacity expansions on short-run avoided cost payments to qualifying facilities, and regulatory information requirements in a restructured environment. While at the EOB, I testified orally before the CPUC and submitted written testimony to the Federal Regulatory Energy Commission ("FERC" or the "Commission") in Docket Nos. ER98-495-000, et al. and ER98-496-000, et al. about the correct level of the fixed option payment for Reliability Must-Run ("RMR") services to owners of those RMR units under Condition 1 contracts. I submitted written testimony in the last GMC rate case, ER04-115-000, et al., and provided oral testimony in ER01-313-004.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is:

- To provide background on the CAISO's GMC rate structure;
- To describe the CAISO's proposed GMC rate structure and its relationship to the current structure;
- To describe the cost of service analysis performed in the development of the current rate; and
- To describe the ratemaking and rate design considerations that resulted in these rates.

Q. Have you prepared any exhibits?

A. Yes. Exhibits ISO-2 through ISO-20 were prepared by me or under my supervision. These exhibits include descriptions of the functionalization of CAISO activities and capital projects, the forecast of billing determinants and the cost allocation model, as well as supporting documentation and the proposed changes to the Tariff. The exhibits are numbered as follows:

Q. Please summarize your testimony.

A. I explain below that the Commission should accept the MRTU GMC rate design proposed in the CAISO filing because the proposed rate design results in GMC rates that are just, reasonable and not unduly discriminatory or preferential. The proposed MRTU GMC rate design is based on the current GMC formula rate, which employs the same basic structure that has been in place since 2004, with the changes required: (1) to account for changes in the operation of the CAISO's operations as a result of the implementation of MRTU; or (2) to more closely align the allocation of the CAISO's costs to its rates so that parties continue to pay for the services that they receive from the CAISO.

GMC BACKGROUND

Q. What is the Grid Management Charge?

A. The GMC is the charge through which the CAISO recovers its operating and other associated costs. The CAISO has staff, facilities, information technology ("IT") infrastructure, vehicles and other assets in order to carry out its responsibilities as the Balancing Authority for a majority of the transmission grid in California by managing the grid, keeping the system in balance, and managing flows with neighboring Balancing Authorities. CAISO staff also use various systems to operate markets for Ancillary Services and Energy. Administrative and support staff provide and manage the infrastructure necessary for the operation of the grid and CAISO markets. The GMC is a formula rate that

comprises multiple rates designed to track the services provided by the CAISO and to charge users for the services that they use.

Q. Please provide a brief history of the development of the CAISO's GMC rate structure.

A. The history of the CAISO GMC is one of change. Over the ten year history of the CAISO, major changes to the GMC structure have been implemented three times. The initial GMC structure at the startup of the CAISO provided for a single rate applied to load and exports, which was subsequently revised through a Commission approved Settlement agreement to provide a discount to certain existing transmission contract volumes. There was no separate charge for use of the CAISO markets or scheduling infrastructure. As part of the Settlement agreement, CAISO agreed to study further unbundling of the GMC rates. In 2001, the GMC was modified to include charges for the use of markets, specifically the Congestion Management and Market Operations Charges.

Stakeholders continued to request more discrete charges for CAISO services. In response, the GMC was modified once more in 2004 to include charges for management of imbalances, use of the CAISO scheduling infrastructure, and customer services. The structure that resulted from these discussions is the current GMC structure.

The current GMC structure consists of eight charges:

1) Core Reliability Services-Demand,
2) Core Reliability Services-Energy Export,
3) Energy Transmission Services-Net Energy,

4) Energy Transmission Services-Uninstructed Deviations,
5) Forward Scheduling,
6) Congestion Management
7) Market Usage and
8) Settlements, Metering and Client Relations.

These charges correspond to the principal services that the CAISO provides, as determined in a study that allocated the CAISO's costs across its services, as modified by changes negotiated in the settlement agreement in Docket No. ER04-115.

The forthcoming implementation of the MRTU will introduce new services and changes in CAISO operations. Accordingly, the CAISO has been considering, and discussing with stakeholders, possible changes in the GMC structure to account for the forthcoming changes in CAISO operations.

PROPOSED GRID MANAGEMENT CHARGE STRUCTURE

Q. Can you briefly describe the CAISO proposal for the GMC?

A. On MRTU startup, the revised GMC rate structure ("MRTU GMC"), as described in my testimony, will apply. That rate structure will retain seven of the eight existing charges. These retained charges are:

1) Core Reliability Services-Demand;
2) Core Reliability Services-Energy Export;
3) Energy Transmission Services-Net Energy;
4) Energy Transmission Services-Uninstructed Deviations;
5) Forward Scheduling;
6) Market Usage; and
7) Settlements, Metering, and Client Relations.

The proposed rate structure will not include the current Congestion Management Charge because Day-Ahead congestion will no longer be managed interzonally

through adjustment bids. Instead, congestion will be managed automatically through implementation of a locational marginal pricing based congestion management system.

The CAISO is also proposing to modify how the Core Reliability Services and Energy Transmission Services charges apply to flows on certain Transmission Ownership Rights ("TORs"). As I will explain, Scheduling Coordinators with those flows will pay an eighth charge, the CRS/ETS-TOR charge, in lieu of the Core Reliability Services and Energy Transmission Services charges.

Q. What is the complete list of the proposed eight GMC charges?

A. The eight GMC charges will consist of the seven retained charges and the one charge applicable to flows on TORs. These charges are:

1) Core Reliability Services-Demand;
2) Core Reliability Services-Energy Export;
3) Energy Transmission Services-Net Energy;
4) Energy Transmission Services-Uninstructed Deviations;
5) Core Reliability Services/ Energy Transmission Services-TORs;
6) Forward Scheduling;
7) Market Usage; and,
8) Settlements, Metering, and Client Relations.

Q. What is the structure of the GMC being proposed by the CAISO?

A. Each of the eight charges listed above will correspond to a different service that the CAISO provides to its customers and is applied on the basis of distinct billing determinants.

The eight GMC charges can be grouped into three functional categories: 1) Grid Reliability Services, 2) Market Services and 3) Settlements, Metering and Client

Relations. These three functions encompass all services offered by the CAISO and include all staff activities related to the provision of those services. Five service charges related to the monitoring, maintenance and provision of reliability in the Balancing Authority Area are used to recover the costs of providing Grid Reliability Services. These five service charges are: 1) Core Reliability Services-Demand; 2) Core Reliability Services-Energy Export; 3) Energy Transmission Services-Net Energy; 4) Energy Transmission Services-Uninstructed Deviations, and, 5) Core Reliability Services /Energy Transmission Services-TORs.

Market Services costs are recovered through charges for scheduling services and use of the CAISO markets either as a buyer or seller of Energy or Ancillary Services. These charges are: 1) Forward Scheduling, and 2) Market Usage.

Settlement, Metering and Client Relations costs are recovered, in part, from a single service charge related to the provision of the customer interface. This charge is the Settlement, Metering and Client Relations charge.

Q. How did the CAISO develop the changes that are incorporated into the proposed GMC rate structure?

A. The CAISO initiated a stakeholder process in the fall of 2006 to begin development of a GMC rate structure to be effective on MRTU startup. The CAISO developed a straw proposal to elicit stakeholder ideas and comments. Based on those comments, the CAISO developed a two phase process for the development of MRTU GMC rate structure. The two phase approach was

requested by stakeholders so that the critical path issues could be dealt with expediently and more time allotted for discussion of rate design issues.

The first phase concluded in late Fall 2006 with an agreement on the possible elements of the rate structure that would be coded into CAISO's new Settlements and Market Clearing ("SaMC") system. These rate structure elements that were identified for coding included more charges than might be implemented in the final design due to the need to have coding proceed in advance of market simulation testing scheduled for spring 2007.

The second phase included discussion of the cost of service and rate design elements of the MRTU GMC rate structure. These discussions began in April 2007 and proceeded through the fall of 2007. At the outset, the CAISO provided stakeholders with a straw proposal on the MRTU GMC rate structure that included the elements of the rate structure on which there was general agreement. The straw proposal also incorporated design changes that stakeholders had requested previously, as well as design changes in anticipation of MRTU startup. In response to comments from the previous fall, the CAISO also initiated a cost of service study to develop the cost basis for the new rate structure. The initial draft cost of service study was provided to stakeholders in June 2007.

In stakeholder discussions that followed, the CAISO made further refinements to the straw proposal. The refinements included the elimination of a proposed charge and modification of the billing determinants for Grid Reliability Services. The CAISO also refined the cost of service study to incorporate more detailed

analysis of the costs of Grid Reliability Services and Market Services. As these changes were made, the CAISO distributed bill impact analyses showing the potential impacts on Scheduling Coordinators ("SCs"). In addition to market participants and their representatives, participants who were provided bill impacts included regulatory agencies, the California Public Utilities Commission and the California Electricity Oversight Board.

The proposed GMC rate structure discussed in this testimony is the product of this year-long discussion between stakeholders and the CAISO.

Q. How does the proposed GMC differ from the current GMC rate structure?

A. During the stakeholder process, stakeholders and the CAISO agreed that incremental changes were preferred to wholesale changes in the GMC rate structure. Toward that end, the CAISO has proposed a GMC rate structure that retains many of the elements of the current GMC structure; as noted earlier in my testimony, seven of the eight existing charges are retained for the MRTU GMC.

While the GMC still comprises separate charges for the CAISO's principal services, there are changes to the rate structure that affect the distribution of charges. First, the cost of service basis underlying the rate structure has been updated to reflect changes in CAISO activities that have occurred since 2003. The changes in the cost of service constitute the largest overall source of distributional impact.

A second set of changes concern billing determinants. In 2006, the California Wind Energy Association proposed that the Uninstructed Imbalance Energy

associated with Participating Intermittent Resources be netted over the Trading Month rather than within the settlement interval. This change was incorporated in the CAISO straw proposal as presented in April 2007.

A third change responded to the Commission's direction in its June 25, 2007 Order on Compliance Filings (ER06-615-003 and 005). In that Order, the Commission directed the CAISO to consider the application of GMC to TORs. After consulting with the TOR holders, the CAISO reviewed the cost of service associated with TORs. The CAISO refined the application of Core Reliability and Energy Transmission Services to flows on TORs based on that review, resulting in a reduction in the GMC applicable to TOR exports, and the establishment of a separate GMC charge applicable to TORs.

Bill determinants also are affected by changes in the definitions of Instructed Imbalance Energy and Uninstructed Imbalance Energy. These changes were effective in CAISO markets upon implementation of Phase 1B in October, 2004. However, the CAISO was prohibited from revising the definitions of GMC billing determinants under the 2004 settlement agreement. With this filing, these changes will be implemented as described in more detail below.

Q. What changed in Grid Reliability Services function?

A. The Grid Reliability Services function – the CAISO's reliability function -- consists of two sub-functions: Core Reliability Services and Energy Transmission Services. The costs of performing these sub-functions are recovered from five charges: CRS-Demand, CRS-Energy Export, ETS-Net Energy, ETS-Uninstructed

Deviations and CRS/ETS-TORs. This design results from settlement negotiations in ER04-115 and the cost of service analysis as described more fully in the following sections of my testimony. There are no substantive changes to the CAISO activities related to the reliability function. The essential reliability services provided by the CAISO remain the same.

Q. What has changed in the Core Reliability Services sub-function of Grid Reliability Services?

A. The one change in Core Reliability Services is in the assessment of the CRS-Energy Exports charge on TOR exports. As I just explained, the CAISO reviewed the cost of service associated with TOR holders and determined that the CRS cost of service with respect to TOR exports is less than that for exports from the CAISO Controlled Grid. While the CAISO provides to the CAISO Controlled Grid the services of monitoring of transmission flows and emergency support, outage management and scheduling, transmission planning, Operations Engineering, Operations Support, determination of resource adequacy, dispatch of energy associated with Ancillary Services and load and resource balancing, the CAISO routinely provides only monitoring of transmission flows and emergency support, outage management and scheduling to flows on TORs. Because the level of Grid Reliability Services that the CAISO provides to these customers is lower than that for flows on the CAISO Controlled Grid, a separate service category with a reduced fee is appropriate. Accordingly, the CRS charge assessed to TOR exports will be less than that assessed to other exports.

Q. What has changed in the Energy Transmission Services sub-function of Grid Reliability Services?

A. The billing determinant for ETS-Uninstructed Deviations will change under the proposed rate structure. The first change concerns the calculation of Uninstructed Imbalance Energy for Participating Intermittent Resources. Under Appendix Q of the CAISO Tariff, Participating Intermittent Resources are required to schedule to a MW forecast of generation provided by an independent Forecast Service Provider on an hourly basis to receive the benefit of monthly netting. However, once they have submitted a generation schedule matching the MW forecast, they are not permitted to change their schedule if weather conditions change, and still remain in the Participating Intermittent Resources Program ("PIRP"). The requirement to schedule to an independent forecast was implemented as a measure to reduce the possibility of participants manipulating their imbalances over the month to avoid market charges.

Participants in the PIRP proposed that the Uninstructed Imbalance Energy associated with these resources be netted over the Trading Month rather than over the settlement interval. This better reflects their limited ability to manage deviations from their schedules. The CAISO has adopted this methodology and incorporated this into its proposal.

The second change in the billing determinant, Uninstructed Imbalance Energy, is a change in definition. There are two types of Uninstructed Imbalance Energy: 1) deviations from instructed MW (UIE1), and 2) deviations from scheduled MW

(UIE2). The former has been included in the billing determinant of Instructed Imbalance Energy. The latter has been a billing determinant of the ETS-Uninstructed Deviations and Market Usage charges. With MRTU implementation, the CAISO proposes to include both sources of uninstructed deviations in the billing determinant of Uninstructed Imbalance Energy. This would be consistent with their treatment in the market as described in Section 11.12.1 of the MRTU Tariff.

A third change, consistent with the proposed change in the CRS-Energy Export charge, reflects the fact that the ETS cost of service with respect to TOR exports is lower than that for Metered Control Area Load in the CAISO Controlled Grid. Therefore, the ETS-Net Energy charge assessed to TOR exports will be adjusted relative to the ETS-Net Energy charge on other Metered Control Area Load.

Q. Why is there a combined CRS/ETS charge applicable to flows on TORs?

A. In order to simplify the rate structure without impacting cost recovery, we propose a single charge applicable to flows on TORs that would include the cost recovery of both sub-functions. This can be done as the underlying bill determinant, as explained below, for both existing charges is MWhs.

Q. What changed in the Market Services function?

A. The Market Services function will change as a result of changing market structure, reductions of discounts previously applied to the Forward Scheduling charge and changes in billing determinants.

The current Market Services function consists of three sub-functions: 1) Forward Scheduling; 2) Congestion Management; and, 3) Market Usage. I will discuss the changes proposed for each below.

Q. What are the proposed changes for the Forward Scheduling sub-function of Market Services?

A. In the current GMC rate structure, as a result of the settlement in Docket No. ER04-115, there were two instances in which the revenue requirement for Forward Scheduling was reduced and the lost revenue was collected through other charges: 1) the Forward Scheduling revenue requirement was reduced by 20 percent, and 2) the Inter-SC Trade revenue requirement was reduced by 50 percent. In both cases, the revenue reduction was recovered by an increase in the revenue requirement of other charges. In the proposed GMC rate structure these reductions in revenue requirements are eliminated. The modifications were established to phase in their effects on the application of the then-new Forward Scheduling charge on SCs that had not previously been subject to a Forward Scheduling charge. Now that the Forward Scheduling charge is well established, the CAISO proposes to fully allocate costs to this charge.

The Forward Scheduling billing determinants also will change. The current Forward Scheduling billing determinant includes the number of non-zero MW Final Hour-Ahead schedules, which may include changes to Day-Ahead schedules. Under MRTU, Day-Ahead schedules are binding and are not revised after submission to the CAISO. The Hour-Ahead Scheduling Process ("HASP")

will apply only to scheduling at the interties, for Participating Intermittent Resources and pumping load. Therefore, the number of Day-Ahead and HASP schedules will be counted in the proposed Forward Scheduling billing determinant.

The Forward Scheduling billing determinants will also include awarded Residual Unit Commitment bids. In their bids, SCs will bid capacity to be committed Day-Ahead and awarded Residual Unit Commitment bids will be submitted to the CAISO scheduling infrastructure. This treatment is consistent with the way in which awarded Ancillary Services bids are assessed the Forward Scheduling charge.

Q. What is the change for the Congestion Management sub-function of Market Services?

A. The proposed Market Services function will no longer contain a separate Congestion Management sub-function. Under the current GMC structure, a Day-Ahead Congestion Management service was provided in which the CAISO managed interzonal congestion by using SC provided adjustment bids. Under MRTU, this service will no longer exist as a discrete separate service and the Congestion Management charge will be eliminated. Congestion will be managed Day-Ahead through the use of the Integrated Forward Market and locational marginal pricing.

Q. What are the changes for the Market Usage sub-function of Market Services?

A. To account for the usage of the Day-Ahead Market, the CAISO proposes to assess Day-Ahead Market volumes through a new billing determinant, net purchases and sales of Day-Ahead Energy. The billing determinants for Market Usage will thus include net purchases and sales of Day-Ahead Energy, as well as purchases and sales of Ancillary Services, Instructed Energy and Uninstructed Imbalance Energy, which currently constitute the billing determinants for this charge.

Consistent with the changes in the billing determinant for ETS-Uninstructed Deviations, the Uninstructed Imbalance Energy associated with Participating Intermittent Resources will be netted over the Trading Month in the billing determinant for Market Usage. Similarly, the Uninstructed Imbalance Energy billing determinant will also include both deviations from instructions and deviations from schedules.

These changes in the definition of Uninstructed Imbalance Energy will also affect the calculation of Instructed Imbalance Energy. As mentioned previously, the current calculation of Instructed Energy for GMC purposes includes deviations from instructions (UIE1). With the change in the definition of Uninstructed Imbalance Energy, Instructed Energy will no longer include UIE1.

Q. Please describe other changes to the GMC charges.

A. In addition to new sub-functions, the MRTU GMC rate structure takes incremental steps towards full cost of service rates. The proposed rate structure includes a 100 percent increase in the monthly Settlements, Metering and Client

Relations Charge to $1,000 from $500, marginally closer to the full cost of service, which I describe later in my testimony.

COST OF SERVICE ANALYSIS

Q. How did you approach the review of the current GMC structure that led to the filing being made today?

A. We began by performing a traditional cost of service analysis. This cost of service analysis was built on the analysis performed when we last redesigned the GMC in 2003 for effectiveness in 2004. The cost of service analysis is designed to identify the services provided by the CAISO, to determine the costs incurred in providing those services and to develop charges to assess, as closely as possible, those customers that use these services.

Q. What steps are included in a cost of service analysis?

A. The steps are:

1. Data Gathering;
2. Functionalization;
3. Classification;
4. Allocation; and,
5. Rate Design.

Q. What steps did the CAISO take in gathering data?

A. Data Gathering, as the name implies, is the acquisition of data necessary to perform the cost of service study. The CAISO maintains a database of GMC billing determinants for analytical purposes. While the bulk of the billing determinant data needed for the cost of service analysis was resident in this

database, some additional billing determinant data was required because there are new charges proposed and changes in definitions of existing billing determinants.

The CAISO also uses data concerning its budget and capital expenditures as part of the cost of service analysis. For each CAISO department, the data gathered included the number of employees and the cost to employ them. It also included information regarding the cost of contractors and consultants and other operating costs. The data collected included qualitative data, such as descriptions of activities undertaken by CAISO departments as described below.

Q. Please summarize what occurs in the functionalization stage of the process?

A. The distinct services provided by the CAISO are called "functions." A function may be divided into sub-functions when there are multiple cost drivers for the services. For example, the Grid Reliability function is divided into two subfunctions: 1) core reliability services, for which the rate is assessed based on the customer's peak demand; and 2) energy transmission services, for which the rate is based on the volume of energy consumed. Functionalization is the process of determining what services the CAISO provided and how much it cost to provide them. It is among the first steps in cost of service ratemaking.

The CAISO has determined that its three principal functions are 1) Grid Reliability Services, 2) Market Services, and 3) Settlements, Metering and Client Relations.

Q. Please explain what occurs in the classification stage of the process?

A. Classification is the process through which we determine the basis for collecting the costs of providing each function. For example, we recover some costs (through charges) on the basis of a customer's demand for energy, in which a charge is assessed on the basis of maximum instantaneous use of a service within a given time period, e.g., non-coincident peak demand in MWs. We recover other costs through a volumetric charge which typically is assessed on the volume of energy used (as measured in kWh or MWh) regardless of the number of transactions that a customer enters into. Customer charges are assessed on a per-customer or incident basis.

Q. Please summarize what occurs in the allocation stage of the process?

A. Allocation is the process by which the functionalized costs are apportioned to customers or groups of customers through the methods determined by classification. The allocation process determines how much of the total revenue requirement should be recovered from each charge.

The CAISO has few customers that are solely Load-Serving Entities, exporters, marketers, generators or importers. More typically, CAISO customers will play several market roles concurrently. It is, therefore, difficult to characterize allocations as solely affecting a set of customers or customer groups.

Q. What is involved in the rate design step of the process?

A. After the cost of service study is completed, its results are used to calculate rates. The costs that are allocated to each function or sub-function, the function's revenue requirement, is divided by the billing determinant for that function or

sub-function to establish the rate for each level of service. For the purpose of establishing rates, billing determinants may be forecasted based on projections of usage during the test year, or historic billing determinants may be used as a proxy for billing determinants during the test year. As I noted earlier, the CAISO compiled historical billing determinants for each of its functions in preparation for the cost of service study.

Q. What other factors must the CAISO take into account when involved in ratemaking?

A. In addition to allocating the cost of providing services to those who use the services, the CAISO carefully considers the effect that changes in the rate structure have on its customers. If a change in the rate structure were to have a particularly negative (or positive) impact on a customer or group of customers, the CAISO might phase in the change to allow parties time to adjust to its effects. In order to understand the potential impacts of changes in the rate structure, the CAISO performed extensive bill impact analysis using historical data for each SC, and provided this information during the stakeholder process, as I discussed above. For example, the bill impact analysis was used to understand the impact of the Forward Scheduling discounts and to ultimately support the elimination of these discounts.

Q. Please explain how the cost of service analysis was performed.

A. The cost of service study was performed to take into account the changes in the CAISO's corporate organizational structure since 2003, as well as changes in the

CAISO's operations anticipated with MRTU implementation, scheduled for 2008. The cost of service analysis did not proceed in a linear manner with respect to the steps outlined above. For instance, after data was collected, we continued to discuss the establishment of new functions even as we were allocating other costs to functions.

Much of the study was performed in the late winter and spring of 2007 by CAISO staff and built on the experience of the previous study, with refinements in the process as necessary. I describe the steps in the process in greater detail in the next few sections of my testimony.

DATA GATHERING

Q. What types of data were gathered in the cost of service analysis?

A. There are four primary types of data needed to perform the cost of service analysis: (1) definitions of functions and staff activities related to those functions; (2) cost assignment/allocation data for system applications; (3) cost assignment/allocation data for each CAISO cost center; and, (4) billing determinant data.

Data gathering is an iterative process. As new requirements arise, additional data may be required. For example, to analyze the cost of providing reliability services to TOR exports, additional data specific to SCs that represent TOR holders were required. Gathering this additional data involved queries of the databases containing transmission outages, schedules and hourly transmission flows.

Q. How were the definitions of functions and staff activities determined?

A. The current cost of service study builds on the last cost of service study performed in 2003. Most of the data used are updated or revised from that study. Some of the data was newly compiled for this study.

The definitions of functions are relatively unchanged from the previous study performed in 2003. However, we updated the listing of CAISO services and their functionalization to incorporate changes resulting from the reorganization of the CAISO's corporate structure and the implementation of MRTU. This is shown in Exhibit ISO-2, Functionalization of Activity Groupings for ISO Rate Structure.

Q. What are CAISO system applications and what types of data were collected to perform the analysis?

A. CAISO systems are capital assets that can be funded from bond proceeds or from current revenue. Systems include physical facilities, such as office space, office furniture and infrastructure improvements, and Information Technology applications and hardware. Systems and applications are listed on Exhibit ISO-3.

The data used to determine the functionalization of various CAISO systems, e.g., the Wide Area Network, Scheduling Infrastructure, Scheduling Architecture and Storage (EMC Symmetrix), were collected and updated. Systems of this type are assigned to functions based on the type of data that flows through the systems or on the basis of connections to systems or customers. For example, Scheduling Infrastructure is functionalized on the basis of the number of schedules and bids processed. Similarly, the Wide Area Network is functionalized partially on the

basis of the number and types of connections and partially on the data flows through it. I discuss this more fully later in my testimony (see the discussion of "Direct Assignment" below).

These data typically reside in databases that could contain market or corporate financial data. Billing determinants, for example, are readily available in settlements databases. To obtain other data, non-settlements databases are queried. For example, with respect to Scheduling Infrastructure, we needed an historical count of schedules, the billing determinant for the Forward Scheduling charge, which is available in the settlements databases, and an historical count of bids, which is stored with market data.

Several CAISO systems support other CAISO activities, and therefore are not directly assigned. The costs of those systems are allocated based on the allocation of the other systems or cost centers that they support or based on a general allocation factor, such as overhead or full-time employees ("FTE") (proportional to the assignment of employees). In any event, the nature and use of the system determined the type of assignment or allocation and the need for data.

Q. What are CAISO cost centers?

A. There are sixty-four CAISO cost centers, which are the functional units by which costs are budgeted. Sixty-two cost centers are led by an officer, director or manager. Two cost centers contain only non-labor costs. Cost centers are listed on Exhibit ISO-4.

Q. What types of data were needed for the cost assignment/allocation of CAISO cost centers?

A. First, cost centers are categorized as those whose costs may be directly assigned to a particular function and those whose costs must be allocated to two or more functions. The costs of operating departments that directly deliver services to customers are directly assigned to a function. The costs of other departments are allocated across functions based on how those departments support or supervise the directly assigned departments.

Managers of non-Information Technology cost centers were provided with functional descriptions of CAISO services. They were then asked to determine what percentage of their cost center's activities was related to each function. Each manager was asked to complete a template showing the assignment of their cost centers to different functions, including the assignment of staff, contractors and consultants.

Managers of Information Technology cost centers were provided with the listing of CAISO systems and asked to provide an assignment of their workload to the systems supported. Approximately half of the Information Technology cost centers support systems company-wide.

In addition to the data requested from cost center managers, budget data and a staff count of each cost center are separately obtained from a CAISO budget database.

Q. What data did you obtain to establish billing determinants?

A. As mentioned previously, the Finance department maintains a database of historical GMC billing determinants for use in forecasting and bill impact analysis. As the cost of service study proceeded, we determined that we needed additional data to establish billing determinants for new charges including the Forward Energy component of the Market Usage charge. Further, in order to develop the billing determinants for the Uninstructed Imbalance Energy and Instructed Energy charges we had to compile additional historical data.

FUNCTIONALIZATION

Q. How are costs allocated to each function and sub-function?

A. The purpose of the cost of service study is to allocate the costs of CAISO operations to each function and sub-function the CAISO performs. After gathering data, each function and sub-function is defined and the staff activities related to each function are identified. This process creates a comprehensive listing of CAISO staff activities and their relationship to CAISO functions and sub-functions. This is shown in Exhibit ISO-2.

As with the CAISO's filing for the 2004 GMC, the CAISO has identified three primary functions that it performs for its customers. These functions are: (1) Grid Reliability Services, (2) Market Services and (3) Settlements, Metering and Client Relations.

Q. What is the Grid Reliability Services function?

A. Under the Grid Reliability Services function, the CAISO provides for the safe, reliable operation and maintenance of the Balancing Authority Area, provides for transmission and generation expansion planning, coordinates with neighboring Balancing Authorities, manages transmission flows and complies with regional and national reliability standards.

The Grid Reliability Services provided include:

- Monitoring of system conditions and dispatching to maintain reliability;
- Coordinating, communicating, and integrating schedules with neighboring Balancing Authorities;
- Scheduling at the interties;
- Complying with reliability standards, such as the North American Electric Reliability Council ("NERC") and Western Energy Coordinating Council ("WECC") reliability criteria;
- Coordinating transmission and generation outages;
- Managing, monitoring and approval of new generator interconnections;
- Evaluating transmission expansion;
- Evaluating generation interconnections; and,
- Performing of operational studies, system security analyses and system planning studies to ensure overall reliability.

Grid Reliability Services function is divided into two sub-functions, Core Reliability Services (CRS) and Energy Transmission Services (ETS). Each sub-function is further divided into two subcategories by billing determinant. Core Reliability Services costs are recovered from 1) Core Reliability Services – Demand; and, 2) Core Reliability Services – Energy Export. Energy Transmission Services costs are recovered from 1) Energy Transmission Services – Net Energy; and, 2) Energy Transmission Services – Uninstructed Deviations.

Q. What is the Core Reliability Services sub-function of Grid Reliability Services?

A. The CAISO provides for the reliable operation of the Balancing Authority Area under both CRS and ETS. The CRS represents the non-scalable portion of Grid Reliability Services – those costs that do not vary with the volume of power moved over the grid. CRS represents the staffing, infrastructure and other costs necessary to provide a basic level of reliability services assuming that there are minimal disruptions to system operation over the course of a year.

The Core Reliability Services charge is structured so that it does not contain the full cost of reliability services; only those costs necessary to operate a Balancing Authority Area of the size and diversity with the number of interconnections of the CAISO. Through Core Reliability Services, the CAISO provides a stable grid and meets regional and national regulatory requirements, such as NERC and WECC reliability criteria, as well as some FERC requirements, *e.g.*, a basic level of transmission planning. All necessary activities attributable to Balancing Authority operation, including the capability of handling a system that is as geographically dispersed as the present system, but without features that are scalable *(i.e.,* that vary according to use or volume of flow) are contained in this function.

Q What is Energy Transmission Services sub-function of Grid Reliability Services?

A. Energy Transmission Services represents the scalable portion of Grid Reliability Services -- those services whose costs vary with the intensity of use of the transmission system and with the occurrence of system outages and disruptions.

The difference between Energy Transmission Services and Core Reliability Services is analogous to the difference between fixed and variable operations and maintenance costs. Core Reliability Services costs are incurred irrespective of the actual flows on the system, while Energy Transmission Services costs may vary with flows on the system.

Q. What is the Market Services function of the CAISO?

A. Through its Market Services function, the CAISO provides customers with access to its scheduling infrastructure, manages congestion to facilitate transmission flows, operates and maintains CAISO markets for participants, and monitors market performance. Included in this function are activities related to the maintenance, monitoring, operation and performance of the forward and Real-Time markets.

The Market Services activities include:

- Processing Day-Ahead Market Energy, Residual Unit Commitment, and Ancillary Services schedules and bids;
- Publishing market information;
- Operating Hour Ahead Scheduling Process and Real-Time market;
- Determining Locational Marginal Prices;
- Administering Congestion Revenue Rights allocation, auction and secondary registration; and,
- Monitoring market performance.

Market Services consists of two sub-functions: Forward Scheduling and Market Usage.

Q. What is the Forward Scheduling sub-function of Market Services?

A. The CAISO Forward Scheduling service provides Scheduling Coordinators ("SCs") with the ability to submit schedules for Energy, inter-SC trades, awarded Residual Unit Commitment and awarded Ancillary Services bids. In this context, a schedule is represented by a scheduling template (load, import, generation, export, inter-SC trade and awarded Ancillary Services and Residual Unit Commitment bids, including self-provided Ancillary Services submitted through the CAISO scheduling infrastructure and business rules system).

Q. What is the Market Usage sub-function of Market Services?

A. The Market Usage sub-function consists of the services the CAISO performs in processing Energy and Ancillary Services bids, maintaining and operating the Open-Access Same-Time Information System, monitoring market performance, ensuring compliance with market protocols and determining market clearing prices. Market Usage consists of subcategories for each market segment: Ancillary Services and Real-Time Energy and the Forward (Day-Ahead) Market.

Q. What is the Settlements, Metering and Client Relations function?

A. The Settlements, Metering and Client Relations function includes the customer service/external relations function of the CAISO. The Company maintains customer account data, provides account information to customers, responds to customer inquiries, calculates market charges, processes settlement statements, resolves customer disputes and provides customer training. This function includes settlements, billing, market clearing and metering activities as well as client relations and external affairs. Certain settlement activities may be assigned

to other functions. For example, reliability must run settlement activity is assigned to Core Reliability Services because its activities are directly related to maintaining system reliability.

The Settlements, Metering and Client Relations activities include:

- Determining charges associated with transmission services, forward market schedules, Hour Ahead Scheduling Process, Real-Time Market, and administrative charges;
- Maintaining and processing settlements data;
- Performing settlement statement re-runs;
- Managing and monitoring SC credit and collateral;
- Collecting and validating meter data;
- Providing CAISO Tariff guidance to Market Participants;
- Facilitating resolution of Market Participant issues; and,
- Training Market Participants.

CLASSIFICATION

Q. What is the purpose of classification?

A. Classification is the process by which costs are separated based on the type of service being provided or cost incurred. There are four basic types of classification: 1) demand, 2) volumetric, 3) transaction, and 4) customer. The classification process provides the basis for assessing charges on certain customers or groups of customers with similar attributes.

Q. What is the appropriate classification of Core Reliability Services costs?

A. Customers should be charged for Core Reliability Services based on their demand. Specifically, Core Reliability Services costs should be assessed on load through demand charges on a non-coincident peak basis because each SC's non-

coincident peak properly represents its burden on the capability of the CAISO to meet reliability needs.

Although a demand charge more closely assigns the costs of providing Core Reliability Services to customers, in the settlement agreement negotiated in the 2004 GMC proceeding, ER04-115, the CAISO and other parties agreed to charge exports a Core Reliability Services charge on a volumetric (megawatt-hour) basis. With this filing the CAISO is proposing to continue the arrangement previously in place, using a demand-based approach for load (non-coincident peak demands), and continuing a volumetric billing determinant for exports.

Q. Why are exports assessed on a volumetric rather than demand basis?

A. In ER04-115, the CAISO agreed to assess exports on a volumetric basis in response to bill impact concerns by exporting customers. One of their concerns was that a demand charge on exports had the potential for being prohibitively expensive, in particular to parties that exported energy from the control area on an intermittent basis. An exporter with highly variable, but few hourly exports might incur the same CRS-Demand charge as an exporter with many hourly export schedules. This had the potential for discouraging exports from many of the smaller SCs.

Furthermore, the demand charge on exports had the potential to cause reductions in exports at critical times, possibly affecting system reliability. In an emergency situation resulting from the over-generation of power in the CAISO control area, a demand-based export charge could have been difficult for an SC to properly price

the transaction because it could not do so without a reliable forecast of the exports for the entire month to determine the per MWh cost of the CRS-Demand charge. If no other exports were expected to be scheduled for the month, the CRS-Demand charge (approaching $100 per MW) on a single hourly export would overshadow the market price. Again, this would have the effect of discouraging exports at critical times and would likely reduce the pool of SCs that are willing and able to assist the CAISO during such emergencies.

Q. Do other CAISO/RTOs have similar classification of reliability costs?

A. Yes, the ISO-NE recovers its Reliability Administration Service costs (Schedule 3) from load on a demand basis and exports on a volumetric basis.

Q. What are the forecasted billing determinants for Core Reliability Services?

A. Exhibit ISO-5 contains historical data from 2004 through September 2007 and forecast data from October 2007 through December 2008 for the CRS billing determinants:

1. Noncoincident peak demand of load for peak and off-peak hours; and,
2. Energy Exports for the CAISO and Energy Exports disaggregated between non-TOR exports and TOR exports.

Q. Please explain how the forecast of the noncoincident peak demand billing determinant was developed.

A. As shown in Exhibit ISO-5, noncoincident peak demand during the peak hours decreased by 1 percent from 2004 to 2006. The forecast for 2007, based on nine months of actual data and a forecast for the last three months of the year, is for noncoincident peak demand to be approximately one percent above 2006, but

essentially flat with 2004. For 2008, the forecast is for an increase of 1 percent above 2007. This increase is slightly below the most recent published forecast done by the California Energy Commission in *California Energy Demand 2008-2018, Revised Staff Forecast, October 2007*; the relevant portion attached hereto as Exhibit ISO-6. Our forecast for 2008 is tempered by the prospect of an economic slowdown in 2008.

Noncoincident peak during the off-peak hours has increased approximately 3 percent from 2004 to 2005 and decreased approximately 2 percent from 2005 to 2006. The current forecast for 2007 shows a small decrease of about 0.3 percent. As there does not appear to be a trend in this variable, for 2008 we forecast no change from 2007.

Q. Why not adopt the California Energy Commission forecast increase?

A. The California Energy Commission only forecasts the California-wide noncoincident peak by planning area, which are the Pacific Gas and Electric, Southern California Edison, San Diego Gas and Electric, Los Angeles Department of Water and Power and Sacramento Municipal Utility District service areas. This is a point forecast for only the noncoincident peak by each planning area for the year. The billing determinant for Core Reliability Services will differ from this forecast because it is the sum of the twelve monthly noncoincident peaks by SC ID in the CAISO Balancing Authority Area.

Q. Please explain how the forecast of Energy Exports billing determinant was developed.

A. Exports are much more volatile than load because exports are greatly influenced by weather conditions. Both winter and summer weather will affect exports. Exports increase with heavy precipitation and snowmelt as excess generation is exported to neighboring Balancing Authority Areas. Exports also increase in the summer months with the excess generation from slow-start thermal generation exported in the off-peak hours. In fact, exports tend to reach their maximum level in July or August, the months in which the CAISO system peak typically occurs.

Conditions through much of 2007 were mild with the exception of a few weeks in the winter and two weeks in late summer. Given the probability of a return to more normal weather patterns in 2008, the forecast increase of exports for 2008 is 5 percent, which is slightly higher than the increase from 2004 to 2005, a period of relatively normal weather.

Exports can be disaggregated into exports by TOR holders and all other exports. Both components are forecast to increase by approximately 5 percent.

Q. What is the appropriate classification of Energy Transmission Services costs?

A. Energy Transmission Services costs will vary with the level of activity on the system because these costs are driven by transmission flows and energy imbalances. Accordingly, Energy Transmission Services costs are appropriately classified as energy related.

Q. What are the billing determinants for Energy Transmission Services?

A. The billing determinants for Energy Transmission Services are measures of transmission flows and energy imbalances. The measure of transmission flows is Metered Balancing Authority Area Load, which is the sum of load and exports. The measure of energy imbalances is Uninstructed Imbalance Energy netted by Settlement Interval. The two billing determinants reflect the provision of Energy Transmission Services to monitor and maintain flows in the Balancing Authority Area and to mitigate unanticipated energy imbalances. The use of Uninstructed Imbalance Energy as a billing determinant also adds a monetary incentive for SCs to minimize their imbalances.

Q. Are all imbalances treated similarly?

A. No, Uninstructed Imbalance Energy associated with PIRP participants is treated differently. As previously discussed, PIRP participants are required to adopt a CAISO forecast as their generation schedule in accordance with Appendix Q of the Tariff. They cannot adjust their schedules and remain in the Program as a measure to reduce the possibility of participants manipulating their imbalances over the month to avoid market charges. In recognition of this restriction, the Uninstructed Imbalance Energy incurred by PIRP participants is netted over the Trading Month, rather than over the Settlement Interval. This is consistent with their treatment for the market per Section 11.12.1 of the MRTU Tariff.

Q. Are there any changes in the current billing determinants for Energy Transmission Services?

A. Yes, the definition of Uninstructed Imbalance Energy has changed for purposes of assessing the MRTU GMC. In the current GMC rate design, Uninstructed Imbalance Energy is defined as deviations from scheduled energy. Under the MRTU GMC rate design the definition changes to include deviations from instructed as well as scheduled energy. The CAISO is expanding the definition because the CAISO must continuously monitor and mitigate imbalances in Real-Time in order to maintain reliability irrespective of the source of the deviation. This revised definition appropriately reflects the fact that imbalances impose costs on the CAISO, regardless of their source.

Q. What is the forecast of the Metered Balancing Authority Area Load billing determinant for Energy Transmission Services?

A. Exhibit ISO-7 shows the historical Metered Balancing Area Authority Area Load from 2004 through September 2007 and forecasted Metered Balancing Authority Area Load from October 2007 through December 2008. Metered Balancing Authority Area Load is forecast to increase 1 percent in 2008 from 2007. The average annual growth of Metered Balancing Authority Area Load is approximately 1 to 2 percent. The 2008 forecast is at the lower end of the range due to the potential for a slowdown in the economy.

Q. How did you determine if this forecast for 2008 is reasonable?

A. We reviewed the previously mentioned California Energy Commission report. (See Exhibit ISO-6.) That report includes a forecast of "net energy for load" by Control Area. Though "net energy for load" includes unmetered load, such as self

generation, its forecast rate of change is indicative of the potential increase in Metered Balancing Authority Area Load. The California Energy Commission forecast shows an increase of 1.4 percent from 2007 to 2008. This is in the range of the CAISO forecast, in particular with the assumption of slowing economic growth in 2008.

Q. What is the forecast of the Uninstructed Imbalance Energy billing determinants for Energy Transmission Services?

A. As mentioned previously, the definition of Uninstructed Imbalance Energy will change under MRTU. The data for Uninstructed Imbalance Energy under this new definition is available only from October 2004, with the introduction of Phase 1b. As shown in Exhibit ISO-7, Uninstructed Imbalance Energy has declined since 2005 due to the greater emphasis placed on meeting schedules and increased visibility of imbalances due to improvements in monitoring. We anticipate that the downward trend will increase slightly under MRTU due to the continued emphasis on reducing imbalances. This will result in a decrease of 3 percent from 2007 to 2008.

Q. What is the appropriate classification of Forward Scheduling costs?

A. Forward Scheduling costs are driven by the number of schedules processed rather than the MW included on each schedule because the systems that process schedules do not distinguish between schedules with large or small MW quantities. Each schedule requires approximately the same time and effort to process and verify regardless of the MW quantity. Therefore, Forward

Scheduling costs vary with the number of schedules and not with the energy scheduled. Accordingly, the Forward Scheduling charge is assessed on a per-transaction basis.

Q. What are the billing determinants for Forward Scheduling?

A. The billing determinant for the Forward Scheduling charge is the sum of the number of all non-zero MW Day-Ahead and HASP schedules submitted to the CAISO scheduling systems. For this purpose, schedules of load, import, generation, export, awarded Ancillary Services, and Residual Unit Commitment bids and Inter SC Trades, including trades of IFM Load Uplift Obligations, are all counted.

Q. Are there any changes in the Forward Scheduling billing determinants from the current GMC?

A. Yes, there are two changes to the billing determinant for the Forward Scheduling charge. First, awarded Residual Unit Commitment bids are to be included in the schedule count. Under MRTU, SCs will bid their uncommitted capacity in the CAISO market. If their RUC bid is cleared, the SC must submit to the CAISO scheduling application a schedule for the awarded Residual Unit Commitment capacity. The CAISO processes this schedule just as it would any other schedule submitted through the scheduling application.

Second, trades of Day-Ahead IFM Load Uplift Obligations will be included in the count of Inter SC Trades. The CAISO will allow trading of IFM Load Uplift

Obligations in order to facilitate the transfer of the obligation to pay for bid cost recovery.

Q. What is the forecast of the Forward Scheduling billing determinant?

A. Exhibit ISO-8 shows the historical count of schedules from 2004 through September 2007 and the forecasted count of schedules from October 2007 through December 2008. The number of schedules submitted increased from 2 to almost 4 percent annually over the past three years.

As mentioned above, there will be changes to the billing determinants for Forward Scheduling. Some changes, such as the elimination of the requirement for submitting balanced schedules, may reduce the number of schedules submitted. On the other hand, the addition of awarded Residual Unit Commitment schedules and Inter SC Trades of IFM Load Uplift Obligations will increase the number of schedules submitted. Taking into account each of these issues, the CAISO forecasts an increase of approximately 3 percent, in the midrange of the past increases, in the number of schedules submitted to the CAISO in 2008.

Q. Are there any exceptions to the Forward Scheduling billing determinants as you have described them?

A. Yes, there is an existing exception to the description of Forward Scheduling billing determinants explained above. There is currently in place an exception for the Inter-SC Trades submitted on behalf of the Pacific Gas & Electric Company in its role as the Existing Transmission Contract ("ETC") Facilitator in the

administration of ETC rights on Path 15. In this role, PG&E serves to assist and to provide guidance to the CAISO in the administration of Path 15 ETC rights. As contemplated in the Appendix B of the Transmission Control Agreement, the individual ETC Parties would not separately schedule their ETC rights. PG&E would consolidate schedules from these Parties and ensure that all transmission rights and priorities on Path 15 were maintained and protected. In recognition of PG&E's unique role with respect to administration of Path 15, the 2004 GMC settlement agreement reduced the otherwise applicable Forward Scheduling Charge on Inter-SC Trades by 65 percent for PG&E.

Q. What is the appropriate classification of Market Usage costs?

A. Market Usage costs are classified as energy-related, meaning that they are a function of the volume of energy transacted. Accordingly, using MWhs as the billing determinant allows for recovery of prices on the basis of energy transacted from participants whose bids clear these markets.

Q. What are the billing determinants for Market Usage?

A. There are two separate market usage charges: 1) Market Usage – Ancillary Services and Real-Time; and 2) Market Usage – Forward Energy. The billing determinant for the Market Usage charge is the sum of: (1) purchases and sales of Ancillary Services; (2) Instructed Energy; and (3) Uninstructed Imbalance Energy netted over the Settlement Interval. This charge will recover the costs related to the Ancillary Services and Real-Time Markets, which are the existing CAISO markets. The billing determinant for the Market Usage – Forward Energy Charge

is the purchases and sales in the Day-Ahead Market netted over the hourly interval. This charge will recover the costs related to the Day-Ahead Market.

Q. Are there any changes in the Market Usage billing determinants from the current GMC?

A. Yes, there are several changes to the Market Usage billing determinants. The first change is the introduction of a new billing determinant for the recovery of costs related to the Day-Ahead Market. The second change is, as explained above, the change to the definition of the Uninstructed Imbalance Energy, which affects the definition of Instructed Energy. Under the previous definition, Instructed Energy for GMC purposes was the sum of Instructed Energy and deviations from instructions. With the change in definition of Uninstructed Imbalance Energy, Instructed Energy will no longer include deviations from instructions.

Q. Are there any exceptions to the billing determinants as you have defined them?

A. Yes, there is an exception to the netting of Uninstructed Imbalance Energy over the Settlement Interval. As discussed above, PIRP participants must schedule to a forecast provided by the CAISO and cannot adjust their schedules while remaining in the Program. To mitigate the consequences of this requirement and the effect it would have on PIRP participants, the Uninstructed Imbalance Energy incurred by Participating Intermittent Resources is netted over the Trading Month, rather than over the Settlement Interval.

Q. What is the forecast of Market Usage billing determinants?

A. Exhibit ISO-8 shows historical volumes from 2004 through September 2007 of the two billing determinants of Market Usage and forecast billing determinants from October 2007 through December 2008. The billing determinants for Market Usage – Ancillary Services and Real-Time are forecasted separately from those for Market Usage – Forward Energy.

The former are similar to the billing determinants for the current Market Usage charge, with the exceptions noted in this testimony. The forecast of purchases and sales of Ancillary Services, Instructed Energy and Uninstructed Imbalance Energy is expected to increase approximately 5 percent in 2008 over relatively depressed levels in 2007. Market activity in 2007 was lower than expected due to mild, dry weather conditions in the winter and spring. Also, an increase in self-provision of Ancillary Services in late 2006 contributed to the lower activity. We expect that when more normal weather patterns return, market activity will increase, though not back to pre-2007 levels, primarily due to the effect of increased self-provision.

The CAISO's Day-Ahead Energy Market is new, so we have no direct historical data upon which to base estimates of the Market Usage – Forward Energy billing determinant. However, data does exist on total injections (generation plus imports) and total withdrawals (load plus exports) by SC. In the current market structure, the difference consists of either Inter SC Trades or Real-Time purchases and sales of Energy.

If the CAISO had had an operating Day Ahead Market, a portion of the difference between injections and withdrawals for each SC could have been purchased or sold in the Day Ahead Market. Not all of the net short (injections less than withdrawals) or net long (injections greater than withdrawals) positions will be purchased or sold in the Day Ahead Market. SCs will continue to supplement their positions with Inter-SC Trades, or Energy will be accommodated in the Real-Time Market. This provides a reasonable proxy for potential Day Ahead Market activity. A conservative assumption is 20 percent will be transacted in the Day-Ahead Market under the assumption that the majority of SC transactions will continue to be through Inter SC Trades to balance their schedules until they have more experience with the Day Ahead Market. On this basis, the forecast of the Market Usage – Forward Energy billing determinant is 38 million MWhs.

Q. What is the appropriate classification of Settlements, Metering and Client Relations costs?

A. Settlements, Metering and Client Relations costs are classified as customer-related expenses. Settlements, Metering and Client Relations costs are associated with providing customer access to the CAISO, including monitoring and maintaining customer account information (including meter data), providing Settlement Statements and assistance with Settlements or metering information.

Q. What is the billing determinant for Settlements, Metering and Client Relations?

A. The appropriate billing determinant for Settlements, Metering and Client Relations is customer-months by SC ID. A customer-month occurs when there is settlement activity on the current trade month settlement invoice. Invoicing for activity for prior months will not trigger this charge.

Q. Why is the SC ID the basis for the billing determinant rather than SC?

A. An SC may have multiple SC IDs with separate billing, metering and customer support for each separate ID. In addition, all settlement statements are prepared and billing determinants are maintained on a SC ID basis.

Q. What is the forecast of the Settlements, Metering and Client Relations billing determinant?

A. Exhibit ISO-9 shows the historical and forecast billing determinant, customer-months, for Settlements, Metering and Client Relations. The billing determinant has increased from 10 to 22 percent annually over the past three years. These increases are driven by the creation of new SC IDs by existing SCs and new entrants into CAISO markets. This billing determinant may be volatile as the creation of new SC IDs is not necessarily based on observed market phenomena, but on business requirements, such as the need for maintaining separate accounting for different business functions. For 2008, the increase is forecasted to be 10 percent, at the low end of the range of past increases.

ALLOCATION

Q. Did the CAISO develop a cost allocation model as part of the ratemaking process?

A. Yes. The CAISO has developed a detailed cost allocation model that was used to determine its proposed rates. The model accounts for all aspects of the revenue requirement and forecasted billing determinants in calculating proposed rates. The components of the revenue requirement are the operations and maintenance ("O&M") budget, financing budget (debt service and capital expenditures), expense recovery budget (miscellaneous expenses and revenues), and the operating reserve credit. Each aspect of the revenue requirement is functionalized to develop revenue requirements for each of the specified charges. Whenever possible, the functionalization is done on the basis of detailed cost analyses. Otherwise, the process uses allocation factors.

Q. Does the cost allocation model consist of separate modules?

A. Yes. There are separate modules for labor, capital, and the revenue requirement. The modules of the cost allocation model are contained in the following Exhibits:

Exhibit ISO-10	Functionalization of Directly Assigned ISO Cost Centers
Exhibit ISO-11	Direct Assignment of Information Technology Cost Centers
Exhibit ISO-12	Functionalization of ISO Systems/Applications
Exhibit ISO-13	Functionalization of O&M expenses
Exhibit ISO-14	Revenue Requirement and Rate Calculations

Q. What is the difference between direct assignment and allocation?

A. Costs can be directly assigned to a service if a detailed cost analysis demonstrates a direct relationship between costs and the service. If there is no direct linkage,

then the costs can be allocated using an allocation factor that best approximates the relationship between the costs and the service.

Q. How will the CAISO implement the results of the cost allocation model?

A. The results of the detailed cost analysis are placed in the CAISO Tariff as Part E of Appendix F, Schedule 1. As part of the CAISO Tariff, the allocations will form part of the formula rate used to calculate the GMC.

DIRECT ASSIGNMENT

Q. What types of costs are directly assigned to the functions or sub-functions?

A. Costs that are assigned are called direct costs. The costs that are directly assigned are labor, contractor and consulting and systems costs through which the CAISO provides services to its customers.

Q. How does the cost allocation model track direct costs?

A. As shown in Exhibits ISO-10, ISO-11, ISO-12 and ISO-13, the cost allocation model tracks direct costs by cost center and system costs by type of system. Each cost center or system is separately assigned to function or sub-function.

Q. Which cost centers have been directly assigned?

A. The direct assignment of non-Information Technology and Information Technology ("IT") proceeded separately. The 29 non-IT cost centers that have been directly assigned are listed in Exhibit ISO-15.

Q. Why was the assignment of IT and non-IT cost centers done separately?

A. IT cost centers were assigned based on the system supported, rather than on the basis of how their activities related to the CAISO functions or sub-functions. This was a significant refinement in the cost allocation model introduced in the current GMC cost of service methodology.

Q. How were the direct assignment factors determined for these non-IT cost centers?

A. These cost centers are led by a manager or director, with the exception of cost center 2122, Market Surveillance Committee. This cost center contains the costs of maintaining the CAISO Market Surveillance Committee and is managed by the Director of Market Monitoring. Each manager or director was briefed on the definition of the CAISO functions that are described in this testimony. They were provided a standardized template to assign their staff and contracting/consulting costs to each function or sub-function. Follow-up interviews were held as needed to ensure consistency. The completed templates are shown in Exhibit ISO-10 at pp. 15-72.

Q. Were any cost centers partially directly assigned?

A. Only one, cost center 2331, Financial Planning and Treasury, was partially directly assigned to the Settlements, Metering and Client Relations function and partially allocated. Financial Planning and Treasury is responsible for administration of credit and credit policy, as well as for the typical treasury and finance activities. Costs related to credit administration and policy costs were

assigned to Settlement, Metering and Client Relations. The remaining costs of Financial Planning and Treasury were allocated.

Q. Which systems have been directly assigned?

A. Exhibit ISO-16 contains a listing of the 68 systems that were directly assigned.

Q. How have these systems been assigned to the functions or sub-functions?

A. Each identified system that is directly involved in providing CAISO services is assigned to the function or sub-function. The capital and ongoing maintenance cost of each system has been identified and assigned to the appropriate function or sub-function.

Q. How were the appropriate assignment factors developed?

A. The methodology developed in the 2003 cost of service analysis was refined or used for the majority of projects. Those assignments were the result of discussions with relevant CAISO staff from various departments. Since there have been changes to the CAISO sub-functions, e.g., the elimination of the Congestion Management Charge, the systems that had assignments to Congestion Management were reviewed. For those systems, the portion of costs that had been assigned to Congestion Management was reassigned to Energy Transmission Services and Market Usage. This was done because Congestion Management affects flows within the Balancing Authority Area and is implemented through the use of market bids.

Several of the systems were directly assigned on the basis of quantitative measures. These systems include the Scheduling Infrastructure Business Rules

("SIBR") and the Wide Area Network ("WAN"). For these systems a measure of usage or traffic has been developed. For SIBR, the measure of traffic is the total number of schedules and Ancillary Services bids. For the WAN, the measure consists of internal traffic related to data storage and backup between the Folsom and Alhambra sites and external traffic related to scheduling, metering and the Energy Management System. These calculations are shown in the workpapers contained in Exhibit ISO-12 at pp. 56-78.

Q. How were IT cost centers assigned?

A. As shown in Exhibit 11, the following six IT cost centers were directly assigned based on specific systems or applications supported:

Cost Center No.	Cost Center Name
2412	Asset Management (Non-Labor costs only)
2451	IT Support & Operations
2453	Data Center & Operations
2462	EMS Information Technology
2463	Operations Information Technology
2464	Corporate Systems

Also shown in Exhibit 11, the following six IT cost centers that support corporate systems and applications were directly assigned using corporate-wide assignments to systems and applications:

Cost Center No.	Cost Center Name
2421	IT Projects
2431	IT Project Management
2441	Software Quality Assurance
2452	System & Database Administration
2454	Architecture & System Engineering
2373	Information Security

Q. How were the labor costs of these cost centers assigned to the functions and sub-functions?

A. The managers of these cost centers, except for Asset Management, identified the systems that their cost centers supported. The managers also identified the proportion of their staff that supported each of the systems supported by their cost center.

Asset Management consists entirely of expenditures on systems for maintenance, support, licensing and purchase. Expenditures were attributed to each system and then the system assignment applied.

ALLOCATION

Q. What types of costs are allocated?

A. Costs that are not directly related to the production of CAISO services are allocated. Such costs include the cost of supervisory or management personnel and personnel in support activities, such as Accounting or Facilities. Systems that support multiple activities at different times and that cannot be directly attributed to a specific function or sub-function, such as desktop business productivity software or the local area network, also are allocated.

Q. What factors are used to allocate costs?

A. The CAISO uses four different allocation methodologies to develop GMC rates. The CAISO allocates costs on the basis of: 1) FTE; 2) overhead; 3) supervisory

cost center; and, 4) system direct factors or ratios. The calculation and application of these allocation factors is contained in Exhibits ISO-10 and ISO-13.

To allocate the costs that related to the number and distribution of employees, the FTE allocation factor is used. The FTE ratio is calculated based on the proportion of direct employees assigned to each sub-function. Human Resources and Facilities are examples of cost centers allocated using the FTE ratio.

The overhead ratio is used to allocate the costs of cost centers and systems that provide general corporate support. The overhead ratio is calculated from the proportion of directly assigned costs assigned to each sub-function. For example, Accounting and the non-credit related Financial Planning and Treasury activities generally support the ability of other departments to provide services to customers, but do not directly provide services to customers.

The supervisory cost center ratio method uses the overall functionalization of the cost centers that they supervise. Each divisional cost center is apportioned based on the total of costs assigned to each sub-function in its division.

Finally, the system direct allocation factor is applied to IT cost centers that generally support all corporate systems rather than a subset of systems. The allocation factor is based on the proportion of overall functionalization of systems.

Q. Which cost centers are allocated?

A. Exhibit ISO-17 lists the 24 cost centers that are allocated. These cost centers primarily provide administrative services to other departments in the CAISO or provide management oversight of a division or a department.

REVENUE REQUIREMENT

Q. Once the O&M budget and financing budget are functionalized, how is the remainder of the revenue requirement functionalized?

A. As shown on Exhibit ISO-14, the CAISO revenue requirement is the sum of its O&M budget, the financing budget, expense recovery budget and operating and capital reserve credit. For purposes of establishing the GMC charges, each component of the budget is either directly assigned to or allocated across the CAISO's functions and subfunctions.

The expense recovery budget consists of miscellaneous revenues and expenses, such as SC application and training fees, the reimbursement by WECC of reliability coordinator costs, and interest earnings. Each of the items is analyzed to determine how it should be functionalized. SC application and training fees, for instance, being related to the external customer interface, are assigned to Settlement, Metering and Client Relations. The reimbursement of WECC is assigned to CRS in order to offset the cost of the reliability coordinators found in the Reliability Coordination cost center. Interest earnings are allocated to functions or sub-functions based on proportionate share of the revenue requirement before the application of the expense recovery budget.

The Operating and Capital Reserve credit is established by comparing the previous year's revenue collections by function or sub-function to forecasted revenue for that function or subfunction. As shown in Exhibit ISO-18, the excess Operating and Capital Reserve amounts are then credited to the function or sub-function for the subsequent year.

Q. Please explain how the CRS revenue requirement is apportioned between the CRS-Demand and CRS-Energy Export charges.

A. The proportion of CRS revenue allocated to each subcategory is based on the non-coincident peak of load and exports relative to total non-coincident peak. This calculation is shown in Exhibit ISO-14.

Q. How did the CAISO ensure that proposed rates were properly designed to recover the 2008 revenue requirement given that in a portion of the year the pre-MRTU GMC would apply?

A. With the Commission's acceptance of the GMC rate currently in effect in Docket No. ER08-135, the current GMC rate structure continues in effect into 2008 prior to MRTU startup. On MRTU startup, the GMC rates proposed in this testimony are to be effective. Either set of rates is designed to recover the CAISO's revenue requirement of $191.6 million over the full year, though the proposed MRTU rates were not adjusted in anticipation of a date certain for MRTU implementation. There may be a small variance in forecasted collections from the $191.6 million over the year depending on the start date for MRTU.

As shown in Exhibit ISO-19, total forecasted revenue collection under both sets of rates is $191.6 million. The highest monthly variance in revenue between the two is in August at $0.6 million or 0.3 percent of the total revenue requirement of $191.6 million.

The variance between forecasted revenue streams is well below the threshold five percent or one million dollars that would trigger a rate adjustment as described in proposed language of Part B, Appendix F, Schedule 1 of the Tariff.

RATE DESIGN AND CUSTOMER BILL IMPACTS

Q. How are cost of service rates calculated?

A. Cost of service rates are calculated when the revenue requirement for each function or sub-function is divided by the appropriate billing determinant. For most functions or sub-functions, 100 percent of the revenue requirement is divided by the billing determinants. However, the rates for Core Reliability Services – Demand, Energy Transmission Services and Settlements, Metering and Client Relations are modified, as described in this section.

Q. Is all load charged the same Core Reliability Service rate on the same peak demand basis?

A. No, as a result of the settlement agreement in ER04-115, there are two time periods in which the non-coincident peak is measured. The peak period is defined as hour ending 7 a.m. to 10 p.m. The off-peak period is all other hours. The billing determinant for CRS-Demand is the greater of the non-coincident peak in the two periods. The CRS-Demand rate is reduced by 34 percent if an SC's non-

coincident peak occurs during off-peak hours. We do not propose to change this division which was agreed upon in the 2004 GMC settlement agreement and accepted by the Commission.

Q. How was the cost of service for Energy Transmission Services modified?

A. Energy Transmission Services costs are to be recovered from two billing determinants: 1) Metered Control Area Load; and, 2) Uninstructed Imbalance Energy (netted over the Settlement Interval). The CAISO did not perform a study to further sub-functionalize these costs for each billing determinant. Rather, as in the current GMC, eighty percent of the Energy Transmission Services costs are recovered through the Metered Control Area Load charge and the remaining 20 percent of Energy Transmission Services costs are recovered through the Uninstructed Imbalance Energy charge. The CAISO believes that maintenance of this ratio is reasonable because, among other things, it minimizes adverse bill impacts on SCs. A consensus among SCs supported this allocation.

Q. How was the cost of service for Settlements, Metering and Client Relations modified?

A. As noted in the testimony submitted in ER04-115, and confirmed by the latest cost of service analysis, if the Settlements, Metering and Client Relations Charge reflected its true cost, the charge would be large relative to the current monthly charge of $500. For 2008, the fully allocated charge is approximately $30,000 per customer per month, as shown in Exhibit ISO-20. For larger customers, this charge would not be overly burdensome. However, a majority of CAISO

customers pay less than $100,000 monthly in GMC. An assessment of $30,000 per month would represent a significant increase in their monthly bill and could serve as a disincentive to participate in CAISO markets. Therefore, the CAISO recommends an assessment of $1,000 per month as the customer charge.

Q. How does this assessment compare with the current Settlements, Metering and Client Relations Charge?

A. The current customer charge is $500. The recommended assessment represents an increase of 100 percent. This increase is a reasonable step towards the cost of service and the monthly charge has not yet provided a disincentive for participation in CAISO markets. In the four years since the current rate was set, the number of SC IDs has continued to increase. The CAISO does not believe that a $1000 monthly charge will create a disincentive, but will closely monitor participation under MRTU to ascertain if the increase has an impact on market participation.

Q. How does the CAISO propose to collect the remainder of the Settlements, Metering and Client Relations revenue requirement?

A. We plan to continue the current approach to collecting the remainder of the Settlements, Metering and Client Relations revenue requirement by reallocating the remaining portion of the revenue requirement to the functions and sub-functions as specified in the Tariff. The reallocated revenue requirement adds to the already functionalized revenue requirement.

Q. How were the reallocation percentages determined?

A. The reallocation percentages were developed based on an analysis of the various charges billed to market participants through the Settlements system. Since the Settlements system and Settlements-related O&M are the largest proportion of Settlements, Metering and Client Relations costs, this measure of activity is a proxy for customers' use of CAISO services. For example, the number of times the CAISO processes a charge for Real-Time market activity through the Settlements system is a proxy for the use of CAISO market systems. Exhibit ISO-14 contains the calculation of this reallocation of the excess Settlements, Metering and Client Relations revenue requirement.

Q. Did the CAISO make other adjustments to the revenue requirement of any sub-function before calculating the rate for that sub-function?

A. Yes. The CRS revenue requirement is reduced by 35 percent before the rate is calculated. The revenue lost by reducing the CRS revenue requirement is added to the revenue requirement of ETS and recovered by the ETS-NE and ETS-UD rates. The reduction in the CRS revenue requirement was negotiated as part of the settlement agreement in ER04-115 to reduce the overall impact of the demand charge on smaller customers and exporters.

Q. Were there any elements of the ratemaking process with respect to the revenue requirement that will change from the current GMC?

A. Yes. As previously mentioned, the discounts on the Forward Scheduling Charge have been removed. In order to implement the discounts, the Forward Scheduling revenue requirement was reduced and the lost revenue was added to the revenue

requirements for Energy Transmission Services and other Market Services sub-functions. The new rate design eliminates this reallocation of revenue.

Q. Were individual SC bill impacts reviewed?

A. Yes, bill impacts were developed and analyzed for each existing SC ID and for SCs as a group (a customer may have multiple individual SC IDs). Bill impacts stem from several of the changes planned for implementation for the MRTU GMC. Among the most visible impacts was the increase in the customer charge to $1,000. Several of the SC IDs incur only the customer charge or have only a small amount of other GMC. For these SCs, the increase in the customer charge leads to a doubling or near doubling of their GMC, through the amount of the increase is obviously small.

The elimination of the discounts on Forward Scheduling also has an impact primarily on SCs that predominately schedule Inter-SC Trades and few other schedules.

Q. How were interested parties provided with bill impact information?

A. The CAISO provided interested stakeholders with potential examples of bill impacts in aggregated form. Interested stakeholders that are SCs were provided with detailed analysis of the impacts on their own GMC bills, representing the potential impact by charge, on a confidential basis.

Q. Have you made any improvements to the implementation of the GMC?

A. Yes, we have made several improvements to the implementation of the GMC. We plan to continue the capped formula approach in which the formula rate

operates to permit changes to the level of the individual GMC charges, without the need for a rate filing, as long as the revenue requirement does not exceed $197 million with a termination date of not later than December 31, 2009. This approach provides certainty for two years for both the Company and its customers. It may also reduce CAISO costs by avoiding annual rate filings until the cap is exceeded or the termination date reached.

Another improvement is the proposed change to the quarterly rate adjustment mechanism contained in Part B of Appendix F, Schedule 1. The currently effective language provides that the CAISO shall adjust a rate prospectively if the most current estimate of billing determinants for a charge differs by more than 5 percent of the amount forecasted. We are proposing to make the quarterly adjustment contingent on the billing determinant forecast difference being the greater of 5 percent or $1 million. This change will reduce the likelihood of the CAISO having to adjust a rate mid-year in response to a relatively small forecast error. Such adjustments can be costly for the CAISO and market participants to implement and this change reduces the likelihood of small quarterly adjustments that can be appropriately deferred to the subsequent year.

TARIFF CHANGES

Q. Please describe the CAISO's proposed Tariff changes.

A. The proposed changes to the Tariff fall into two broad categories. First, there are changes made to provide consistent treatment and language regarding the GMC

throughout the Tariff. Second, there are changes necessary to implement the new GMC rate structure.

Q. What changes were made to the CAISO Tariff to provide consistent treatment and language regarding the GMC?

A. The changes made to provide consistent treatment and language regarding the GMC throughout the Tariff include the deletion of redundant language, the addition of references to the descriptions in Appendix F, Schedule 1 of GMC, the creation of new defined terms in Appendix A, Master Definitions Supplement and to remove references to the number of charges that comprise the GMC. Many of these changes were made to simplify administration of the Tariff and to reduce the potential for conflicting or inconsistent language in different sections of the Tariff. In various sections of the Tariff, there was inconsistent use of capitalized terms that had not been defined in Appendix A, Master Definitions Supplement. Also, several sections were updated to eliminate references to previous GMC rate structures that are no longer effective.

Q. What changes relate to the use of terminology and definitions?

A. Section 11.17 was amended to the use the new defined term CAISO Operating and Capital Reserves Account. Also in Section 11.17, the listing of the individual charges that comprise the GMC was removed and "Appendix F" was added to the reference to Schedule 1, Parts E and F.

Sections 11.22.2 through 11.22.2.4 were amended to correctly identify the costs to be recovered by the GMC. Corresponding defined terms in Appendix A, Master

Definitions Supplement, were created for each of the GMC costs - CAISO Operating Costs, CAISO Other Costs and Revenues, CAISO Financing Costs and CAISO Operating and Capital Reserve Costs.

Section 11.22.2.5, Section 11.22.2.6, Appendix A and Appendix F, Schedule 1, Parts A, C and E were amended to remove references to the exact number of charges of the GMC to avoid the potential for conflicting language if the GMC were to be modified at a subsequent date.

Sections 11.22.2.5 through 11.22.2.5.7 were amended to remove the detailed description of the charges, while adding a reference to the modifications contained in Appendix F, Schedule 1, Part F. This was done to simplify administration of the Tariff and reduce the potential for conflicting language if the GMC were subsequently modified.

Section 11.22.2.6 was amended to include the correct defined terms to describe the costs to be recovered by the GMC.

Sections 11.22.3 through 11.22.3.3 and Appendix F, Schedule 1, Part A, were amended to replace “uninstructed deviations” with the correct defined term Uninstructed Imbalance Energy.

Section 11.22.3.3 was amended to replace outdated references to GMC charges with the currently applicable charges.

Section 17.3.3 was amended to include GMC as one of the charges that the CAISO will assess for the use of TORs and that the CAISO will only assess GMC for the use of TORs consistent with Section 11.22 and Appendix F, Schedule 1.

Appendix F, Schedule 1, Parts B and C were amended to limit application of the quarterly adjustment mechanism to variances in revenue collections from forecast to the greater of 5 percent or $1 million.

Appendix F, Schedule 1, Part C was amended to reflect the costs, as defined in Appendix A, recoverable through the GMC and to reflect the Commission's Uniform System of Accounts ("USoA") numbering, in part due to the addition of new accounts for regional market expenses.

Appendix F, Schedule 1, Part D was amended to raise the annual revenue requirement to $197 million, from $195 million, above which the CAISO must make a Section 205 rate filing at the Commission and to change the effective date for which the CAISO must make a Section 205 rate filing irrespective of the level of the annual revenue requirement.

Appendix F, Schedule 1, Part F was amended to identify Inter-SC Trades as the schedule subject to the modification of the Forward Scheduling Charge.

Q. What defined terms were added to Appendix A, Master Definitions Supplement to clarify terminology?

A. To clarify terminology, the following terms were added to Appendix A:

- CAISO Financing Costs
- CAISO Operating and Capital Reserves Account

- CAISO Operating and Capital Reserves
- CAISO Operating Costs
- CAISO Other Costs and Revenues
- CAISO Startup and Development Costs

Q. What changes were made to the CAISO Tariff to implement the proposed GMC rate design?

A. The changes made to implement the proposed GMC rate design included language to implement the CRS/ETS-TOR Charge, the new Market Usage Forward Energy Charge, and the increase in the Settlements, Metering and Client Relations Charge. Tariff sections related to the Congestion Management Charge were eliminated reflecting its elimination in the proposed rate design. Also included in these changes were updates to terminology to reflect consistency with other non-GMC sections of the MRTU Tariff.

Q. Which portions of the CAISO Tariff have changed to reflect the new GMC rate structure?

A. Sections 11.22.2.5 through 11.22.2.5.7 were amended to reflect the new GMC rate structure by adding the CRS/ETS-TOR Charge. Appendix F, Schedule 1, Part A was amended to reflect changes in the GMC rate design and to state the formula rate for each charge, as described in my testimony. Tables 1, 2 and 3 of Appendix F, Schedule 1, Part E were amended to reflect changes in the GMC rate design and to include the updated allocation factors as described in this testimony.

Q. What defined terms were added to Appendix A, Master Definitions Supplement to implement the proposed GMC rate design?

A. The following changes were made to Appendix A, Master Definitions Supplement:

- The Congestion Management Charge was deleted;
- Metered Balancing Authority Area Load added to reflect consistent usage with other sections of the MRTU Tariff. Metered Balancing Authority Area Load replaces Metered Control Area Load.
- The CRS/ETS-TOR Charge is added.
- Grid Management Charge is amended to delete the Congestion Management Charge and include the CRS/ETS-TOR Charge as components.
- Market Usage Charge is modified to include a reference to Day Ahead Market volumes to which this Charge will be assessed.

Q. How are the allocation factors specified?

A. The allocation factors are specified in Tables 1 through 3 in Appendix F, Schedule 1, Part E to the CAISO Tariff. Because they are stated in the Tariff, they will remain in effect absent a new rate filing.

Q. What will the CAISO do if the cost allocation factors change?

A. The CAISO will file modifications to Tables 1 through 3 under Section 205.

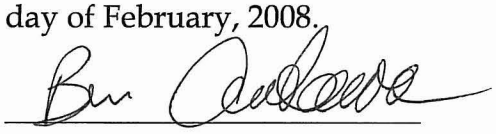
Q. How will the CAISO propose to notify stakeholders about changes in GMC charges?

A. The CAISO will continue to engage in the annual budgeting process as described in Part D of Appendix F, Schedule 1. As noted in Part D, the CAISO will provide budget documentation to the public, hold budget workshops that would give stakeholders an opportunity to ask questions and provide feedback and provide the CAISO Governing Board with the comments and concerns of stakeholders. Any change in GMC charges would be discussed with stakeholders prior to

implementation. Documentation on the changes would be posted on the CAISO Website and a Market Notice released notifying stakeholders of the changes. If an event triggers the quarterly adjustment as described in Part B, the CAISO will hold workshops or teleconferences to notify stakeholders of the changes and provide documentation to be posted on the CAISO Website.

Q. Thank you, Mr. Arikawa. I have no further questions at this time.

I declare the foregoing to be true under penalty of perjury. Executed this 20th day of February, 2008.



Ben Arikawa

Attachment D

Exhibits in Support of
Ben Arikawa's Testimony

Exhibit ISO-2

Functionalization of Activity Groupings for ISO Rate Structure

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	Core Reliability Services (base level) Energy TransmissionServices (scalable portion)	Ancillary Services management: • Dispatch of energy associated with Ancillary Services or Resource Adequacy, including: o Regulation o Spin o Non-spin o Replacement reserve o Black start o Residual Unit Commitment Monitoring of system conditions and dispatching to maintain reliability: • Load and resource balancing • Transmission line/path congestion management • Voltage control • Frequency control • System emergency management • Power flow studies and security analyses Determination of resource adequacy in real time Coordinating Western Interconnection reliability with all WECC Reliability Coordinators Integration and communication with other Balancing Authorities: • Interconnected switching operations for planned and unplanned outages • Generation and transmission equipment outage coordination Interchange scheduling ETC scheduling and administration EMS and Telemetry management

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	Core Reliability Services (base level) Energy Transmission Services (scalable portion)	Day-ahead/HASP intertie scheduling • ETAG (NERC-required electronic schedule tagging) • Existing Transmission Contracts Calculator (ETCC) and scheduling • New Firm Uses (NFU) scheduling Reconciliation of schedules and interchange after-the-fact NERC/WECC/CAISO Tariff required reporting Weekly: • Inadvertent Interchange report • NERC reports (Inadvertent Interchange, ETAG) • WECC "donut" report Monthly: • WECC Unscheduled Flow curtailment report Quarterly: • Quarterly California Energy Commission 1305 report Annually: • SDG&E DOE report • FERC 714 report • Report of Economic Operation
Grid Reliability Services	Core Reliability Services (base level) Energy Transmission Services (scalable portion)	Pre-planning of and preparation for generation and transmission outages Generation and transmission equipment outage tracking and data/record keeping On-site generation outage monitoring (SB-39 compliance) Outage reporting (web site updates and regulatory agency reporting) Supply of Generation and Transmission data for OASIS postings

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	Core Reliability Services (base level) Energy Transmission Services (scalable portion)	Transmission Maintenance: • Develop, monitor and enforce of transmission maintenance standards • Manage and oversee new generation interconnections, major capacity additions or upgrades and supporting Transmission Planning in project tracking. • Manage, analyze, prepare reports on system availability, reliability, and outage records. • Manage, audit, investigate, approving Transmission Maintenance Practices. • Manage, oversee, and approve the equipment ratings. Operations Engineering: • Perform seasonal, annual, and, as necessary special analysis of transmission system performance and ratings. • Review, approve and provide specification on daily system configurations, emergency conditions, clearances and operational conditions. • Develop, prepare and update operating procedures. • Perform operational studies and system security analyses Operations Support: Manage the development, preparation and revision of all ISO Operating Procedures: • Transmission grid • Market Operations • Generation • Emergency • Perform generating unit ancillary service certification and P-MAX testing • Manage UDC and Inter-Balancing Area Operating agreements • Manage dynamic energy scheduling agreements and interfaces • Manage required WECC Reliability Management System (RMS) and NERC • Maintain Compliance Program data collection, tracking, storage and reporting processes

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	Core Reliability Services (base level) Energy Transmission Services (scalable portion)	Transmission Planning: • Perform system transmission planning to ensure overall reliability • Perform reserve requirement studies • Perform Long-term (monthly, annual and longer) load forecasting • Determine long term *transmission* resource adequacy Regional Coordination: • Coordinate participation in NERC, WECC, NAESB, ESC, and OSC • Monitor and participate in resolving seams issues in the Western Interconnection • Provide Balancing Area and interconnection mapping services to real time operations. Determine long-term *generation* resource adequacy: • Manage, develop, prepare, publish and participate in seasonal system load and generation assessments. • Participate, guide, influence, and maintain records on environmentally constrained generation units. • Determine dual fuel generator requirements Determine Reliability Must-Run ("RMR") contract requirements Review Participating Transmission Owners ("PTOs") Bulk Power Program and new generator or load interconnection studies
Grid Reliability Services	Core Reliability Services (base level)	Administration of RMR settlements Validation of Summer Reliability Generation invoices Development and implementation of Tariff modifications Maintenance of agreements with existing and new clients Meeting regulatory directives related to contract activities Non-vendor contract administration

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	Energy Transmission Services (scalable portion)	Evaluation of transmission capacity expansion Review and recommend changes to ISO rules and protocols Monitor and measure operational performance consistent with contractual commitments and Tariff requirements Ensure generator compliance with dispatch instructions and must offer requirements Administer ISO Oversight and Investigations Review
Market Services	Forward Scheduling	Manage transmission and generation schedules: • Day and HASP schedules (including Participating Intermittent Resources) • Determine schedule feasibility
Market Services	Market Usage	Manage congestion Day Ahead
Market Services	Market Usage	Monitoring and reporting on congestion management market performance Investigating and reporting on potential gaming and market power abuses (congestion)

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Market Services	Market Usage	Perform weekly, daily and hourly load forecasting Operate A/S and Real-Time markets Determine market clearing prices (A/S and Energy) Mitigate bids (real time and forward) Maintenance of market information postings (transmission/market OASIS) Operate unit commitment service under SMD Mitigate market power in Day-Ahead Market, HASP and Real Time Market Develop and manage demand response participation Administer Congestion Revenue Rights: • Perform CRR allocation (Primary) • Coordinate CRR bilateral trading (Secondary) • Calculate and determine feasibility of CRR capacity
Market Services	Market Usage	Monitor and report on market performance Investigate and report on potential gaming and market abuses Perform special studies on market efficiency, bidding behavior Develop new market rules or changes to market rules in response to market behavior Prepare and provide reports to regulatory authorities Implement and calculate penalties and sanctions for noncompliance

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Settlements, Metering and Client Relations		Determine charges associated with: • Transmission services • Day-Ahead schedules and markets (A/S and Energy) • HASP • Real time balancing energy market • Congestion management • Administrative charges, including the Grid Management Charge Manage settlement data Manage ETC manual settlements Prepare market and GMC invoices Prepare special invoices for FERC fees, interest, etc. Perform settlement statement reruns Market/settlements design and settlements training Dispute resolution, GFN, arbitration and monitoring Credit and collateral management • Manage collections and payments • SC financial security analysis Determination of losses and allocation Metering and data management • Collect and validate data from ISO polled meters • Repository of data polled from ISO polled meters and data submitted by SCs • Responsible for site inspection of metering sites • Responsible for setting up RIG data bases and submitting data into EMS • Push data to Settlement databases Manage Participating Intermittent Resources settlements

Functionalization of Activity Groupings for ISO Rate Structure

Function	Sub-Function	Activities within proposed Grouping
Settlements, Metering and Client Relations		Provide ISO Tariff, Systems, Market and Settlements guidance to market participants Communicate scheduled events to market participants Communicate Market information Develop training curriculum Provide training to Market Participants (Settlements, System Infrastructure, Market Design) Facilitate stakeholder process Facilitate resolution of Market Participant issues
Settlements, Metering and Client Relations		Administer ISO contracts (non-vendor, e.g., RMR, PTO, MSS) Negotiate, manage, litigate contracts
	Administrative and General (not directly assigned elsewhere	CEO Finance and Accounting (non-credit related portion) Legal HR Regulatory policy and affairs Information services Strategic development Communications

Exhibit ISO-3

Listing of Systems/Applications

California Independent System Operator
Listing of System/Applications

System	Description
ACC Upgrades (Communication between ISO & IOUs)	Original Cost of Startup and Trust to pay for the upgrade of the IOU's Communications systems between the ISO and the IOU. For EMS and Real time information
Ancillary Services Management (ASM) Component of SA	Ancillary Service Management is the method of procuring A/S through the market, which are scheduled and provided to the RT desks. There are regular discussions with MPs through CS as to the operation of ASM. Allocation based on system traffic information.
Application Development Tools	Various third party software applications used for internal application development and maintenance of ISO systems.
Automated Dispatch System (ADS)	System developed for clear indisputable dispatch instructions from the ISO to SC's and /or resources. Will send electronic notification, receive acknowledgement and log the transaction. Allocation determined that it provides Grid ops with advance information on incs and decs needed so can load follow and so 50%; relates to markets and scheduling at 25/20%; requires working with SCs and affects settlements so 5% CS; automatically logs accepted and rejected bids
Automated Load Forecast System (ALFS)	Automated Load Forecast System is used for DA load forecasting. It is used by Grid Ops for reserve procurement in the forward market and in getting ready for the needs during the next day. Thus 70% of its costs are assigned to CRS. Since it applies to the forward market it affects MU and, to a lesser degree, scheduling, at 20% and 10% respectively.
Automatic Mitigation Procedure (AMP)	A procedure for mitigating market power at both the system and local levels by mitigating the prices bid into the ISO's Energy and Ancillary Services Markets. The AMP limits bid prices to the extent that they (a) vary significantly (beyond specified thresholds) from historic bidding behavior; and (b) significantly increase (beyond specified thresholds) the Market Clearing Price. Part of the SA application.
Backup systems (Legato/Quantum)	Hardware and Software to provide ability to Back up ISO systems, providing the ability to recover data for all ISO system in case of a system failure. Backups are done everyday and retained forever, as well as being stored off site. Impacts on all operating systems, allocate based on total costs of operational systems
Balance of Business Systems (BBS)	Original name for the Settlements and interfaces to the Market Financial system. Application that generates the daily settlement statements and creates the information for the consolidated invoicing and calculates information for the GMC invoice. 100% SMCR

California Independent System Operator
Listing of System/Applications

System	Description
Balancing Energy Ex Post Price (BEEP) Component of SA	Balancing Energy Ex-Post Pricing ranks balancing energy bids and is run by generation dispatchers. It is a RT tool but it processes bids received by MU and affects scheduling and congestion. Allocation evaluation based on system traffic information
Bill's Interchange Schedule (BITS)	Bill's Interchange Schedule is a bridging produce that takes the final HA schedule and makes it available for the RT operators to view, helping with RT schedule management. This program allows Real-time Schedulers to track and calculate the dynamic Interchange values between the ISO control area and neighboring control areas. The net Interchange values represent the amount of energy that California may import or export across a specific Intertie for a given hour. It also provides the meter values for settlements. Thus 85% of its costs are assigned to CRS, 15% to MU (since it applies to the HA market),.
CAISO Outage Modeling Tool (COMT)	Automated processing of planned and unplanned outage information from SLIC into the Network Model providing the State Estimator and market simulation tools with accurate information. Assigned similarly to SLIC.
CaseWise (process modeling tool)	Third party software for Business Process Modeling and publishing, also allows for Fact Modeling to help define Business requirements of a business unit. Process modeling is being required for the full company. Considered an Enterprise application.
CHASE	C.H.A.S.E. - Change management, Help desk, Asset management, Service Level Agreements, Employee Life Cycle - This a highly customized system using Remedy out of the box applications. Enterprise system to manage listed items. All employees have access.
Client Relations Tools	Applications used to improve communication with customers and issue tracking.
Common Information Model (CIM)	Developed for use with the current EMS system. Standard based on XML language. Defines electrical data , electrical network model. Used for communicating data between systems.
Compliance	Compliance applications produces automated programs to process Penalties and Ancillary Services adjustment to schedules based on a well defined set of rules. Compliance applications use a rule technology for the execution of business logic. Results are forwarded to settlement where prices are applied.
Congestion Management (CONG) Component of SA	Congestion Management is a forward market product but the RT desk uses its results. It is basically a congestion management tool, although it processes input from MU and requires explanations to CAISO customers on a regular basis. Its costs are assigned base on system traffic information.

California Independent System Operator
Listing of System/Applications

System	Description
Congestion Reform-DSOW	Design phase due to FERC Order, for congestion in the forward & real-time markets, RMR reform, FTR, LARS, New Generator policy. Affects congestion and congestion management in RT by Grid Ops; so 50-50 split.
Congestion Revenue Rights (CRR)	A congestion cost hedging tool that gives holders the right to collect day-ahead congestion costs between two nodes in an LMP-based system. In contrast to today's Firm Transmission Rights (FTRs), CRRs a) are released subject to a simultaneous feasibility test (SFT); b) are defined from a source node to a sink node, rather than for a specific transmission path; and c) may entail an obligation to pay congestion costs when congestion is in the opposite direction of the right.
DataWarehouse	The Data Warehouse uses a classic architecture composed of Operational Data Stores (ODSs), Data Marts (DMs), an On-Line Analytical Processing (OLAP) repository built on a Multidimensional Database Management System, batch load processes, a Metadata Repository (MDR) that manages the load process, and a set of best-of-breed reporting tools. The Data Warehouse provides the ability to analyze, report, query, and source non-real-time information to end users and second-tier applications with minimal impact to the critical operational systems. Used mainly by Compliance and Department of Market Analysis applications at this time.
Dept. of Market Analysis Tools (SAS/MARS)	Maintains key market data for ex post analysis. The data allows increased monitoring and analysis of transactions and scheduling, exports/import patterns by individual market participants, and regional energy markets. This data is critical to market analysis and is comprised of primary data from ISO departments as well as unique custom data that is designed, generated, and maintained by DMA staff. DMA uses several reporting tools to complete their work. They are Market Analysis Reporting System (MARS) and Statistical Analysis System (SAS), Essbase Data Mining Tool, and Plexos.
Dispute Tracking System (Remedy)	Online Settlement Dispute Program for SC to dispute Settlement statement, and for Client Relations to track, manage and record and communicate resolution of these items.
Documentum	Enterprise document management system (EDMS). Documentum was selected by the CAISO in 1999 to serve as the corporate EDMS. In addition to the base product, the CAISO uses AutoRender Pro to automate the generation of Adobe Acrobat renditions, DocInput for storing scanned hardcopies, and DocLoader for loading multiple files in a single transaction. These tools will continue to be used as the CAISO's information and record retention policies are implemented.
Electronic Tagging (Etag)	Electronic Tagging (E-tag) is the NERC Policy 3 mandated communication protocol for the creation, distribution and approval of interchange transaction requests.

California Independent System Operator
Listing of System/Applications

System	Description
Energy Management System (EMS)	Energy Management System (EMS) is a collection of software and Hardware that monitor, evaluate and control the power systems lines, loads and generators within the ISO Control Area.
Engineering Analysis Tools	Custom developed tools for ISO Engineering group analysis as required to complete various function at the ISO.
Evaluation of Market Separation	Report that quantifies the benefit of Market Separation rule and the enforcement of the allocation of transmission capacity. Must modify congestion code, and recalculate congestion changes for 1999. Market separation affects procurement of A/S and congestion split 50-50 Cong and MU
Existing Transmission Contracts Calculator (ETCC)	Existing Transmission Contracts (ETC's) are not subject to congestion management and can be scheduled later than other transmission. Therefore by use of the Existing Transmission Contracts Calculator program the ISO can forecast individual transmission line capacities based on the scheduling, outages and computations of existing transmission contracts (ETC). The ETCC results are utilized for the pre-scheduling of transmission, the determination of a total transmission capacity, the amount of FTR's for Day-Ahead/Hour-Ahead markets, and the establishment of scheduling rights for Real-Time Scheduling. This application has a major effect on the operations of the RT desk, on congestion management, and requires a lot of interaction with individual customers.
FERC Study Software	FERC requested Study on ISO Markets
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Firm Transmission Rights (FTR) is an Auction system used to manage the sale of Transmission rights for future use or as an Investment. Secondary Registration System (SRS) for FTR is used to track ownership and FTR allocations. Participants register ownership of individual FTR's and MW associated with them. This information is then sent to SI to determine Valid usage of FTR's and Actual Capacity of the Tie lines/Branch Groups. Both systems are involved with firm transmission rights and, as such, affect mostly congestion, 60%, however this information is used in SI to determine Valid usage during scheduling 15% assigned, 15%to MU, and interface to Settlements allocate 10% CS.

California Independent System Operator
Listing of System/Applications

System	Description
Global Resource Reliability Management Application (GRRMA)	Global Reliability Resource Management Application is the ISO's Reliability Must Run (RMR) scheduling tool. It allows the user to schedule Day Ahead, Hour Ahead, and Real Time local reliability energy instructions. Additionally, the dispatcher can call on a contracted RMR unit to provide Ancillary Services in the event that market has not provided the necessary percentage required. Application used to address RMR operations, which are control area operations. It does not do dispatch calculations or unit commitment but provides information on RMR. GO and MO have estimated that 75% of GRRMA's costs should be assigned to CRS, 15% to ETS (because of the scalability of the data file to the number of RMR units, 10% to MU because it affects the market, and 0% to SMCR there are regular interactions with SCs and generators on RMR activity but no direct interface to Settlements.
Grid Operations Training Simulator (GOTS)	Grid Operations Training Simulator is used for training RT operators. Its costs are assigned to CRS and E&TS on a 63/37 basis, the current allocation of the Operations Training group.
Hour-Ahead Data Analysis Tool, Day-Ahead Data Analysis Tool,	Developed Tool for Day/Hour-ahead desk to make informed decision on A/S purchases in a timely manner. To eliminate manual work around. Tool also aids in the data entry to SA, to help eliminate errors.
Human Resources	Human Resources Software applications the tracks employees and benefits and has a payroll module, for our in-house payroll system.
IBM Contract (also known as Outsourced Contracts)	Service Contract to supply people for desk side and set-up support for all ISO PC's, Help desk support, Operational system monitoring. Level one support for Connected Entities (CE) for AT&T connections, and LAN monitoring.
Integrated Forward Market (IFM)	The ISO's Day-Ahead and Hour-Ahead Market that simultaneously performs resource commitment, congestion management, energy market clearing and A/S procurement to minimize total bid cost. This system will provide RUC, Day Ahead Schedules & validation. RUC, CRS 10%, DA schedules & Validation 35%, Forward Market 55%
Internal Development	Cost for ISO employees that work on Capital Projects during the year. GAAP required reclassification.
Interzonal Congestion Management reform - Real Time	FERC request, report to quantify the Intra / Inter-Zonal cost across zones. Also RMR costs in real time and forward markets & how cost relates to zonal definition. Affects congestion and congestion management in RT by Grid Ops, so 50/50 split
Land and Building Costs	This is the cost of purchasing land and preliminary design cost for the property located on Iron Point Road.

California Independent System Operator
Listing of System/Applications

System	Description
Local Area Network (LAN)	Local Area Network is the physical communications cabling and network equipment that carry digital data communications between ISO user computers and Enterprise Servers and out to the Internet. Previously managed by MCI, now being done internally.
Locational Marginal Pricing (LMPM)	The market price for energy at a specific location on the transmission grid ("node") that represents the cost of serving one additional MWh of load at that node. The nodal LMP includes the cost of system energy, congestion and transmission losses. Same as "Nodal Price."
Market Quality System (MQS)	An application that performs post-market accounting, calculations and meter data corrections to reduce invoicing errors and disputes. Reduces manual validation, verification and correction of transactional data that could affect market settlements. Assigned 100% to SMCR.
Masterfile	An ISO data bank used to store information on each Scheduling Coordinator, Transmission Owner, Generation Owner and Control Area that does business wit the ISO. Also, the specific file within that database associated with a particular entity.
Meter Data Acquisition System (MDAS)	MDAS is the collective name for all the Original metering systems MV-90 and MV-STAR. MV-90 is a licensed proprietary system form ITRON-UTS that allows for the collection, validation, editing, storage and transfer of meter data form a wide rang of meters and recording devices that the ISO reads. This system gathers non-SC provided meter data, packages it into Settlement Quality Meter Data (SQMD) and sends the data to OMAR. MV-STAR functions have been replaced by the OMAR application.
Miscellaneous (2004 related capital)	Represents the amount determined to cover maintenance costs for software and hardware for items approved during 2004 Capital period.
Monitoring (Tivoli)	Monitoring software system that is used to monitor and report the health of all applications at the ISO. Use system direct allocation.
MRTU Capital	Represents the rolled up allocations from the new applications that are being created for MRTU. Most applications are listed separately. The cost assignment from this application will be used on general MRTU costs, such as project management.
Network Applications	Network applications include the State Estimator, contingency analysis, Dispatcher Load Flow, Voltage Security Assessment and Dynamic Stability Analysis. These applications are used to model the transmission system in Real Time and for planning and training purposes. Typically considered as part of EMS.

California Independent System Operator
Listing of System/Applications

System	Description
New Resource Interconnection (NRI)	The NRI application was developed to allow for tracking of Generation, QF conversion, and Transmission interconnection projects from original initiation to completion or termination of ISO required activities. This application also enables the ISO to monitor and track Generator Interconnection application activities of the Developer and Participating Transmission Owners as required by FERC Order implementing Tariff Amendment No. 39.
New System Equipment (replacement of owned equipment)	Capital purchase to replace already owned equipment. This is for non desktop equipment, so allocated on system direct, costs.
NT/web servers	Servers that run the applications that allow the ISO to communicate with the Internet.
NT-servers	Refers to Servers that are using the Network Technology (NT) platform and using Windows 2000 operating system. These servers run third party applications for Email, Microsoft Office, and other company wide applications, non operational applications.
Office Automation - desktop/laptop (OA)	Non operational applications, and equipment for all desktop systems. Includes Outlook, Microsoft Office, etc. Hardware and Software Maintenance for these systems.
Office equipment (scanner, printer, copier, fax, Communication Equip.)	Capital costs for the purchase of non computer hardware.
Open Access Same Time Information System (OASIS)	Open Access Same-Time Information System was created to ensure that any interested parties might have access to ISO market and transmission information through standardized electronic means on a non-discriminatory basis. The OASIS website, provides open access via a database which is automatically synchronized with the content of the online SI database. The user interface of OASIS conforms to the OASIS standard of query/response interaction and provides advance downloading functionality in CSV and XML formats. As such, it provides a customer service. However, pieces of it are used by Grid Ops, particularly outage information, load forecasting, and ATC. It reflects the results of the state of the market and is used to make decisions about scheduling. Thus the assignment is 10% CRS, 25% scheduling, 10% congestion, 35% MU, and 20% CS.

California Independent System Operator
Listing of System/Applications

System	Description
Operational Meter Analysis and Reporting (OMAR)	This Oracle-based database serves as the Settlement Quality Meter Data (SQMD) repository for the electrical usage data for the state of California. Data is accepted from the MV90 system and the SC's. Daily pushes and extracts of the SQMD are performed for Settlements, Compliance, Market Analysis, and the Data Warehouse. Master File and Schedule data are imported nightly. The system uses this data to flag data anomalies, identify occurrences of missing meter data, graph and view system data, and perform a preliminary calculation of potential UFE. OMAR-online is a web-based method of submitting and viewing SQMD also to check on the status of their meter data file submissions, over the Internet that using software digital certificate security and encryption.
Oracle Corporate Financials	ISO Corporate Accounting System, includes the following modules for General Ledger, Account Payable, Account Receivable, Purchasing, Project Accounting, Fixed Assets, Budget, and Cash Management.
Oracle Enterprise Manager (OEM)	Utility used by our Data Base Administrator (DBA) to monitor and manage all the ISO Oracle Databases
Oracle Licenses	Oracle Licenses that are needed for most of our applications/ database infrastructure. Used by most of the Operational applications.
Oracle Market Financials BBS	Oracle Accounting applications, only using the General Ledger, Accounts Payable, Accounts Receivable modules for invoicing and payment processing for the Market Settlements process. Highly customized.
Out of Sequence Market Operation Settlements Information System (OOS)	Out of Sequence Market Operation Settlements Information System is the system for logging out-of-market (OOM) and out of sequence (OOS) for the BEEP dispatcher activity for settlement purposes, so 80% of its costs are attributable to CS. Its use is a function of the activities of RT operators, who are forced to go outside the market, so 5% of its costs are assigned to CRS and 5% to ETS, reflecting the variability of the use of OOM resources. It does affect scheduling, which is assigned 90% of its costs.
Outage Scheduler (OS)	Outage Scheduler. It records information on available generation so that when the market is run, available generation is known. It makes sure that energy is not dispatched that is not available and also provides input to assure appropriate congestion management. MU uses it to rejects bids for A/S and Energy that cannot be delivered. Its costs are assigned 50% to CRS, 10% to scheduling, and 20% each to congestion and MU.

California Independent System Operator
Listing of System/Applications

System	Description
Participating Intermittent Resource Project (PIRP)	This project created an application and modified existing applications to accommodate Scheduling Coordinator with wind base Intermittent Resources, to submit Energy Schedules contemporaneously with other types of resources. As a result of Amendment 42 of the ISO Tariff. SC will receive near real-time, state of the art wind generation forecasts, they will match their Hour-Ahead Energy Schedules to these forecasts in order to attain preferred schedules which are excluded from the assessment of hourly uninstructed deviations penalties on a daily basis. Instead the deviation penalty will be on a monthly basis.
Physical Facilities Software Application/Furniture/Leasehold Improvements	All locations, leasehold improvement, furniture and software to manage physical facilities.
Portal	The Portal allows access to Market Applications along with CAISO reports. Additionally, industry related news and links will be available through the Portal. The implementation of the Portal provides: • A single location to access ISO Market Applications • A common look and feel across the ISO Market Applications • A single digital certificate (per user) for all ISO Market Applications
Post Transaction Repository (PTR)	PTR is an application that manages all post-operational market data prior to being settled.
Process Information System (PI)	Process Information System is an historical part of EMS that records what generation units actually provide. Also maintains operation data, transmission, and AGC data from EMS system. Information is used by Compliance to determine penalties that information is passed to Settlements for billing. CRS 80%, 10% MU, 10% CS
Rational Buyer	Internally developed application that works with SA's ASM , to optimize the selection of A/S to procure the lowest price for services.
Real Time Energy Dispatch System (REDS)	Internally developed tool to handle manual dispatching information if system isn't functioning, to be able to create data after the fact for Expected Energy and Market Clearing price. Also allows the Market Quality good reports for reviewing information in case of disputes. Also allows us to audit and validate information generated from the BEEP part of SA.
Real Time Nodal Market	Real-time dispatching project that introduces the full network model and constraints into the real-time dispatching tools. This project will ensure that Locational Marginal Prices will be produced in real-time.

California Independent System Operator
Listing of System/Applications

System	Description
Reliability Management System (RMS)	Reliability Management System: WECC mandated performance criteria reporting system.
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Remedy Corporation application called Action Request system (ARS) is an application development environment. This has been used by the ISO to build customized application for various uses at the ISO. Allocation done based on Licenses and what systems they are being used in.
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Remote Intelligent Gateway (RIG), is equipment that is located at Generator sites that gather information about the generator and transmit to the ISO and to the generator from the ISO when we send a signals of MW set points for AGC control from the ISO EMS either direct or through the ISO Master RIG. The DPG is a device is a one way communication device for the ISO to receive information about generation. Originally RIG's where referred to as GCP's (Generator Communication Project) Costs related matters are assigned 100% to CRS because they involve interaction by RT personnel and AGC of generators.
Resource Adequacy	Tools to support and comply with the CPUC's Resource Adequacy program. Applications affected include SCUC (TCUC), interface tables for Settlements data, Settlements, and Compliance. The Resource Adequacy program provides that sufficient resources will be available to meet the expected peak demand, ensuring reliability in the Control Area.
Resource Register (RR)	The Resource Registry is a custom built Remedy application developed and maintained by the Enterprise Applications Group at the ISO. The purpose of the Resource Registry is to provide a data repository for the following information: Participating Generator Agreements/Participating Load Agreements; Reliability Must Run (RMR) Test Data; AGC Pre-Test Data; Ancillary Services (AS) Certification data; A View of Business Associate Master File (MF) data
RMR Application Validation Engine (RAVE)	RMR Application Validation Tool customized third party tool, that allows the RMR analysts to eliminate manual work around, run validation in batch at night to save time an provide a database to store all RMR invoices. This tool also provides for SC credit validation, which provides past-published values that were used to validate the owner supplied RMR invoice values of SC Credit.

California Independent System Operator
Listing of System/Applications

System	Description
Scheduling & Logging for ISO California (SLIC)	While SLIC (Scheduling & Logging for ISO California) was traditionally used for logging, it has been upgraded to allow generation SCs to enter outage information, including derates, which are used by the RT desk for operations. Outage information collected in SLIC is utilized by numerous ISO systems including SI, GRRMA, ETCC and EMS. All events that impact the electricity grid are logged into SLIC to provide full reporting and disclosure consistent with our tariff. Its information will affect scheduling and MU. Customers will use it as well. Its costs are assigned 65% to CRS, 15% to scheduling, 5% to congestion, and 15% to MU.
Scheduling & Tagging Next Generation (STiNG)	STiNG was the project to develop Control Area Scheduler (CAS), an interchange transaction scheduling system to replace BITS. CAS interfaces with E-tag software.
Scheduling Architecture (SA)	Scheduling Application is composed of BEEP, CONG, ASM, and miscellaneous small systems. Allocation is weighted average, based on traffic for the BEEP and ASM as CONG will not exist under MRTU.
Scheduling Infrastructure (SI)	Scheduling Infrastructure provides the means by which Market Participants submit & retrieve schedules & bid data. SI provides data interfaces with SC's EMS, SA and Settlements for daily statements. Base of allocation is on a system traffic analysis.
Scheduling Infrastructure Business Rules (SIBR)	The SIBR application will validate SC bids and offers as well as perform processing of bids and offers post validation. The SIBR application will publish validated bids and offers data for consumption by other CAISO applications within a stipulated time period after the market closes.
Security Constrained Economic Dispatch (SCED)	SCED will minimize the real-time cost of Imbalance Energy, determined from Energy bids submitted by participating resources, subject to transmission, nomogram and resource capability constraints, while accounting for transmission losses. The constraints will initially be enforced zonally.
Security- External/Physical	ISO Corporate security equipment, for all Folsom and Alhambra locations. Includes camera's card readers, hand readers, and monitoring equipment.
Security-ISS (CUDA)	Information/Cyber Security - Enterprise-wide information/cyber security program that provides the security infrastructure, procedures, and policies for the CAISO IT Infrastructure. This includes the Public Key Infrastructure (PKI); Enterprise Security Manager (ESM); and intrusion detection to ensure Confidentiality, Integrity, and Availability of CAISO systems.
Settlements and Market Clearing	The Settlements System and Market Clearing System (SaMC) provides an integrated automated solution to manage manages the CAISO settlement, billing, invoice, credit, and market clearing tasks. Replacement for current Settlement and Market Financial systems. Current system is unable to handle the new requirements.

California Independent System Operator
Listing of System/Applications

System	Description
Sign Board (Symon Board maintenance)	Provides OASIS information and activity to ISO personnel, via a reader board displayed in various locations in ISO buildings
Startup Costs through 3/31/98, Working Capital-3 months	All costs for startup of the ISO, salaries and expense from June 1997 to July 1, 1998, when 1st payment for GMC received.
Storage (EMC symmetrix)	Dedicated Hardware that provides consolidated disk storage for multiple ISO database and applications. Three EMC products are currently used to provide storage, the Symmetrix, Clariion, and Celerra. Allocation based on amount of storage currently being used by applications.
System Equipment Buyouts (lease buyouts)	Purchase of expiring equipment leases for hardware that still has several years of usage left. Allocated based on the system that it is supporting.
Tactical Emergency Management System (TEMS)	TEMS is a custom application developed specifically to manage emergency event information whether the Emergency Operations Center is activated or not. Use of this application is at the discretion of the Executive in Charge.
Telephone/PBX	Third party costs for regular telephone, cell phone, and pager costs. Telecommunication system which allows internal and external voice communications.
Training Systems	Hardware and software for stand alone system to train ISO employees on new applications or changes to existing applications before deploying to production.
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	TCUC is the application that is used to comply with the FERC June 19th & 25th Orders. This tool is used in the economic evaluation and decision-making process in which the ISO grants and denies Must Offer Waiver requests.
Transmission Map Plotting & Display	Transmission Map Plotting & Display - Our Transmission Map Plotting and Display system is used to create a set of detailed transmission maps for use by the Transmission Dispatchers, Operations Engineers and Transmission Planners. The primary use is in real-time operations to access the locations of reported fires and how close the fires are to the transmission lines. Obviously to do this function we need accurate geographic information about the transmission facilities and the location of the fires. The second use to mark damages to the lines caused by earthquakes, airplanes, storms, etc. The Operations Engineers and Planners also use the maps as a part of their grid planning and analysis work. They need to know where the lines are located and possible routes for new lines and for the location of new generating facilities that need to be hooked up to the grid. CRS 50%, ETS 50%

California Independent System Operator
Listing of System/Applications

System	Description
Treasury Workstation/Investment Program	Software or hardware that allows more efficient tracking and reporting of the CAISO investment portfolio.
Trustee Costs, Interest-Capitalized, User Groups	Start up costs for non-ISO employees from Dec. 1996 - July, 1998
Utilities - System i.e. Print drivers	Part of EMC storage usage for various system utilities.
Vitria (Middleware)	Third party software applications that allows different system to pass data between them without having to do application specific customizations. (also referred to as Enterprise Application Integration -EAI bus)
Wide Area Network (WAN)	The ISO Communication secure network. Previously supplied by MCI, being replaced by an AT&T network. This is the physical communication lines and equipment that carry digital data and voice communication between CAISO Data Centers and between the CAISO and Connected Entities (all Market participants that participate in the market through connections to the ISO such as Generators, Scheduling Coordinators, and Revenue Meters connects).

Exhibit ISO-4

Listing of Cost Centers

California Independent System Operator
Listing of Cost Centers

CC #	Cost Center Name
2111	CEO-General
2121	Market Monitoring
2122	Market Surveillance Committee (Non-labor costs only)
2211	Planning and Infrastructure Development
2221	Regional Transmission-North
2231	Regional Transmission-South
2241	Grid Assets
2242	Generator Interconnections
2251	Network Applications
2311	CFO General
2321	Accounting
2331	Financial Planning and Treasury
2341	Human Resources
2351	Facilities
2361	Procurement and Vendor Management
2371	Enterprise Risk Management
2372	Internal Audit
2373	Information Security
2374	Physical Security
2411	Information Technology-General
2412	Asset Management (Non-Labor costs only)
2421	IT Projects
2431	IT Project Management
2441	Software Quality Assurance
2451	IT Support & Operations
2452	System & Database Administration
2453	Data Center & Operations
2454	Architecture & Systems Engineering
2462	EMS Information Technology
2463	Operations Information Technology
2464	Corporate Systems
2511	Operations-General
2521	Grid Operations
2522	Real-Time Operations
2523	Scheduling
2524	Outage Management
2531	Alhambra Grid Operations
2541	Market Services
2542	Market Operations
2543	Billing and Settlements
2544	Settlement Projects

California Independent System Operator
Listing of Cost Centers

CC #	Cost Center Name
2545	Market Information
2551	Operations Support
2552	Operations Data and Compliance
2553	Operations Procedures and Training
2554	Model & Contract Implementation
2555	Information Engineering & Analysis
2561	Reliability Coordination
2611	General Counsel-General
2621	Asst General Counsel-Corporate
2631	Asst General Counsel-Regulatory
2641	Asst General Counsel Tariff & Compliance
2651	Asst Corporate Secretary
2711	Market Development-Program Mgmt-General
2721	Market and Product Development
2722	Tariff and Regulatory/Policy Development
2723	Infrastructure Policy & Contracts
2731	Program Office
2741	MRTU Program
2811	External Affairs-General

Exhibit ISO-5

Core Reliability Services
Historical and Forecast Billing Determinants

Core Reliability Services
Historical and Forecast Billing Determinants

Date	NCP - Peak Hours (MW-months)	NCP - Off-Peak Hours (MW-months)	Energy Export (MWhs)	Energy Export excluding TOR Exports (MWhs)	TOR Energy Exports (MWhs)
2004	441,306	22,304	15,987,940	13,850,157	2,137,783
2005	423,218	22,929	16,632,917	14,339,606	2,293,311
2006	436,773	22,570	14,913,305	11,366,578	3,546,727
Jan-07	32,590	1,727	1,020,871	766,130	254,742
Feb-07	31,090	1,980	961,094	712,072	249,022
Mar-07	30,775	2,228	1,040,516	722,247	318,269
Apr-07	31,887	1,888	871,457	564,578	306,879
May-07	35,797	1,596	968,754	607,140	361,614
Jun-07	40,703	1,710	1,236,435	915,329	321,106
Jul-07	45,462	1,969	1,790,212	1,449,555	340,658
Aug-07	47,865	1,875	1,526,053	1,159,131	366,923
Sep-07	45,502	1,834	1,158,790	865,287	293,502
Oct-07	34,870	1,979	931,924	632,700	299,225
Nov-07	31,833	1,928	909,888	608,416	301,471
Dec-07	32,733	1,796	1,110,154	805,151	305,003
Jan-08	35,546	1,746	1,071,972	804,899	267,073
Feb-08	32,938	1,742	1,009,182	748,106	261,076
Mar-08	31,036	2,031	1,092,471	758,795	333,675
Apr-08	34,308	1,841	914,882	593,148	321,734
May-08	37,661	1,817	1,016,982	637,864	379,119
Jun-08	40,485	1,817	1,298,298	961,648	336,650
Jul-08	45,211	1,902	1,880,056	1,522,908	357,148
Aug-08	43,524	1,937	1,602,472	1,217,787	384,685
Sep-08	42,914	1,974	1,216,784	909,074	307,710
Oct-08	35,732	1,979	978,426	664,717	313,709
Nov-08	32,620	1,928	955,269	639,204	316,065
Dec-08	33,542	1,796	1,165,662	845,894	319,767
2004	441,306	22,304	15,987,940	13,850,157	2,137,783
2005	423,218	22,929	16,632,917	14,339,606	2,293,311
2006	436,773	22,570	14,913,305	11,366,578	3,546,727
2007	441,107	22,512	13,526,148	9,807,735	3,718,413
2008	445,518	22,512	14,202,455	10,304,044	3,898,411
2004-2005	-4.1%	2.8%	4.0%	3.5%	7.3%
2005-2006	3.2%	-1.6%	-10.3%	-20.7%	54.7%
2006-2007	1.0%	-0.3%	-9.3%	-13.7%	4.8%
2007-2008	1.0%	0.0%	5.0%	5.1%	4.8%

Exhibit ISO-6

California Energy Commission
California Energy Demand 2008-2018
Revised Staff Forecast, October 2007
(selected pages)

CALIFORNIA
ENERGY
COMMISSION

CALIFORNIA ENERGY DEMAND 2008-2018
STAFF REVISED FORECAST

STAFF FINAL REPORT

NOVEMBER 2007
CEC-200-2007-015-SF2

Arnold Schwarzenegger, *Governor*

CALIFORNIA ENERGY COMMISSION

Lynn Marshall
Tom Gorin
Principal Authors

Lynn Marshall
Project Manager

Sylvia Bender
Manager
Demand Analysis Office

Sylvia Bender
Deputy Director
Electricity Supply Analysis

B. B. Blevins
Executive Director

Form 1.4 - Statewide
California Energy Demand 2008-2018 Staff Revised Forecast
Noncoincident Peak Demand (MW)*

Year	Total End Use Load	Net Losses	Gross Generation	Non-PV Self Generation	New PV Installations	Total Private Supply	Net Peak Demand	Load Factor (%)
1980	32,658	2,901	35,559	157	0	157	35,402	58
1981	34,199	3,029	37,229	161	0	161	37,068	58
1982	31,912	2,819	34,731	214	0	214	34,518	61
1983	33,783	2,981	36,763	362	0	362	36,401	58
1984	37,508	3,302	40,811	418	0	418	40,392	56
1985	37,504	3,297	40,801	486	0	486	40,315	58
1986	36,612	3,196	39,808	650	0	650	39,158	60
1987	37,460	3,251	40,711	919	0	919	39,792	61
1988	41,592	3,584	45,176	1,297	0	1,297	43,879	58
1989	40,616	3,478	44,093	1,423	0	1,423	42,671	61
1990	44,947	3,849	48,796	1,488	0	1,488	47,308	57
1991	42,899	3,680	46,579	1,499	0	1,499	45,080	59
1992	44,910	3,843	48,753	1,490	0	1,490	47,263	57
1993	43,029	3,677	46,706	1,654	0	1,654	45,052	59
1994	45,317	3,858	49,175	1,733	0	1,733	47,443	57
1995	45,563	3,893	49,456	1,759	0	1,759	47,697	57
1996	47,692	4,074	51,766	1,825	0	1,825	49,941	56
1997	49,826	4,264	54,089	1,858	0	1,858	52,232	55
1998	51,847	4,450	56,298	1,822	0	1,822	54,476	53
1999	50,738	4,349	55,087	1,828	0	1,828	53,259	56
2000	51,056	4,380	55,436	1,767	0	1,767	53,669	58
2001	47,397	4,063	51,460	1,641	0	1,641	49,819	59
2002	50,658	4,328	54,986	1,953	0	1,953	53,033	57
2003	52,634	4,480	57,115	2,039	0	2,039	55,075	56
2004	53,565	4,573	58,138	1,844	0	1,844	56,294	57
2005	55,717	4,761	60,478	1,832	0	1,832	58,646	55
2006	60,747	5,214	65,960	1,841	0	1,841	64,119	52
2007	58,937	5,044	63,980	1,858	37	1,895	62,085	54
2008	59,780	5,115	64,895	1,875	74	1,949	62,946	54
2009	60,666	5,190	65,856	1,892	111	2,004	63,852	54
2010	61,553	5,265	66,818	1,910	148	2,058	64,760	54
2011	62,464	5,343	67,806	1,927	185	2,112	65,695	54
2012	63,370	5,420	68,790	1,944	222	2,166	66,623	54
2013	64,250	5,495	69,745	1,961	259	2,220	67,524	54
2014	65,119	5,569	70,688	1,978	296	2,275	68,413	54
2015	65,989	5,642	71,631	1,996	333	2,329	69,302	54
2016	66,842	5,715	72,558	2,013	370	2,383	70,174	54
2017	67,678	5,786	73,464	2,030	407	2,437	71,027	54
2018	68,523	5,858	74,380	2,047	445	2,492	71,889	54
Annual Growth Rates (%)								
1980-1990	3.2	2.9	3.2	25.2		25.2	2.9	-0.1
1990-2000	1.3	1.3	1.3	1.7		1.7	1.3	0.2
2000-2006	2.9	2.9	2.9	0.7		0.7	3.0	-2.0
2006-2011	0.6	0.5	0.6	0.9		2.8	0.5	0.9
2011-2018	1.3	1.3	1.3	0.9	13.3	2.4	1.3	-0.1
2007-2018	1.4	1.4	1.4	0.9	25.3	2.5	1.3	-0.1

Last historical year is 2006.
*System requirements tables exclude load located in non-California based control areas; these are shown in Tables 1.1c and 1.4b in tl
"Other" planning area.

Form 1.5a
California Energy Demand 2008-2018 Staff Revised Forecast
Net Energy for Load by Control Area
(GWh)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average Annual Growth Rate 2008-2018
PG&E North	94,568	95,726	96,994	98,247	99,605	100,936	102,202	103,420	104,643	105,851	107,012	108,160	1.2%
PG&E Service Area by CEC Forecasting Climate zone:													
Zone 1 (North Coast and Mountain)	4,837	4,885	4,946	5,005	5,071	5,135	5,195	5,255	5,314	5,375	5,434	5,492	1.2%
Zone 2 (Sacramento Region)	8,308	8,504	8,737	8,969	9,215	9,465	9,714	9,962	10,214	10,466	10,716	10,967	2.6%
Zone 3 (Valley Region)	23,805	24,140	24,444	24,750	25,087	25,420	25,744	26,055	26,374	26,689	26,994	27,300	1.2%
Zone 4 (East Bay Region)	25,795	26,100	26,460	26,814	27,208	27,590	27,951	28,299	28,646	28,987	29,311	29,626	1.3%
Zone 5 (San Francisco Region)	24,377	24,570	24,801	25,026	25,259	25,481	25,680	25,862	26,039	26,212	26,374	26,534	0.8%
PG&E Service Area Total	87,123	88,199	89,389	90,565	91,840	93,091	94,284	95,433	96,588	97,729	98,829	99,919	1.3%
PG&E Direct Access	7,543	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	0.0%
PG&E Bundled	79,579	80,731	81,921	83,097	84,372	85,623	86,816	87,965	89,120	90,261	91,361	92,451	
Northern California Power Agency	2,639	2,674	2,707	2,740	2,774	2,807	2,839	2,869	2,899	2,928	2,955	2,982	
Silicon Valley Power	2,920	2,958	2,992	3,026	3,064	3,099	3,131	3,161	3,190	3,219	3,245	3,269	1.0%
CCSF	1,376	1,383	1,390	1,397	1,403	1,410	1,416	1,421	1,426	1,431	1,435	1,439	0.4%
Other Publicly Owned Utilities	510	512	516	520	524	528	533	536	540	544	547	551	0.7%
Dept of Water Resources - North	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	0.0%
Total North of Path 15	96,126	97,284	98,552	99,805	101,164	102,494	103,760	104,978	106,202	107,409	108,570	109,718	
	86,436												
Path 26 Pacific Gas & Electric - Bundled South	6,857	6,938	7,034	7,128	7,233	7,334	7,430	7,522	7,615	7,705	7,791	7,875	1.3%
Path 26 - Dept of Water Resources	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	0.0%
Total Zone Path 26	9,431	9,512	9,608	9,702	9,807	9,909	10,005	10,097	10,189	10,280	10,366	10,450	0.9%
Total NP15 + ZP26	105,558	106,796	108,160	109,508	110,971	112,402	113,765	115,075	116,391	117,688	118,936	120,168	1.2%
Southern California Edison Planning Area Total	105,332	107,101	108,890	110,722	112,554	114,350	116,016	117,633	119,221	120,750	122,202	123,675	1.4%
SCE Service Area by CEC Forecasting Climate zone:													
Zone 7 (Southern San Joaquin Valley)	5,554	5,667	5,782	5,898	6,021	6,148	6,263	6,379	6,495	6,611	6,727	6,845	1.9%
Zone 8 (Coastal LA Basin)	46,374	46,901	47,434	48,000	48,569	49,115	49,604	50,061	50,498	50,914	51,294	51,701	1.0%
Zone 9 (Inland LA Basin)	18,094	18,345	18,605	18,858	19,128	19,384	19,624	19,856	20,084	20,311	20,531	20,742	1.2%
Zone 10 (Inland Empire)	26,372	27,098	27,832	28,579	29,303	30,024	30,710	31,392	32,069	32,716	33,335	33,951	2.3%
SCE Service Area Total	96,394	98,011	99,653	101,336	103,020	104,671	106,201	107,688	109,146	110,552	111,886	113,240	1.5%
SCE Direct access	10,146	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	0.0%
SCE Bundled	86,248	87,966	89,608	91,291	92,976	94,626	96,157	97,643	99,102	100,508	101,842	103,195	1.6%
Anaheim Public Utilities Dept.	2,902	2,936	2,968	3,001	3,036	3,068	3,098	3,125	3,151	3,175	3,197	3,221	0.9%
Riverside Utilities Dept	2,243	2,318	2,393	2,467	2,538	2,609	2,678	2,746	2,814	2,881	2,946	3,012	2.7%
Vernon Municipal Light Dept	1,232	1,243	1,249	1,258	1,268	1,277	1,284	1,290	1,296	1,301	1,303	1,305	0.5%
Metropolitan Water District	1,317	1,317	1,318	1,318	1,319	1,321	1,321	1,322	1,322	1,322	1,322	1,322	0.0%
Other Publicly Owned Utilities	1,244	1,277	1,309	1,342	1,373	1,404	1,434	1,462	1,491	1,519	1,547	1,575	2.1%
Pasadena Water and Power Dept	1,327	1,334	1,339	1,344	1,352	1,358	1,363	1,368	1,374	1,376	1,380	1,384	0.4%
San Diego Gas & Electric	21,733	22,020	22,373	22,721	23,073	23,419	23,750	24,074	24,400	24,722	25,032	25,337	1.4%
SDG&E Bundled Customers	18,399	18,687	19,040	19,387	19,740	20,086	20,416	20,741	21,067	21,389	21,698	22,004	1.6%
SDG&E Direct Access	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	0.0%
Dept of Water Resources - South	5,109	5,109	5,109	5,109	5,109	5,109	5,109	5,109	5,109	5,109	5,109	5,109	0.0%
Total South of Path 15	133,501	135,563	137,711	139,895	142,087	144,236	146,237	148,184	150,103	151,957	153,722	155,504	1.4%
Turlock Irrigation District Control Area	2,532	2,570	2,608	2,645	2,686	2,727	2,767	2,805	2,844	2,883	2,920	2,958	1.4%
Sacramento Municipal Utilities District	11,740	11,887	12,063	12,239	12,431	12,629	12,817	13,002	13,180	13,348	13,505	13,661	1.4%
WAPA	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	0.0%
Redding	916	933	958	992	1,031	1,051	1,072	1,092	1,113	1,134	1,156	1,177	2.3%
Roseville	1,379	1,412	1,451	1,489	1,529	1,570	1,610	1,650	1,691	1,731	1,771	1,811	2.5%
Shasta	206	209	211	212	214	216	217	219	220	221	221	222	0.6%
Modesto Irrigation District	2,876	2,924	2,970	3,016	3,067	3,117	3,165	3,211	3,259	3,305	3,351	3,397	1.5%
Total SMUD/WAPA Control Area	19,524	19,773	20,060	20,354	20,679	20,989	21,287	21,581	21,869	22,146	22,411	22,674	1.4%
Los Angeles Department of Water and Power	27,820	28,004	28,221	28,401	28,561	28,711	28,846	28,969	29,080	29,189	29,286	29,386	0.5%
Burbank Public Service Dept	1,166	1,169	1,173	1,178	1,183	1,187	1,191	1,193	1,196	1,197	1,199	1,200	0.3%
Glendale Public Service Dept	1,218	1,219	1,223	1,229	1,234	1,238	1,241	1,244	1,247	1,248	1,250	1,251	0.3%
Total LADWP Control Area	30,205	30,393	30,617	30,807	30,979	31,135	31,278	31,406	31,523	31,635	31,735	31,838	0.5%
Imperial Irrigation District Control Area	3,740	3,850	3,966	4,082	4,195	4,310	4,424	4,538	4,656	4,772	4,889	5,007	2.7%
Total CAISO	239,058	242,359	245,870	249,403	253,058	256,639	260,001	263,259	266,494	269,646	272,658	275,672	1.3%
Total State	295,059	298,945	303,121	307,291	311,597	315,800	319,757	323,589	327,386	331,081	334,613	338,148	1.2%

*System requirements tables exclude load located in non-California based control areas; these are shown in Tables 1.1c and 1.4b in the "Other" planning area.

Exhibit ISO-7

Energy Transmission Services
Historical and Forecast Billing Determinants

Energy Transmission Services
Historical and Forecast Billing Determinants

Date	Metered Balancing Authority Area Load (MWhs)	Uninstructed Imbalance Energy (MWhs)
2004	248,036,674	4,191,542*
2005	244,189,733	14,026,860
2006	248,402,891	12,863,731
Jan-07	20,263,900	1,028,173
Feb-07	17,732,252	829,393
Mar-07	19,697,325	1,105,833
Apr-07	19,111,250	1,044,386
May-07	20,644,796	1,061,753
Jun-07	21,624,752	1,006,012
Jul-07	25,156,830	1,157,056
Aug-07	25,497,393	1,250,419
Sep-07	21,873,339	1,053,378
Oct-07	20,211,746	1,040,695
Nov-07	19,013,542	1,047,552
Dec-07	20,319,937	1,055,216
Jan-08	20,327,338	1,073,559
Feb-08	18,174,625	1,001,503
Mar-08	19,983,607	1,036,786
Apr-08	19,085,689	974,903
May-08	20,935,413	1,093,774
Jun-08	22,009,391	1,060,054
Jul-08	25,451,657	1,177,095
Aug-08	24,669,644	1,134,208
Sep-08	22,289,329	1,060,346
Oct-08	20,614,524	919,755
Nov-08	19,392,443	863,174
Dec-08	20,724,871	905,497
2004	248,036,674	4,191,542*
2005	244,189,733	14,026,860
2006	248,402,891	12,863,731
2007	251,147,060	12,679,865
2008	253,658,530	12,300,654
2004-2005	-1.6%	Not meaningful
2005-2006	1.7%	-8.3%
2006-2007	1.1%	-1.4%
2007-2008	1.0%	-3.0%

*Data on Uninstructed Imbalance Energy is only available for 3 months in 2004.

Exhibit ISO-8

Forward Scheduling and Market Usage
Historical and Forecast Billing Determinants

Forward Scheduling and Market Usage
Historical and Forecast Billing Determinants

Date	Total Schedule Count	Ancillary Services/Real Time Energy (MWhs)	Forward Energy (MWhs)
2004	15,119,505	16,127,276*	9,917,551*
2005	14,764,552	53,469,059	35,004,069
2006	15,098,680	52,595,018	36,542,072
Jan-07	1,248,116	3,577,431	3,000,641
Feb-07	1,114,625	3,031,077	2,488,358
Mar-07	1,284,703	3,593,992	2,765,155
Apr-07	1,246,783	3,351,180	2,812,164
May-07	1,354,352	3,419,429	3,286,464
Jun-07	1,359,910	3,779,556	3,278,636
Jul-07	1,390,408	4,732,090	3,760,649
Aug-07	1,430,827	4,713,587	4,018,972
Sep-07	1,319,929	3,988,617	3,224,911
Oct-07	1,328,545	3,773,600	3,140,942
Nov-07	1,274,768	3,778,350	3,147,975
Dec-07	1,326,193	3,786,658	3,162,936
Jan-08	1,312,088	3,756,303	3,000,641
Feb-08	1,203,526	3,182,631	2,488,358
Mar-08	1,323,347	3,773,691	2,765,155
Apr-08	1,279,062	3,518,739	2,812,164
May-08	1,362,996	3,590,400	3,286,464
Jun-08	1,370,740	3,968,533	3,278,636
Jul-08	1,449,135	4,968,695	3,760,649
Aug-08	1,448,725	4,949,266	4,018,972
Sep-08	1,391,356	4,188,048	3,224,911
Oct-08	1,374,574	3,962,280	3,140,942
Nov-08	1,319,581	3,967,268	3,147,975
Dec-08	1,373,197	3,975,991	3,162,936
2004	15,119,505	16,127,276*	9,917,551*
2005	14,764,552	53,469,059	35,004,069
2006	15,098,680	52,595,018	36,542,072
2007	15,679,159	45,525,566	38,087,802
2008	16,208,327	47,801,844	38,087,802
2004-2005	-2.3%	Not meaningful	Not meaningful
2005-2006	2.3%	-1.6%	4.4%
2006-2007	3.8%	-13.4%	4.2%
2007-2008	3.4%	5.0%	0.0%

***Data for the Ancillary Services/Real Time Energy and Forward Energy Markets are only available from October 2004.**

Exhibit ISO-9

Settlements, Metering & Client Relations
Historical and Forecast Billing Determinants

Settlements, Metering & Client Relations
Historical and Forecast Billing Determinants

Date	Settlements, Metering & Client Relations (Customer Months)
2004	1,073
2005	1,304
2006	1,439
Jan-07	132
Feb-07	130
Mar-07	132
Apr-07	132
May-07	131
Jun-07	142
Jul-07	145
Aug-07	142
Sep-07	145
Oct-07	144
Nov-07	144
Dec-07	144
Jan-08	152
Feb-08	152
Mar-08	152
Apr-08	152
May-08	152
Jun-08	152
Jul-08	152
Aug-08	152
Sep-08	152
Oct-08	152
Nov-08	152
Dec-08	152
2004	1,073
2005	1,304
2006	1,439
2007	1,663
2008	1,829
2004-2005	21.5%
2005-2006	10.4%
2006-2007	15.6%
2007-2008	10.0%

Exhibit ISO-10

Functionalization of
Directly Assigned ISO Cost Centers

Exhibit ISO-10
California Independent System Operator
2008 GMC Cost of Service
Functionalization of Directly Assigned ISO Cost Centers

This spreadsheet contains the direct assignment templates completed by cost center managers and directors in the specified departments. Each manager or director completed templates for staff assignments and contractors/consultants/temporary employees. Departments that oversee groups of departments and have only administrative staff are assigned using the weighted average of the supervised cost centers. The Direct Factors are calculated and used in the assignment of IT systems.

California Independent System Operator
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Intermediate Calculations Used in IT Assignments

		Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total	Comments
	Direct Costs	40.2%	19.3%	0.5%	1.8%	15.6%	2.0%	20.6%	100.0%	
	Direct FTE	40.3%	19.3%	0.5%	1.5%	14.2%	1.7%	22.4%	100.0%	Used in calculation of FTE assigned IT applications
2552	Compliance (as Operations Data and Compliance)	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	58.3%	100.0%	Used in calculation of Compliance related IT applications
2121	Market Monitoring	22.4%	0.0%	0.0%	6.2%	46.7%	17.1%	7.6%	100.0%	
	DataWarehouse Assignment Calculation									
2121	Market Monitoring	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791	Departments that use Data Warehouse
2221	Regional Transmission-North	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370	
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451	
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422	
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707	
2121	Market Monitoring	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	
2221	Regional Transmission-North	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	
2542	Market Operations	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	
2543	Billing and Settlements	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	
2552	Operations Data and Compliance	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
2121	Market Monitoring	$ 161,703	$ -	$ -	$ 44,750	$ 337,133	$ 123,543	$ 54,908	$ 722,037	
2221	Regional Transmission-North	$ 98,975	$ 72,650	$ -	$ -	$ -	$ -	$ -	$ 171,624	
2542	Market Operations	$ 13,074	$ -	$ -	$ 33,281	$ 142,642	$ 52,294	$ 13,074	$ 254,364	
2543	Billing and Settlements	$ 22,570	$ -	$ -	$ -	$ -	$ -	$ 157,058	$ 179,628	
2552	Operations Data and Compliance	$ 505,516	$ -	$ -	$ -	$ -	$ -	$ 705,337	$ 1,210,853	
	Total	$ 801,838	$ 72,650	$ -	$ 78,030	$ 479,775	$ 175,837	$ 930,377	$ 2,538,507	
	Percent of Total	31.6%	2.9%	0.0%	3.1%	18.9%	6.9%	36.7%	100.0%	

California Independent System Operator
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Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total	FTE
2121	Market Monitoring	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791	13.0
2122	Market Surveillance Committee (Non-labor costs only	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500	-
2221	Regional Transmission-North	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370	15.0
2231	Regional Transmission-South	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212	17.0
2241	Grid Assets	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922	9.0
2242	Generator Interconnections	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990	5.0
2251	Network Applications	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846	7.0
2331	Financial Planning and Treasury	$ -	$ -	$ -	$ -	$ -	$ -	$ 664,138	$ 664,138	2.5
2521	Grid Operations	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260	3.0
2522	Real-Time Operations	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453	72.0
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524	9.0
2524	Outage Management	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461	14.0
2531	Alhambra Grid Operations	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538	3.0
2541	Market Services	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165	3.0
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451	15.0
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422	17.0
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767	7.0
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115	14.0
2551	Operations Support	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211	2.0
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707	13.0
2553	Operations Procedures and Training	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731	10.0
2554	Model & Contract Implementation	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103	9.0
2555	Information Engineering & Analysis	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320	10.0
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620	8.0
2721	Market and Product Development	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177	5.0
2722	Tariff and Regulatory/Policy Development	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353	9.0
2723	Infrastructure Policy & Contracts	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548	8.0
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237	4.0
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664	23.0
		$ 25,439,114	$ 12,185,247	$ 309,015	$ 1,147,297	$ 9,872,749	$ 1,267,773	$ 13,049,400	$ 63,270,595	326.5

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Percent Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	22.4%	0.0%	0.0%	6.2%	46.7%	17.1%	7.6%	100.0%
2122	Market Surveillance Committee (Non-labor costs only	25.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	100.0%
2221	Regional Transmission-North	57.7%	42.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2231	Regional Transmission-South	54.6%	45.4%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2241	Grid Assets	68.3%	31.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2242	Generator Interconnections	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2251	Network Applications	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2331	Financial Planning and Treasury	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2521	Grid Operations	68.5%	24.1%	1.4%	0.0%	6.0%	0.0%	0.0%	100.0%
2522	Real-Time Operations	61.0%	29.7%	1.2%	0.0%	8.1%	0.0%	0.0%	100.0%
2523	Scheduling	65.7%	32.9%	1.4%	0.0%	0.0%	0.0%	0.0%	100.0%
2524	Outage Management	94.0%	0.4%	4.2%	0.0%	1.5%	0.0%	0.0%	100.0%
2531	Alhambra Grid Operations	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2541	Market Services	5.4%	0.0%	0.0%	5.0%	44.2%	7.9%	37.5%	100.0%
2542	Market Operations	5.1%	0.0%	0.0%	13.1%	56.1%	20.6%	5.1%	100.0%
2543	Billing and Settlements	12.6%	0.0%	0.0%	0.0%	0.0%	0.0%	87.4%	100.0%
2544	Settlement Projects	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2545	Market Information	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2551	Operations Support	38.7%	19.6%	0.0%	0.0%	1.8%	0.0%	39.9%	100.0%
2552	Operations Data and Compliance	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	58.3%	100.0%
2553	Operations Procedures and Training	63.2%	36.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2554	Model & Contract Implementation	35.5%	0.0%	0.0%	0.0%	8.8%	0.0%	55.7%	100.0%
2555	Information Engineering & Analysis	8.8%	46.4%	0.0%	0.0%	0.0%	0.0%	44.8%	100.0%
2561	Reliability Coordination	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2721	Market and Product Development	7.4%	14.9%	0.0%	7.4%	62.9%	0.0%	7.4%	100.0%
2722	Tariff and Regulatory/Policy Development	0.0%	9.3%	0.0%	18.7%	72.0%	0.0%	0.0%	100.0%
2723	Infrastructure Policy & Contracts	45.4%	44.5%	0.0%	0.0%	0.0%	0.0%	10.1%	100.0%
2822	Information Products & Services	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2841	Customer Services and Industry Affairs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	40.2%	19.3%	0.5%	1.8%	15.6%	2.0%	20.6%	100.0%

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FTE Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	2.9	-	-	0.8	6.1	2.2	1.0	13.0
2122	Market Surveillance Committee (Non-labor costs only	-	-	-	-	-	-	-	-
2221	Regional Transmission-North	8.7	6.3	-	-	-	-	-	15.0
2231	Regional Transmission-South	9.3	7.7	-	-	-	-	-	17.0
2241	Grid Assets	6.2	2.8	-	-	-	-	-	9.0
2242	Generator Interconnections	5.0	-	-	-	-	-	-	5.0
2251	Network Applications	-	7.0	-	-	-	-	-	7.0
2331	Financial Planning and Treasury	-	-	-	-	-	-	2.5	2.5
2521	Grid Operations	2.1	0.7	0.0	-	0.2	-	-	3.0
2522	Real-Time Operations	43.9	21.4	0.9	-	5.8	-	-	72.0
2523	Scheduling	5.9	3.0	0.1	-	-	-	-	9.0
2524	Outage Management	13.2	0.1	0.6	-	0.2	-	-	14.0
2531	Alhambra Grid Operations	3.0	-	-	-	-	-	-	3.0
2541	Market Services	0.2	-	-	0.2	1.3	0.2	1.1	3.0
2542	Market Operations	0.8	-	-	2.0	8.4	3.1	0.8	15.0
2543	Billing and Settlements	2.1	-	-	-	-	-	14.9	17.0
2544	Settlement Projects	-	-	-	-	-	-	7.0	7.0
2545	Market Information	-	-	-	-	14.0	-	-	14.0
2551	Operations Support	0.8	0.4	-	-	0.0	-	0.8	2.0
2552	Operations Data and Compliance	5.4	-	-	-	-	-	7.6	13.0
2553	Operations Procedures and Training	6.3	3.7	-	-	-	-	-	10.0
2554	Model & Contract Implementation	3.2	-	-	-	0.8	-	5.0	9.0
2555	Information Engineering & Analysis	0.9	4.6	-	-	-	-	4.5	10.0
2561	Reliability Coordination	8.0	-	-	-	-	-	-	8.0
2721	Market and Product Development	0.4	0.7	-	0.4	3.1	-	0.4	5.0
2722	Tariff and Regulatory/Policy Development	-	0.8	-	1.7	6.5	-	-	9.0
2723	Infrastructure Policy & Contracts	3.6	3.6	-	-	-	-	0.8	8.0
2822	Information Products & Services	-	-	-	-	-	-	4.0	4.0
2841	Customer Services and Industry Affairs	-	-	-	-	-	-	23.0	23.0
	Total	131.7	62.9	1.6	5.0	46.5	5.5	73.3	326.5
	Direct FTE percentage	40.3%	19.3%	0.5%	1.5%	14.2%	1.7%	22.4%	100.0%

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Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2521	Grid Operations	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
	Direct Reports								
2522	Real-Time Operations	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
	Total	$ 14,568,796	$ 5,121,212	$ 302,508	$ -	$ 1,267,542	$ -	$ -	$ 21,260,058
	Percent of Total	68.5%	24.1%	1.4%	0.0%	6.0%	0.0%	0.0%	100.0%
2541	Market Services	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
	Direct Reports								
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
	Total	$ 534,654	$ -	$ -	$ 499,207	$ 4,394,737	$ 784,415	$ 3,721,742	$ 9,934,754
	Percent of Total	5.4%	0.0%	0.0%	5.0%	44.2%	7.9%	37.5%	
2551	Operations Support	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
	Direct Reports								
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
	Total	$ 2,902,146	$ 1,473,680	$ -	$ -	$ 132,358	$ -	$ 2,995,678	$ 7,503,862
	Percent of Total	38.7%	19.6%	0.0%	0.0%	1.8%	0.0%	39.9%	

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Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor costs only	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2221	Regional Transmission-North	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
2331	Financial Planning and Treasury	$ -	$ -	$ -	$ -	$ -	$ -	$ 664,138	$ 664,138
2522	Real-Time Operations	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2531	Alhambra Grid Operations	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2721	Market and Product Development	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
		$ 24,930,342	$ 12,000,627	$ 302,508	$ 1,101,764	$ 9,437,947	$ 1,196,225	$ 12,558,546	$ 61,527,959

California Independent System Operator
2008 GMC Cost of Service

Percent Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	22.4%	0.0%	0.0%	6.2%	46.7%	17.1%	7.6%	100.0%
2122	Market Surveillance Committee (Non-labor costs only	25.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	100.0%
2221	Regional Transmission-North	57.7%	42.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2231	Regional Transmission-South	54.6%	45.4%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2241	Grid Assets	68.3%	31.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2242	Generator Interconnections	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2251	Network Applications	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2331	Financial Planning and Treasury	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2522	Real-Time Operations	61.0%	29.7%	1.2%	0.0%	8.1%	0.0%	0.0%	100.0%
2523	Scheduling	65.7%	32.9%	1.4%	0.0%	0.0%	0.0%	0.0%	100.0%
2524	Outage Management	94.0%	0.4%	4.2%	0.0%	1.5%	0.0%	0.0%	100.0%
2531	Alhambra Grid Operations	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2542	Market Operations	5.1%	0.0%	0.0%	13.1%	56.1%	20.6%	5.1%	100.0%
2543	Billing and Settlements	12.6%	0.0%	0.0%	0.0%	0.0%	0.0%	87.4%	100.0%
2544	Settlement Projects	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2545	Market Information	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2552	Operations Data and Compliance	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	58.3%	100.0%
2553	Operations Procedures and Training	63.2%	36.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2554	Model & Contract Implementation	35.5%	0.0%	0.0%	0.0%	8.8%	0.0%	55.7%	100.0%
2555	Information Engineering & Analysis	8.8%	46.4%	0.0%	0.0%	0.0%	0.0%	44.8%	100.0%
2561	Reliability Coordination	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2721	Market and Product Development	7.4%	14.9%	0.0%	7.4%	62.9%	0.0%	7.4%	100.0%
2722	Tariff and Regulatory/Policy Development	0.0%	9.3%	0.0%	18.7%	72.0%	0.0%	0.0%	100.0%
2723	Infrastructure Policy & Contracts	45.4%	44.5%	0.0%	0.0%	0.0%	0.0%	10.1%	100.0%
2822	Information Products & Services	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2841	Customer Services and Industry Affairs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	40.5%	19.5%	0.5%	1.8%	15.3%	1.9%	20.4%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	30.0%	0.0%	0.0%	10.0%	60.0%	0.0%	0.0%	100.0%
2122	Market Surveillance Committee (Non-labor costs only)	25.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	100.0%
2221	Regional Transmission-North	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2231	Regional Transmission-South	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2241	Grid Assets	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2242	Generator Interconnections	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2251	Network Applications	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2331	Financial Planning and Treasury	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2522	Real-Time Operations	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2523	Scheduling	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2524	Outage Management	0.0%	20.0%	0.0%	0.0%	80.0%	0.0%	0.0%	100.0%
2531	Alhambra Grid Operations	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2542	Market Operations	0.0%	0.0%	0.0%	10.0%	90.0%	0.0%	0.0%	100.0%
2543	Billing and Settlements	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	90.0%	100.0%
2544	Settlement Projects	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2545	Market Information	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2552	Operations Data and Compliance	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	100.0%
2553	Operations Procedures and Training	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2554	Model & Contract Implementation	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2555	Information Engineering & Analysis	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	80.0%	100.0%
2561	Reliability Coordination	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2721	Market and Product Development	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2722	Tariff and Regulatory/Policy Development	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2723	Infrastructure Policy & Contracts	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2822	Information Products & Services	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2841	Customer Services and Industry Affairs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Percent Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	$ 127,200	$ -	$ -	$ 42,400	$ 254,400	$ -	$ -	$ 424,000
2122	Market Surveillance Committee (Non-labor costs only)	$ 88,125	$ -	$ -	$ -	$ 264,375	$ -	$ -	$ 352,500
2221	Regional Transmission-North	$ -	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ 100,000
2231	Regional Transmission-South	$ -	$ 270,000	$ -	$ -	$ -	$ -	$ -	$ 270,000
2241	Grid Assets	$ -	$ 40,000	$ -	$ -	$ -	$ -	$ -	$ 40,000
2242	Generator Interconnections	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2251	Network Applications	$ -	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ 100,000
2331	Financial Planning and Treasury	$ -	$ -	$ -	$ -	$ -	$ -	$ 156,000	$ 156,000
2522	Real-Time Operations	$ -	$ 200,000	$ -	$ -	$ -	$ -	$ -	$ 200,000
2523	Scheduling	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2524	Outage Management	$ -	$ 8,390	$ -	$ -	$ 33,560	$ -	$ -	$ 41,950
2531	Alhambra Grid Operations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2542	Market Operations	$ -	$ -	$ -	$ 107,000	$ 963,000	$ -	$ -	$ 1,070,000
2543	Billing and Settlements	$ 32,500	$ -	$ -	$ -	$ -	$ -	$ 292,500	$ 325,000
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 90,000	$ 90,000
2545	Market Information	$ -	$ -	$ -	$ -	$ 220,000	$ -	$ -	$ 220,000
2552	Operations Data and Compliance	$ 211,750	$ -	$ -	$ -	$ -	$ -	$ 211,750	$ 423,500
2553	Operations Procedures and Training	$ -	$ 185,000	$ -	$ -	$ -	$ -	$ -	$ 185,000
2554	Model & Contract Implementation	$ 185,520	$ -	$ -	$ -	$ -	$ -	$ -	$ 185,520
2555	Information Engineering & Analysis	$ -	$ 40,000	$ -	$ -	$ -	$ -	$ 160,000	$ 200,000
2561	Reliability Coordination	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2721	Market and Product Development	$ -	$ -	$ -	$ -	$ 380,500	$ -	$ -	$ 380,500
2722	Tariff and Regulatory/Policy Development	$ -	$ -	$ -	$ -	$ 292,500	$ -	$ -	$ 292,500
2723	Infrastructure Policy & Contracts	$ -	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ 300,000
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 178,228	$ 178,228
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 200,281	$ 200,281
	Total	$ 645,095	$ 1,243,390	$ -	$ 149,400	$ 2,408,335	$ -	$ 910,250	$ 5,356,470

California Independent System Operator
2008 GMC Cost of Service

FTE Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	2.7	-	-	0.7	5.7	2.7	1.2	13.0
2122	Market Surveillance Committee (Non-labor costs only	0.3	-	-	-	0.8	-	-	1.0
2221	Regional Transmission-North	0.6	0.4	-	-	-	-	-	1.0
2231	Regional Transmission-South	0.6	0.4	-	-	-	-	-	1.0
2241	Grid Assets	7.0	3.0	-	-	-	-	-	10.0
2242	Generator Interconnections	5.0	-	-	-	-	-	-	5.0
2251	Network Applications	-	7.0	-	-	-	-	-	7.0
2331	Financial Planning and Treasury	-	-	-	-	-	-	2.5	2.5
2522	Real-Time Operations	45.1	21.0	0.9	-	6.0	-	-	73.0
2523	Scheduling	5.9	3.0	0.1	-	-	-	-	9.0
2524	Outage Management	8.6	-	0.4	-	-	-	-	9.0
2531	Alhambra Grid Operations	3.0	-	-	-	-	-	-	3.0
2542	Market Operations	1.0	-	-	2.0	6.0	4.0	1.0	14.0
2543	Billing and Settlements	3.1	-	-	-	-	-	20.9	24.0
2544	Settlement Projects	-	-	-	-	-	-	11.0	11.0
2545	Market Information	-	-	-	-	12.0	-	-	12.0
2552	Operations Data and Compliance	6.0	-	-	-	-	-	9.0	15.0
2553	Operations Procedures and Training	7.0	3.0	-	-	-	-	-	10.0
2554	Model & Contract Implementation	2.7	-	-	-	1.0	-	6.4	10.0
2555	Information Engineering & Analysis	1.0	5.0	-	-	-	-	4.0	10.0
2561	Reliability Coordination	8.0	-	-	-	-	-	-	8.0
2721	Market and Product Development	0.5	1.0	-	0.5	2.5	-	0.5	5.0
2722	Tariff and Regulatory/Policy Development	-	1.0	-	2.0	6.0	-	-	9.0
2723	Infrastructure Policy & Contracts	4.5	2.5	-	-	-	-	1.0	8.0
2822	Information Products & Services	-	-	-	-	-	-	5.0	5.0
2841	Customer Services and Industry Affairs	-	-	-	-	-	-	23.0	23.0
	Total	112.5	47.3	1.4	5.2	40.0	6.7	85.5	298.5
	Percent of total	37.7%	15.8%	0.5%	1.7%	13.4%	2.2%	28.6%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Percent FTE Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	20.8%	0.0%	0.0%	5.4%	43.8%	20.8%	9.2%	100.0%
2122	Market Surveillance Committee (Non-labor costs only	25.0%	0.0%	0.0%	0.0%	75.0%	0.0%	0.0%	100.0%
2221	Regional Transmission-North	60.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2231	Regional Transmission-South	60.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2241	Grid Assets	70.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2242	Generator Interconnections	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2251	Network Applications	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2331	Financial Planning and Treasury	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	45.5%	45.5%
2522	Real-Time Operations	61.8%	28.8%	1.2%	0.0%	8.2%	0.0%	0.0%	100.0%
2523	Scheduling	65.7%	32.9%	1.4%	0.0%	0.0%	0.0%	0.0%	100.0%
2524	Outage Management	95.8%	0.0%	4.2%	0.0%	0.0%	0.0%	0.0%	100.0%
2531	Alhambra Grid Operations	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2542	Market Operations	7.1%	0.0%	0.0%	14.3%	42.9%	28.6%	7.1%	100.0%
2543	Billing and Settlements	12.9%	0.0%	0.0%	0.0%	0.0%	0.0%	87.1%	100.0%
2544	Settlement Projects	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2545	Market Information	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
2552	Operations Data and Compliance	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	60.0%	100.0%
2553	Operations Procedures and Training	70.0%	30.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2554	Model & Contract Implementation	26.5%	0.0%	0.0%	0.0%	10.0%	0.0%	63.5%	100.0%
2555	Information Engineering & Analysis	10.0%	50.0%	0.0%	0.0%	0.0%	0.0%	40.0%	100.0%
2561	Reliability Coordination	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
2721	Market and Product Development	10.0%	20.0%	0.0%	10.0%	50.0%	0.0%	10.0%	100.0%
2722	Tariff and Regulatory/Policy Development	0.0%	11.1%	0.0%	22.2%	66.7%	0.0%	0.0%	100.0%
2723	Infrastructure Policy & Contracts	56.3%	31.3%	0.0%	0.0%	0.0%	0.0%	12.5%	100.0%
2822	Information Products & Services	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
2841	Customer Services and Industry Affairs	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	Total	37.7%	15.8%	0.5%	1.7%	13.4%	2.2%	28.6%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Dollar Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission		Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	$ 411,811	$ -	$ -	$ 106,766	$ 869,378	$ 411,811	$ 183,027	$ 1,982,791
2122	Market Surveillance Committee (Non-labor costs only	$ 750	$ -	$ -	$ -	$ 2,250	$ -	$ -	$ 3,000
2221	Regional Transmission-North	$ 1,484,622	$ 989,748	$ -	$ -	$ -	$ -	$ -	$ 2,474,370
2231	Regional Transmission-South	$ 1,636,927	$ 1,091,285	$ -	$ -	$ -	$ -	$ -	$ 2,728,212
2241	Grid Assets	$ 1,153,545	$ 494,376	$ -	$ -	$ -	$ -	$ -	$ 1,647,922
2242	Generator Interconnections	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	$ -	$ 1,235,846	$ -	$ -	$ -	$ -	$ -	$ 1,235,846
2331	Financial Planning and Treasury	$ -	$ -	$ -	$ -	$ -	$ -	$ 508,138	$ 508,138
2522	Real-Time Operations	$ 9,278,122	$ 4,318,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,013,453
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	$ 2,147,286	$ -	$ 95,225	$ -	$ -	$ -	$ -	$ 2,242,511
2531	Alhambra Grid Operations	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2542	Market Operations	$ 196,104	$ -	$ -	$ 392,207	$ 1,176,622	$ 784,415	$ 196,104	$ 2,745,451
2543	Billing and Settlements	$ 306,050	$ -	$ -	$ -	$ -	$ -	$ 2,063,371	$ 2,369,422
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,079,767	$ 1,079,767
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,035,115	$ -	$ -	$ 2,035,115
2552	Operations Data and Compliance	$ 799,283	$ -	$ -	$ -	$ -	$ -	$ 1,198,924	$ 1,998,207
2553	Operations Procedures and Training	$ 1,208,712	$ 518,019	$ -	$ -	$ -	$ -	$ -	$ 1,726,731
2554	Model & Contract Implementation	$ 350,750	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,323,583
2555	Information Engineering & Analysis	$ 146,132	$ 730,660	$ -	$ -	$ -	$ -	$ 584,528	$ 1,461,320
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2721	Market and Product Development	$ 109,868	$ 219,735	$ -	$ 109,868	$ 549,338	$ -	$ 109,868	$ 1,098,677
2722	Tariff and Regulatory/Policy Development	$ -	$ 171,761	$ -	$ 343,523	$ 1,030,569	$ -	$ -	$ 1,545,853
2723	Infrastructure Policy & Contracts	$ 707,371	$ 392,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,257,548
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,009	$ 645,009
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,703,383	$ 3,703,383
	Total	$ 24,285,247	$ 10,757,237	$ 302,508	$ 952,364	$ 7,029,612	$ 1,196,225	$ 11,269,787	$ 55,792,980
	Percent of total	43.5%	19.3%	0.5%	1.7%	12.6%	2.1%	20.2%	100.0%

Individual templates for each directly assigned cost center follow.

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2121
Market Monitoring
Keith Casey

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	1) Review and recommend changes to ISO rules and protocols to enhance system reliability; 2) Enforce tariff provisions on generation outage reporting and load scheduling requirement.	2.7	Lead Compliance Analyst (1); Market Monitoring Analyst (1); Manager, Analysis & Mitigation (.2), Support Staff (.2), Director (.3)	Promotes reliable operation and effective coordination with other control areas.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities	1) Enforce tariff provisions on compliance with load scheduling requirements.	0.7	Market Monitoring Analyst (.5); Support Staff (.1); Manager, Analysis & Mitigation (.1)	Promotes reliable operation and satisfies tariff requirements.
Market Usage Activities	1) Monitor and report on market performance; 2) Investigate and report on potential gaming and market abuses; 3) Perform special studies on market efficiency, bidding behavior; 4) Design and develop market monitoring systems; 5) Develop new market rules or changes to market rules in response to market behavior; 6) Prepare and provide reports to regulatory authorities; 7) Implement and calculate penalties and sanctions for non-compliance; 8) Support Market Surveillance Committee by completing special analysis to support MSC recommendations	5.7	Manager, Monitoring & Reporting (.5); Market Monitoring Analyst (3); Support Staff (1.3); Director (.5); Manager, Analysis & Mitigation (.4)	Satisfies FERC requirement for monitoring market performance. Leads to more effective and efficient market structures that promote competitive outcomes.
Market Usage Forward Energy		2.7	Manager, Monitoring & Reporting (.5); Market Monitoring Analyst (2); Support Staff (.2)	
Settlements, Metering and Client Relations	1) Respond to customer inquiries; 2) Conduct stakeholder process on select market issues; 3) Enforce tariff provisions on late and inaccurate meter data.	1.2	Manager, Analysis & Mitigation (.3); Market Monitoring Analyst (.5); Support Staff (.2); Director (.2)	Enhances customer relations.
Totals		13		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2121
Market Monitoring
Keith Casey

	Description of Activities	% by activity	Comments
Core Reliability Services Activities	1) Enhancements to Enforcement Protocol monitoring framework.	30%	
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities	1) Enhancements to Enforcement Protocol monitoring framework.	10%	
Market Usage Activities	1) Supports design and development of market monitoring systems	60%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2122
Market Surveillance Committee
Keith Casey

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Not applicable	25%		
Energy Transmission Services Activities	Not applicable			
CRS/ETS TOR				
Forward Scheduling Activities	Not applicable			
Market Usage Activities	Not applicable	75%		
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Not applicable			
Totals		100%		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2122
Market Surveillance Committee
Keith Casey

	Description of Activities	% by activity	Comments
Core Reliability Services Activities	1) Provide independent review of issues relating to core reliability services, and make recommendations on proposed changes in practices.	25%	Market Surveillance Committee members, Advisory Committee to the Baord of Governors
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities	1) Provide independent review of issues relating to market usage, and make recommendations on proposed changes in practices.	75%	Market Surveillance Committee members, Advisory Committee to the Board of Governors
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2221
Regional Transmission - North
Gary DeShazo & Ali Chowdhury

See additional description of positions and activities in template for Regional Transmission - North, cc 2221. Cost centers 2221 and 2231 are jointly managed and have similar activities. The description of their activities and staff are combined on the templates for the two cost centers.

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	1) CAISO Transmission Plan: Coordinate with PTO's to produce a forward-looking integrated transmission plan. 2) LCR determinations: We make the decision on where we have local reliability criteria violations as part of the LCR process 3) Regional/National work on Planning Issues: We are heavily involved in providing input and doing work for NERC, FERC Subregional Planning Group, WECC, SSG-WI, Westconnect, CASPG and other groups 4) Generator Interconnection Studies: We perform studies to determine that grid reliability is not affected when a new generator is interconnected. 5) Renewable Integration: Plan to incorporate renewable energy resources in the grid. 6) Third category of transmission project approval to accommodate renewable resources 7) Long-term Transmission Right: FERC requires the CAISO to develop transmission plan to ensure that allocated CRR is feasible.	60%	Director, Regional Transmission - North (1), Director, Regional Transmission - South (1), Technical Assistant (2), Lead Regional Transmission Engineer (2), Sr Regional Transmission Engineer (10), Regional Transmission Engineer (3), Associate Regional Transmission Engineer (3)	Any proposed transmission additions will have a direct impact on the functioning of the grid. The ISO has to have the capability to ensure that the transmission additions are incorporated in a manner that maintains and/or enhances the reliability and/or operation of the grid. Further, state and federal regulatory agencies require the CAISO to perform certain duties and activities related to planning and operations to assure mandatory compliance with operational and planning standards. Every control area within a regional reliability coordination council has to do planning to ensure that all of the control areas together meet the council's requirements for reliability.
Energy Transmission Services Activities	These are additional activities to address transmission planning, generator interconnection, and LCR as a result of the ISO being a large control area with substantial load growth. Deliverability Assessment: Part of both LGIP process and annual transmission planning, assess qualifying capacity of resources for Resource Adequacy purposes. Provide engineering support for ISO contracts issues (e.g., LCR, Backstop procurement, Participating Generator Agreement ("PGA"), etc.). Participate in the Grid Planning process -- LCR, Expansion Plans. Prepare disturbance reports for the bulk system and local areas. Participate in WECC working groups and related activities.	40%	Lead Regional Transmission Engineer (2), Sr Regional Transmission Engineer (5), Regional Transmission Engineer (2), Associate Regional Transmission Engineer (4)	With load growth and more transmission and generation planning and siting activity, more complex LCR studies are required. Additional activity and staffing for these and related studies are classified in Energy Transmission Services.
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		100%		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2231
Regional Transmission - South
Gary DeShazo

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2231
Regional Transmission - South
Gary DeShazo & Ali Chowdhury

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	8) Probablistic approach for capacity requirement determinition: in the effort to support capacity, market initiative, regional transmisison needs to develop a methodology to quantify for local capacity requirement at least as a reference to the deterministic approach 9) Congestion studies: As required by FERC Order 890, regional transmission needs to a) Define and summarize term "significant and reoccurring" congestion b) Develop mitigation plan c) Provide the cost of upgrade and congestion cost 10) Conduct seasonal operating studies and establish seasonal OTCs. 11) Develop/maintain/update ISO operating procedures.12) Support Outage Coordination in the analysis of Transmission and Generation clearances.13) Seasonal local area operating assessments (including proposing and managing short-term projects).14) Support the Real Time Operation and provide on-call services. 15) responsible for the engineering/technical support of their focus area(s), in addition to support the entire CAISO Bulk (500 kV) system operations. 16) Coordinate with surrounding control area operators in engine	60%	See additional description of positions and activities in template for Regional Transmission - North, cc 2221. Cc 2221 and cc 2231 are jointly managed and have similar activities. The description of their activities and staff are combined on the templates for the two cost centers.	Any proposed transmission additions will have a direct impact on the functioning of the grid. The ISO has to have the capability to ensure that the transmission additions are incorporated in a manner that maintains and/or enhances the reliability and/or operation of the grid. Further, state and federal regulatory agencies require the CAISO to perform certain duties and activities related to planning and operations to assure mandatory compliance with operational and planning standards. Every control area within a regional reliability coordination council has to do planning to ensure that all of the control areas together meet the council's requirements for reliability.
Energy Transmission Services Activities	These are additional activities to address transmission planning, generator interconnection, and LCR as a result of the ISO being a large control area with substantial load growth. Deliverability Assessment: Part of both LGIP process and annual transmission planning, assess qualifying capacity of resources for Resource Adequacy purposes. Provide engineering support for ISO contracts issues (e.g., LCR, Backstop procurement, Participating Generator Agreement ("PGA"), etc.). Participate in the Grid Planning process -- LCR, Expansion Plans. Prepare disturbance reports for the bulk system and local areas. Participate in WECC working groups and related activities.	40%	See additional description of positions and activities in template for Regional Transmission - North, cc 2221. Cc 2221 and cc 2231 are jointly managed and have similar activities. The description of their activities and staff are combined on the templates for the two cost centers.	With load growth and more transmission and generation planning and siting activity, more complex LCR studies are required. Additional activity and staffing for these and related studies are classified in Energy Transmission Services.
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		100%		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2231
	Regional Transmission - South
	Gary DeShazo

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2241
Grid Assets
Steve Rutty

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	1. Manage the creation, implementation, and enforcement of the ISO's Maintenance Standards. Includes review of the forced outages, trends and PTO Transmission Line Availability measures. 2. Develop, maintain and manage the Transmission Register. Review new technology, engineering decisions, standards and associated processes to ensure they support grid reliability. 3. Manages the FERC mandated large and small generator interconnection (LGIP) processes and transmission interconnection procceses to track and ensure the ISO is ready to Operate new generation connections and PTO Transmission System modifications. Daily interaction with all PTOs and multiple generator developers. 4. Develop, monitor and control activities associated with the ISO's generator Interconnection Standards. 5. Preparing control area and local area load and resource adequacy assessments; publish CAISO Summer and Winter Assessment Reports. 6. Develop and maintain the GIS mapping systems mainly used by Grid Operations to track fires in proximity to Transmission Facilities to help maintain Grid reliability.	7	Lead Interconnection Services Engineer Sr. Loads & Resources Engineer Sr. Protection Engineer Sr. Transmission Engineer Transmission Regional Engineer Grid Asset Engineer Project Manager	1. Required by AB1890, ISO Tariff, and TCA. 2. Required by the TCA 3. Required by the Tariff 4. Required to support grid reliability and to assure generators are conforming to WECC and NERC Standards. 5 NERC/WECC require seasonal and periodic evaluation of load and generation forecast. CEC/CPA require active participation in development and support of resource estimates. 6. Required to support grid reliability
Energy Transmission Services Activities	1. Same as core # 1, but scalable based on the number of PTO's, major events, forced outages and performance trends, and number of protection related problems. 2. Same description as core # 3, but scalable based on number of new connections and PTO projects (2 FTEs). 3. Engineering support for environmental issues impacting control area resources; based on the number of generating units that have potential environmental limitations. Also complete and submit required Loads and Resources regulator data request, surveys, and assessments for the WECC, NERC, FERC, CEC and others. 4. Manager support required based on the number of employees.	3	Regional Transmission Analyst Project Manager Manager - Grid Assets	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		10		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2241
	Grid Assets
	Steve Rutty

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2242
	Generator Interconnections
	Steve Rutty

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Administer the FERC mandated LGIP process and perform LGIP related generation interconnection studies.	5	1 - Administrative Analyst 4 - LGIP Regional Transmission Engineers (Contractors are hired as required for peak workload periods)	This department was created in 2006 to handle these administrative and engineering activities. FERC approved the ISO compliance filing on march 24, 2006 which created a centralized interconnection study process where the ISO itself administers and conducts interconnection studies. The ISO is responsible to the generator interconnection customer for interconnection study services. This work was previously the responsibility of the IOU's The FERC requires that the interconnection customer pay the actual cost for the interconnection studies. Therefore this activity will be cost neutral to the ISO's bottom line as long as customers don't default on obligations. **Revenues received from customers will cover the costs of products and services delivered**.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		5		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2242
Generator Interconnections
Steve Rutty

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2251
Network Applications
Soumen Ghosh

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities	1. Develop, maintain and support the State Estimator (SE) and Network Applications tools to provide real-time reliability analysis capability for Reliability Coordinators, Transmission Dispatchers, and Regional Transmission Engineers 2. Maintain and Update CAISO Network Models 3. Support MRTU's needs for the Full Network Model (FNM) Real-Time Market (RTM), Integrated Forward Markets (IFM), and assist in MRTU design requirements. 4. Support and improve "upstream" ISO tools and processes that support the SE/NA (Outages and applications such as SLIC, NeMO, and CAISO Outage Modeling Tool (COMT), New Resource Interconnections (NRI),Transmission Register (TR), and GE PSLF base cases) 5. Establish and provide Resource IDs for use in the market systems 6. Coordinate with and assist EMS IT in QAS testing and SCADA-related tasks (load calculations, operating reserve calculation, etc.) 7. Engineering assistance in ISO contracts and policy issues (e.g., Generator telemetry standards, Participating Generator Agreement ("PGA"), etc.) 8. Participating in WECC & IEEE committees and workgroups related to in	7	Manager 3 Sr. Network Applications Engineers 2 Network Applications Engineers 1 Associate Network Applications Engineer	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		7		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2251
	Network Applications
	Soumen Ghosh

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area. Activities: 1. Maintain and Update CAISO Network Models 2.Voltage Stability Analysis (VSA) Functional Testing & Dynamic Stability Analysis (DSA) Functional Requirement	100%	Onc contractor and one consultant
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2331
Financial Planning & Treasurer
Phil Leiber

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Administration of Credit Policy Calculate Estimated Aggregate Liability, determine Unsecured Credit Limit, maintain collateral database, manage collateral requests, posting and return of collateral, negotiate financial security instruments	2.5	0.75 FTE Senior Financial Analyst - Credit Manager 0.75 FTE Senior Financial Analyst 0.75 FTE Financial Analyst 0.25 Director	Administration of market, CRR and other credit. Estimation of outstanding and forecast liabilities. Management and negotiation of credit instruments.
Totals		2.5		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2331
Financial Planning & Treasurer
Phil Leiber

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations	Credit administration has contracts for credit administration tools necessary for monitoring and calculating credit positions of Scheduling Coordinators.	100%	Contracted third party credit evaluation services
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	See individual templates	45.1		
Energy Transmission Services Activities	See individual templates	21.0		
CRS/ETS TOR		0.9		Allocation based on proportion of TOR NCP relative to total NCP
Forward Scheduling Activities	See individual templates	0.0		
Market Usage Activities	See individual templates	6.0		
Market Usage Forward Energy				
Settlements, Metering and Client Relations	See individual templates	0.0		
Totals	See individual templates	73.0		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals	See individual templates	100%	See individual templates

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2523
Scheduling
Kyle Hoffman

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Prescheduling energy on interties, Approving E-tags for schedules, Control Area checkouts, Calculation of ETCs for DA market. After-the-Fact Scheduling responsible for energy accounting checkouts with Balancing Authorities and SCs, inadvertent accounting and reports, Various other WECC and NERC reporting responsibility tasks. (Sick leave, training covered by overtime)	5.9	3 Prescheduler FTE (two per shift weekdays, 1 per shift weekends) and 1 After-the-Fact FTE, 1 Lead Scheduler, plus one manager for the Scheduling Department, for a total of 6 FTEs.	The ISO has 30 different branchgroups that it schedules across. Preschedules on all these branchgroups must be checked as well as the NERC E-tags associated with the schedules, this averages between 500 to 700 per day. ETCs must be calculated daily before the DA market runs. Failure to do so will result in ETC holders not receiving their transmission entitlements. The ISO runs transmission markets 7 days a week, so coverage is required. After-the-Fact personal check accounting with SCs and other Balancing Authorities. Interchange scheduling and checkout is a NERC/WECC requirement. Reports to WECC and NERC from After-the-Fact are mandated by NERC standards. ISO Control Area Scheduling (CAS) software and ETC Scheduler (ETCC) software support.
Energy Transmission Services Activities	All the activities listed under Core except with higher volumes and activities related to RT energy dispatch, inadvertent accounting, reconciliation of ATF monthly checkout, plus procedure, protocol, or tariff changes, that require front end preparation for implementation.	3.0	1 Prescheduler FTE, 1 After-the-Fact/Support Combination FTE, plus 1 Lead After-Fact FTE. Total FTEs 3.	After-the-Fact work load varies with activities that are tied to real time and forward markets. Periods of high loads or over generation create additional checkout work for supplemental energy E-tags approval and checkout. Contingencies, Distrubance recovery, balancing energy markets and the associated checkout and coordination create heavy work load to balance accounts affected by the contingencies. With 9 total FTEs, a department manager is required for coordination of tasks, ICAOA Contract negotiaton, resolution of FERC Seams issues, inter-Balancing Authority coordiantion, implemention of new rules, participation in regional activities required by WECC and other agencies.
CRS/ETS TOR	Prescheduling energy on interties, Approving E-tags for schedules, Control Area checkouts, After-the-Fact Scheduling responsible for energy accounting checkouts with Balancing Authorities and SCs, inadvertent accounting and reports,	0.1		Allocation based on proportion of TOR schedules relative to total schedules
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		9		

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2523
	Scheduling
	Kyle Hoffman

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2524
	Outage Management
	Greg Van Pelt

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Pre-planning and preparation of generations and transmission outages, record tracking and outage database management, onsite generation outage inspections and forced outage investigations, outage reporting, and supply of outage information for OASIS postings	8.6	I Manager, 2 Lead Outage Coordinators, and 6 Outage Cooridnators	The Tariff requires the ISO to coordinate outages with Participating Transmission Owners and Generators, as well as with other control areas and transmission providers. FERC orders and State law require reporting of questionable outages and interface with regulatory agencies relative to outage information and reporting.
Energy Transmission Services Activities				
CRS/ETS TOR	Pre-planning and preparation of generations and transmission outages, record tracking and outage database management, forced outage investigations, outage reporting, and supply of outage information for OASIS postings	0.4		Allocation based on proportion of TOR outages relative to total outages
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		9		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2524
Outage Management
Greg Van Pelt

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	Review of Questionable Generator Outages, Undetermined expenditures for full network model outage scheduler interface	20%	For investigating outages as they occur
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities	5-8 (estimated) Outage Entry Operators will be contracted starting about November 1, 2007 in preparation for MRTU. Number is an estimate, final determination to be made on or before September 1, 2007	80%	For use in entering outage topology into Market Model for use in forward markets
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2531
Grid Operation Development
Lonnie Rush

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	The Alhambra facility is required regardless of our ISO status. The Alhambra facility serves an essential reliability funtion to ensure continuity of control area operations in the event of a tota loss of Folsom (primary). In addition, a management presence is required for the more than 20 operators and support staff working full-time from the Alhambra facility.	3	Director, Grid Operations Development- Oversees Alhambra Operations and two direct reports that support Alhambra Operations and supports business continuity efforts: Lead Strategic Contingency Planner and Technical Assistant	Two additional positions exist to support Alhambra Operations and that report to the Director: Lead Strategic Contingency Planner and Technical Assistant
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		3		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2531
Grid Operation Development
Lonnie Rush

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2542
Market Operations
Greg Ford

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Provide business level support for the following applications which support Core Reliability Services: ADS, OOS Tool, GRRMA. Ensure the applications work as designed.	1	Market Design Specialist	
Energy Transmission Services Activities		0		
CRS/ETS TOR				
Forward Scheduling Activities	Provide business level support for most of the Integrated Forward Market (IFM), which supports the ability of users to forward schedule. Ensure the IFM application works as designed.	2	Lead Market Design Engineering Specialist Senior Market Design Engineering Specialist Market Design Engineering Specialist	
Market Usage Activities	Provide business level support for the following applications which support Market Usage: Real-Time Nodal, OASIS, CRR auctions, PIRP application, SIBR (SC specific input data) and CMRI (SC specific output data). Ensure the market works according to tarriff and systems work as designed.	6	Lead Market Design Engineering Specialist Senior Market Design Engineering Specialist Market Design Engineering Specialist Senior Market Design Specialist	
Market Usage Forward Energy	Provide business level support for the following applications which support Market Usage: IFM (ancillary services procurement). Ensure the market works according to tarriff and	4	Lead Market Design Engineering Specialist Senior Market Design Engineering	
Settlements, Metering and Client Relations	Provide direct support to market participants as requested by External Relations. Answer technical questions such as why a unit was dispatched, etc.	1	Market Design Engineering Specialist	
Totals		14		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2542
Market Operations
Greg Ford

	Description of Activities	% by activity	Comments
Core Reliability Services Activities		0%	
Energy Transmission Services Activities		0%	
CRS/ETS TOR			
Forward Scheduling Activities	Enhancements to forward scheduling systems as needed	10%	
Market Usage Activities	Development of reference bids for Automated Mitigation Process (AMP). Enhancements to market systems as needed.	90%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations		0%	
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2543
Billing & Settlements
Brad Bouillon

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	RMR data validation, invoicing, and support.	3.1	.1 Manager Settlement Analyst Sr. Settlement Analyst Lead Settlement Analyst	Necessary for ongoing ISO business operations.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Performance of Settlements activities including data validation, invoicing and supplemental research. MRTU/SaMC project work.	20.9	0.9 Manager Settlement Analyst Sr. Settlement Analyst Lead Settlement Analyst Sr. Settlement Design Specialist Sr. Settlement Design Engineering Specialist Settlement Specialist	Necessary for ISO business operations, both current and future.
Totals		24		

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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2543
Billing & Settlements
Brad Bouillon

	Description of Activities	% by activity	Comments
Core Reliability Services Activities	RMR Settlements	10%	
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations	Performance of Settlements activities including data validation, invoicing and supplemental research. MRTU/SaMC project work.	90%	
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2544
Settlements Projects

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations		11		Staff and responsibilities have been transferred to cost center 2543
Totals		11		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center: 2544 Settlements Projects

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations		100%	Staff and responsibilities have been transferred to cost center 2543
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2545
Market Information
Alan Isemonger

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities	Market Performance; this group monitors market performance well after the fact, and would fit into "Market Usage." Market Validation; this is a startup group for MRTU. I currently have one person here, one recruited and am busy recruiting more. This group analyzes and determines market clearing prices and would fit into "Market Usage." Post Process; this group does a number of things, but primarily it determines expected energy and validates the market clearing prices. It will also assist the Market Validation group in determining prices under MRTU. As such this group fits into "Market Usage" as well.	12		
Market Usage Forward Energy				
Settlements, Metering and Client Relations		0		
Totals		12		

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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2545
Market Information
Alan Isemonger

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities	All activities in this department are Market Usage related. Contractors and temporary employees are hired to supplement staff in this area.	100%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2552
Operations Data & Compliance
Jill Powers

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Monitor performance of Generating Units scheduled to provide Regulation; define and monitor Regulation performance metrics; investigate potential non-compliance events identified by Grid Operations and others; monitor compliance with the must-offer obligation or any successor capacity obligation; implement measures such as Uninstructed Deviation Penalty to provide high quality Imbalance Energy service in real time; monitor and enforce compliance with operating orders; cost-effectively automate associated compliance measures. Perform Resource Adequacy Supply Plan validation and process Reliability Requirments Data for use in Real Time Operational dispatch decisions. Field Data Acquistion: Supports the business funtionality required for Remote Intelligent Gateway (RIG) Interface system in the daily operation of power generation, scheduling, and control of the ISO controlled grid. Ensures visibility for Real Time operation of A/S.	6	Lead Compliance Analyst, Senior Compliance Analyst Lead Engineering Specialist, Sr. RIG Engineering Representative, Associate RIG engineering Representative, Manager Operations Data & Compliance	Delivery of reliability services and fulfillment of other obligations under the ISO Tariff is essential to reliable operations and responsible commercial operations (i.e., settlements). Delivery of reliability services through the provision of Real Time data used in Real Time applications.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Oversee and provide quality assurance on Scheduling Coordinator self-audits, and prepare reports on best practices; monitor and correct UFE and under-reported Load; administer late meter data program; support SAS 70 Type 2 audit; assist in designing, performing data analysis and auditing demand programs; assist state agencies in planning and evaluating demand programs;	9	Compliance Analyst, Lead Metering Analyst, MDAS Metering Analyst, Lead Engineering Specialist, Meter Engineering Representatives, Manager Operations Data & Compliance	Fulfillment of obligations under the ISO Tariff is essential to reliable operations and responsible commercial operations (i.e., settlements). Provide Settlement Quality Meter Data (SQMD) for the ISO Settlements system.
Totals		15		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2552
Operations Data & Compliance
Jill Powers

	Description of Activities	% by activity	Comments
Core Reliability Services Activities	Field Data Acquistion: Supports the business funtionality required for Remote Intelligent Gateway (RIG) Interface system in the daily operation of power generation, scheduling, and control of the ISO controlled grid. Ensures visibility for Real Time operation of A/S. Temporary contract help to support daily customer service, project scheduling, and issue resolution for RIG Engineering group as onsite support.	50%	Administrative Assistance
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations	Meter Data Acquisition, Validation and Estimation activities in support of market Settlements. Contractor for backup to employees working on MRTU implementation activities including User Acceptance Testing, Integration Testing and Market Simulation requirment Meter application and business process support.	50%	MDAS Metering Analyst
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2553
Operations Procedures & Training
Tami Elliott

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Business Unit Management; Operating Procedure Program Management; Research, Development and Delivery of Operations Training for Normal and Emergency Operations, NERC Cerrtification Training and Tracking Management; Operator-In-Training and New Hire Operator Training Program Management. Preparing and managing the training budget; Manage the activities of the staff responsible for development and delivery of Operations Training, the Operator-In-Training Program (OITP), the Continuous Learning Program and the Grid Operations Training Simulator (GOTS); Assure appropriate material and processes are created to accomplish training for Grid and Market Operations and other ISO groups; Manage support functions to assure training on procedures, tools and other training needs are met for all operations groups, and for other ISO departments and external entities as needed; Managing vendor relationships and maintaining accountability fo work performed. The department requires considerable administrative support in order to meet the training needs of the ISO.	7	Operations & Procedures Training Manager; Trainers; Analysts; Tech Writer, Admin.	The Operations Procedures and Training group is responsible for identifying, creating, developing, facilitating and delivering Operating Procedures and appropriate training material for Grid and Market Operations, and other ISO groups. The provision of this training and associated activities is essential to the core function of the CAISO, which is to reliably and safely operate the CAISO control area, meet the control area obligation to the Western Interconnection and comply with WECC and NERC standards and policies; Due to ongoing changes in the industry and the high turnover rate of System Operators, there is a need to maintain the OIT Program, which requires recruiting, testing and hiring, creation and maintenance of training modules; and pertinent field visits; Procurement and implementation of necessary hardware and software to accomplish this training; Monitor the activities of various groups, including Operations Support, Engineering, Grid and Market Operations, NERC & WECC to support various operations training needs including procedures, reports, EMS and tools development.
Energy Transmission Services Activities	Control room Job/Task Analysis; Support for the Learning Management System or its successor system; Training development and administration support for the MRTU project; Operations Training Advisory Committee facilitation and management; Represent the ISO in WECC, NERC and other industry related training and personnel management forums as required; Outreach Program; Administration and support of TRACCESS, QTS and LMS systems as required.	3	Trainer; Analysts, Admin.	Operations Procedures & Training provides support to the Grid Operations Department including the development, delivery and tracking of training programs and the development, review and tracking of procedures for operations. All aspects of operating procedures and training provided by this group facilitate safe and reliable operation of the CAISO control area, CAISO control area obligation to the Western Interconnection, and compliance with NERC and WECC standards and policies.
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		10		

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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2553
	Operations Procedures & Training
	Tami Elliott

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2554
Model & Contract Implementation
Robert Kott

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Administer Reliability Must-Run (RMR) Service Agreements including assisting Operations with implementation and dispatch instructions to meet ISO Control Area reliability; assist in validating RMR costs; negotiate new RMR Agreements needed for reliability; negotiate and administer rates and disputes for RMR Agreements. Maintain the reliability resource database including data provided via Resource Adequacy and ISO backstop procurement mechanism. Maintain Network Model (EMS portion)	2.65	.20 Manager .75 Lead Contract Engineering Spec. .5 Sr. Contract Analyst .20 Technical Assistant Sr. Operations Engineering Spec.	RMR and Resource Adequacy are essential to maintaining reliability in the Control Area. The Network Model contains a physical description of the power system network used in the Energy Management System and Integrated Forward Market/Real Time Market models to manage system reliability.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities	Maintain Network Model (market portion)	1	Sr. Operations Engineering Spec.	The Network Model contains a physical and commercial description of the power system network used for IFM and RTM clearing, managing transmission congestion, Energy and AS scheduling and Dispatch, and LMP calculations.
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Administer contracts with Market Participants for participation in the ISO's markets and structure. Support testimony for FERC filings, litigation, data requests and investigations. Special projects as assigned by the Officers.	6.35	.80 Manager .25 Lead Contract Engineering Spec. Project Manager Sr. Contract Engineering Spec. .50 Sr Contract Analyst Sr. Operations Analyst Operations Support Analyst Technical Assistant	
Totals		10		

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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2554
Model & Contract Implementation
Robert Kott

	Description of Activities	% by activity	Comments
Core Reliability Services Activities	Contract with engineering consultant to review reasonableness of capital improvements to RMR facilities. Necessary for determination of cost recovery under RMR contract.	100%	
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2555
Information Engineering & Analysis
Benik DerGevorgian

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities		1	Emergency Repond Coordinator - One Sr. Ops Support Analyst	
Energy Transmission Services Activities	Information Engineering & Reporting	5	One Lead - Regional Coordination - Coordinate participation in NERC, WECC, NAESB, ESC, and OSC - One Sr. Ops Support Regulatory Specialist and one Sr. Ops Support Engineering Specialits. Reporting & Information data mining - Two Associate Ops Support Analyst	Here is a sample of repeoting duties: Operations Performance Scorecard - Daily Operations Report - Daily FERC OMOI RMR Run Times Report - Each Monday Operations Division Metrics - Each Fridays RMS - Monthly Subpoena Responses
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Dispute Resolution	4	one Lead, one Sr. Analyst, and two Analyst.	
Totals		10		

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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2555
Information Engineering & Analysis
Benik DerGevorgian

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities		20%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations		80%	
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2561
	Reliability Coordination
	Greg Tillitson

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Reliability Coordination for Calif.-Mexico Subregion - one of three Reliability Coordination Centers for the Western Interconnection	8		NERC Standards and WECC Requirement - the majority of expenses associated with this function are reimbursed by WECC
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		8		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2561
	Reliability Coordination
	Greg Tillitson

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	With proper staffing levels as described above, contractors and temporary employees are not part of CRS. Any contractors or temporary employees are hired as a result of increased activity or unanticipated events in the Control Area.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2721
	Market & Product Development
	Anjali Sheffrin

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities		0.5	Principal Market Developer	RCST Services
Energy Transmission Services Activities	Identification of infrastructure related products and services from inception through specification of business requirements suitable for tariff preparation and system development and contracts where required.	1	.05-Principal Market Architect .05-Director	Included are transmission infrastructure analyses, renewable tariffs, demand side programs.
CRS/ETS TOR				
Forward Scheduling Activities		0.5	0.5 Principal Market Architect	Inter-SC trading, scheduling issues.
Market Usage Activities	Identification of a new market, product or services or need to change an existing market. Research on similar markets or products offered by other ISOs. Comparative evaluation of alternative design options. Lead stakeholder process to discuss and receive input.	2.5	0.5 Director 1 Principal Market Engineer 1 Administrator	
Market Usage Forward Energy				
Settlements, Metering and Client Relations		0.5	0.5 Principal Market Developer	
Totals		5		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:	2721
	Market & Product Development
	Anjali Sheffrin

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities	1) Provide industry expertise and familiarity with eastern ISOs in credit policy and design of load migration. 2) Consultant to address seams issues raised from FERC technical conference. 3) Consultant to assist in design and anaylsis for post MRTU design features (convergence bidding and scarcity pricing).	100%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2722
	Tariff & Regulatory Policy Development
	Greg Cook

	Description of Activities	**FTE by activity**	**Position descriptions**	**Comments**
Core Reliability Services Activities				
Energy Transmission Services Activities	Identification of infrastructure related products and services from inception through specification of business requirements suitable for tariff preparation and system development and contracts where required.	1	1-Sr. Tariff Developer	Renewable Tariff
CRS/ETS TOR				
Forward Scheduling Activities	Addressing questions about forward scheduling and underscheduling.	2	2-Lead Engineering Specialist	Responding to inter-sc trade, import and export schedule problems.
Market Usage Activities	Perform comprehensive market design and product development. Perform special studies on market efficiency, bidding behavior. Develop new market rules or changes to market rules in response to market problems. Prepare and provide reports to regulatory authorities .	6	1-Manager 1-Market & Product Economist Lead 4-Sr. Market & Product Economist	
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		9		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2722
Tariff & Regulatory Policy Development
Greg Cook

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities	1) Consultant to conduct simulation studies and financial analysis of LT-CRR using PLEXOS. 2) Consultant to conduct studies in support of tariff filings or respond to FERC requirements (PG&E request to study marginal losses, FERC requirement to establish A/S pricing regions, support to revise BPM's on bid cost recovery and MSS). 3) Consultant to provide expert advise in compliance filings on LT-CRR, annual CRR dry run, credit policy and other oustanding MRTU Release 1 issues.	100%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	2723
	Infrastructure Policy & Contracts
	Phil Pettingill

	Description of Activities	**FTE by activity**	**Position descriptions**	**Comments**
Core Reliability Services Activities	Negotiate and manage reliability must offer services.	4.5	.5-Manager 2-Market and Product Developer 1.5-Sr. Contracts Negotiator .5-Technical Assistant	RMR, RCST, intercontrol area agreement, must offer, resource adequacy.
Energy Transmission Services Activities	Negotiate interconnection contracts.	2.5	.5-Manager 1.5-Sr. Contracts Negotiator .5-Contracts Analyst	Interconnection policy.
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Negotiate and administer ISO contracts and SC agreements.	1	.5-Sr. Contracts Analyst .5-Technical Assistant	
Totals		8		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2723
Infrastructure Policy & Contracts
Phil Pettingill

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities	1) Consultant to provide economic analysis of renewable transmission and southern transmission projects (LEAPS). 2) Consultant to support FERC filing on LEAPS. 3) Consultant to assist with the outreach and development of CAISO owned/operated Demand Response programs.	100%	
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2822
Information Products & Services
Catherine Young

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Responsible for managing routine electronic communications with the external public performed through the management of the content, design, and organization of the public website, through administration of Client Communications e-mail notification process and through the development of new information products and services.	5	Manager Lead Internet Projects and Administration Sr. Public Information Officer Web Publisher Information Products and Services Design Specialist	
Totals		5		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2822
Information Products & Services
Catherine Young

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations	All activities in Information Products & Services are related to the customer and external interface and are, by definition, under Settlements, Metering and Client Relations	100%	
Totals		100%	

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: 2841
Customer Services & Industry Affairs
Don Fuller

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities				
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations	Manage day-to-day client business transactions, resolve policy, operational, market, settlements and tariff issues for clients and stakeholders. Coordinate the ISO's involvement with external groups and forums. Serve as principal communication conduit between ISO and market participants. Administer ISO business requirements for entities seeking to participate in ISO markets. Manage comprehensive client training programsn. Administer periodic client surveys and subsequent action plans.	23	Director 2-Technical Assistants 2-Managers 4-Account Managers Lead Industry Relations Representative Lead Policy Issues Representative 2-Sr. Policy Issues Representative Client Training Lead Client Trainer & Curriculum Designer 8-Client Representative	This cost center is the primary businesss interface with ISO clients and stakeholders. As such, it falls under the definition of Settlements, Metering and Client Relations.
Totals		23		

California Independent System Operator
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Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2841
Customer Services & Industry Affairs
Don Fuller

	Description of Activities	% by activity	Comments
Core Reliability Services Activities			
Energy Transmission Services Activities			
CRS/ETS TOR			
Forward Scheduling Activities			
Market Usage Activities			
Market Usage Forward Energy			
Settlements, Metering and Client Relations	All activities in Customer Services & Industry Affairs are related to the customer interface and are, by definition, under Settlements, Metering and Client Relations	100%	
Totals		100%	

Worksheets for 2522 and Budget follow.

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: **Management and Support**

2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	The Real-Time Manager is responsible for safe and reliable operation of the Control Area in compliance with NERC policies and WECC criteria. Acts as liaison between Real-Time shift personnel and other ISO managers and departments. Shift Supervisors oversee the operation of each shift ensuring compliance with regulatory policies.	7	Manager 6-Shift Supervisors	There are six shifts required for the Control Room. Five shifts are on duty in any given week. The sixth is in training required to meet NERC requirements. Without the sixth shift, there is insufficient staff time to perform this necessary training. One Shift Supervisor is required for each shift. The Manager oversees all six shifts.
Energy Transmission Services Activities	Supports the Real-Time Manager in meeting with ISO participants and other ISO departements Lead acts as a technical liason for Real-Time OITs train for future operations positions.	6	Day Shift Supervisor Lead Real-Time Operations Support Specialist Operator In Training	3 Operator In Training personnel required due to long-term qualified personnel shortages.
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Settlements, Metering and Client Relations				
Totals		13		

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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: **Generation Dispatcher**

2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Monitors the day to day functions as required to maintain stability and reliability of the electrical system under the ISO. Operates to meet all interie obligations, emergencies and WECC and NERC requirements. Dispatches energy within Operating procedure guidelines to maintain proper Area Control Error and scheduled frequency. Forecasts future electricity needs, plans to meet these needs and procures energy necessary to meet this obligation.	12	Generation Dispatchers	There are six shifts required for the Control Room. Five shifts are on duty in any given week. The sixth is in training required to meet NERC requirements. Without the sixth shift, there is insufficient staff time to perform this necessary training. Two Generation Dispatchers are required for each shift; one in Folsom and one in Alhambra.
Energy Transmission Services Activities	Additional staff are needed for monitoring of generators, logging, system emergencies and line mitigation and for support, new projects, training and shift coverage during vacations and sick days.	6	Lead Generation Dispatchers	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Settlements, Metering and Client Relations				
Totals		18		

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: **Transmission Dispatcher**

2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Directs transmission grid operations according to ISO procedures and WECC and NERC guidelines under both normal and emergency conditions. Controls the transmission system and monitors transmission lines and voltages. Maintains communication with all PTO's and Control Areas to coordinate all switching and outages for reliable system operation. Implements all ETC rights. Works with other ISO personnel (OE, Generation, MO and Scheduling) during line overloads to mitigate congested conditions. Maintains accurate logs of all recordable events.	12	Transmission Dispatcher	There are six shifts required for the Control Room. Five shifts are on duty in any given week. The sixth is in training required to meet NERC requirements. Without the sixth shift, there is insufficient staff time to perform this necessary training. Two Transmission Dispatchers are required for each shift; one in Folsom and one in Alhambra.
Energy Transmission Services Activities	Additional staff are needed for system monitoring (line loading, voltages, outages, etc) and to assist in the volume of logging, emergency events, communications with other dispatchers in the ISO control room, with the PTO's and other Control Areas. There is also a need for additional staff to cover training, sick leave usage, map board maintenance and projects.	6	Transmission Dispatcher	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Settlements, Metering and Client Relations				
Totals		18		

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: **Real Time Scheduler**
2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Many activities of real-time intertie scheduling is dictated by NERC and WECC rules and existing transmission contracts. They include: hourly tie checkouts for actual and scheduled energy, validation of E-tagging of schedules, scheduling of both ETC and Non-ETC schedules	12	Real-Time Scheduler	There are six shifts required for the Control Room. Five shifts are on duty in any given week. The sixth is in training required to meet NERC requirements. Without the sixth shift, there is insufficient staff time to perform this necessary training. Two Real -Time Schedulers are required for each shift; one in Folsom and one in Alhambra.
Energy Transmission Services Activities				
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Settlements, Metering and Client Relations				
Totals		12		

California Independent System Operator
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Personnel Assignment of Directly Assigned Cost Centers

For Cost Center: **Grid Resource Coordinator**
2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	FTE by activity	Position descriptions	Comments
Core Reliability Services Activities	Day Ahead Grid Resource Coordinator is responsible to accepting energy schedules from participants, running a Day Ahead Congestion Management Market, Automatic Load Forecasting System (ALFS), and Day Ahead A/S Markets	3	Grid Resource Coordinator	One GRC position manned 7 days per week with additional position for training and vacation coverage.
Energy Transmission Services Activities	These staff are responsible for the developement and maintenance activities related to the Load Forecast function, using the Automatic Load Forecasting System (ALFS) application. Coordinates data requirements with contracted weather services. In addition the Lead GRC handles overflow and problems that might arise that are of an unusual nature or that might not be seen on a day-to-day basis. Additionally GRCs work with developement and IT personnel in the design and implementation of new market features.	3	Lead Grid Resource Coordinator Grid Resource Coordinator	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities	These staff operate the Day Ahead and Hour Ahead markets. The GRC runs Day Ahead and Hour Ahead Congestion Management Markets and determines A/S requirements to be procured in the Market and procures DA and HA A/S. They also inform Real Time personnel of the effects on the Market of transmission curtailments due to transmission equipment outages	6	Grid Resource Coordinator	There are six shifts required for the Control Room. Five shifts are on duty in any given week 24/7. The sixth is in training required to meet NERC requirements. Without the sixth shift, there is insufficient staff time to perform this necessary training. One Grid Resource Coordinator is required for each shift.
Settlements, Metering and Client Relations				
Totals		12		

California Independent System Operator
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Real Time Allocation for Transmission Ownership Rights

Month	NCP	Total	Total ISO NCP	% of Total
Jan-06	597	597	41,518	1.44%
Feb-06	542	542	41,085	1.32%
Mar-06	561	561	41,501	1.35%
Apr-06	648	648	41,802	1.55%
May-06	685	685	50,457	1.36%
Jun-06	792	792	59,417	1.33%
Jul-06	705	705	64,568	1.09%
Aug-06	634	634	55,155	1.15%
Sep-06	604	604	55,284	1.09%
Oct-06	567	567	43,195	1.31%
Nov-06	431	431	45,211	0.95%
Dec-06	421	421	44,238	0.95%
Total 12 months	7,187	7,187	583,431	1.23%

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Scheduling Allocation for Transmission Ownership Rights

Month	TOR	Total ISO Schedules	% of Total
Jan-06	6,696	485,218	1.38%
Feb-06	5,376	445,103	1.21%
Mar-06	6,644	479,614	1.39%
Apr-06	6,090	480,070	1.27%
May-06	6,450	502,764	1.28%
Jun-06	7,362	524,938	1.40%
Jul-06	6,944	564,553	1.23%
Aug-06	6,679	521,398	1.28%
Sep-06	7,608	490,424	1.55%
Oct-06	7,261	480,418	1.51%
Nov-06	7,128	465,055	1.53%
Dec-06	7,266	480,075	1.51%
Total 12 months	81,504	5,919,630	1.38%

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Outage Management Allocation to TORs

	TOR Outages	Total ISO Outages	% of ISO Total
Total	**1,410**	**51,652**	**2.7%**

California Independent System Operator
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2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE
2111	CEO-General	$ 1,989,329	$ 1,689,329	$ 300,000	3.0
2121	Market Monitoring	$ 2,406,791	$ 1,982,791	$ 424,000	13.0
2122	Market Surveillance Committee (Non-labor costs only)	$ 355,500	$ 3,000	$ 352,500	-
2211	Planning and Infrastructure Development	$ 578,021	$ 590,021	$ (12,000)	1.5
2221	Regional Transmission-North	$ 2,574,370	$ 2,474,370	$ 100,000	15.0
2231	Regional Transmission-South	$ 2,998,212	$ 2,728,212	$ 270,000	17.0
2241	Grid Assets	$ 1,687,922	$ 1,647,922	$ 40,000	9.0
2242	Generator Interconnections	$ 645,990	$ 645,990	$ -	5.0
2251	Network Applications	$ 1,335,846	$ 1,235,846	$ 100,000	7.0
2311	CFO General	$ 714,550	$ 639,550	$ 75,000	1.5
2321	Accounting	$ 2,782,896	$ 2,550,896	$ 232,000	7.5
2331	Financial Planning and Treasury	$ 1,273,903	$ 1,117,903	$ 156,000	2.5
2341	Human Resources	$ 5,608,043	$ 5,191,043	$ 417,000	17.0
2351	Facilities	$ 7,471,223	$ 7,471,223	$ -	8.0
2361	Procurement and Vendor Management	$ 1,455,250	$ 1,455,250	$ -	8.0
2371	Enterprise Risk Management	$ 499,190	$ 471,190	$ 28,000	3.0
2372	Internal Audit	$ 678,651	$ 653,651	$ 25,000	4.0
2373	Information Security	$ 1,439,083	$ 1,324,083	$ 115,000	7.0
2374	Physical Security	$ 2,167,059	$ 2,161,059	$ 6,000	10.0
2411	Information Technology-General	$ 1,129,927	$ 1,069,927	$ 60,000	3.5
2412	Asset Management (Non-Labor costs only)	$ 11,652,282	$ 11,562,282	$ 90,000	-
2421	IT Projects	$ 726,793	$ 706,793	$ 20,000	4.0
2431	IT Project Management	$ 4,634,251	$ 2,614,251	$ 2,020,000	15.0
2441	Software Quality Assurance	$ 1,096,274	$ 801,274	$ 295,000	5.0
2451	IT Support & Operations	$ 11,984,556	$ 11,984,556	$ -	3.0
2452	System & Database Administration	$ 2,611,512	$ 2,411,512	$ 200,000	13.0
2453	Data Center & Operations	$ 1,341,314	$ 1,341,314	$ -	7.0
2454	Architecture & Systems Engineering	$ 1,655,993	$ 1,530,993	$ 125,000	9.0
2462	EMS Information Technology	$ 2,353,122	$ 2,303,122	$ 50,000	14.0
2463	Operations Information Technology	$ 2,185,014	$ 1,932,514	$ 252,500	11.0
2464	Corporate Systems	$ 2,643,563	$ 2,238,563	$ 405,000	12.0
2511	Operations-General	$ 1,250,058	$ 700,058	$ 550,000	1.5

California Independent System Operator
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2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE
2521	Grid Operations	$ 457,260	$ 457,260	$ -	3.0
2522	Real-Time Operations	$ 15,213,453	$ 15,013,453	$ 200,000	72.0
2523	Scheduling	$ 1,806,524	$ 1,806,524	$ -	9.0
2524	Outage Management	$ 2,284,461	$ 2,242,511	$ 41,950	14.0
2531	Alhambra Grid Operations	$ 558,538	$ 558,538	$ -	3.0
2541	Market Services	$ 906,165	$ 706,165	$ 200,000	3.0
2542	Market Operations	$ 3,815,451	$ 2,745,451	$ 1,070,000	15.0
2543	Billing and Settlements	$ 2,694,422	$ 2,369,422	$ 325,000	17.0
2544	Settlement Projects	$ 1,169,767	$ 1,079,767	$ 90,000	7.0
2545	Market Information	$ 2,255,115	$ 2,035,115	$ 220,000	14.0
2551	Operations Support	$ 379,211	$ 379,211	$ -	2.0
2552	Operations Data and Compliance	$ 2,421,707	$ 1,998,207	$ 423,500	13.0
2553	Operations Procedures and Training	$ 1,911,731	$ 1,726,731	$ 185,000	10.0
2554	Model & Contract Implementation	$ 1,509,103	$ 1,323,583	$ 185,520	9.0
2555	Information Engineering & Analysis	$ 1,661,320	$ 1,461,320	$ 200,000	10.0
2561	Reliability Coordination	$ 1,955,620	$ 1,955,620	$ -	8.0
2611	General Counsel-General	$ 6,288,318	$ 6,181,318	$ 107,000	2.0
2621	Asst General Counsel-Corporate	$ 684,593	$ 684,593	$ -	3.0
2631	Asst General Counsel-Regulatory	$ 1,848,378	$ 1,848,378	$ -	11.0
2641	Asst General Counsel Tariff & Compliance	$ 1,179,077	$ 1,179,077	$ -	5.0
2651	Asst Corporate Secretary	$ 628,815	$ 528,815	$ 100,000	1.0
2711	Market Development-Program Mgmt-General	$ 1,790,578	$ 1,340,578	$ 450,000	3.5
2721	Market and Product Development	$ 1,479,177	$ 1,098,677	$ 380,500	5.0
2722	Tariff and Regulatory/Policy Development	$ 1,838,353	$ 1,545,853	$ 292,500	9.0
2723	Infrastructure Policy & Contracts	$ 1,557,548	$ 1,257,548	$ 300,000	8.0
2731	Program Office	$ 538,287	$ 288,287	$ 250,000	2.0
2741	MRTU Program	$ 26,763	$ 26,763	$ -	-
2811	External Affairs-General	$ 620,379	$ 620,379	$ -	1.5
2821	Communications & Public Relations	$ 1,006,303	$ 967,882	$ 38,421	4.0
2822	Information Products & Services	$ 823,237	$ 645,009	$ 178,228	4.0
2831	State/Federal Affairs	$ 1,335,600	$ 1,135,600	$ 200,000	6.0
2841	Customer Services and Industry Affairs	$ 3,903,664	$ 3,703,383	$ 200,281	23.0
2011	Other	$ -	$ -	$ -	
		$ 150,475,406	$ 138,141,506	$ 12,333,900	534.0

Exhibit ISO-11

Direct Assignment of Information Technology Cost Centers

Exhibit ISO-11
California Independent System Operator
2008 GMC Cost of Service
Direct Assignment of IT Cost Centers

This spreadsheet contains the assignment of IT cost centers to the ISO functions. The functionalization is based on the systems directly supported by the cost center. In the case of four IT cost centers there are discrete systems supported. Asset Management is functionalized of expenditures on hardware or software. The other IT cost centers support systems across the enterprise and are assigned proportional to systems across the ISO.

Sheet Index:	Description
IT Direct	The assignments are summarized here. The assignments for supervisory cost centers, including the CIO, are also calculated.
Summary	Assignments for the system direct cost centers are calculated here. The direct assigned IT cost centers are also listed.
2412$	Cost assignment for Asset Management
2451$	Cost assignment for IT Support & Operations
2453$	Cost assignment for Data Center & Operations
2462$	Cost assignment for EMS Information Technology
2463$	Cost assignment for Operations Information Technology
2464$	Cost assignment for Corporate Systems
System %	Cost assignment by system
Cost Assignment	Assignment of cost center costs by system supported
Cost Center System %	Percent assignment of cost center by system supported
2451	System assignment for IT Support & Operations
2453	System assignment for Data Center & Operations
2462	System assignment for EMS Information Technology
2463	System assignment for Operations Information Technology
2464	System assignment for Corporate Systems
IT Budget	2007 budgeted cost by IT cost center
2451 Contract	Expenditures in cost center 2451 by system
2412-total	Expenditures in cost center 2412 by system
2412 lease,mtc	Lease and maintenance expenditures in cost center 2412 by system
2412 software mtc	Software/maintenance expenditures in cost center 2412 by system
List of Systems	Master list of IT systems

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Information Technology

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2411	Information Technology-General	SCC	$ 396,921	$ 90,770	$ 3,953	$ 91,323	$ 125,042	$ 52,562	$ 369,357	$ 1,129,927
2412	Asset Management (Non-Labor costs only)	DA	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2421	IT Projects	SCC	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	SD	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	SD	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
	Percent of Department		23.5%	3.0%	0.2%	9.9%	6.4%	9.5%	47.4%	100.0%
2451	IT Support & Operations	DS	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	SD	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2453	Data Center & Operations	DS	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	SD	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
	Percent of Department		27.5%	6.7%	0.3%	8.1%	8.3%	7.6%	41.5%	100.0%
2462	EMS Information Technology	DS	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	DS	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	DS	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563
	Total (not including Officer)		$ 15,064,515	$ 3,445,024	$ 150,048	$ 3,466,008	$ 4,745,795	$ 1,994,893	$ 14,018,390	$ 42,884,673
	Ratio of total (not including Officer)		35.1%	8.0%	0.3%	8.1%	11.1%	4.7%	32.7%	100.0%
	Total (including Officer)		$ 15,461,436	$ 3,535,794	$ 154,001	$ 3,557,331	$ 4,870,837	$ 2,047,454	$ 14,387,748	$ 44,014,600
	Ratio of total (including Officer)		35.1%	8.0%	0.3%	8.1%	11.1%	4.7%	32.7%	100.0%
			4	5	6	7	8	9	10	

	Key to Method Acronyms	
	Direct Assignment	DA
	Direct System	DS
	Supervised cost center (directors/officers)	SCC
	Allocated by personnel headcount	FTE
	Overhead	OH
	System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

CC#	Cost Center	Budget	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage - Forward Energy	Settlements, Metering and Client Relations	Total
	System Direct Cost Assignment		23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
2421	IT Projects	$ 726,793	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	$ 4,634,251	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	$ 1,096,274	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2452	System & Database Administration	$ 2,611,512	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2454	Architecture & Systems Engineering	$ 1,655,993	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2373	Information Security	$ 1,439,083	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
	Directly assigned									
2412	Asset Management (Non-Labor costs only)	$ 11,652,282	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2451	IT Support & Operations	$ 11,984,556	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2453	Data Center & Operations	$ 1,341,314	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2462	EMS Information Technology	$ 2,353,122	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	$ 2,185,014	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	$ 2,643,563	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number 2412
Cost Center Name Asset Management (Non-Labor costs only)
Cost Center Director/Manager

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ 272,482	$ 34,831	$ 2,534	$ 114,723	$ 74,349	$ 109,682	$ 549,208	$ 1,157,809
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ 7,444	$ 952	$ 69	$ 3,134	$ 2,031	$ 2,996	$ 15,003	$ 31,629
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 22,640	$ -	$ -	$ -	$ -	$ -	$ 31,589	$ 54,229
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2412
Cost Center Name	Asset Management (Non-Labor costs only)
Cost Center Director/Manager	

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)	$ -	$ 1,783	$ 15	$ -	$ 6,069	$ -	$ -	$ 7,867
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ 107,893	$ -	$ -	$ 29,858	$ 224,945	$ 82,431	$ 36,636	$ 481,763
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ 37,734	$ 18,017	$ 462	$ 1,424	$ 13,316	$ 1,589	$ 20,997	$ 93,540
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 96,220	$ -	$ 798	$ -	$ -	$ -	$ -	$ 97,018
Engineering Analysis Tools	$ 43,148	$ 28,766	$ 596	$ -	$ -	$ -	$ -	$ 72,510
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ 2,027	$ 17	$ 1,788	$ 6,896	$ -	$ 1,192	$ 11,919
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ 20,832	$ 9,947	$ 255	$ 786	$ 7,351	$ 877	$ 11,592	$ 51,640
IBM Contract (also known as Outsourced Contracts)	$ 5,658	$ 2,260	$ 66	$ 698	$ 1,895	$ 693	$ 4,991	$ 16,261
Integrated Forward Market (IFM)	$ 752	$ -	$ 6	$ 2,653	$ -	$ 4,169	$ -	$ 7,581
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2412
Cost Center Name	Asset Management (Non-Labor costs only)
Cost Center Director/Manager	

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ 10,488	$ 5,008	$ 128	$ 396	$ 3,701	$ 442	$ 5,836	$ 25,999
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 104,320	$ 104,320
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ 9,348	$ 1,195	$ 87	$ 3,936	$ 2,551	$ 3,763	$ 18,841	$ 39,720
MRTU Capital	$ 28,204	$ 10,403	$ 310	$ 42,264	$ 23,912	$ 34,257	$ 82,999	$ 222,349
Network Applications	$ -	$ 43,239	$ 359	$ -	$ -	$ -	$ -	$ 43,598
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ 94,137	$ 12,033	$ 876	$ 39,634	$ 25,686	$ 37,893	$ 189,740	$ 400,000
NT/web servers	$ 73,214	$ 34,958	$ 897	$ 2,764	$ 25,836	$ 3,082	$ 40,741	$ 181,492
NT-servers	$ 688,967	$ 328,965	$ 8,440	$ 26,009	$ 243,123	$ 29,006	$ 383,379	$ 1,707,888
Office Automation - desktop/laptop (OA)	$ 256,991	$ 122,707	$ 3,148	$ 9,702	$ 90,687	$ 10,819	$ 143,004	$ 637,058
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 37,637	$ 17,971	$ 461	$ 1,421	$ 13,281	$ 1,585	$ 20,943	$ 93,298
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2412
Cost Center Name	Asset Management (Non-Labor costs only)
Cost Center Director/Manager	

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Oracle Corporate Financials	$ 331,231	$ 158,155	$ 4,058	$ 12,504	$ 116,885	$ 13,945	$ 184,315	$ 821,093
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ 18,693	$ 1,967	$ 171	$ 127,055	$ 76,754	$ -	$ 64,783	$ 289,424
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 14,858	$ 8,087	$ -	$ -	$ 22,945
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 2,619	$ 1,250	$ 32	$ 99	$ 924	$ 110	$ 1,457	$ 6,491
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ 59,113	$ -	$ 490	$ -	$ 7,450	$ -	$ 7,450	$ 74,504
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 175,942	$ -	$ 1,459	$ -	$ -	$ -	$ -	$ 177,401
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2412
Cost Center Name	Asset Management (Non-Labor costs only)
Cost Center Director/Manager	

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
RMR Application Validation Engine (RAVE)	$ 123,140	$ -	$ 1,021	$ -	$ -	$ -	$ -	$ 124,161
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ 85,578	$ -	$ 710	$ -	$ 15,227	$ -	$ -	$ 101,514
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ 20,992	$ 10,023	$ 257	$ 792	$ 7,408	$ 884	$ 11,681	$ 52,036
Security-ISS (CUDA)	$ 85,701	$ 10,955	$ 797	$ 36,083	$ 23,384	$ 34,497	$ 172,736	$ 364,153
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 463,484	$ 115,159	$ 3,922	$ 253,923	$ 328,335	$ 76,614	$ 622,505	$ 1,863,941
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ 531,137	$ 253,605	$ 6,506	$ 20,051	$ 187,428	$ 22,361	$ 295,554	$ 1,316,643
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 394	$ 394	$ 7	$ -	$ -	$ -	$ -	$ 795

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2412
Cost Center Name	Asset Management (Non-Labor costs only)
Cost Center Director/Manager	

Contract portion only

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ 605,039	$ 77,340	$ 5,627	$ 254,739	$ 165,091	$ 243,545	$1,219,500	$ 2,570,881
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Budget	$ 4,316,853	$ 1,303,909	$ 44,581	$1,001,293	$1,702,604	$ 715,239	$4,240,994	$ 13,325,473
Percent of Total	32.4%	9.8%	0.3%	7.5%	12.8%	5.4%	31.8%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)								
Ancillary Services Management (ASM) Component of SA								
Application Development Tools								
Automated Dispatch System (ADS)								
Automated Load Forecast System (ALFS)								
Automatic Mitigation Procedure (AMP)								
Backup systems (Legato/Quantum)								
Balance of Business Systems (BBS)								
Balancing Energy Ex Post Price (BEEP) Component of SA								
Bill's Interchange Schedule (BITS)								
CAISO Outage Modeling Tool (COMT)								
CaseWise (process modeling tool)								
CHASE								
Client Relations Tools								
Common Information Model (CIM)								
Compliance								
Congestion Management (CONG) Component of SA								
Congestion Reform-DSOW								

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)								
DataWarehouse								
Dept. of Market Analysis Tools (SAS/MARS)								
Dispute Tracking System (Remedy)								
Documentum								
Electronic Tagging (Etag)								
Energy Management System (EMS)								
Engineering Analysis Tools								
Evaluation of Market Separation								
Existing Transmission Contracts Calculator (ETCC)								
FERC Study Software								
Firm Transmission Right (FTR) and Secondary Registration System (SRS)								
Global Resource Reliability Management Application (GRRMA)								
Grid Operations Training Simulator (GOTS)								
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,								
Human Resources								
IBM Contract (also known as Outsourced Contracts)								
Integrated Forward Market (IFM)								
Internal Development								

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Interzonal Congestion Management reform - Real Time								
Land and Building Costs								
Local Area Network (LAN)								
Locational Marginal Pricing (LMPM)								
Market Quality System (MQS)								
Masterfile								
Meter Data Acquisition System (MDAS)								
Miscellaneous (2004 related capital)								
Monitoring (Tivoli)								
MRTU Capital								
Network Applications								
New Resource Interconnection (NRI)								
New System Equipment (replacement of owned equipment)								
NT/web servers								
NT-servers								
Office Automation - desktop/laptop (OA)								
Office equipment (scanner, printer, copier, fax, Communication Equip.)								
Open Access Same Time Information System (OASIS)								
Operational Meter Analysis and Reporting (OMAR)								

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Oracle Corporate Financials								
Oracle Enterprise Manager (OEM)								
Oracle Licenses								
Oracle Market Financials BBS								
Out of Sequence Market Operation Settlements Information System (OOS)								
Outage Scheduler (OS)								
Participating Intermittent Resource Project (PIRP)								
Physical Facilities Software Application/Furniture/Leasehold Improvements								
Portal								
Post Transaction Repository (PTR)								
Process Information System (PI)								
Rational Buyer								
Real Time Energy Dispatch System (REDS)								
Real Time Nodal Market								
Reliability Management System (RMS)								
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)								
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)								
Resource Adequacy								
Resource Register (RR)								

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
RMR Application Validation Engine (RAVE)								
Scheduling & Logging for ISO California (SLIC)								
Scheduling & Tagging Next Generation (STiNG)								
Scheduling Architecture (SA)								
Scheduling Infrastructure (SI)								
Scheduling Infrastructure Business Rules (SIBR)								
Security Constrained Economic Dispatch (SCED)								
Security- External/Physical								
Security-ISS (CUDA)								
Settlements and Market Clearing								
Sign Board (Symon Board maint.)								
Startup Costs through 3/31/98, Working Capital-3 months								
Storage (EMC symmetrix)								
System Equipment Buyouts (lease buyouts)								
Tactical Emergency Management System (TEMS)								
Telephone/PBX								
Training Systems								
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation								
Transmission Map Plotting & Display								

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2451
Cost Center Name	IT Support & Operations
Cost Center Director/Manager	Matt Turner

Amounts by system redacted due to confidentiality or commercial sensitivity

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Treasury Workstation/Investment Program								
Trustee Costs, Interest-Capitalized, User Groups								
Utilities - System i.e. Print drivers								
Vitria (Middleware)								
Wide Area Network (WAN)								
Total Budget	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$297,599	$142,096	$ 3,646	$11,235	$105,017	$12,529	$165,601	$ 737,723
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Corporate Financials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2453
Cost Center Name	Data Center & Operations
Cost Center Director/Manager	Robert Melis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Telephone/PBX	$216,436	$103,343	$ 2,651	$ 8,171	$ 76,376	$ 9,112	$120,437	$ 536,526
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ 25,661	$ 625	$ 212	$13,342	$ 8,358	$ 420	$ 18,449	$ 67,066
Total Budget	$539,696	$246,064	$ 6,509	$32,747	$189,751	$22,061	$304,486	$ 1,341,314

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$1,867,018	$ -	$ 15,480	$ -	$ -	$ -	$ -	$ 1,882,498
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ 98,018	$ 57,566	$ 1,290	$ -	$ -	$ -	$ -	$ 156,875
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Corporate Financials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ 248,936	$ -	$ 2,064	$ -	$31,375	$ -	$ 31,375	$ 313,750
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Budget	$2,213,972	$ 57,566	$ 18,834	$ -	$31,375	$ -	$ 31,375	$ 2,353,122

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 32,506	$ -	$ 270	$ 16,388	$ 13,110	$ -	$ 3,278	$ 65,550
Automated Load Forecast System (ALFS)	$ 45,508	$ -	$ 377	$ 6,555	$ 13,110	$ -	$ -	$ 65,550
Automatic Mitigation Procedure (AMP)	$ -	$ 55,260	$ 458	$ -	$ 9,833	$ -	$ -	$ 65,550
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 109,251	$ 109,251
Balancing Energy Ex Post Price (BEEP) Component of SA	$ 32,506	$ 1,857	$ 285	$ 13,110	$ 17,792	$ -	$ -	$ 65,550
Bill's Interchange Schedule (BITS)	$ 92,099	$ -	$ 764	$ -	$ 16,388	$ -	$ -	$ 109,251
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 27,366	$ -	$ -	$ -	$ -	$ -	$ 38,184	$ 65,550
Congestion Management (CONG) Component of SA	$ -	$ 18,575	$ 154	$ -	$ 46,822	$ -	$ -	$ 65,550
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)	$ -	$ 14,860	$ 123	$ -	$ 50,567	$ -	$ -	$ 65,550
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ 21,670	$ -	$ 180	$ -	$ -	$ -	$ -	$ 21,850
Energy Management System (EMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 16,253	$ 2,786	$ 158	$ 13,110	$ 20,133	$ -	$ 13,110	$ 65,550
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ 11,145	$ 92	$ 9,833	$ 37,926	$ -	$ 6,555	$ 65,550
Global Resource Reliability Management Application (GRRMA)	$ 48,759	$ 9,752	$ 485	$ -	$ 6,555	$ -	$ -	$ 65,550
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Interzonal Congestion Management reform - Real Time	$ -	$ 69,655	$ 578	$ -	$ 39,018	$ -	$ -	$ 109,251
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ 21,670	$ -	$ 180	$ 21,850	$ 60,088	$ -	$ 5,463	$ 109,251
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 109,251	$ 109,251
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Open Access Same Time Information System (OASIS)	$ 6,501	$ 1,857	$ 69	$ 16,388	$ 27,625	$ -	$ 13,110	$ 65,550
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Oracle Corporate Financials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ 2,167	$ 2,167	$ 36	$ -	$ 39,330	$ -	$ -	$ 43,700
Outage Scheduler (OS)	$ 21,670	$ 2,477	$ 200	$ 4,370	$ 14,983	$ -	$ -	$ 43,700
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 42,446	$ 23,104	$ -	$ -	$ 65,550
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rational Buyer	$ 43,341	$ -	$ 359	$ -	$ -	$ -	$ -	$ 43,700
Real Time Energy Dispatch System (REDS)	$ 43,341	$ -	$ 359	$ -	$ -	$ -	$ -	$ 43,700
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ 65,011	$ -	$ 539	$ -	$ -	$ -	$ -	$ 65,550

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
RMR Application Validation Engine (RAVE)	$ 65,011	$ -	$ 539	$ -	$ -	$ -	$ -	$ 65,550
Scheduling & Logging for ISO California (SLIC)	$ 84,515	$ 1,857	$ 716	$ 19,665	$ 24,347	$ -	$ -	$ 131,101
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ 16,944	$ 13,114	$ 249	$ 21,840	$ 57,104	$ -	$ -	$ 109,251
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ 113,190	$ 61,611	$ -	$ -	$ 174,801
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 109,251	$ 109,251
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Shawn Rogan

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Budget	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ 21,328	$ 10,184	$ 261	$ 805	$ 7,526	$ 898	$ 11,868	$ 52,871
CHASE	$ 213,284	$ 101,838	$ 2,613	$ 8,052	$ 75,264	$ 8,979	$ 118,683	$ 528,713
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Revenue Rights (CRR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DataWarehouse	$ 83,502	$ 7,566	$ -	$ 8,126	$ 49,963	$ 18,311	$ 96,888	$ 264,356
Dept. of Market Analysis Tools (SAS/MARS)	$ 11,841	$ -	$ -	$ 3,277	$ 24,687	$ 9,046	$ 4,021	$ 52,871
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ 79,307	$ 79,307
Documentum	$ 106,642	$ 50,919	$ 1,306	$ 4,026	$ 37,632	$ 4,490	$ 59,341	$ 264,356
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Corporate Financials	$ 106,642	$ 50,919	$ 1,306	$ 4,026	$ 37,632	$ 4,490	$ 59,341	$ 264,356
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ 132,178	$ 132,178
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 53,321	$ 25,459	$ 653	$ 2,013	$ 18,816	$ 2,245	$ 29,671	$ 132,178
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 396,534	$ 396,534
Process Information System (PI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 131,091	$ -	$ 1,087	$ -	$ -	$ -	$ -	$ 132,178

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 78,655	$ -	$ 652	$ -	$ -	$ -	$ -	$ 79,307
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ 53,321	$ 25,459	$ 653	$ 2,013	$ 18,816	$ 2,245	$ 29,671	$ 132,178
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 132,178	$ 132,178
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Assignment of Systems/Applications

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Budget	$ 859,627	$272,344	$ 8,532	$ 32,337	$270,336	$ 50,704	$1,149,682	$ 2,643,563

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Ancillary Services Management (ASM) Component of SA	Direct	14.88%	0.00%	0.12%	40.00%	45.00%	0.00%	0.00%	100.00%
Application Development Tools	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Automated Dispatch System (ADS)	Direct	49.59%	0.00%	0.41%	25.00%	20.00%	0.00%	5.00%	100.00%
Automated Load Forecast System (ALFS)	Direct	69.42%	0.00%	0.58%	10.00%	20.00%	0.00%	0.00%	100.00%
Automatic Mitigation Procedure (AMP)	Direct	0.00%	84.30%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Backup systems (Legato/Quantum)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Balance of Business Systems (BBS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Balancing Energy Ex Post Price (BEEP) Component of SA	Direct	49.59%	2.83%	0.43%	20.00%	27.14%	0.00%	0.00%	100.00%
Bill's Interchange Schedule (BITS)	Direct	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
CAISO Outage Modeling Tool (COMT)	Direct	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
CaseWise (process modeling tool)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
CHASE	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Client Relations Tools	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Common Information Model (CIM)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Compliance	Dept direct	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
Congestion Management (CONG) Component of SA	Direct	0.00%	28.34%	0.23%	0.00%	71.43%	0.00%	0.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Reform-DSOW	Direct	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Congestion Revenue Rights (CRR)	Direct	0.00%	22.67%	0.19%	0.00%	77.14%	0.00%	0.00%	100.00%
DataWarehouse	Dept direct	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
Dept. of Market Analysis Tools (SAS/MARS)	Dept direct	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
Dispute Tracking System (Remedy)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Documentum	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Electronic Tagging (Etag)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Energy Management System (EMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Engineering Analysis Tools	Direct	59.51%	39.67%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Evaluation of Market Separation	Direct	0.00%	14.17%	0.12%	0.00%	85.71%	0.00%	0.00%	100.00%
Existing Transmission Contracts Calculator (ETCC)	Direct	24.79%	4.25%	0.24%	20.00%	30.71%	0.00%	20.00%	100.00%
FERC Study Software	Direct	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	0.00%	17.00%	0.14%	15.00%	57.86%	0.00%	10.00%	100.00%
Global Resource Reliability Management Application (GRRMA)	Direct	74.38%	14.88%	0.74%	0.00%	10.00%	0.00%	0.00%	100.00%
Grid Operations Training Simulator (GOTS)	Direct	62.48%	36.70%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Direct	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
Human Resources	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
IBM Contract (also known as Outsourced Contracts)	Dept direct	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Integrated Forward Market (IFM)	Direct	9.92%	0.00%	0.08%	35.00%	0.00%	55.00%	0.00%	100.00%
Internal Development	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Interzonal Congestion Management reform - Real Time	Direct	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Land and Building Costs	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Local Area Network (LAN)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Locational Marginal Pricing (LMPM)	Direct	9.92%	0.00%	0.08%	35.00%	55.00%	0.00%	0.00%	100.00%
Market Quality System (MQS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Masterfile	Direct	19.84%	0.00%	0.16%	20.00%	55.00%	0.00%	5.00%	100.00%
Meter Data Acquisition System (MDAS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Miscellaneous (2004 related capital)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Monitoring (Tivoli)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
MRTU Capital	Direct	12.68%	4.68%	0.14%	19.01%	10.75%	15.41%	37.33%	100.00%
Network Applications	Direct	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New Resource Interconnection (NRI)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New System Equipment (replacement of owned equipment)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
NT/web servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
NT-servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office Automation - desktop/laptop (OA)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Office equipment (scanner, printer, copier, fax, Communication Equip.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Open Access Same Time Information System (OASIS)	Direct	9.92%	2.83%	0.11%	25.00%	42.14%	0.00%	20.00%	100.00%
Operational Meter Analysis and Reporting (OMAR)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Oracle Corporate Financials	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Oracle Enterprise Manager (OEM)	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Licenses	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Market Financials BBS	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Out of Sequence Market Operation Settlements Information System (OOS)	Direct	4.96%	4.96%	0.08%	0.00%	90.00%	0.00%	0.00%	100.00%
Outage Scheduler (OS)	Direct	49.59%	5.67%	0.46%	10.00%	34.29%	0.00%	0.00%	100.00%
Participating Intermittent Resource Project (PIRP)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Physical Facilities Software Application/Furniture/Leasehold Improvements	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Portal	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Post Transaction Repository (PTR)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Process Information System (PI)	Direct	79.34%	0.00%	0.66%	0.00%	10.00%	0.00%	10.00%	100.00%
Rational Buyer	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Energy Dispatch System (REDS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Nodal Market	Direct	34.71%	0.00%	0.29%	10.00%	55.00%	0.00%	0.00%	100.00%
Reliability Management System (RMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Adequacy	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Register (RR)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
RMR Application Validation Engine (RAVE)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Scheduling & Logging for ISO California (SLIC)	Direct	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
Scheduling & Tagging Next Generation (STiNG)	Direct	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Scheduling Architecture (SA)	Calculated Direct	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
Scheduling Infrastructure (SI)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Scheduling Infrastructure Business Rules (SIBR)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Security Constrained Economic Dispatch (SCED)	Direct	0.00%	39.67%	0.33%	0.00%	60.00%	0.00%	0.00%	100.00%
Security- External/Physical	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Security-ISS (CUDA)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Settlements and Market Clearing	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Sign Board (Symon Board maint.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Startup Costs through 3/31/98, Working Capital-3 months	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Storage (EMC symmetrix)	Calculated Direct	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
System Equipment Buyouts (lease buyouts)	Calculated Direct	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
System/Application Assignments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Tactical Emergency Management System (TEMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Telephone/PBX	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Training Systems	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	Direct	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Transmission Map Plotting & Display	Direct	49.59%	49.59%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Treasury Workstation/Investment Program	Dept direct	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%
Trustee Costs, Interest-Capitalized, User Groups	Calculated Direct	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
Utilities - System i.e. Print drivers	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Vitria (Middleware)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Wide Area Network (WAN)	Calculated Direct	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

California Independent System Operator
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Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ 1,157,809	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ 65,550	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ 65,550	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ 65,550	$ -
Backup systems (Legato/Quantum)	$ 31,629	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ 109,251	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ 65,550	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ 109,251	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ 52,871
CHASE	$ -	$ -	$ -	$ -	$ -	$ 528,713
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 54,229	$ -	$ -	$ -	$ 65,550	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ 65,550	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
Congestion Revenue Rights (CRR)	$ 7,867	$ -	$ -	$ -	$ 65,550	$ -
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ 264,356
Dept. of Market Analysis Tools (SAS/MARS)	$ 481,763	$ -	$ -	$ -	$ -	$ 52,871
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ 79,307
Documentum	$ 93,540	$ -	$ -	$ -	$ -	$ 264,356
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ 21,850	$ -
Energy Management System (EMS)	$ 97,018	$ -	$ -	$ 1,882,498	$ -	$ -
Engineering Analysis Tools	$ 72,510	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ 65,550	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ 11,919	$ -	$ -	$ -	$ 65,550	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ 65,550	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ 156,875	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ 51,640	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ 16,261	$ 4,930,599	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 7,581	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ 109,251	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ 25,999	$ -	$ 737,723	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -
Masterfile	$ -	$ -	$ -	$ -	$ 109,251	$ -
Meter Data Acquisition System (MDAS)	$ 104,320	$ -	$ -	$ -	$ 109,251	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ 39,720	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ 222,349	$ -	$ -	$ -	$ -	$ -
Network Applications	$ 43,598	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ 400,000	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ 181,492	$ 182,315	$ -	$ -	$ -	$ -
NT-servers	$ 1,707,888	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ 637,058	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 93,298	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
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Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ 65,550	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Corporate Financials	$ 821,093	$ -	$ -	$ -	$ -	$ 264,356
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ 289,424	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ 132,178
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ 43,700	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ 43,700	$ -
Participating Intermittent Resource Project (PIRP)	$ 22,945	$ -	$ -	$ -	$ 65,550	$ -
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 6,491	$ -	$ -	$ -	$ -	$ 132,178
Portal	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ 396,534
Process Information System (PI)	$ 74,504	$ -	$ -	$ 313,750	$ -	$ -
Rational Buyer	$ -	$ -	$ -	$ -	$ 43,700	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ 43,700	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 177,401	$ -	$ -	$ -	$ -	$ 132,178

California Independent System Operator
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Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ 65,550	$ -
RMR Application Validation Engine (RAVE)	$ 124,161	$ -	$ -	$ -	$ 65,550	$ 79,307
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ 131,101	$ -
Scheduling & Tagging Next Generation (STiNG)	$ 101,514	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ 109,251	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ 174,801	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ 52,036	$ -	$ -	$ -	$ -	$ 132,178
Security-ISS (CUDA)	$ 364,153	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ 109,251	$ 132,178
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 1,863,941	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2451	2453	2462	2463	2464
Telephone/PBX	$ 1,316,643	$ 2,272,086	$ 536,526	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 795	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ 2,570,881	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ 4,599,556	$ 67,066	$ -	$ -	$ -
Total	$ 13,325,473	$ 11,984,556	$ 1,341,314	$ 2,353,122	$ 2,185,014	$ 2,643,563

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
ACC Upgrades (Communication between ISO & IOUs)	**These cost centers will be assigned using system direct average as they support applications and systems across the enterprise.**						0.0%	0.0%	0.0%	0.0%	0.0%
Ancillary Services Management (ASM) Component of SA							0.0%	0.0%	0.0%	0.0%	0.0%
Application Development Tools							0.0%	0.0%	0.0%	0.0%	0.0%
Automated Dispatch System (ADS)							0.0%	0.0%	0.0%	3.0%	0.0%
Automated Load Forecast System (ALFS)							0.0%	0.0%	0.0%	3.0%	0.0%
Automatic Mitigation Procedure (AMP)							0.0%	0.0%	0.0%	3.0%	0.0%
Backup systems (Legato/Quantum)							0.0%	0.0%	0.0%	0.0%	0.0%
Balance of Business Systems (BBS)							0.0%	0.0%	0.0%	5.0%	0.0%
Balancing Energy Ex Post Price (BEEP) Component of SA							0.0%	0.0%	0.0%	3.0%	0.0%
Bill's Interchange Schedule (BITS)							0.0%	0.0%	0.0%	5.0%	0.0%
CAISO Outage Modeling Tool (COMT)							0.0%	0.0%	0.0%	0.0%	0.0%
CaseWise (process modeling tool)							0.0%	0.0%	0.0%	0.0%	2.0%
CHASE							0.0%	0.0%	0.0%	0.0%	20.0%
Client Relations Tools							0.0%	0.0%	0.0%	0.0%	0.0%
Common Information Model (CIM)							0.0%	0.0%	0.0%	0.0%	0.0%
Compliance							0.0%	0.0%	0.0%	3.0%	0.0%
Congestion Management (CONG) Component of SA							0.0%	0.0%	0.0%	3.0%	0.0%
Congestion Reform-DSOW							0.0%	0.0%	0.0%	0.0%	0.0%
Congestion Revenue Rights (CRR)							0.0%	0.0%	0.0%	3.0%	0.0%

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
DataWarehouse							0.0%	0.0%	0.0%	0.0%	10.0%
Dept. of Market Analysis Tools (SAS/MARS)							0.0%	0.0%	0.0%	0.0%	2.0%
Dispute Tracking System (Remedy)							0.0%	0.0%	0.0%	0.0%	3.0%
Documentum							0.0%	0.0%	0.0%	0.0%	10.0%
Electronic Tagging (Etag)							0.0%	0.0%	0.0%	1.0%	0.0%
Energy Management System (EMS)							0.0%	0.0%	80.0%	0.0%	0.0%
Engineering Analysis Tools							0.0%	0.0%	0.0%	0.0%	0.0%
Evaluation of Market Separation							0.0%	0.0%	0.0%	0.0%	0.0%
Existing Transmission Contracts Calculator (ETCC)							0.0%	0.0%	0.0%	3.0%	0.0%
FERC Study Software							0.0%	0.0%	0.0%	0.0%	0.0%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)							0.0%	0.0%	0.0%	3.0%	0.0%
Global Resource Reliability Management Application (GRRMA)							0.0%	0.0%	0.0%	3.0%	0.0%
Grid Operations Training Simulator (GOTS)							0.0%	0.0%	6.7%	0.0%	0.0%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,							0.0%	0.0%	0.0%	0.0%	0.0%
Human Resources							0.0%	0.0%	0.0%	0.0%	0.0%
IBM Contract (also known as Outsourced Contracts)							41.1%	0.0%	0.0%	0.0%	0.0%
Integrated Forward Market (IFM)							0.0%	0.0%	0.0%	0.0%	0.0%
Internal Development							0.0%	0.0%	0.0%	0.0%	0.0%
Interzonal Congestion Management reform - Real Time							0.0%	0.0%	0.0%	5.0%	0.0%

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
Land and Building Costs							0.0%	0.0%	0.0%	0.0%	0.0%
Local Area Network (LAN)							0.0%	55.0%	0.0%	0.0%	0.0%
Locational Marginal Pricing (LMPM)							0.0%	0.0%	0.0%	0.0%	0.0%
Market Quality System (MQS)							0.0%	0.0%	0.0%	0.0%	0.0%
Masterfile							0.0%	0.0%	0.0%	5.0%	0.0%
Meter Data Acquisition System (MDAS)							0.0%	0.0%	0.0%	5.0%	0.0%
Miscellaneous (2004 related capital)							0.0%	0.0%	0.0%	0.0%	0.0%
Monitoring (Tivoli)							0.0%	0.0%	0.0%	0.0%	0.0%
MRTU Capital							0.0%	0.0%	0.0%	0.0%	0.0%
Network Applications							0.0%	0.0%	0.0%	0.0%	0.0%
New Resource Interconnection (NRI)							0.0%	0.0%	0.0%	0.0%	0.0%
New System Equipment (replacement of owned equipment)							0.0%	0.0%	0.0%	0.0%	0.0%
NT/web servers							1.5%	0.0%	0.0%	0.0%	0.0%
NT-servers							0.0%	0.0%	0.0%	0.0%	0.0%
Office Automation - desktop/laptop (OA)							0.0%	0.0%	0.0%	0.0%	0.0%
Office equipment (scanner, printer, copier, fax, Communication Equip.)							0.0%	0.0%	0.0%	0.0%	0.0%
Open Access Same Time Information System (OASIS)							0.0%	0.0%	0.0%	3.0%	0.0%
Operational Meter Analysis and Reporting (OMAR)							0.0%	0.0%	0.0%	0.0%	0.0%
Oracle Corporate Financials							0.0%	0.0%	0.0%	0.0%	10.0%

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
Oracle Enterprise Manager (OEM)							0.0%	0.0%	0.0%	0.0%	0.0%
Oracle Licenses							0.0%	0.0%	0.0%	0.0%	0.0%
Oracle Market Financials BBS							0.0%	0.0%	0.0%	0.0%	5.0%
Out of Sequence Market Operation Settlements Information System (OOS)							0.0%	0.0%	0.0%	2.0%	0.0%
Outage Scheduler (OS)							0.0%	0.0%	0.0%	2.0%	0.0%
Participating Intermittent Resource Project (PIRP)							0.0%	0.0%	0.0%	3.0%	0.0%
Physical Facilities Software Application/Furniture/Leasehold							0.0%	0.0%	0.0%	0.0%	5.0%
Portal							0.0%	0.0%	0.0%	0.0%	0.0%
Post Transaction Repository (PTR)							0.0%	0.0%	0.0%	0.0%	15.0%
Process Information System (PI)							0.0%	0.0%	13.3%	0.0%	0.0%
Rational Buyer							0.0%	0.0%	0.0%	2.0%	0.0%
Real Time Energy Dispatch System (REDS)							0.0%	0.0%	0.0%	2.0%	0.0%
Real Time Nodal Market							0.0%	0.0%	0.0%	0.0%	0.0%
Reliability Management System (RMS)							0.0%	0.0%	0.0%	0.0%	0.0%
Remedy (related to Transmission Registry, New Resource Interconnection							0.0%	0.0%	0.0%	0.0%	5.0%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)							0.0%	0.0%	0.0%	0.0%	0.0%
Resource Adequacy							0.0%	0.0%	0.0%	0.0%	0.0%
Resource Register (RR)							0.0%	0.0%	0.0%	3.0%	0.0%
RMR Application Validation Engine (RAVE)							0.0%	0.0%	0.0%	3.0%	3.0%

California Independent System Operator
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Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
Scheduling & Logging for ISO California (SLIC)							0.0%	0.0%	0.0%	6.0%	0.0%
Scheduling & Tagging Next Generation (STiNG)							0.0%	0.0%	0.0%	0.0%	0.0%
Scheduling Architecture (SA)							0.0%	0.0%	0.0%	5.0%	0.0%
Scheduling Infrastructure (SI)							0.0%	0.0%	0.0%	8.0%	0.0%
Scheduling Infrastructure Business Rules (SIBR)							0.0%	0.0%	0.0%	0.0%	0.0%
Security Constrained Economic Dispatch (SCED)							0.0%	0.0%	0.0%	0.0%	0.0%
Security- External/Physical							0.0%	0.0%	0.0%	0.0%	5.0%
Security-ISS (CUDA)							0.0%	0.0%	0.0%	0.0%	0.0%
Settlements and Market Clearing							0.0%	0.0%	0.0%	5.0%	5.0%
Sign Board (Symon Board maint.)							0.0%	0.0%	0.0%	0.0%	0.0%
Startup Costs through 3/31/98, Working Capital-3 months							0.0%	0.0%	0.0%	0.0%	0.0%
Storage (EMC symmetrix)							0.0%	0.0%	0.0%	0.0%	0.0%
System Equipment Buyouts (lease buyouts)							0.0%	0.0%	0.0%	0.0%	0.0%
Tactical Emergency Management System (TEMS)							0.0%	0.0%	0.0%	0.0%	0.0%
Telephone/PBX							19.0%	40.0%	0.0%	0.0%	0.0%
Training Systems							0.0%	0.0%	0.0%	0.0%	0.0%
Transmission Constrained Unit Commitment (TCUC) Must Offer							0.0%	0.0%	0.0%	0.0%	0.0%
Transmission Map Plotting & Display							0.0%	0.0%	0.0%	0.0%	0.0%
Treasury Workstation/Investment Program							0.0%	0.0%	0.0%	0.0%	0.0%

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity or Personnel to Systems

	2412	2421	2431	2441	2452	2454	2451	2453	2462	2463	2464
Trustee Costs, Interest-Capitalized, User Groups							0.0%	0.0%	0.0%	0.0%	0.0%
Utilities - System i.e. Print drivers							0.0%	0.0%	0.0%	0.0%	0.0%
Vitria (Middleware)							0.0%	0.0%	0.0%	0.0%	0.0%
Wide Area Network (WAN)							38.4%	5.0%	0.0%	0.0%	0.0%
Total							100.0%	100.0%	100.0%	100.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity to Systems

Cost Center Number	2451
Cost Center Name	IT Support & Operations-Contracts
Cost Center Director/Manager	Matt Turner
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
IBM Contract (also known as Outsourced Contracts)		**41.1%**	**Assignment based on analysis of contract costs by system**
NT/web servers		**1.5%**	
Telephone/PBX		**19.0%**	
Wide Area Network (WAN)		**38.4%**	
Total		**100.0%**	

California Independent System Operator
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Allocation of Cost Center Activity to Systems

Cost Center Number	2453
Cost Center Name	Robert Melis
Cost Center Director/Manager	Data Center & Operations
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
Local Area Network (LAN)	**Includes Local Area Network administration of internal LAN (routing and switching), internal and external Domain Name Services (DNS) administration, Enterprise Instant Messaging, Content Services Switching, Virtual Private Network (VPN) remote access administration, and Simple Mail Transport Protocol (SMTP) gateway adminstration.**	**55.0%**	
Telephone/PBX	**Voice systems management includes minor MAC changes for basic phone moves; assistance with help desk tickets with outsource provider; management of outsource provider**	**40.0%**	
Wide Area Network (WAN)	**Management of the WAN outsource vendor (AT&T), including escalation of operations issues with AT&T, submitting MAC requests on behalf of the ISO or external Connected Entities, reviewing performance reports, reviewing security reports, reviewing SLA reports, and participating in monthly and quarterly meetings with AT&T.**	**5.0%**	**Currently outsourced to AT&T**
Total		**100.0%**	

California Independent System Operator
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Allocation of Cost Center Activity to Systems

Cost Center Number	2462
Cost Center Name	EMS Information Technology
Cost Center Director/Manager	Brian Cummins
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
Energy Management System (EMS)	Applications support and development, Data admin, configuration, integration, Display administration, SCADA, Data quality, advanced applications, 24X7 support etc.	**80%**	Wide range of support and administration duties. Functions include all SCADA, ICCP, Database, Network Applications, Policies, Support etc, to maintain an EMS system in a fast changing environment.
Grid Operations Training Simulator (GOTS)	Data admin, tuning, support, advanced applications, vendor coordination	**7%**	Sr. Engineer, duties include high end grid network modeling and GOTS software design and functions.
Process Information System (PI)	Data admin, tuning, support, advanced applications, vendor coordination	**13%**	PI Administrator, overall responsibility. Others in EMS group have support and function duties as directed by the Administrator.
Total		**100%**	

California Independent System Operator
2008 GMC Cost of Service

Allocation of Cost Center Activity to Systems

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Jami Long
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
Automated Dispatch System (ADS)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Automated Load Forecast System (ALFS)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Automatic Mitigation Procedure (AMP)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Balance of Business Systems (BBS)		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Balancing Energy Ex Post Price (BEEP) Component of SA		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Bill's Interchange Schedule (BITS)		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Compliance		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Congestion Management (CONG) Component of SA		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Congestion Revenue Rights (CRR)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Electronic Tagging (Etag)		1%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Existing Transmission Contracts Calculator (ETCC)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Firm Transmission Right (FTR) and Secondary Registration System (SRS)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Global Resource Reliability Management Application (GRRMA)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,		0%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Interzonal Congestion Management reform - Real Time		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Masterfile		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Meter Data Acquisition System (MDAS)		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.

California Independent System Operator
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Allocation of Cost Center Activity to Systems

Cost Center Number	2463
Cost Center Name	Operations Information Technology
Cost Center Director/Manager	Jami Long
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
Open Access Same Time Information System (OASIS)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Out of Sequence Market Operation Settlements Information System (OOS)		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Outage Scheduler (OS)		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Participating Intermittent Resource Project (PIRP)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Rational Buyer		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Real Time Energy Dispatch System (REDS)		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Resource Register (RR)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
RMR Application Validation Engine (RAVE)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Scheduling & Logging for ISO California (SLIC)		6%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Scheduling Architecture (SA)		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Scheduling Infrastructure (SI)		8%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Settlements and Market Clearing		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
			Assignment based on cost center manager's review of staffing and time dedicated to each system.
Total		**100.0%**	

California Independent System Operator
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Allocation of Cost Center Activity to Systems

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
CaseWise (process modeling tool)		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
CHASE		20%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
DataWarehouse		10%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Dept. of Market Analysis Tools (SAS/MARS)		2%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Dispute Tracking System (Remedy)		3%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Documentum		10%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Oracle Corporate Financials		10%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Oracle Market Financials BBS		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Physical Facilities Software Application/Furniture/Leasehold Improvements		5%	Assignment based on cost center manager's review of staffing and time dedicated to each system.
Post Transaction Repository (PTR)		15%	Assignment based on cost center manager's review of staffing and time dedicated to each system.

California Independent System Operator
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Allocation of Cost Center Activity to Systems

Cost Center Number	2464
Cost Center Name	Corporate Systems
Cost Center Director/Manager	Matt Willis
Comments	

System or Application	Description of Activities	Percent Allocation (based on metric)	Comment
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)		**5%**	**Assignment based on cost center manager's review of staffing and time dedicated to each system.**
RMR Application Validation Engine (RAVE)		**3%**	**Assignment based on cost center manager's review of staffing and time dedicated to each system.**
Security- External/Physical		**5%**	**Assignment based on cost center manager's review of staffing and time dedicated to each system.**
Settlements and Market Clearing		**5%**	**Assignment based on cost center manager's review of staffing and time dedicated to each system.**
Total		**100%**	

Worksheets follow

California Independent System Operator
2008 GMC Cost of Service

2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE	Comment
2411	Information Technology-General	$ 1,129,927	$ 1,069,927	$ 60,000	3.5	
2373	Information Security	$ 1,439,083	$ 1,324,083	$ 115,000	7.0	
2412	Asset Management (Non-Labor costs only)	$ 11,652,282	$ 11,562,282	$ 90,000	0.0	
2421	IT Projects	$ 726,793	$ 706,793	$ 20,000	4.0	
2431	IT Project Management	$ 4,634,251	$ 2,614,251	$ 2,020,000	15.0	
2441	Software Quality Assurance	$ 1,096,274	$ 801,274	$ 295,000	5.0	
2451	IT Support & Operations	$ 11,984,556	$ 11,984,556	$ -	3.0	
2452	System & Database Administration	$ 2,611,512	$ 2,411,512	$ 200,000	13.0	
2453	Data Center & Operations	$ 1,341,314	$ 1,341,314	$ -	7.0	
2454	Architecture & Systems Engineering	$ 1,655,993	$ 1,530,993	$ 125,000	9.0	
2462	EMS Information Technology	$ 2,353,122	$ 2,303,122	$ 50,000	14.0	
2463	Operations Information Technology	$ 2,185,014	$ 1,932,514	$ 252,500	11.0	
2464	Corporate Systems	$ 2,643,563	$ 2,238,563	$ 405,000	12.0	
	Total	$ 45,453,684	$ 41,821,184	$ 3,632,500	103.5	

California Independent System Operator
2008 GMC Cost of Service

IT Support & Operations Contract Costs (CC 2451)

	Contract/Lease		Percent of total	System
	Outsourced Vendor Contract	redacted		IBM Contract (also known as Outsourced Contracts)
	WAN	redacted		Wide Area Network (WAN)
	Telephone	redacted		Telephone/PBX
	Voice	redacted		Telephone/PBX
	PBX lease	redacted		Telephone/PBX
	Internet	redacted		NT/web servers
	Total contract/lease	$ 11,832,400	100%	
	Non-contract costs	$ 152,156		
2451	IT Support & Operations	$ 11,984,556		

Amounts redacted due to contract nondisclosure provisions.

California Independent System Operator
2008 GMC Cost of Service
Asset Management System/Application Costs

System	Amount	Percent by System
ACC Upgrades (Communication between ISO & IOUs)	$ -	0%
Ancillary Services Management (ASM) Component of SA	$ -	0%
Application Development Tools	$ 1,157,809	9%
Automated Dispatch System (ADS)	$ -	0%
Automated Load Forecast System (ALFS)	$ -	0%
Automatic Mitigation Procedure (AMP)	$ -	0%
Backup systems (Legato/Quantum)	$ 31,629	0%
Balance of Business Systems (BBS)	$ -	0%
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	0%
Bill's Interchange Schedule (BITS)	$ -	0%
CAISO Outage Modeling Tool (COMT)	$ -	0%
CaseWise (process modeling tool)	$ -	0%
CHASE	$ -	0%
Client Relations Tools	$ -	0%
Common Information Model (CIM)	$ -	0%
Compliance	$ 54,229	0%
Congestion Management (CONG) Component of SA	$ -	0%
Congestion Reform-DSOW	$ -	0%
Congestion Revenue Rights (CRR)	$ 7,867	0%

California Independent System Operator
2008 GMC Cost of Service
Asset Management System/Application Costs

System	Amount	Percent by System
DataWarehouse	$ -	0%
Dept. of Market Analysis Tools (SAS/MARS)	$ 481,763	4%
Dispute Tracking System (Remedy)	$ -	0%
Documentum	$ 93,540	1%
Electronic Tagging (Etag)	$ -	0%
Energy Management System (EMS)	$ 97,018	1%
Engineering Analysis Tools	$ 72,510	1%
Evaluation of Market Separation	$ -	0%
Existing Transmission Contracts Calculator (ETCC)	$ -	0%
FERC Study Software	$ -	0%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ 11,919	0%
Global Resource Reliability Management Application (GRRMA)	$ -	0%
Grid Operations Training Simulator (GOTS)	$ -	0%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	0%
Human Resources	$ 51,640	0%
IBM Contract (also known as Outsourced Contracts)	$ 16,261	0%
Integrated Forward Market (IFM)	$ 7,581	0%
Internal Development	$ -	0%
Interzonal Congestion Management reform - Real Time	$ -	0%
Land and Building Costs	$ -	0%
Local Area Network (LAN)	$ 25,999	0%

California Independent System Operator
2008 GMC Cost of Service
Asset Management System/Application Costs

System	Amount	Percent by System
Locational Marginal Pricing (LMPM)	$ -	0%
Market Quality System (MQS)	$ -	0%
Masterfile	$ -	0%
Meter Data Acquisition System (MDAS)	$ 104,320	1%
Miscellaneous (2004 related capital)	$ -	0%
Monitoring (Tivoli)	$ 39,720	0%
MRTU Capital	$ 222,349	2%
Network Applications	$ 43,598	0%
New Resource Interconnection (NRI)	$ -	0%
New System Equipment (replacement of owned equipment)	$ 400,000	3%
NT/web servers	$ 181,492	1%
NT-servers	$ 1,707,888	13%
Office Automation - desktop/laptop (OA)	$ 637,058	5%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 93,298	1%
Open Access Same Time Information System (OASIS)	$ -	0%
Operational Meter Analysis and Reporting (OMAR)	$ -	0%
Oracle Corporate Financials	$ 821,093	6%
Oracle Enterprise Manager (OEM)	$ -	0%
Oracle Licenses	$ 289,424	2%
Oracle Market Financials BBS	$ -	0%
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	0%

California Independent System Operator
2008 GMC Cost of Service
Asset Management System/Application Costs

System	Amount	Percent by System
Outage Scheduler (OS)	$ -	0%
Participating Intermittent Resource Project (PIRP)	$ 22,945	0%
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 6,491	0%
Portal	$ -	0%
Post Transaction Repository (PTR)	$ -	0%
Process Information System (PI)	$ 74,504	1%
Rational Buyer	$ -	0%
Real Time Energy Dispatch System (REDS)	$ -	0%
Real Time Nodal Market	$ -	0%
Reliability Management System (RMS)	$ -	0%
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 177,401	1%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	0%
Resource Adequacy	$ -	0%
Resource Register (RR)	$ -	0%
RMR Application Validation Engine (RAVE)	$ 124,161	1%
Scheduling & Logging for ISO California (SLIC)	$ -	0%
Scheduling & Tagging Next Generation (STiNG)	$ 101,514	1%
Scheduling Architecture (SA)	$ -	0%
Scheduling Infrastructure (SI)	$ -	0%
Scheduling Infrastructure Business Rules (SIBR)	$ -	0%
Security Constrained Economic Dispatch (SCED)	$ -	0%

California Independent System Operator
2008 GMC Cost of Service
Asset Management System/Application Costs

System	Amount	Percent by System
Security- External/Physical	$ 52,036	0%
Security-ISS (CUDA)	$ 364,153	3%
Settlements and Market Clearing	$ -	0%
Sign Board (Symon Board maint.)	$ -	0%
Startup Costs through 3/31/98, Working Capital-3 months	$ -	0%
Storage (EMC symmetrix)	$ 1,863,941	14%
System Equipment Buyouts (lease buyouts)	$ -	0%
Tactical Emergency Management System (TEMS)	$ -	0%
Telephone/PBX	$ 1,316,643	10%
Training Systems	$ -	0%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	0%
Transmission Map Plotting & Display	$ 795	0%
Treasury Workstation/Investment Program	$ -	0%
Trustee Costs, Interest-Capitalized, User Groups	$ -	0%
Utilities - System i.e. Print drivers	$ -	0%
Vitria (Middleware)	$ 2,570,881	19%
Wide Area Network (WAN)	$ -	0%
	$ 13,325,473	100%

California Independent System Operator
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Asset Management Contract Costs

	Contract/Lease		Percent of total	System
Leases				
	IT Storage Lease	$ 1,749,000	15%	Storage (EMC symmetrix)
	Office Equipment and Printers	$ 63,000	1%	Office equipment (scanner, printer, copier, fax, Communication Equip.)
Maintenance				
	Alpha Server Maintenance	$ 700,000	6%	NT-servers
	AT&T PBX , LAN and Turrent maintenance	$ 359,000	3%	Telephone/PBX
	Capital project related hardware maintenance	$ 400,000	3%	New System Equipment (replacement of owned equipment)
	EMC Storage maintenance	$ 50,000	0%	Storage (EMC symmetrix)
	Enterprise testing infrastructure maintenance	$ 226,000	2%	Application Development Tools
	Misc office equipment and printer maintenance	$ 30,000	0%	Office equipment (scanner, printer, copier, fax, Communication Equip.)
	Misc telecom maintenance	$ 120,000	1%	Telephone/PBX
	MRTU related maintenance	$ 200,000	2%	MRTU Capital
	Sun server maintenance (annual expense for 3-yr contract)	$ 875,000	8%	NT-servers
	Tape library mtc	$ 30,000	0%	Backup systems (Legato/Quantum)
Consultants/Contractors				
	Telecom	$ 210,000	2%	Telephone/PBX
Total lease/maintenance/consultants		$ 5,012,000	43%	
Total software maintenance		$ 8,027,850	69%	See 2412 software tab
Miscellaneous software purchases		$ 285,623	2%	Office Automation - desktop/laptop (OA)
2412	Asset Management (Non-Labor costs only)	$ 11,652,282	100%	

California Independent System Operator
2008 GMC Cost of Service
Asset Management Software Maintenance Costs

System	Amount	Comment
ACC Upgrades (Communication between ISO & IOUs)	$ -	
Ancillary Services Management (ASM) Component of SA	$ -	
Application Development Tools	$ 931,809	
Automated Dispatch System (ADS)	$ -	
Automated Load Forecast System (ALFS)	$ -	
Automatic Mitigation Procedure (AMP)	$ -	
Backup systems (Legato/Quantum)	$ 1,629	
Balance of Business Systems (BBS)	$ -	
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	
Bill's Interchange Schedule (BITS)	$ -	
CAISO Outage Modeling Tool (COMT)	$ -	
CaseWise (process modeling tool)	$ -	
CHASE	$ -	
Client Relations Tools	$ -	
Common Information Model (CIM)	$ -	
Compliance	$ 54,229	
Congestion Management (CONG) Component of SA	$ -	
Congestion Reform-DSOW	$ -	
Congestion Revenue Rights (CRR)	$ 7,867	
DataWarehouse	$ -	
Dept. of Market Analysis Tools (SAS/MARS)	$ 481,763	

California Independent System Operator
2008 GMC Cost of Service
Asset Management Software Maintenance Costs

System	Amount	Comment
Dispute Tracking System (Remedy)	$ -	
Documentum	$ 93,540	
Electronic Tagging (Etag)	$ -	
Energy Management System (EMS)	$ 97,018	
Engineering Analysis Tools	$ 72,510	
Evaluation of Market Separation	$ -	
Existing Transmission Contracts Calculator (ETCC)	$ -	
FERC Study Software	$ -	
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ 11,919	
Global Resource Reliability Management Application (GRRMA)	$ -	
Grid Operations Training Simulator (GOTS)	$ -	
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	
Human Resources	$ 51,640	
IBM Contract (also known as Outsourced Contracts)	$ 16,261	
Integrated Forward Market (IFM)	$ 7,581	
Internal Development	$ -	
Interzonal Congestion Management reform - Real Time	$ -	
Land and Building Costs	$ -	
Local Area Network (LAN)	$ 25,999	
Locational Marginal Pricing (LMPM)	$ -	
Market Quality System (MQS)	$ -	

California Independent System Operator
2008 GMC Cost of Service
Asset Management Software Maintenance Costs

System	Amount	Comment
Masterfile	$ -	
Meter Data Acquisition System (MDAS)	$ 104,320	
Miscellaneous (2004 related capital)	$ -	
Monitoring (Tivoli)	$ 39,720	
MRTU Capital	$ 22,349	
Network Applications	$ 43,598	
New Resource Interconnection (NRI)	$ -	
New System Equipment (replacement of owned equipment)	$ -	
NT/web servers	$ 181,492	
NT-servers	$ 132,888	
Office Automation - desktop/laptop (OA)	$ 351,435	
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 298	
Open Access Same Time Information System (OASIS)	$ -	
Operational Meter Analysis and Reporting (OMAR)	$ -	
Oracle Corporate Financials	$ 821,093	
Oracle Enterprise Manager (OEM)	$ -	
Oracle Licenses	$ 289,424	
Oracle Market Financials BBS	$ -	
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	
Outage Scheduler (OS)	$ -	
Participating Intermittent Resource Project (PIRP)	$ 22,945	

California Independent System Operator
2008 GMC Cost of Service
Asset Management Software Maintenance Costs

System	Amount	Comment
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 6,491	
Portal	$ -	
Post Transaction Repository (PTR)	$ -	
Process Information System (PI)	$ 74,504	
Rational Buyer	$ -	
Real Time Energy Dispatch System (REDS)	$ -	
Real Time Nodal Market	$ -	
Reliability Management System (RMS)	$ -	
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 177,401	
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	
Resource Adequacy	$ -	
Resource Register (RR)	$ -	
RMR Application Validation Engine (RAVE)	$ 124,161	
Scheduling & Logging for ISO California (SLIC)	$ -	
Scheduling & Tagging Next Generation (STiNG)	$ 101,514	
Scheduling Architecture (SA)	$ -	
Scheduling Infrastructure (SI)	$ -	
Scheduling Infrastructure Business Rules (SIBR)	$ -	
Security Constrained Economic Dispatch (SCED)	$ -	
Security- External/Physical	$ 52,036	
Security-ISS (CUDA)	$ 364,153	

California Independent System Operator
2008 GMC Cost of Service
Asset Management Software Maintenance Costs

System	Amount	Comment
Settlements and Market Clearing	$ -	
Sign Board (Symon Board maint.)	$ -	
Startup Costs through 3/31/98, Working Capital-3 months	$ -	
Storage (EMC symmetrix)	$ 64,941	
System Equipment Buyouts (lease buyouts)	$ -	
Tactical Emergency Management System (TEMS)	$ -	
Telephone/PBX	$ 627,643	
Training Systems	$ -	
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	
Transmission Map Plotting & Display	$ 795	
Treasury Workstation/Investment Program	$ -	
Trustee Costs, Interest-Capitalized, User Groups	$ -	
Utilities - System i.e. Print drivers	$ -	
Vitria (Middleware)	$ 2,570,881	
Wide Area Network (WAN)	$ -	
Total	$ 8,027,850	

Exhibit ISO-12

Functionalization of ISO Systems/Applications

Exhibit ISO-12
California Independent System Operator
2008 GMC Cost of Service
Functionalization of ISO System Applications

This spreadsheet shows the functionalization of ISO system applications in detail. There are five types of functionalization: Direct, System Direct, FTE, Department Direct and Calculated Direct. Direct functionalization is, as the name implies, a direct assignment of the system to functions. System Direct is a dollar weighted average of the direct assignments. FTE uses the FTE allocation factor calculated in the O&M spreadsheet. Department Direct uses the functionalization of the departments that utilize the system. Calculated Direct is a weighted average of the assignments of other systems (e.g., WAN is a weighted average of the systems that communicate over the WAN).
Capital expenditures may be redacted for confidentiality or commercial sensitivity.

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Description
ACC Upgrades (Communication between ISO & IOUs)	Original Cost of Startup and Trust to pay for the upgrade of the IOU's Communications systems between the ISO and the IOU. For EMS and Real time information
Ancillary Services Management (ASM) Component of SA	Ancillary Service Management is the method of procuring A/S through the market, which are scheduled and provided to the RT desks. There are regular discussions with MPs through CS as to the operation of ASM. Allocation based on system traffic information.
Application Development Tools	Various third party software applications used for internal application development and maintenance of ISO systems.
Automated Dispatch System (ADS)	System developed for clear indisputable dispatch instructions from the ISO to SC's and /or resources. Will send electronic notification, receive acknowledgement and log the transaction. Allocation determined that it provides Grid ops with advance information on incs and decs needed so can load follow and so 50%; relates to markets and scheduling at 25/20%; requires working with SCs and affects settlements so 5% CS; automatically logs accepted and rejected bids
Automated Load Forecast System (ALFS)	Automated Load Forecast System is used for DA load forecasting. It is used by Grid Ops for reserve procurement in the forward market and in getting ready for the needs during the next day. Thus 70% of its costs are assigned to CRS. Since it applies to the forward market it affects MU and, to a lesser degree, scheduling, at 20% and 10% respectively.
Automatic Mitigation Procedure (AMP)	A procedure for mitigating market power at both the system and local levels by mitigating the prices bid into the ISO's Energy and Ancillary Services Markets. The AMP limits bid prices to the extent that they (a) vary significantly (beyond specified thresholds) from historic bidding behavior; and (b) significantly increase (beyond specified thresholds) the Market Clearing Price. Part of the SA application.
Backup systems (Legato/Quantum)	Hardware and Software to provide ability to Back up ISO systems, providing the ability to recover data for all ISO system in case of a system failure. Backups are done everyday and retained forever, as well as being stored off site. Impacts on all operating systems, allocate based on total costs of operational systems
Balance of Business Systems (BBS)	Original name for the Settlements and interfaces to the Market Financial system. Application that generates the daily settlement statements and creates the information for the consolidated invoicing and calculates information for the GMC invoice. 100% SMCR
Balancing Energy Ex Post Price (BEEP) Component of SA	Balancing Energy Ex-Post Pricing ranks balancing energy bids and is run by generation dispatchers. It is a RT tool but it processes bids received by MU and affects scheduling and congestion. Allocation evaluation based on system traffic information
Bill's Interchange Schedule (BITS)	Bill's Interchange Schedule is a bridging produce that takes the final HA schedule and makes it available for the RT operators to view, helping with RT schedule management. This program allows Real-time Schedulers to track and calculate the dynamic Interchange values between the ISO control area and neighboring control areas. The net Interchange values represent the amount of energy that California may import or export across a specific Intertie for a given hour. It also provides the meter values for settlements. Thus 85% of its costs are assigned to CRS, 15% to MU (since it applies to the HA market),.
CAISO Outage Modeling Tool (COMT)	Automated processing of planned and unplanned outage information from SLIC into the Network Model providing the State Estimator and market simulation tools with accurate information. Assigned similarly to SLIC.
CaseWise (process modeling tool)	Third party software for Business Process Modeling and publishing, also allows for Fact Modeling to help define Business requirements of a business unit. Process modeling is being required for the full company. Considered an Enterprise application.
CHASE	C.H.A.S.E. - Change management, Help desk, Asset management, Service Level Agreements, Employee Life Cycle - This a highly customized system using Remedy out of the box applications. Enterprise system to manage listed items. All employees have access.
Client Relations Tools	Applications used to improve communication with customers and issue tracking.
Common Information Model (CIM)	Developed for use with the current EMS system. Standard based on XML language. Defines electrical data , electrical network model. Used for communicating data between systems.

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System	Description
Compliance	Compliance applications produces automated programs to process Penalties and Ancillary Services adjustment to schedules based on a well defined set of rules. Compliance applications use a rule technology for the execution of business logic. Results are forwarded to settlement where prices are applied.
Congestion Management (CONG) Component of SA	Congestion Management is a forward market product but the RT desk uses its results. It is basically a congestion management tool, although it processes input from MU and requires explanations to CAISO customers on a regular basis. Its costs are assigned base on system traffic information.
Congestion Reform-DSOW	Design phase due to FERC Order, for congestion in the forward & real-time markets, RMR reform, FTR, LARS, New Generator policy. Affects congestion and congestion management in RT by Grid Ops; so 50-50 split.
Congestion Revenue Rights (CRR)	A congestion cost hedging tool that gives holders the right to collect day-ahead congestion costs between two nodes in an LMP-based system. In contrast to today's Firm Transmission Rights (FTRs), CRRsa) are released subject to a simultaneous feasibility test (SFT); b) are defined from a source node to a sink node, rather than for a specific transmission path; and c) may entail an obligation to pay congestion costs when congestion is in the opposite direction of the right.
DataWarehouse	The Data Warehouse uses a classic architecture composed of Operational Data Stores (ODSs), Data Marts (DMs), an On-Line Analytical Processing (OLAP) repository built on a Multidimensional Database Management System, batch load processes, a Metadata Repository (MDR) that manages the load process, and a set of best-of-breed reporting tools. The Data Warehouse provides the ability to analyze, report, query, and source non-real-time information to end users and second-tier applications with minimal impact to the critical operational systems. Used mainly by Compliance and Department of Market Analysis applications at this time.
Dept. of Market Analysis Tools (SAS/MARS)	Maintains key market data for ex post analysis. The data allows increased monitoring and analysis of transactions and scheduling, exports/import patterns by individual market participants, and regional energy markets. This data is critical to market analysis and is comprised of primary data from ISO departments as well as unique custom data that is designed, generated, and maintained by DMA staff. DMA uses several reporting tools to complete their work. They are Market Analyis Reporting System (MARS) and Statistical Analysis System (SAS), Essbase Data Mining Tool, and Plexos.
Dispute Tracking System (Remedy)	Online Settlement Dispute Program for SC to dispute Settlement statement, and for Client Relations to track, manage and record and communicate resolution of these items.
Documentum	Enterprise document management system (EDMS). Documentum was selected by the CAISO in 1999 to serve as the corporate EDMS. In addition to the base product, the CAISO uses AutoRender Pro to automate the generation of Adobe Acrobat renditions, DocInput for storing scanned hardcopies, and DocLoader for loading multiple files in a single transaction. These tools will continue to be used as the CAISO's information and record retention policies are implemented.
Electronic Tagging (Etag)	Electronic Tagging (E-tag) is the NERC Policy 3 mandated communication protocal for the creation, distribution and aproval of interchange transaction requests.
Energy Management System (EMS)	Energy Management System (EMS) is a collection of software and Hardware that monitor, evaluate and control the power systems lines, loads and generators within the ISO Control Area.
Engineering Analysis Tools	Custom developed tools for ISO Engineering group analysis as reqired to complete various function at the ISO.
Evaluation of Market Separation	Report that quantifies the benefit of Market Separation rule the enforces allocation of transmission capacity. Must modify congestion code, and recalculate congestion changes for 1999. Market separation affects procurement of A/S and congestion split 50-50 Cong and MU
Existing Transmission Contracts Calculator (ETCC)	Existing Transmission Contracts (ETC's) are not subject to congestion management and can be scheduled later than other transmission. Therefore by use of the Existing Transmission Contracts Calculator program the ISO can forecast individual transmission line capacities based on the scheduling, outages and computations of existing transmission contracts (ETC). The ETCC results are utilized for the pre-scheduling of transmission, the determination of a total transmission capacity, the amount of FTR's for Day-Ahead/Hour-Ahead markets, and the establishment of scheduling rights for Real-Time Scheduling. This application has a major effect on the operations of the RT desk, on congestion management, and requires a lot of interaction with individual customers.

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System	Description
FERC Study Software	FERC requested Study on ISO Markets
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Firm Transmission Rights (FTR) is an Auction system used to manage the sale of Transmission rights for future use or as an Investment. Secondary Registration System (SRS) for FTR is used to track ownership and FTR allocations. Participants register ownership of individual FTR's and MW associated with them. This information is then sent to SI to determine Valid usage of FTR's and Actual Capacity of the Tie lines/Branch Groups. Both systems are involved with firm transmission rights and, as such, affect mostly congestion, 60%, however this information is used in SI to determine Valid usage during scheduling 15% assigned, 15%to MU, and interface to Settlements allocate 10% CS.
Global Resource Reliability Management Application (GRRMA)	Global Reliability Resource Management Application is the ISO's Reliability Must Run (RMR) scheduling tool. It allows the user to schedule Day Ahead, Hour Ahead, and Real Time local reliability energy instructions. Additionally, the dispatcher can call on a contracted RMR unit to provide Ancillary Services in the event that market has not provided the necessary percentage required. Application used to address RMR operations, which are control area operations. It does not do dispatch calculations or unit commitment but provides information on RMR. GO and MO have estimated that 75% of GRRMA's costs should be assigned to CRS, 15% to ETS (because of the scalability of the data file to the number of RMR units, 10% to MU because it affects the market, and 0% to SMCR there are regular interactions with SCs and generators on RMR activity but no direct interface to Settlements.
Grid Operations Training Simulator (GOTS)	Grid Operations Training Simulator is used for training RT operators. Its costs are assigned to CRS and E&TS on a 63/37 basis, the current allocation of the Operations Training group.
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Developed Tool for Day/Hour-ahead desk to make informed decision on A/S purchases in a timely manner. To eliminate manual work around. Tool also aids in the data entry to SA, to help eliminate errors.
Human Resources	Human Resources Software applications the tracks emplyees and benefits and has a payroll module, for our in-house payroll system.
IBM Contract (also known as Outsourced Contracts)	Service Contract to supply people for desk side and set-up support for all ISO PC's, Help desk support, Operational system monitoring.Level one support for Connected Enities (CE) for AT&T connections, and LAN monitoring.
Integrated Forward Market (IFM)	The ISO's Day-Ahead and Hour-Ahead Market that simultaneously performs resource commitment, congestion management, energy market clearing and A/S procurement to minimize total bid cost. This system will provide RUC, Day Ahead Schedules & validation. RUC, CRS 10%, DA schedules & Validation 35%, Forward Market 55%
Internal Development	Cost for ISO employees that work on Capital Projects during the year. GAAP required reclassification.
Interzonal Congestion Management reform - Real Time	FERC request, report to quantify the Intra / Inter-Zonal cost across zones. Also RMR costs in real time and forward markets & how cost relates to zonal definition. Affects congestion and congestion management in RT by Grid Ops, so 50/50 split
Land and Building Costs	This is the cost of purchasing land and preliminary design cost for the property located on Iron Point Road.
Local Area Network (LAN)	Local Area Network is the physical communications cabling and nework equipment that carry digital data communications between ISO user computers and Enterprise Servers and out to the Internet. Previously managed by MCI, now being done internally.
Locational Marginal Pricing (LMPM)	The market price for energy at a specific location on the transmission grid ("node") that represents the cost of serving one additional MWh of load at that node. The nodal LMP includes the cost of system energy, congestion and transmission losses. Same as "Nodal Price."
Market Quality System (MQS)	An application that performs post-market accounting, calculations and meter data corrections to reduce invoicing errors and disputes. Reduces manual validation, verification and correction of transactional data that could affect market settlements. Assigned 100% to SMCR.
Masterfile	An ISO data bank used to store information on each Scheduling Coordinator, Transmission Owner, Generation Owner and Control Area that does business wit the ISO. Also, the specific file within that database associated with a particular entity.

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System	Description
Meter Data Acquisition System (MDAS)	MDAS is the collective name for all the Original metering systems MV-90 and MV-STAR. MV-90 is a licensed proprietary system form ITRON-UTS that allows for the collection, validation, editing, storage and transfer of meter data form a wide rang of meters and recording devices that the ISO reads. This system gathers non-SC provided meter data, packages it into Settlement Quality Meter Data (SQMD) and sends the data to OMAR. MV-STAR functions have been replaced by the OMAR application.
Miscellaneous (2004 related capital)	Represents the amount determined to cover maintenance costs for software and hardware for items approved during 2004 Capital period.
Monitoring (Tivoli)	Monitoring software system, that is used to monitor and report the health of all applications at the ISO. Use system direct allocation.
MRTU Capital	Represents the rolled up allocations from the new applications that are being created for MRTU. Most applications are listed separately. The cost assignment from this application will be used on general MRTU costs, such as project management.
Network Applications	Network applications include the State Estimator, contigency analysis, Dispatcher Load Flow, Voltage Security Assessment and Dynamic Stability Analysis. These applications are used to model the transmission system in Real Time and for planning and training purposes. Typically considered as part of EMS.
New Resource Interconnection (NRI)	The NRI application was developed to allow for tracking of Generation, QF conversion, and Transmission interconnection projects from original initiation to completion or termination of ISO required activities. This application also enables the ISO to monitor and track Generator Interconnection application activities of the Developer and Participating Transmission Owners as required by FERC Order implementing Tariff Amendment No. 39.
New System Equipment (replacement of owned equipment)	Capital purchase to replace already owned equipment. This is for non desktop equipment, so allocated on system direct, costs.
NT/web servers	Servers the are running the applications that allow the ISO to communicate with the Internet.
NT-servers	Refers to Servers that are using the Network Technology (NT) platform and using Windows 2000 operating system. These servers run third party applictions for Email, Microsoft Office, and other company wide applications, non operational applications.
Office Automation - desktop/laptop (OA)	Non operational applications, and equipment for all desktop systems. Includes Outlook, Microsoft Office, etc. Hardware and Software Maintenance for these systems.
Office equipment (scanner, printer, copier, fax, Communication Equip.)	Capital costs for the purchase of non computer hardware.
Open Access Same Time Information System (OASIS)	Open Access Same-Time Information System was created to ensure that any interested parties might have access to ISO market and transmission information through standardized electronic means on a non-discriminatory basis. The OASIS website, provides open access via a database which is automatically synchronized with the content of the online SI database. The user interface of OASIS conforms to the OASIS standard of query/response interaction and provides advance downloading functionality in CSV and XML formats. As such, it provides a customer service. However, pieces of it are used by Grid Ops, particularly outage information, load forecasting, and ATC. It reflects the results of the state of the market and is used to make decisions about scheduling. Thus the assignment is 10% CRS, 25% scheduling, 10% congestion, 35% MU, and 20% CS.
Operational Meter Analysis and Reporting (OMAR)	This Oracle-based database serves as the Settlement Quality Meter Data (SQMD) repository for the electrical usage data for the state of California. Data is accepted from the MV90 system and the SC's. Daily pushes and extracts of the SQMD are performed for Settlements, Compliance, Market Analysis, and the Data Warehouse. Master File and Schedule data are imported nightly. The system uses this data to flag data anomalies, identify occurrences of missing meter data, graph and view system data, and perform a preliminary calculation of potential UFE. OMAR-online is a web-based method of submitting and viewing SQMD also to check on the status of their meter data file submissions, over the Internet that using software digital certificate security and encryption.

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System	Description
Oracle Corporate Financials	ISO Corporate Accounting System, includes the following modules for General Ledger, Account Payable, Account Receivable, Purchasing, Project Accounting, Fixed Assets, Budget, and Cash Management.
Oracle Enterprise Manager (OEM)	Utility used by our Data Base Administrator (DBA) to monitor and manage all the ISO Oracle Databases
Oracle Licenses	Oracle Licenses that are needed for most of our applications/ database infrastructure. Used by most of the Operational applications.
Oracle Market Financials BBS	Oracle Accounting applications, only using the General Ledger, Accounts Payable, Accounts Receivable modules for invoicing and payment processing for the Market Settlements process. Highly customized.
Out of Sequence Market Operation Settlements Information System (OOS)	Out of Sequence Market Operation Settlements Information System is the system for logging out-of-market (OOM) and out of sequence (OOS) for the BEEP dispatcher activity for settlement purposes, so 80% of its costs are attributable to CS. Its use is a function of the activities of RT operators, who are forced to go outside the market, so 5% of its costs are assigned to CRS and 5% to ETS, reflecting the variability of the use of OOM resources. It does affect scheduling, which is assigned 90% of its costs.
Outage Scheduler (OS)	Outage Scheduler. It records information on available generation so that when the market is run, available generation is known. It makes sure that energy is not dispatched that is not available and also provides input to assure appropriate congestion management. MU uses it to rejects bids for A/S and Energy that cannot be delivered. Its costs are assigned 50% to CRS, 10% to scheduling, and 20% each to congestion and MU.
Participating Intermittent Resource Project (PIRP)	This project created an application and modified existing applications to accommodate Scheduling Coordinator with wind base Intermittent Resources, to submit Energy Schedules contemporaneously with other types of resources. As a result of Amendment 42 of the ISO Tariff. SC will receive near real-time, state of the art wind generation forecasts, they will match their Hour-Ahead Energy Schedules to these forecasts in order to attain preferred schedules which are excluded from the assessment of hourly uninstructed deviations penalties on a daily basis. Instead the deviation penalty will be on a monthly basis.
Physical Facilities Software Application/Furniture/Leasehold Improvements	All locations, leasehold improvement, furniture and software to manage physical facilities.
Portal	The Portal allows access to Market Applications along with CAISO reports. Additionally, industry related news and links will be available through the Portal. The implementation of the Portal provides: • A single location to access ISO Market Applications • A common look and feel across the ISO Market Applications • A single digital certificate (per user) for all ISO Market Applications
Post Transaction Repository (PTR)	PTR is an application that manages all post-operational market data prior to being settled.
Process Information System (PI)	Process Information System is an historical part of EMS that records what generation units actually provide. Also maintains operation data, transmission, and AGC data from EMS system. Information is used by Compliance to determine penalties that information is passed to Settlements for billing. CRS 80%, 10% MU, 10% CS
Rational Buyer	Internally developed application that works with SA's ASM , to optimize the selection of A/S to procure the lowest price for services.
Real Time Energy Dispatch System (REDS)	Internally developed tool to handle manual dispatching information if system isn't functioning, to be able to create data after the fact for Expected Energy and Market Clearing price. Also allows the Market Quality good reports for reviewing information in case of disputes. Also allows us to audit and validate information generated from the BEEP part of SA.
Real Time Nodal Market	Real-time dispatching project that introduces the full network model and constraints into the real-time dispatching tools. This project will ensure that Locational Marginal Prices will be produced in real-time.
Reliability Management System (RMS)	Reliability Management System: WECC mandated performance criteria reporting system.
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Remedy Corporation application called Action Request system (ARS) is an application development environment. This has been used by the ISO to build customized application for various uses at the ISO. Allocation done based on Licenses and what systems they are being used in.

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System	Description
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Remote Intelligent Gateway (RIG), is equipment that is located at Generator sites that gather information about the generator and transmit to the ISO and to the generator from the ISO when we send a signals of MW set points for AGC control from the ISO EMS either direct or through the ISO Master RIG. The DPG is a device is a one way communication device for the ISO to receive informatin about generation. Originally RIG's where referred to as GCP's (Generator Communication Project) Costs related matters are assigned 100% to CRS because they involve interaction by RT personnel and AGC of generators.
Resource Adequacy	Tools to support and comply with the CPUC's Resource Adequacy program. Applications affected include SCUC (TCUC), interface tables for Settlements data, Settlements, and Compliance. The Resource Adequacy program provides that sufficient resources will be available to meet the expected peak demand, ensuring reliability in the Control Area.
Resource Register (RR)	The Resource Registry is a custom built Remedy application developed and maintained by the Enterprise Applications Group at the ISO. The purpose of the Resource Registry is to provide a data repository for the following information:Participating Generator Agreements/Participating Load Agreements; Reliability Must Run (RMR) Test Data; AGC Pre-Test Data; Ancillary Services (AS) Certification data; A View of Business Associate Master File (MF) data
RMR Application Validation Engine (RAVE)	RMR Application Validation Tool customized third party tool, that allows the RMR analysts to elimate maual worrk around, run validation in batch at night to save time an provide a database to store all RMR invoices. This tool also provides SC credit validation, which is the past-published values that were used to validate the owner supplied RMR invoice values of SC Credit.
Scheduling & Logging for ISO California (SLIC)	While SLIC (Scheduling & Logging for ISO California) was traditionally used for logging, it has been upgraded to allow generation SCs to enter outage information, including derates, which are used by the RT desk for operations. Outage information collected in SLIC is utilized by numerous ISO systems including SI, GRRMA, ETCC and EMS. All events that impact the electricity grid are logged into SLIC to provide full reporting and disclosure consistent with our tariff. Its information will affect scheduling and MU. Customers will use it as well. Its costs are assigned 65% to CRS, 15% to scheduling, 5% to congestion, and 15% to MU.
Scheduling & Tagging Next Generation (STiNG)	STiNG ws the project to develop Control Area Scheduler (CAS), an interchange transaction scheduling system to replace BITS. CAS interfaces with E-tag software.
Scheduling Architecture (SA)	Scheduling Application is composed of BEEP, CONG, ASM, and miscellaneous small systems. Allocation is weighted average, based on traffic for the BEEP and ASM as CONG will not exist under MRTU.
Scheduling Infrastructure (SI)	Scheduling Infrastructure provides the means by which Market Participants submit & retrieve schedules & bid data. SI provides data interfaces with SC's EMS, SA and Settlements for daily statements. Base of allocation is on a system traffic analysis.
Scheduling Infrastructure Business Rules (SIBR)	The SIBR application will validate SC bids and offers as well as perform processing of bids and offers post validation. The SIBR application will publish validated bids and offers data for consumption by other CAISO applications within a stipulated time period after the market closes.
Security Constrained Economic Dispatch (SCED)	SCED will minimize the real-time cost of Imbalance Energy, determined from Energy bids submitted by participating resources, subject to transmission, nomogram and resource capability constraints, while accounting for transmission losses. The constraints will initially be enforced zonally.
Security- External/Physical	ISO Corporate security equipment, for all Folsom and Alhambra locations. Includes camera's card readers, hand readers, and monitoring equipment.
Security-ISS (CUDA)	Information/Cyber Security - Enterprise-wide information/cyber security program that provides the security infrastructure, procedures, and policies for the CAISO IT Infrastructure. This includes the Public Key Infrastructure (PKI); Enterprise Security Manager (ESM); and intrusion detection to ensure Confidentiality, Integrity, and Availability of CAISO systems.
Settlements and Market Clearing	The Settlements System and Market Clearing System (SaMC) provides an integrated automated solution to manage manages the CAISO settlement, billing, invoice, credit, and market clearing tasks. Replacement for current Settlement and Market Financial systems. Current system is unable to handle the new requirements.

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System	Description
Sign Board (Symon Board maint.)	Provides OASIS information and activity to ISO personnel, via a reader board displayed in various locations in ISO buildings
Startup Costs through 3/31/98, Working Capital-3 months	All costs for startup of the ISO, salaries and expense from June 1997 to July 1, 1998, when 1st payment for GMC received.
Storage (EMC symmetrix)	Dedicated Hardware that provides consolidated disk sotrage for multiple ISO database and applications. Three EMC products are currently used to provide storage, the Symmetrix, Clariion, Celerra. Allocation based on amount of storage currently being used by applications.
System Equipment Buyouts (lease buyouts)	Purchase of expiring equipment leases for hardware that still has several years of usage left. Allocated based on the system that it is supporting.
Tactical Emergency Management System (TEMS)	TEMS is a custom application developed specifically to manage emergency event information whether the Emergency Operations Center is activiated or not. Use of this application is at the discretion of the Executive in Charge.
Telephone/PBX	Third party costs for regular telephone, cell phone, pager costs. Telecomunication system which allows internal and external voice communications.
Training Systems	Hardware and software for stand alone system to train ISO employees on new applications or changes to existing applications before deploying to production.
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	TCUC is the application that is used to comply with the FERC June 19th & 25th Orders. This tool is used in the economic evaluation and decision-making process in which the ISO grants and denies Must Offer Waiver requests.
Transmission Map Plotting & Display	Transmission Map Plotting & Display - Our Transmission Map Plotting and Display system is used to create a set of detailed transmission maps for use by the Transmission Dispatchers, Operations Engineers and Transmission Planners. The primary use is in real-time operations to access the locations of reported fires and how close the fires are to the transmission lines. Obviously to do this function we need accurate geographic information about the transmission facilities and the location of the fires. The second use to mark damages to the lines caused by earthquakes, airplanes, storms, etc. The Operations Engineers and Planners also use the maps as a part of their grid planning and analysis work. They need to know where the lines are located and possible routes for new lines and for the location of new generating facilities that need to be hooked up to the grid. CRS 50%, ETS 50%
Treasury Workstation/Investment Program	Software or hardware that allows more efficient tracking and reporting of the CAISO investment portfolio.
Trustee Costs, Interest-Capitalized, User Groups	Start up costs for non-ISO employees from Dec. 1996 - July, 1998
Utilities - System i.e. Print drivers	Part of EMC storage usage for various system utilities.
Vitria (Middleware)	Third party software applications that allows different system to pass data between them without having to do application specific customizations. (also referred to as Enterprise Application Integration -EAI bus)
Wide Area Network (WAN)	The ISO Communication secure network. Previously supplied by MCI, being replaced by an AT&T network. This is the physical communication lines and equipment that carry digital data and voice communication between CAISO Data Centers and between the CAISO and Connected Entities (all Market paticipants that participate in the market through connections to the ISO such as Generators, Scheduling Corordinators, and Revenue Meters connects).

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Allocation by Funding Source

	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
1998-2000 Bonds	30.0%	8.4%	0.3%	11.8%	16.5%	1.1%	32.0%	100.0%
2004 Bonds	16.2%	5.1%	0.2%	17.7%	10.9%	14.1%	35.9%	100.0%
MRTU	10.3%	4.2%	0.1%	19.9%	10.8%	16.2%	38.5%	100.0%
non-MRTU	49.5%	9.7%	0.5%	4.9%	11.7%	2.3%	21.5%	100.0%
2007 Bonds	13.4%	5.1%	0.2%	19.1%	10.5%	15.7%	36.1%	100.0%
89.7% Weighted to MRTU	9.2%	4.2%	0.1%	20.9%	10.4%	17.3%	37.9%	100.0%
10.3% Weighted to MRTU	50.6%	12.6%	0.5%	3.0%	11.0%	2.0%	20.3%	100.0%
2008 Cash Financed	77.0%	4.9%	0.7%	1.2%	7.3%	2.6%	6.3%	100.0%

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Assignment of Bond and 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ 1,152,445	$ -	$ 9,555	$ -	$ -	$ -	$ -	$ 1,162,000
Ancillary Services Management (ASM) Component of SA	$ 86,297	$ -	$ 716	$ 232,034	$ 261,039	$ -	$ -	$ 580,086
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 1,644,949	$ -	$ 13,639	$ 829,294	$ 663,435	$ -	$ 165,859	$ 3,317,174
Automated Load Forecast System (ALFS)	$ 23,774	$ -	$ 197	$ 3,424	$ 6,849	$ -	$ -	$ 34,244
Automatic Mitigation Procedure (AMP)	$ -	$ 860,620	$ 7,136	$ -	$ 153,133	$ -	$ -	$ 1,020,889
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,005,904	$ 52,005,904
Balancing Energy Ex Post Price (BEEP) Component of SA	$ 1,606,934	$ 91,825	$ 14,085	$ 648,103	$ 879,569	$ -	$ -	$ 3,240,516
Bill's Interchange Schedule (BITS)	$ 697,874	$ -	$ 5,786	$ -	$ 124,175	$ -	$ -	$ 827,836
CAISO Outage Modeling Tool (COMT)	$ 397,888	$ 8,745	$ 3,371	$ 92,582	$ 114,625	$ -	$ -	$ 617,211
CaseWise (process modeling tool)	$ 47,310	$ 22,589	$ 580	$ 1,786	$ 16,695	$ 1,992	$ 26,326	$ 117,277
CHASE	$ 366,965	$ 175,217	$ 4,495	$ 13,853	$ 129,495	$ 15,449	$ 204,200	$ 909,675
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,382	$ 23,382
Common Information Model (CIM)	$ 975,227	$ -	$ 8,086	$ -	$ -	$ -	$ -	$ 983,313
Compliance	$ 375,139	$ -	$ -	$ -	$ -	$ -	$ 523,424	$ 898,564
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ 216,453	$ 1,795	$ -	$ 121,249	$ -	$ -	$ 339,496
Congestion Revenue Rights (CRR)	$ -	$ 837,411	$ 6,943	$ -	$ 2,849,696	$ -	$ -	$ 3,694,051
DataWarehouse	$ 728,754	$ 66,028	$ -	$ 70,918	$ 436,046	$ 159,811	$ 845,577	$ 2,307,134
Dept. of Market Analysis Tools (SAS/MARS)	$ 428,417	$ -	$ -	$ 118,560	$ 893,202	$ 327,316	$ 145,474	$ 1,912,968

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond and 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ 692,000	$ 692,000
Documentum	$ 892,613	$ 426,201	$ 10,935	$ 33,697	$ 314,986	$ 37,579	$ 496,699	$ 2,212,709
Electronic Tagging (Etag)	$ 1,315,353	$ -	$ 10,906	$ -	$ -	$ -	$ -	$ 1,326,259
Energy Management System (EMS)	$ 32,274,774	$ -	$ 267,596	$ -	$ -	$ -	$ -	$ 32,542,369
Engineering Analysis Tools	$ 386,793	$ 257,862	$ 5,345	$ -	$ -	$ -	$ -	$ 650,000
Evaluation of Market Separation	$ -	$ 22,429	$ 186	$ -	$ 135,688	$ -	$ -	$ 158,303
Existing Transmission Contracts Calculator (ETCC)	$ 322,760	$ 55,330	$ 3,135	$ 260,349	$ 399,821	$ -	$ 260,349	$ 1,301,743
FERC Study Software	$ -	$ -	$ -	$ -	$ 11,000	$ -	$ -	$ 11,000
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ 208,652	$ 1,730	$ 184,084	$ 710,039	$ -	$ 122,723	$ 1,227,228
Global Resource Reliability Management Application (GRRMA)	$ 307,914	$ 61,583	$ 3,064	$ -	$ 41,396	$ -	$ -	$ 413,955
Grid Operations Training Simulator (GOTS)	$ 379,178	$ 222,692	$ 4,990	$ -	$ -	$ -	$ -	$ 606,860
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ 350,813	$ -	$ -	$ -	$ 350,813
Human Resources	$ 354,744	$ 169,382	$ 4,346	$ 13,392	$ 125,183	$ 14,935	$ 197,399	$ 879,381
IBM Contract (also known as Outsourced Contracts)	$ 2,371,580	$ 947,284	$ 27,491	$ 292,418	$ 794,526	$ 290,637	$ 2,092,064	$ 6,816,000
Integrated Forward Market (IFM)	$ 2,475,067	$ -	$ 20,521	$ 8,734,560	$ -	$ 13,725,737	$ -	$ 24,955,886
Internal Development	$ 330,666	$ 42,268	$ 3,075	$ 139,220	$ 90,225	$ 133,102	$ 666,481	$ 1,405,037
Interzonal Congestion Management reform - Real Time	$ -	$ 164,135	$ 1,361	$ -	$ 91,942	$ -	$ -	$ 257,439
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,078,372	$ 6,078,372

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond and 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 276,292	$ -	$ 2,291	$ 278,583	$ 766,103	$ -	$ 69,646	$ 1,392,915
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,532,904	$ 8,532,904
Miscellaneous (2004 related capital)	$ 421,896	$ 53,930	$ 3,924	$ 177,630	$ 115,118	$ 169,825	$ 850,362	$ 1,792,686
Monitoring (Tivoli)	$ 528,999	$ 67,620	$ 4,920	$ 222,724	$ 144,342	$ 212,937	$ 1,066,235	$ 2,247,777
MRTU Capital	$ 8,485,113	$ 3,129,691	$ 93,300	$ 12,714,679	$ 7,193,609	$ 10,305,992	$ 24,969,711	$ 66,892,094
Network Applications	$ -	$ 1,315,358	$ 10,906	$ -	$ -	$ -	$ -	$ 1,326,264
New Resource Interconnection (NRI)	$ 575,107	$ -	$ 4,768	$ -	$ -	$ -	$ -	$ 579,875
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 2,910,098	$ 1,389,501	$ 35,649	$ 109,858	$ 1,026,918	$ 122,516	$ 1,619,339	$ 7,213,878
Office Automation - desktop/laptop (OA)	$ 1,165,839	$ 556,660	$ 14,282	$ 44,011	$ 411,403	$ 49,082	$ 648,737	$ 2,890,014
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 305,352	$ 145,798	$ 3,741	$ 11,527	$ 107,753	$ 12,855	$ 169,915	$ 756,940
Open Access Same Time Information System (OASIS)	$ 288,883	$ 82,538	$ 3,080	$ 728,195	$ 1,227,528	$ -	$ 582,556	$ 2,912,779
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,058,434	$ 1,058,434
Oracle Corporate Financials	$ 969,439	$ 462,884	$ 11,876	$ 36,597	$ 342,097	$ 40,814	$ 539,449	$ 2,403,154
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ 74,413	$ 7,830	$ 682	$ 505,770	$ 305,538	$ -	$ 257,885	$ 1,152,118
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,706,010	$ 1,706,010
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 376,239	$ 204,793	$ -	$ -	$ 581,032

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond and 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 12,223,338	$ 5,836,349	$ 149,736	$ 461,440	$ 4,313,385	$ 514,604	$ 6,801,738	$ 30,300,591
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 352,969	$ 352,969
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,085,648	$ 3,085,648
Process Information System (PI)	$ 1,173,066	$ -	$ 9,726	$ -	$ 147,849	$ -	$ 147,849	$ 1,478,490
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 153,376	$ -	$ 1,272	$ 44,185	$ 243,018	$ -	$ -	$ 441,851
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 986,365	$ -	$ 8,178	$ -	$ -	$ -	$ -	$ 994,543
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ 1,487,708	$ -	$ 12,335	$ -	$ -	$ -	$ -	$ 1,500,043
Resource Adequacy	$ 930,829	$ -	$ 7,718	$ -	$ -	$ -	$ -	$ 938,546
Resource Register (RR)	$ 65,915	$ -	$ 547	$ -	$ -	$ -	$ -	$ 66,462
RMR Application Validation Engine (RAVE)	$ 387,160	$ -	$ 3,210	$ -	$ -	$ -	$ -	$ 390,370
Scheduling & Logging for ISO California (SLIC)	$ 152,166	$ 3,344	$ 1,289	$ 35,406	$ 43,837	$ -	$ -	$ 236,043
Scheduling & Tagging Next Generation (STiNG)	$ 588,355	$ -	$ 4,878	$ -	$ 104,688	$ -	$ -	$ 697,921
Scheduling Architecture (SA)	$ 5,109,991	$ 3,954,937	$ 75,159	$ 6,586,322	$ 17,221,138	$ -	$ -	$ 32,947,546
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ 19,935,389	$ 10,851,181	$ -	$ -	$ 30,786,570
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 7,125,538	$ 3,878,555	$ -	$ -	$ 11,004,093
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ 131,106	$ 62,600	$ 1,606	$ 4,949	$ 46,265	$ 5,520	$ 72,955	$ 325,000
Security-ISS (CUDA)	$ 1,865,832	$ 238,503	$ 17,354	$ 785,569	$ 509,110	$ 751,049	$ 3,760,717	$ 7,928,134

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond and 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,479,506	$ 20,479,506
Sign Board (Symon Board maint.)	$ 17,829	$ 8,513	$ 218	$ 673	$ 6,291	$ 751	$ 9,921	$ 44,196
Startup Costs through 3/31/98, Working Capital-3 months	$ 30,089,400	$ 14,366,962	$ 368,595	$ 1,135,896	$ 10,617,980	$ 1,266,768	$ 16,743,398	$ 74,589,000
Storage (EMC symmetrix)	$ 151,663	$ 37,683	$ 1,283	$ 83,089	$ 107,439	$ 25,070	$ 203,698	$ 609,924
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ 11,672	$ -	$ 97	$ -	$ -	$ -	$ -	$ 11,769
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 92,863	$ 92,863	$ 1,540	$ -	$ -	$ -	$ -	$ 187,266
Treasury Workstation/Investment Program	$ 9,770	$ 4,680	$ 119	$ 441	$ 3,792	$ 487	$ 5,012	$ 24,300
Trustee Costs, Interest-Capitalized, User Groups	$ 1,376,589	$ 234,262	$ 13,330	$ 1,408,677	$ 1,576,907	$ 2,367	$ 3,297,867	$ 7,910,000
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ 10,458,304	$ 254,688	$ 86,339	$ 5,437,658	$ 3,406,474	$ 171,062	$ 7,519,015	$ 27,333,540
Total	$ 133,408,141	$ 37,163,900	$ 1,395,008	$ 70,270,134	$ 74,287,124	$ 28,358,254	$ 169,097,705	$ 513,980,265
Percent of Total	25.96%	7.23%	0.27%	13.67%	14.45%	5.52%	32.90%	100.00%

California Independent System Operator
2008 GMC Cost of Service
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Assignment of 1998-2000 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ 1,152,445	$ -	$ 9,555	$ -	$ -	$ -	$ -	$ 1,162,000
Ancillary Services Management (ASM) Component of SA	$ 86,297	$ -	$ 716	$ 232,034	$ 261,039	$ -	$ -	$ 580,086
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 1,249,969	$ -	$ 10,364	$ 630,167	$ 504,133	$ -	$ 126,033	$ 2,520,666
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 51,910,435	$ 51,910,435
Balancing Energy Ex Post Price (BEEP) Component of SA	$ 1,606,934	$ 91,825	$ 14,085	$ 648,103	$ 879,569	$ -	$ -	$ 3,240,516
Bill's Interchange Schedule (BITS)	$ 527,728	$ -	$ 4,375	$ -	$ 93,901	$ -	$ -	$ 626,004
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ 47,310	$ 22,589	$ 580	$ 1,786	$ 16,695	$ 1,992	$ 26,326	$ 117,277
CHASE	$ 322,823	$ 154,140	$ 3,955	$ 12,187	$ 113,918	$ 13,591	$ 179,636	$ 800,249
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ 975,227	$ -	$ 8,086	$ -	$ -	$ -	$ -	$ 983,313
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ 216,453	$ 1,795	$ -	$ 121,249	$ -	$ -	$ 339,496
Congestion Revenue Rights (CRR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DataWarehouse	$ 728,754	$ 66,028	$ -	$ 70,918	$ 436,046	$ 159,811	$ 845,577	$ 2,307,134
Dept. of Market Analysis Tools (SAS/MARS)	$ 182,067	$ -	$ -	$ 50,385	$ 379,591	$ 139,102	$ 61,823	$ 812,968

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 1998-2000 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ 692,000	$ 692,000
Documentum	$ 892,613	$ 426,201	$ 10,935	$ 33,697	$ 314,986	$ 37,579	$ 496,699	$ 2,212,709
Electronic Tagging (Etag)	$ 1,315,353	$ -	$ 10,906	$ -	$ -	$ -	$ -	$ 1,326,259
Energy Management System (EMS)	$ 22,892,396	$ -	$ 189,805	$ -	$ -	$ -	$ -	$ 23,082,201
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ 22,429	$ 186	$ -	$ 135,688	$ -	$ -	$ 158,303
Existing Transmission Contracts Calculator (ETCC)	$ 292,392	$ 50,124	$ 2,840	$ 235,853	$ 362,203	$ -	$ 235,853	$ 1,179,265
FERC Study Software	$ -	$ -	$ -	$ -	$ 11,000	$ -	$ -	$ 11,000
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ 208,652	$ 1,730	$ 184,084	$ 710,039	$ -	$ 122,723	$ 1,227,228
Global Resource Reliability Management Application (GRRMA)	$ 299,076	$ 59,815	$ 2,976	$ -	$ 40,207	$ -	$ -	$ 402,074
Grid Operations Training Simulator (GOTS)	$ 222,973	$ 130,953	$ 2,934	$ -	$ -	$ -	$ -	$ 356,860
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ 350,813	$ -	$ -	$ -	$ 350,813
Human Resources	$ 270,529	$ 129,171	$ 3,314	$ 10,213	$ 95,464	$ 11,389	$ 150,537	$ 670,617
IBM Contract (also known as Outsourced Contracts)	$ 2,371,580	$ 947,284	$ 27,491	$ 292,418	$ 794,526	$ 290,637	$ 2,092,064	$ 6,816,000
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Internal Development	$ 330,666	$ 42,268	$ 3,075	$ 139,220	$ 90,225	$ 133,102	$ 666,481	$ 1,405,037
Interzonal Congestion Management reform - Real Time	$ -	$ 164,135	$ 1,361	$ -	$ 91,942	$ -	$ -	$ 257,439
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 1998-2000 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,396,979	$ 8,396,979
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ 271,664	$ 34,726	$ 2,527	$ 114,378	$ 74,126	$ 109,352	$ 547,558	$ 1,154,331
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 254,144	$ 121,347	$ 3,113	$ 9,594	$ 89,682	$ 10,699	$ 141,420	$ 630,000
Office Automation - desktop/laptop (OA)	$ 975,543	$ 465,798	$ 11,950	$ 36,827	$ 344,251	$ 41,070	$ 542,846	$ 2,418,286
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 13,426	$ 6,410	$ 164	$ 507	$ 4,738	$ 565	$ 7,471	$ 33,281
Open Access Same Time Information System (OASIS)	$ 195,894	$ 55,970	$ 2,088	$ 493,795	$ 832,397	$ -	$ 395,036	$ 1,975,179
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 662,698	$ 662,698
Oracle Corporate Financials	$ 577,343	$ 275,668	$ 7,072	$ 21,795	$ 203,734	$ 24,306	$ 321,266	$ 1,431,184
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ 74,413	$ 7,830	$ 682	$ 505,770	$ 305,538	$ -	$ 257,885	$ 1,152,118
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,706,010	$ 1,706,010
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 1998-2000 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 11,319,576	$ 5,404,824	$ 138,665	$ 427,322	$ 3,994,464	$ 476,556	$ 6,298,835	$ 28,060,241
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ 790,278	$ -	$ 6,552	$ -	$ 99,604	$ -	$ 99,604	$ 996,037
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ 1,487,708	$ -	$ 12,335	$ -	$ -	$ -	$ -	$ 1,500,043
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ 65,915	$ -	$ 547	$ -	$ -	$ -	$ -	$ 66,462
RMR Application Validation Engine (RAVE)	$ 332,694	$ -	$ 2,758	$ -	$ -	$ -	$ -	$ 335,452
Scheduling & Logging for ISO California (SLIC)	$ 64,465	$ 1,417	$ 546	$ 15,000	$ 18,571	$ -	$ -	$ 99,999
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ 5,106,840	$ 3,952,498	$ 75,113	$ 6,582,260	$ 17,210,518	$ -	$ -	$ 32,927,229
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ 19,922,233	$ 10,844,020	$ -	$ -	$ 30,766,253
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 1,777,567	$ 227,221	$ 16,533	$ 748,407	$ 485,026	$ 715,519	$ 3,582,812	$ 7,553,085

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 1998-2000 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ 17,829	$ 8,513	$ 218	$ 673	$ 6,291	$ 751	$ 9,921	$ 44,196
Startup Costs through 3/31/98, Working Capital-3 months	$ 30,089,400	$ 14,366,962	$ 368,595	$ 1,135,896	$ 10,617,980	$ 1,266,768	$ 16,743,398	$ 74,589,000
Storage (EMC symmetrix)	$ 17,766	$ 4,414	$ 150	$ 9,733	$ 12,586	$ 2,937	$ 23,862	$ 71,449
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 68,929	$ 68,929	$ 1,143	$ -	$ -	$ -	$ -	$ 139,000
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ 1,376,589	$ 234,262	$ 13,330	$ 1,408,677	$ 1,576,907	$ 2,367	$ 3,297,867	$ 7,910,000
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ 10,458,304	$ 254,688	$ 86,339	$ 5,437,658	$ 3,406,474	$ 171,062	$ 7,519,015	$ 27,333,540
Total	$ 101,103,416	$ 28,223,544	$ 1,061,483	$ 39,762,405	$ 55,579,327	$ 3,609,156	$ 108,160,669	$ 337,500,000
Percent of Total	29.96%	8.36%	0.31%	11.78%	16.47%	1.07%	32.05%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 355,330	$ -	$ 2,946	$ 179,138	$ 143,311	$ -	$ 35,828	$ 716,553
Automated Load Forecast System (ALFS)	$ 19,886	$ -	$ 165	$ 2,864	$ 5,729	$ -	$ -	$ 28,644
Automatic Mitigation Procedure (AMP)	$ -	$ 528,842	$ 4,385	$ -	$ 94,099	$ -	$ -	$ 627,325
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 95,468	$ 95,468
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ 170,146	$ -	$ 1,411	$ -	$ 30,275	$ -	$ -	$ 201,831
CAISO Outage Modeling Tool (COMT)	$ 331,066	$ 7,276	$ 2,805	$ 77,033	$ 95,375	$ -	$ -	$ 513,556
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ 44,143	$ 21,077	$ 541	$ 1,666	$ 15,577	$ 1,858	$ 24,563	$ 109,426
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,382	$ 23,382
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 330,356	$ -	$ -	$ -	$ -	$ -	$ 460,939	$ 791,295
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 638,194	$ 5,291	$ -	$ 2,171,763	$ -	$ -	$ 2,815,248
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 4,124,584	$ -	$ 34,198	$ -	$ -	$ -	$ -	$ 4,158,782
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 27,417	$ 4,700	$ 266	$ 22,116	$ 33,963	$ -	$ 22,116	$ 110,578
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ 3,646	$ 729	$ 36	$ -	$ 490	$ -	$ -	$ 4,901
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ 84,216	$ 40,211	$ 1,032	$ 3,179	$ 29,718	$ 3,545	$ 46,862	$ 208,764
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 1,745,463	$ -	$ 14,472	$ 6,159,771	$ -	$ 9,679,640	$ -	$ 17,599,345
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,119,752	$ 3,119,752

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 248,247	$ -	$ 2,058	$ 250,305	$ 688,340	$ -	$ 62,576	$ 1,251,527
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 55,924	$ 55,924
Miscellaneous (2004 related capital)	$ 395,877	$ 50,604	$ 3,682	$ 166,676	$ 108,019	$ 159,351	$ 797,919	$ 1,682,128
Monitoring (Tivoli)	$ 180,645	$ 23,091	$ 1,680	$ 76,057	$ 49,291	$ 72,714	$ 364,102	$ 767,580
MRTU Capital	$ 5,086,252	$ 1,876,038	$ 55,927	$ 7,621,592	$ 4,312,083	$ 6,177,746	$ 14,967,656	$ 40,097,295
Network Applications	$ -	$ 1,112,815	$ 9,227	$ -	$ -	$ -	$ -	$ 1,122,041
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 2,400,151	$ 1,146,014	$ 29,402	$ 90,607	$ 846,968	$ 101,047	$ 1,335,576	$ 5,949,765
Office Automation - desktop/laptop (OA)	$ 190,296	$ 90,862	$ 2,331	$ 7,184	$ 67,152	$ 8,011	$ 105,891	$ 471,728
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 149,111	$ 71,197	$ 1,827	$ 5,629	$ 52,618	$ 6,278	$ 82,973	$ 369,633
Open Access Same Time Information System (OASIS)	$ 76,507	$ 21,859	$ 816	$ 192,852	$ 325,094	$ -	$ 154,282	$ 771,409
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 313,282	$ 313,282
Oracle Corporate Financials	$ 282,719	$ 134,992	$ 3,463	$ 10,673	$ 99,766	$ 11,903	$ 157,321	$ 700,837
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 353,436	$ 192,382	$ -	$ -	$ 545,818

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 75,899	$ 36,240	$ 930	$ 2,865	$ 26,783	$ 3,195	$ 42,234	$ 188,146
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 305,726	$ 305,726
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,421,771	$ 2,421,771
Process Information System (PI)	$ 18,039	$ -	$ 150	$ -	$ 2,274	$ -	$ 2,274	$ 22,736
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 146,619	$ -	$ 1,216	$ 42,238	$ 232,311	$ -	$ -	$ 422,385
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 769,428	$ -	$ 6,379	$ -	$ -	$ -	$ -	$ 775,807
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ 598,031	$ -	$ 4,958	$ -	$ -	$ -	$ -	$ 602,989
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 29,640	$ -	$ 246	$ -	$ -	$ -	$ -	$ 29,886
Scheduling & Logging for ISO California (SLIC)	$ 83,125	$ 1,827	$ 704	$ 19,342	$ 23,947	$ -	$ -	$ 128,946
Scheduling & Tagging Next Generation (STiNG)	$ 573,837	$ -	$ 4,758	$ -	$ 102,105	$ -	$ -	$ 680,700
Scheduling Architecture (SA)	$ 3,151	$ 2,439	$ 46	$ 4,061	$ 10,619	$ -	$ -	$ 20,317
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ 13,156	$ 7,161	$ -	$ -	$ 20,317
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 5,010,386	$ 2,727,241	$ -	$ -	$ 7,737,627
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 22,663	$ 2,897	$ 211	$ 9,542	$ 6,184	$ 9,123	$ 45,680	$ 96,300

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,229,177	$ 16,229,177
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 81,561	$ 20,265	$ 690	$ 44,684	$ 57,778	$ 13,482	$ 109,544	$ 328,004
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ 11,672	$ -	$ 97	$ -	$ -	$ -	$ -	$ 11,769
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 5,093	$ 5,093	$ 84	$ -	$ -	$ -	$ -	$ 10,271
Treasury Workstation/Investment Program	$ 9,770	$ 4,680	$ 119	$ 441	$ 3,792	$ 487	$ 5,012	$ 24,300
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 18,674,587	$ 5,841,941	$ 198,548	$ 20,367,494	$ 12,562,206	$ 16,248,381	$ 41,387,831	$ 115,280,989
Percent of Total	16.20%	5.07%	0.17%	17.67%	10.90%	14.09%	35.90%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 39,649	$ -	$ 329	$ 19,989	$ 15,991	$ -	$ 3,998	$ 79,956
Automated Load Forecast System (ALFS)	$ 3,888	$ -	$ 32	$ 560	$ 1,120	$ -	$ -	$ 5,600
Automatic Mitigation Procedure (AMP)	$ -	$ 331,778	$ 2,751	$ -	$ 59,035	$ -	$ -	$ 393,564
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ 66,822	$ 1,469	$ 566	$ 15,548	$ 19,250	$ -	$ -	$ 103,655
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 44,783	$ -	$ -	$ -	$ -	$ -	$ 62,485	$ 107,268
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 199,217	$ 1,652	$ -	$ 677,934	$ -	$ -	$ 878,803
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 55,923	$ -	$ 464	$ -	$ -	$ -	$ -	$ 56,387
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 2,951	$ 506	$ 29	$ 2,380	$ 3,655	$ -	$ 2,380	$ 11,900
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ 5,192	$ 1,038	$ 52	$ -	$ 698	$ -	$ -	$ 6,981
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 729,605	$ -	$ 6,049	$ 2,574,789	$ -	$ 4,046,098	$ -	$ 7,356,541
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,838,620	$ 2,838,620

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 28,045	$ -	$ 233	$ 28,278	$ 77,763	$ -	$ 7,069	$ 141,388
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ 26,019	$ 3,326	$ 242	$ 10,955	$ 7,100	$ 10,473	$ 52,443	$ 110,558
Monitoring (Tivoli)	$ 76,690	$ 9,803	$ 713	$ 32,289	$ 20,926	$ 30,870	$ 154,575	$ 325,866
MRTU Capital	$ 3,398,861	$ 1,253,652	$ 37,373	$ 5,093,087	$ 2,881,526	$ 4,128,246	$ 10,002,055	$ 26,794,800
Network Applications	$ -	$ 202,543	$ 1,679	$ -	$ -	$ -	$ -	$ 204,223
New Resource Interconnection (NRI)	$ 575,107	$ -	$ 4,768	$ -	$ -	$ -	$ -	$ 579,875
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 255,803	$ 122,140	$ 3,134	$ 9,657	$ 90,268	$ 10,769	$ 142,343	$ 634,113
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 142,815	$ 68,191	$ 1,749	$ 5,391	$ 50,397	$ 6,013	$ 79,470	$ 354,027
Open Access Same Time Information System (OASIS)	$ 16,482	$ 4,709	$ 176	$ 41,548	$ 70,038	$ -	$ 33,238	$ 166,191
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 82,454	$ 82,454
Oracle Corporate Financials	$ 109,376	$ 52,224	$ 1,340	$ 4,129	$ 38,597	$ 4,605	$ 60,863	$ 271,133
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 22,802	$ 12,412	$ -	$ -	$ 35,214

California Independent System Operator
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Listing of Systems

Assignment of 2007 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 827,864	$ 395,285	$ 10,141	$ 31,252	$ 292,138	$ 34,853	$ 460,669	$ 2,052,203
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 47,244	$ 47,244
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 663,877	$ 663,877
Process Information System (PI)	$ 3,742	$ -	$ 31	$ -	$ 472	$ -	$ 472	$ 4,717
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 6,757	$ -	$ 56	$ 1,947	$ 10,707	$ -	$ -	$ 19,466
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 216,937	$ -	$ 1,799	$ -	$ -	$ -	$ -	$ 218,736
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ 332,798	$ -	$ 2,759	$ -	$ -	$ -	$ -	$ 335,557
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 24,826	$ -	$ 206	$ -	$ -	$ -	$ -	$ 25,032
Scheduling & Logging for ISO California (SLIC)	$ 4,576	$ 101	$ 39	$ 1,065	$ 1,318	$ -	$ -	$ 7,098
Scheduling & Tagging Next Generation (STiNG)	$ 14,518	$ -	$ 120	$ -	$ 2,583	$ -	$ -	$ 17,222
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 2,115,152	$ 1,151,314	$ -	$ -	$ 3,266,466
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 883	$ 113	$ 8	$ 372	$ 241	$ 355	$ 1,779	$ 3,750

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,250,329	$ 4,250,329
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 52,335	$ 13,003	$ 443	$ 28,672	$ 37,075	$ 8,651	$ 70,291	$ 210,471
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 18,841	$ 18,841	$ 312	$ -	$ -	$ -	$ -	$ 37,995
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 7,082,088	$ 2,677,941	$ 79,245	$ 10,039,862	$ 5,522,555	$ 8,280,933	$ 19,016,653	$ 52,699,276
Percent of Total	13.44%	5.08%	0.15%	19.05%	10.48%	15.71%	36.09%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)								redacted
Ancillary Services Management (ASM) Component of SA								redacted
Application Development Tools								redacted
Automated Dispatch System (ADS)								redacted
Automated Load Forecast System (ALFS)								redacted
Automatic Mitigation Procedure (AMP)								redacted
Backup systems (Legato/Quantum)								redacted
Balance of Business Systems (BBS)								redacted
Balancing Energy Ex Post Price (BEEP) Component of SA								redacted
Bill's Interchange Schedule (BITS)								redacted
CAISO Outage Modeling Tool (COMT)								redacted
CaseWise (process modeling tool)								redacted
CHASE								redacted
Client Relations Tools								redacted
Common Information Model (CIM)								redacted
Compliance								redacted
Congestion Management (CONG) Component of SA								redacted
Congestion Reform-DSOW								redacted
Congestion Revenue Rights (CRR)								redacted
DataWarehouse								redacted
Dept. of Market Analysis Tools (SAS/MARS)								redacted

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)								redacted
Documentum								redacted
Electronic Tagging (Etag)								redacted
Energy Management System (EMS)								redacted
Engineering Analysis Tools								redacted
Evaluation of Market Separation								redacted
Existing Transmission Contracts Calculator (ETCC)								redacted
FERC Study Software								redacted
Firm Transmission Right (FTR) and Secondary Registration System (SRS)								redacted
Global Resource Reliability Management Application (GRRMA)								redacted
Grid Operations Training Simulator (GOTS)								redacted
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,								redacted
Human Resources								redacted
IBM Contract (also known as Outsourced Contracts)								redacted
Integrated Forward Market (IFM)								redacted
Internal Development								redacted
Interzonal Congestion Management reform - Real Time								redacted
Land and Building Costs								redacted
Local Area Network (LAN)								redacted
Locational Marginal Pricing (LMPM)								redacted
Market Quality System (MQS)								redacted

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile								redacted
Meter Data Acquisition System (MDAS)								redacted
Miscellaneous (2004 related capital)								redacted
Monitoring (Tivoli)								redacted
MRTU Capital								redacted
Network Applications								redacted
New Resource Interconnection (NRI)								redacted
New System Equipment (replacement of owned equipment)								redacted
NT/web servers								redacted
NT-servers								redacted
Office Automation - desktop/laptop (OA)								redacted
Office equipment (scanner, printer, copier, fax, Communication Equip.)								redacted
Open Access Same Time Information System (OASIS)								redacted
Operational Meter Analysis and Reporting (OMAR)								redacted
Oracle Corporate Financials								redacted
Oracle Enterprise Manager (OEM)								redacted
Oracle Licenses								redacted
Oracle Market Financials BBS								redacted
Out of Sequence Market Operation Settlements Information System (OOS)								redacted
Outage Scheduler (OS)								redacted
Participating Intermittent Resource Project (PIRP)								redacted

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements								redacted
Portal								redacted
Post Transaction Repository (PTR)								redacted
Process Information System (PI)								redacted
Rational Buyer								redacted
Real Time Energy Dispatch System (REDS)								redacted
Real Time Nodal Market								redacted
Reliability Management System (RMS)								redacted
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)								redacted
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)								redacted
Resource Adequacy								redacted
Resource Register (RR)								redacted
RMR Application Validation Engine (RAVE)								redacted
Scheduling & Logging for ISO California (SLIC)								redacted
Scheduling & Tagging Next Generation (STiNG)								redacted
Scheduling Architecture (SA)								redacted
Scheduling Infrastructure (SI)								redacted
Scheduling Infrastructure Business Rules (SIBR)								redacted
Security Constrained Economic Dispatch (SCED)								redacted
Security- External/Physical								redacted
Security-ISS (CUDA)								redacted

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing								redacted
Sign Board (Symon Board maint.)								redacted
Startup Costs through 3/31/98, Working Capital-3 months								redacted
Storage (EMC symmetrix)								redacted
System Equipment Buyouts (lease buyouts)								redacted
Tactical Emergency Management System (TEMS)								redacted
Telephone/PBX								redacted
Training Systems								redacted
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation								redacted
Transmission Map Plotting & Display								redacted
Treasury Workstation/Investment Program								redacted
Trustee Costs, Interest-Capitalized, User Groups								redacted
Utilities - System i.e. Print drivers								redacted
Vitria (Middleware)								redacted
Wide Area Network (WAN)								redacted
Total	$ 6,548,050	$ 420,474	$ 55,731	$ 100,373	$ 623,035	$ 219,785	$ 532,552	$ 8,500,000
Percent of Total	77.04%	4.95%	0.66%	1.18%	7.33%	2.59%	6.27%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Ancillary Services Management (ASM) Component of SA	Direct	14.88%	0.00%	0.12%	40.00%	45.00%	0.00%	0.00%	100.00%
Application Development Tools	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Automated Dispatch System (ADS)	Direct	49.59%	0.00%	0.41%	25.00%	20.00%	0.00%	5.00%	100.00%
Automated Load Forecast System (ALFS)	Direct	69.42%	0.00%	0.58%	10.00%	20.00%	0.00%	0.00%	100.00%
Automatic Mitigation Procedure (AMP)	Direct	0.00%	84.30%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Backup systems (Legato/Quantum)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Balance of Business Systems (BBS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Balancing Energy Ex Post Price (BEEP) Component of SA	Direct	49.59%	2.83%	0.43%	20.00%	27.14%	0.00%	0.00%	100.00%
Bill's Interchange Schedule (BITS)	Direct	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
CAISO Outage Modeling Tool (COMT)	Direct	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
CaseWise (process modeling tool)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
CHASE	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Client Relations Tools	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Common Information Model (CIM)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Compliance	Dept direct	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
Congestion Management (CONG) Component of SA	Direct	0.00%	28.34%	0.23%	0.00%	71.43%	0.00%	0.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Congestion Reform-DSOW	Direct	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Congestion Revenue Rights (CRR)	Direct	0.00%	22.67%	0.19%	0.00%	77.14%	0.00%	0.00%	100.00%
DataWarehouse	Dept direct	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
Dept. of Market Analysis Tools (SAS/MARS)	Dept direct	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
Dispute Tracking System (Remedy)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Documentum	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Electronic Tagging (Etag)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Energy Management System (EMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Engineering Analysis Tools	Direct	59.51%	39.67%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Evaluation of Market Separation	Direct	0.00%	14.17%	0.12%	0.00%	85.71%	0.00%	0.00%	100.00%
Existing Transmission Contracts Calculator (ETCC)	Direct	24.79%	4.25%	0.24%	20.00%	30.71%	0.00%	20.00%	100.00%
FERC Study Software	Direct	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	0.00%	17.00%	0.14%	15.00%	57.86%	0.00%	10.00%	100.00%
Global Resource Reliability Management Application (GRRMA)	Direct	74.38%	14.88%	0.74%	0.00%	10.00%	0.00%	0.00%	100.00%
Grid Operations Training Simulator (GOTS)	Direct	62.48%	36.70%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Direct	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
Human Resources	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
IBM Contract (also known as Outsourced Contracts)	Dept direct	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%
Integrated Forward Market (IFM)	Direct	9.92%	0.00%	0.08%	35.00%	0.00%	55.00%	0.00%	100.00%
Internal Development	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Interzonal Congestion Management reform - Real Time	Direct	0.00%	63.76%	0.53%	0.00%	35.71%	0.00%	0.00%	100.00%
Land and Building Costs	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Local Area Network (LAN)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Locational Marginal Pricing (LMPM)	Direct	9.92%	0.00%	0.08%	35.00%	55.00%	0.00%	0.00%	100.00%
Market Quality System (MQS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Masterfile	Direct	19.84%	0.00%	0.16%	20.00%	55.00%	0.00%	5.00%	100.00%
Meter Data Acquisition System (MDAS)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Miscellaneous (2004 related capital)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Monitoring (Tivoli)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
MRTU Capital	Direct	12.68%	4.68%	0.14%	19.01%	10.75%	15.41%	37.33%	100.00%
Network Applications	Direct	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New Resource Interconnection (NRI)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
New System Equipment (replacement of owned equipment)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
NT/web servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
NT-servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office Automation - desktop/laptop (OA)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Open Access Same Time Information System (OASIS)	Direct	9.92%	2.83%	0.11%	25.00%	42.14%	0.00%	20.00%	100.00%
Operational Meter Analysis and Reporting (OMAR)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Oracle Corporate Financials	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Oracle Enterprise Manager (OEM)	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Licenses	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Market Financials BBS	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Out of Sequence Market Operation Settlements Information System (OOS)	Direct	4.96%	4.96%	0.08%	0.00%	90.00%	0.00%	0.00%	100.00%
Outage Scheduler (OS)	Direct	49.59%	5.67%	0.46%	10.00%	34.29%	0.00%	0.00%	100.00%
Participating Intermittent Resource Project (PIRP)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Physical Facilities Software Application/Furniture/Leasehold Improvements	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Portal	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Post Transaction Repository (PTR)	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
Process Information System (PI)	Direct	79.34%	0.00%	0.66%	0.00%	10.00%	0.00%	10.00%	100.00%
Rational Buyer	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Real Time Energy Dispatch System (REDS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Real Time Nodal Market	Direct	34.71%	0.00%	0.29%	10.00%	55.00%	0.00%	0.00%	100.00%
Reliability Management System (RMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Adequacy	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Resource Register (RR)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
RMR Application Validation Engine (RAVE)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Scheduling & Logging for ISO California (SLIC)	Direct	64.47%	1.42%	0.55%	15.00%	18.57%	0.00%	0.00%	100.00%
Scheduling & Tagging Next Generation (STiNG)	Direct	84.30%	0.00%	0.70%	0.00%	15.00%	0.00%	0.00%	100.00%
Scheduling Architecture (SA)	Calculated Direct	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
Scheduling Infrastructure (SI)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Scheduling Infrastructure Business Rules (SIBR)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Security Constrained Economic Dispatch (SCED)	Direct	0.00%	39.67%	0.33%	0.00%	60.00%	0.00%	0.00%	100.00%
Security- External/Physical	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Security-ISS (CUDA)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Settlements and Market Clearing	Direct	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Sign Board (Symon Board maint.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Startup Costs through 3/31/98, Working Capital-3 months	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Storage (EMC symmetrix)	Calculated Direct	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
System Equipment Buyouts (lease buyouts)	Calculated Direct	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%
Tactical Emergency Management System (TEMS)	Direct	99.18%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Telephone/PBX	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Training Systems	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	Direct	0.00%	99.18%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Transmission Map Plotting & Display	Direct	49.59%	49.59%	0.82%	0.00%	0.00%	0.00%	0.00%	100.00%
Treasury Workstation/Investment Program	Dept direct	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%
Trustee Costs, Interest-Capitalized, User Groups	Calculated Direct	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
Utilities - System i.e. Print drivers	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Vitria (Middleware)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Wide Area Network (WAN)	Calculated Direct	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems Allocated by FTE

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
CaseWise (process modeling tool)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
CHASE	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Documentum	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Human Resources	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Land and Building Costs	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Local Area Network (LAN)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
NT/web servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
NT-servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office Automation - desktop/laptop (OA)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems Allocated by FTE

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Oracle Corporate Financials	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Physical Facilities Software Application/Furniture/Leasehold Improvements	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Security- External/Physical	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Sign Board (Symon Board maint.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Startup Costs through 3/31/98, Working Capital-3 months	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
Telephone/PBX	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
FTE factors based on Direct Labor assignment		40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems Allocated by System Directs

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU_FE	SMCR	Total
Application Development Tools	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Backup systems (Legato/Quantum)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Internal Development	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Miscellaneous (2004 related capital)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Monitoring (Tivoli)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
New System Equipment (replacement of owned equipment)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Security-ISS (CUDA)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Training Systems	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Utilities - System i.e. Print drivers	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
Vitria (Middleware)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems Allocated by Departments

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Compliance	Dept direct	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
DataWarehouse	Dept direct	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
Dept. of Market Analysis Tools (SAS/MARS)	Dept direct	22.40%	0.00%	0.00%	6.20%	46.69%	17.11%	7.60%	100.00%
IBM Contract (also known as Outsourced Contracts)	Dept direct	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%
Treasury Workstation/Investment Program	Dept direct	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Identified Costs of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
ACC Upgrades (Communication between ISO & IOUs)	Direct	$ 1,152,445	$ -	$ 9,555	$ -	$ -	$ -	$ -	$ 1,162,000
Ancillary Services Management (ASM) Component of SA	Direct	$ 86,297	$ -	$ 716	$ 232,034	$ 261,039	$ -	$ -	$ 580,086
Automated Dispatch System (ADS)	Direct	$ 1,644,949	$ -	$ 13,639	$ 829,294	$ 663,435	$ -	$ 165,859	$ 3,317,174
Automated Load Forecast System (ALFS)	Direct	$ 23,774	$ -	$ 197	$ 3,424	$ 6,849	$ -	$ -	$ 34,244
Automatic Mitigation Procedure (AMP)	Direct	$ -	$ 860,620	$ 7,136	$ -	$ 153,133	$ -	$ -	$ 1,020,889
Balance of Business Systems (BBS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,005,904	$ 52,005,904
Balancing Energy Ex Post Price (BEEP) Component of SA	Direct	$ 1,606,934	$ 91,825	$ 14,085	$ 648,103	$ 879,569	$ -	$ -	$ 3,240,516
Bill's Interchange Schedule (BITS)	Direct	$ 697,874	$ -	$ 5,786	$ -	$ 124,175	$ -	$ -	$ 827,836
CAISO Outage Modeling Tool (COMT)	Direct	$ 397,888	$ 8,745	$ 3,371	$ 92,582	$ 114,625	$ -	$ -	$ 617,211
Client Relations Tools	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,382	$ 23,382
Common Information Model (CIM)	Direct	$ 975,227	$ -	$ 8,086	$ -	$ -	$ -	$ -	$ 983,313
Congestion Management (CONG) Component of SA	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	Direct	$ -	$ 216,453	$ 1,795	$ -	$ 121,249	$ -	$ -	$ 339,496
Congestion Revenue Rights (CRR)	Direct	$ -	$ 837,411	$ 6,943	$ -	$ 2,849,696	$ -	$ -	$ 3,694,051
Dispute Tracking System (Remedy)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 692,000	$ 692,000
Electronic Tagging (Etag)	Direct	$ 1,315,353	$ -	$ 10,906	$ -	$ -	$ -	$ -	$ 1,326,259
Energy Management System (EMS)	Direct	$ 32,274,774	$ -	$ 267,596	$ -	$ -	$ -	$ -	$ 32,542,369
Engineering Analysis Tools	Direct	$ 386,793	$ 257,862	$ 5,345	$ -	$ -	$ -	$ -	$ 650,000
Evaluation of Market Separation	Direct	$ -	$ 22,429	$ 186	$ -	$ 135,688	$ -	$ -	$ 158,303
Existing Transmission Contracts Calculator (ETCC)	Direct	$ 322,760	$ 55,330	$ 3,135	$ 260,349	$ 399,821	$ -	$ 260,349	$ 1,301,743
FERC Study Software	Direct	$ -	$ -	$ -	$ -	$ 11,000	$ -	$ -	$ 11,000
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	$ -	$ 208,652	$ 1,730	$ 184,084	$ 710,039	$ -	$ 122,723	$ 1,227,228

California Independent System Operator
2008 GMC Cost of Service
Listing of Identified Costs of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
Global Resource Reliability Management Application (GRRMA)	Direct	$ 307,914	$ 61,583	$ 3,064	$ -	$ 41,396	$ -	$ -	$ 413,955
Grid Operations Training Simulator (GOTS)	Direct	$ 379,178	$ 222,692	$ 4,990	$ -	$ -	$ -	$ -	$ 606,860
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Direct	$ -	$ -	$ -	$ 350,813	$ -	$ -	$ -	$ 350,813
Integrated Forward Market (IFM)	Direct	$ 2,475,067	$ -	$ 20,521	$ 8,734,560	$ -	$ 13,725,737	$ -	$ 24,955,886
Interzonal Congestion Management reform - Real Time	Direct	$ -	$ 164,135	$ 1,361	$ -	$ 91,942	$ -	$ -	$ 257,439
Locational Marginal Pricing (LMPM)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,078,372	$ 6,078,372
Masterfile	Direct	$ 276,292	$ -	$ 2,291	$ 278,583	$ 766,103	$ -	$ 69,646	$ 1,392,915
MRTU Capital	Direct	$ 8,485,113	$ 3,129,691	$ 93,300	$ 12,714,679	$ 7,193,609	$ 10,305,992	$ 24,969,711	$ 66,892,094
Meter Data Acquisition System (MDAS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,532,904	$ 8,532,904
Network Applications	Direct	$ -	$ 1,315,358	$ 10,906	$ -	$ -	$ -	$ -	$ 1,326,264
New Resource Interconnection (NRI)	Direct	$ 575,107	$ -	$ 4,768	$ -	$ -	$ -	$ -	$ 579,875
Open Access Same Time Information System (OASIS)	Direct	$ 288,883	$ 82,538	$ 3,080	$ 728,195	$ 1,227,528	$ -	$ 582,556	$ 2,912,779
Operational Meter Analysis and Reporting (OMAR)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,058,434	$ 1,058,434
Oracle Market Financials BBS	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,706,010	$ 1,706,010
Out of Sequence Market Operation Settlements Information System (OOS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 352,969	$ 352,969
Process Information System (PI)	Direct	$ 1,173,066	$ -	$ 9,726	$ -	$ 147,849	$ -	$ 147,849	$ 1,478,490
Rational Buyer	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	Direct	$ 153,376	$ -	$ 1,272	$ 44,185	$ 243,018	$ -	$ -	$ 441,851

California Independent System Operator
2008 GMC Cost of Service
Listing of Identified Costs of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
Reliability Management System (RMS)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Direct	$ 986,365	$ -	$ 8,178	$ -	$ -	$ -	$ -	$ 994,543
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	$ 1,487,708	$ -	$ 12,335	$ -	$ -	$ -	$ -	$ 1,500,043
Resource Adequacy	Direct	$ 930,829	$ -	$ 7,718	$ -	$ -	$ -	$ -	$ 938,546
Resource Register (RR)	Direct	$ 65,915	$ -	$ 547	$ -	$ -	$ -	$ -	$ 66,462
RMR Application Validation Engine (RAVE)	Direct	$ 387,160	$ -	$ 3,210	$ -	$ -	$ -	$ -	$ 390,370
Scheduling & Logging for ISO California (SLIC)	Direct	$ 152,166	$ 3,344	$ 1,289	$ 35,406	$ 43,837	$ -	$ -	$ 236,043
Scheduling & Tagging Next Generation (STiNG)	Direct	$ 588,355	$ -	$ 4,878	$ -	$ 104,688	$ -	$ -	$ 697,921
Security Constrained Economic Dispatch (SCED)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Settlements and Market Clearing	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,479,506	$ 20,479,506
Tactical Emergency Management System (TEMS)	Direct	$ 11,672	$ -	$ 97	$ -	$ -	$ -	$ -	$ 11,769
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	Direct	$ 92,863	$ 92,863	$ 1,540	$ -	$ -	$ -	$ -	$ 187,266
Post Transaction Repository (PTR)	Direct	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,085,648	$ 3,085,648
Total		$ 59,702,096	$ 7,631,531	$ 555,275	$ 25,136,292	$ 16,290,287	$ 24,031,729	$120,333,819	$ 253,681,028
Percent of Total		23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Ancillary Services Management (ASM) Component of SA	Direct	14.9%	0.0%	0.1%	40.0%	45.0%	0.0%	0.0%	100.0%
Automated Dispatch System (ADS)	Direct	49.6%	0.0%	0.4%	25.0%	20.0%	0.0%	5.0%	100.0%
Automated Load Forecast System (ALFS)	Direct	69.4%	0.0%	0.6%	10.0%	20.0%	0.0%	0.0%	100.0%
Automatic Mitigation Procedure (AMP)	Direct	0.0%	84.3%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
Balance of Business Systems (BBS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Balancing Energy Ex Post Price (BEEP) Component of SA	Direct	49.6%	2.8%	0.4%	20.0%	27.1%	0.0%	0.0%	100.0%
Bill's Interchange Schedule (BITS)	Direct	84.3%	0.0%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
CAISO Outage Modeling Tool (COMT)	Direct	64.5%	1.4%	0.5%	15.0%	18.6%	0.0%	0.0%	100.0%
Client Relations Tools	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Common Information Model (CIM)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Congestion Management (CONG) Component of SA	Direct	0.0%	28.3%	0.2%	0.0%	71.4%	0.0%	0.0%	100.0%
Congestion Reform-DSOW	Direct	0.0%	63.8%	0.5%	0.0%	35.7%	0.0%	0.0%	100.0%
Congestion Revenue Rights (CRR)	Direct	0.0%	22.7%	0.2%	0.0%	77.1%	0.0%	0.0%	100.0%
Dispute Tracking System (Remedy)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Electronic Tagging (Etag)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Listing of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Energy Management System (EMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Engineering Analysis Tools	Direct	59.5%	39.7%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Evaluation of Market Separation	Direct	0.0%	14.2%	0.1%	0.0%	85.7%	0.0%	0.0%	100.0%
Existing Transmission Contracts Calculator (ETCC)	Direct	24.8%	4.3%	0.2%	20.0%	30.7%	0.0%	20.0%	100.0%
FERC Study Software	Direct	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	0.0%	17.0%	0.1%	15.0%	57.9%	0.0%	10.0%	100.0%
Global Resource Reliability Management Application (GRRMA)	Direct	74.4%	14.9%	0.7%	0.0%	10.0%	0.0%	0.0%	100.0%
Grid Operations Training Simulator (GOTS)	Direct	62.5%	36.7%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Direct	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
Integrated Forward Market (IFM)	Direct	9.9%	0.0%	0.1%	35.0%	0.0%	55.0%	0.0%	100.0%
Interzonal Congestion Management reform - Real Time	Direct	0.0%	63.8%	0.5%	0.0%	35.7%	0.0%	0.0%	100.0%
Locational Marginal Pricing (LMPM)	Direct	9.9%	0.0%	0.1%	35.0%	55.0%	0.0%	0.0%	100.0%
Market Quality System (MQS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Masterfile	Direct	19.8%	0.0%	0.2%	20.0%	55.0%	0.0%	5.0%	100.0%
MRTU Capital	Direct	12.7%	4.7%	0.1%	19.0%	10.8%	15.4%	37.3%	100.0%
Meter Data Acquisition System (MDAS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Listing of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Network Applications	Direct	0.0%	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
New Resource Interconnection (NRI)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Open Access Same Time Information System (OASIS)	Direct	9.9%	2.8%	0.1%	25.0%	42.1%	0.0%	20.0%	100.0%
Operational Meter Analysis and Reporting (OMAR)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Oracle Market Financials BBS	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Out of Sequence Market Operation Settlements Information System (OOS)	Direct	5.0%	5.0%	0.1%	0.0%	90.0%	0.0%	0.0%	100.0%
Outage Scheduler (OS)	Direct	49.6%	5.7%	0.5%	10.0%	34.3%	0.0%	0.0%	100.0%
Portal	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Process Information System (PI)	Direct	79.3%	0.0%	0.7%	0.0%	10.0%	0.0%	10.0%	100.0%
Rational Buyer	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Real Time Energy Dispatch System (REDS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Real Time Nodal Market	Direct	34.7%	0.0%	0.3%	10.0%	55.0%	0.0%	0.0%	100.0%
Reliability Management System (RMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Listing of Directly Functionalized Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Resource Adequacy	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Resource Register (RR)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
RMR Application Validation Engine (RAVE)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Scheduling & Logging for ISO California (SLIC)	Direct	64.5%	1.4%	0.5%	15.0%	18.6%	0.0%	0.0%	100.0%
Scheduling & Tagging Next Generation (STiNG)	Direct	84.3%	0.0%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
Security Constrained Economic Dispatch (SCED)	Direct	0.0%	39.7%	0.3%	0.0%	60.0%	0.0%	0.0%	100.0%
Settlements and Market Clearing	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Tactical Emergency Management System (TEMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	Direct	0.0%	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Transmission Map Plotting & Display	Direct	49.6%	49.6%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
Post Transaction Repository (PTR)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems Allocations Calculated from Other Systems

System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Participating Intermittent Resource Project (PIRP)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Oracle Enterprise Manager (OEM)	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Oracle Licenses	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
Scheduling Architecture (SA)	Calculated Direct	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
Scheduling Infrastructure (SI)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Scheduling Infrastructure Business Rules (SIBR)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
Storage (EMC symmetrix)	Calculated Direct	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
System Equipment Buyouts (lease buyouts)	Calculated Direct	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%
Trustee Costs, Interest-Capitalized, User Groups	Calculated Direct	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
Wide Area Network (WAN)	Calculated Direct	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Historical and Forecast Capital Expenditures by Funding Source

System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
		MRTU	Non-MRTU	MRTU	Non-MRTU			
ACC Upgrades (Communication between ISO & IOUs)	$ 1,162,000	$ -	$ -	$ -	$ -		$ 1,162,000	$ -
Ancillary Services Management (ASM) Component of SA	$ 580,086	$ -	$ -	$ -	$ -		$ 580,086	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Automated Dispatch System (ADS)	$ 2,520,666	$ 716,553	$ -	$ 79,956	$ -		$ 3,317,174	$ 716,553
Automated Load Forecast System (ALFS)	$ -	$ 28,644	$ -	$ 5,600	$ -		$ 34,244	$ 28,644
Automatic Mitigation Procedure (AMP)	$ -	$ 627,325	$ -	$ 393,564	$ -		$ 1,020,889	$ 627,325
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Balance of Business Systems (BBS)	$ 51,910,435	$ -	$ 95,468	$ -	$ -		$ 52,005,904	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ 3,240,516	$ -	$ -	$ -	$ -		$ 3,240,516	$ -
Bill's Interchange Schedule (BITS)	$ 626,004	$ 201,831	$ -	$ -	$ -		$ 827,836	$ 201,831
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ 513,556	$ -	$ 103,655		$ 617,211	$ 103,655
CaseWise (process modeling tool)	$ 117,277	$ -	$ -	$ -	$ -		$ 117,277	$ -
CHASE	$ 800,249	$ -	$ 109,426	$ -	$ -		$ 909,675	$ -
Client Relations Tools	$ -	$ -	$ 23,382	$ -	$ -		$ 23,382	$ -
Common Information Model (CIM)	$ 983,313	$ -	$ -	$ -	$ -		$ 983,313	$ -
Compliance	$ -	$ 791,295	$ -	$ 107,268	$ -		$ 898,564	$ 791,295
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Congestion Reform-DSOW	$ 339,496	$ -	$ -	$ -	$ -		$ 339,496	$ -
Congestion Revenue Rights (CRR)	$ -	$ 2,697,248	$ 118,000	$ 878,803	$ -		$ 3,694,051	$ 2,697,248
DataWarehouse	$ 2,307,134	$ -	$ -	$ -	$ -		$ 2,307,134	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ 812,968	$ -	$ -	$ -	$ -		$ 1,912,968	$ -
Dispute Tracking System (Remedy)	$ 692,000	$ -	$ -	$ -	$ -		$ 692,000	$ -
Documentum	$ 2,212,709	$ -	$ -	$ -	$ -		$ 2,212,709	$ -
Electronic Tagging (Etag)	$ 1,326,259	$ -	$ -	$ -	$ -		$ 1,326,259	$ -
Energy Management System (EMS)	$ 23,082,201	$ 1,868,662	$ 2,290,120	$ 49,573	$ 6,814		$ 32,542,369	$ 1,875,476
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -		$ 650,000	$ -
Evaluation of Market Separation	$ 158,303	$ -	$ -	$ -	$ -		$ 158,303	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 1,179,265	$ 110,578	$ -	$ 11,900	$ -		$ 1,301,743	$ 110,578
FERC Study Software	$ 11,000	$ -	$ -	$ -	$ -		$ 11,000	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ 1,227,228	$ -	$ -	$ -	$ -		$ 1,227,228	$ -
Global Resource Reliability Management Application (GRRMA)	$ 402,074	$ 4,901	$ -	$ 6,981	$ -		$ 413,955	$ 4,901
Grid Operations Training Simulator (GOTS)	$ 356,860	$ -	$ -	$ -	$ -		$ 606,860	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ 350,813	$ -	$ -	$ -	$ -		$ 350,813	$ -
Human Resources	$ 670,617	$ -	$ 208,764	$ -	$ -		$ 879,381	$ -
IBM Contract (also known as Outsourced Contracts)	$ 6,816,000	$ -	$ -	$ -	$ -		$ 6,816,000	$ -
Integrated Forward Market (IFM)	$ -	$ 17,599,345	$ -	$ 7,356,541	$ -		$ 24,955,886	$ 17,599,345
Internal Development	$ 1,405,037	$ -	$ -	$ -	$ -		$ 1,405,037	$ -

California Independent System Operator
2008 GMC Cost of Service
Historical and Forecast Capital Expenditures by Funding Source

System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
		MRTU	Non-MRTU	MRTU	Non-MRTU			
Interzonal Congestion Management reform - Real Time	$ 257,439	$ -	$ -	$ -	$ -		$ 257,439	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Market Quality System (MQS)	$ -	$ 2,950,294	$ 169,457	$ 2,838,620	$ -		$ 6,078,372	$ 2,950,294
Masterfile	$ -	$ 1,096,274	$ 155,253	$ 107,153	$ 34,235		$ 1,392,915	$ 1,130,509
Meter Data Acquisition System (MDAS)	$ 8,396,979	$ -	$ 55,924	$ -	$ -		$ 8,532,904	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ 1,682,128	$ -	$ 110,558		$ 1,792,686	$ 110,558
Monitoring (Tivoli)	$ 1,154,331	$ -	$ 767,580	$ -	$ 325,866		$ 2,247,777	$ 325,866
MRTU Capital	$ -	$ 40,097,295	$ -	$ 26,794,800	$ -		$ 66,892,094	$ 40,097,295
Network Applications	$ -	$ 1,122,041	$ -	$ 204,223	$ -		$ 1,326,264	$ 1,122,041
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ 579,875		$ 579,875	$ 579,875
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -		$ -	$ -
NT-servers	$ 630,000	$ -	$ 5,949,765	$ -	$ 634,113		$ 7,213,878	$ 634,113
Office Automation - desktop/laptop (OA)	$ 2,418,286	$ -	$ 471,728	$ -	$ -		$ 2,890,014	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 33,281	$ -	$ 369,633	$ -	$ 354,027		$ 756,940	$ 354,027
Open Access Same Time Information System (OASIS)	$ 1,975,179	$ 752,209	$ 19,200	$ 166,191	$ -		$ 2,912,779	$ 752,209
Operational Meter Analysis and Reporting (OMAR)	$ 662,698	$ 61,875	$ 251,407	$ 6,372	$ 76,082		$ 1,058,434	$ 137,957
Oracle Corporate Financials	$ 1,431,184	$ -	$ 700,837	$ -	$ 271,133		$ 2,403,154	$ 271,133
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Oracle Licenses	$ 1,152,118	$ -	$ -	$ -	$ -		$ 1,152,118	$ -
Oracle Market Financials BBS	$ 1,706,010	$ -	$ -	$ -	$ -		$ 1,706,010	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ 114,911	$ 430,907	$ 12,801	$ 22,413		$ 581,032	$ 137,325
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 28,060,241	$ -	$ 188,146	$ -	$ 2,052,203		$ 30,300,591	$ 2,052,203
Portal	$ -	$ 305,726	$ -	$ 47,244	$ -		$ 352,969	$ 305,726
Post Transaction Repository (PTR)	$ -	$ 2,421,771	$ -	$ 663,877	$ -		$ 3,085,648	$ 2,421,771
Process Information System (PI)	$ 996,037	$ 22,736	$ -	$ 4,717	$ -		$ 1,478,490	$ 22,736
Rational Buyer	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Real Time Nodal Market	$ -	$ 209,780	$ 212,605	$ -	$ 19,466		$ 441,851	$ 229,246
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ 775,807	$ -	$ 218,736		$ 994,543	$ 218,736
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ 1,500,043	$ -	$ -	$ -	$ -		$ 1,500,043	$ -
Resource Adequacy	$ -	$ -	$ 602,989	$ -	$ 335,557		$ 938,546	$ 335,557

California Independent System Operator
2008 GMC Cost of Service
Historical and Forecast Capital Expenditures by Funding Source

System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
		MRTU	Non-MRTU	MRTU	Non-MRTU			
Resource Register (RR)	$ 66,462	$ -	$ -	$ -	$ -		$ 66,462	$ -
RMR Application Validation Engine (RAVE)	$ 335,452	$ 29,886	$ -	$ 25,032	$ -		$ 390,370	$ 29,886
Scheduling & Logging for ISO California (SLIC)	$ 99,999	$ 128,946	$ -	$ 7,098	$ -		$ 236,043	$ 128,946
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ 680,700	$ -	$ 17,222		$ 697,921	$ 17,222
Scheduling Architecture (SA)	$ 32,927,229	$ -	$ 20,317	$ -	$ -		$ 32,947,546	$ -
Scheduling Infrastructure (SI)	$ 30,766,253	$ -	$ 20,317	$ -	$ -		$ 30,786,570	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ 7,737,627	$ -	$ 3,266,466	$ -		$ 11,004,093	$ 7,737,627
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -		$ 325,000	$ -
Security-ISS (CUDA)	$ 7,553,085	$ -	$ 96,300	$ -	$ 3,750		$ 7,928,134	$ 3,750
Settlements and Market Clearing	$ -	$ 16,229,177	$ -	$ 4,250,329	$ -		$ 20,479,506	$ 16,229,177
Sign Board (Symon Board maint.)	$ 44,196	$ -	$ -	$ -	$ -		$ 44,196	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ 74,589,000	$ -	$ -	$ -	$ -		$ 74,589,000	$ -
Storage (EMC symmetrix)	$ 71,449	$ -	$ 328,004	$ -	$ 210,471		$ 609,924	$ 210,471
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ 11,769	$ -	$ -		$ 11,769	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Transmission Map Plotting & Display	$ 139,000	$ -	$ 10,271	$ -	$ 37,995		$ 187,266	$ 37,995
Treasury Workstation/Investment Program	$ -	$ -	$ 24,300	$ -	$ -		$ 24,300	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ 7,910,000	$ -	$ -	$ -	$ -		$ 7,910,000	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -		$ -	$ -
Wide Area Network (WAN)	$ 27,333,540	$ -	$ -	$ -	$ -		$ 27,333,540	$ -
Total Assignable	$ 337,500,000	$ 97,926,931	$ 17,354,058	$ 47,285,104	$ 5,414,172	$ 8,500,000	$ 513,980,265	$ 103,341,103

Worksheets for SA, SI, Oracle Licenses, EMC, WAN, Infrastructure and Equipment Follow

California Independent System Operator
2008 GMC Cost of Service
SA Worksheet

Input Tables	Average # of records/month 2001-2006	ASM	CONG	BEEP	Total	
I_SUP_ENERGY_BID	27,624	27,624	27,624	27,624	82,873	
LOAD_SCH	153,597	153,597	153,597	153,597	460,790	
NON_SPIN_RESERVE_GEN	111,424	111,424		111,424	222,848	
NON_SPIN_RESERVE_LOAD	3,048	3,048		3,048	6,097	
REGULATION	64,547	64,547	64,547	64,547	193,641	
REPLACEMENT_RES_GEN	44,603	44,603	44,603	44,603	133,808	
RT_BEEP_OUTPUT	444,610			444,610	444,610	
SPIN_RESERVE_SCH	96,491	96,491	96,491	96,491	289,472	
TIE_LOSS_FACTOR	48,303	48,303	48,303		96,605	
UNIT_SPECFIC_DATA	1,422,001	1,422,001	1,422,001		2,844,003	
USAGES	118,266		118,266	118,266	236,533	
I_INTERCHANGE_SCH	438,429	438,429	438,429	438,429	1,315,286	
GENERATION_SCH	758,637	758,637	758,637		1,517,274	
Totals	3,731,579	3,168,703	3,172,497	1,502,638	7,843,839	
Percentage of Total		40.40%	40.45%	19.16%	100.00%	

Functionalization	Percent of Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR
Ancillary Services Management (ASM) Component of SA	40.40%	6.01%	0.00%	0.05%	16.16%	18.18%	0.00%	0.00%
Congestion Management (CONG) Component of SA	40.45%	0.00%	11.46%	0.10%	0.00%	28.89%	0.00%	0.00%
Balancing Energy Ex Post Price (BEEP) Component of SA	19.16%	9.50%	0.54%	0.08%	3.83%	5.20%	0.00%	0.00%
Weighted Average	100.0%	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%

California Independent System Operator
2008 GMC Cost of Service
SI Worksheet

Year	Schedule Count	Ancillary Services Bids		Annnual Total
		Market	Self Provided	
2002	12,474,883	4,212,397	4,172,406	20,859,686
2003	12,754,073	3,210,755	3,210,151	19,174,979
2004	14,916,924	3,576,719	3,536,399	22,030,042
2005	14,546,349	3,920,462	3,729,533	22,196,344
2006	15,065,307	4,332,957	4,068,469	23,466,733
Total	69,757,536	19,253,290	18,716,958	107,727,784
Percent of Total	64.8%	17.9%	17.4%	100.0%

Functionalization						
CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR
0.0%	0.0%	0.0%	64.8%	35.2%	0.0%	0.0%

California Independent System Operator
2008 GMC Cost of Service
Oracle License Worksheet

Expenditures on System	System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
$ 3,317,174	**Automated Dispatch System (ADS)**	$ 1,644,949	$ -	$ 13,639	$ 829,294	$ 663,435	$ -	$ 165,859	$ 3,317,174
$ 827,836	**Bill's Interchange Schedule (BITS)**	$ 697,874	$ -	$ 5,786	$ -	$ 124,175	$ -	$ -	$ 827,836
$ 1,301,743	**Existing Transmission Contracts Calculator (ETCC)**	$ 322,760	$ 55,330	$ 3,135	$ 260,349	$ 399,821	$ -	$ 260,349	$ 1,301,743
$ 1,227,228	**Firm Transmission Right (FTR) and Secondary Registration System (SRS)**	$ -	$ 208,652	$ 1,730	$ 184,084	$ 710,039	$ -	$ 122,723	$ 1,227,228
$ 413,955	**Global Resource Reliability Management Application (GRRMA)**	$ 307,914	$ 61,583	$ 3,064	$ -	$ 41,396	$ -	$ -	$ 413,955
$ 8,532,904	**Meter Data Acquisition System (MDAS)**	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,532,904	$ 8,532,904
$ 1,058,434	**Operational Meter Analysis and Reporting (OMAR)**	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,058,434	$ 1,058,434
$ 692,000	**Dispute Tracking System (Remedy)**	$ -	$ -	$ -	$ -	$ -	$ -	$ 692,000	$ 692,000
$ 236,043	**Scheduling & Logging for ISO California (SLIC)**	$ 152,166	$ 3,344	$ 1,289	$ 35,406	$ 43,837	$ -	$ -	$ 236,043
$ 30,786,570	**Scheduling Infrastructure (SI)**	$ -	$ -	$ -	$ 19,935,389	$ 10,851,181	$ -	$ -	$ 30,786,570
$ 48,393,887	**Totals**	$ 3,125,662	$ 328,909	$ 28,642	$ 21,244,522	$ 12,833,884	$ -	$ 10,832,268	$ 48,393,887
		6.5%	0.7%	0.1%	43.9%	26.5%	0.0%	22.4%	100.0%

California Independent System Operator
2008 GMC Cost of Service
EMC Storage Assignment by System

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)								redacted
Ancillary Services Management (ASM) Component of SA								redacted
Application Development Tools								redacted
Automated Dispatch System (ADS)								redacted
Automated Load Forecast System (ALFS)								redacted
Automatic Mitigation Procedure (AMP)								redacted
Backup systems (Legato/Quantum)								redacted
Balance of Business Systems (BBS)								redacted
Balancing Energy Ex Post Price (BEEP) Component of SA								redacted
Bill's Interchange Schedule (BITS)								redacted
CAISO Outage Modeling Tool (COMT)								redacted
CaseWise (process modeling tool)								redacted
CHASE								redacted
Client Relations Tools								redacted
Common Information Model (CIM)								redacted
Compliance								redacted
Congestion Management (CONG) Component of SA								redacted
Congestion Reform-DSOW								redacted
Congestion Revenue Rights (CRR)								redacted
DataWarehouse								redacted
Dept. of Market Analysis Tools (SAS/MARS)								redacted
Dispute Tracking System (Remedy)								redacted
Documentum								redacted
Electronic Tagging (Etag)								redacted
Energy Management System (EMS)								redacted
Engineering Analysis Tools								redacted
Evaluation of Market Separation								redacted

California Independent System Operator
2008 GMC Cost of Service
EMC Storage Assignment by System

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Existing Transmission Contracts Calculator (ETCC)								redacted
FERC Study Software								redacted
Firm Transmission Right (FTR) and Secondary Registration System (SRS)								redacted
Global Resource Reliability Management Application (GRRMA)								redacted
Grid Operations Training Simulator (GOTS)								redacted
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,								redacted
Human Resources								redacted
IBM Contract (also known as Outsourced Contracts)								redacted
Integrated Forward Market (IFM)								redacted
Internal Development								redacted
Interzonal Congestion Management reform - Real Time								redacted
Land and Building Costs								redacted
Local Area Network (LAN)								redacted
Locational Marginal Pricing (LMPM)								redacted
Market Quality System (MQS)								redacted
Masterfile								redacted
Meter Data Acquisition System (MDAS)								redacted
Miscellaneous (2004 related capital)								redacted
Monitoring (Tivoli)								redacted
MRTU Capital								redacted
Network Applications								redacted
New Resource Interconnection (NRI)								redacted
New System Equipment (replacement of owned equipment)								redacted
NT/web servers								redacted
NT-servers								redacted
Office Automation - desktop/laptop (OA)								redacted
Office equipment (scanner, printer, copier, fax, Communication Equip.)								redacted

California Independent System Operator
2008 GMC Cost of Service
EMC Storage Assignment by System

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Open Access Same Time Information System (OASIS)								redacted
Operational Meter Analysis and Reporting (OMAR)								redacted
Oracle Corporate Financials								redacted
Oracle Enterprise Manager (OEM)								redacted
Oracle Licenses								redacted
Oracle Market Financials BBS								redacted
Out of Sequence Market Operation Settlements Information System (OOS)								redacted
Outage Scheduler (OS)								redacted
Participating Intermittent Resource Project (PIRP)								redacted
Physical Facilities Software Application/Furniture/Leasehold Improvements								redacted
Portal								redacted
Post Transaction Repository (PTR)								redacted
Process Information System (PI)								redacted
Rational Buyer								redacted
Real Time Energy Dispatch System (REDS)								redacted
Real Time Nodal Market								redacted
Reliability Management System (RMS)								redacted
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)								redacted
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)								redacted
Resource Adequacy								redacted
Resource Register (RR)								redacted
RMR Application Validation Engine (RAVE)								redacted
Scheduling & Logging for ISO California (SLIC)								redacted
Scheduling & Tagging Next Generation (STiNG)								redacted
Scheduling Architecture (SA)								redacted
Scheduling Infrastructure (SI)								redacted
Scheduling Infrastructure Business Rules (SIBR)								redacted

California Independent System Operator
2008 GMC Cost of Service
EMC Storage Assignment by System

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Security Constrained Economic Dispatch (SCED)								redacted
Security- External/Physical								redacted
Security-ISS (CUDA)								redacted
Settlements and Market Clearing								redacted
Sign Board (Symon Board maint.)								redacted
Startup Costs through 3/31/98, Working Capital-3 months								redacted
Storage (EMC symmetrix)								redacted
System Equipment Buyouts (lease buyouts)								redacted
Tactical Emergency Management System (TEMS)								redacted
Telephone/PBX								redacted
Training Systems								redacted
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation								redacted
Transmission Map Plotting & Display								redacted
Treasury Workstation/Investment Program								redacted
Trustee Costs, Interest-Capitalized, User Groups								redacted
Utilities - System i.e. Print drivers								redacted
Vitria (Middleware)								redacted
Wide Area Network (WAN)								redacted
Total								
Percent of Total	24.9%	6.2%	0.2%	13.6%	17.6%	4.1%	33.4%	100.0%
	3	4	5	6	7	8	9	

California Independent System Operator
2008 GMC Cost of Service
EMC Storage by Type of Application

Subsystem	Application	Alhambra Allocated (GB)	Folsom Allocated (GB)		% of storage	Share of EMC Lease Cost
NAS	NT-servers	5,400	9,500	14,900	17.64%	redacted
Documentum	Documentum	750	750	1,500	1.78%	redacted
ALFS	Automated Load Forecast System (ALFS)	200	450	650	0.77%	redacted
Vitria	Vitria (Middleware)	200	200	400	0.47%	redacted
OASIS	Open Access Same Time Information System (OASIS)	1,600	1,600	3,200	3.79%	redacted
Settlements	Balance of Business Systems (BBS)	800	2,450	3,250	3.85%	redacted
OMAR	Operational Meter Analysis and Reporting (OMAR)	650	650	1,300	1.54%	redacted
ADS	Automated Dispatch System (ADS)	100	120	220	0.26%	redacted
SRS	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	60	100	160	0.19%	redacted
SLIC	Scheduling & Logging for ISO California (SLIC)	80	120	200	0.24%	redacted
BITS	Bill's Interchange Schedule (BITS)	100	150	250	0.30%	redacted
DW	DataWarehouse	6,300	6,300	12,600	14.91%	redacted
MHAP	Balance of Business Systems (BBS)	3,800	3,800	7,600	9.00%	redacted
RTMA	Real Time Nodal Market	1,000	1,200	2,200	2.60%	redacted
GIS	Transmission Map Plotting & Display	25	25	50	0.06%	redacted
PIRP	Participating Intermittent Resource Project (PIRP)	110	250	360	0.43%	redacted
OEM	Oracle Enterprise Manager (OEM)	200	200	400	0.47%	redacted
TRR	Resource Register (RR)	50	120	170	0.20%	redacted
SI/SA	Scheduling Infrastructure (SI)	3,800	6,600	10,400	12.31%	redacted
PI	Process Information System (PI)	1,000	3,000	4,000	4.73%	redacted
ESS	Human Resources	230	590	820	0.97%	redacted
STING	Scheduling & Tagging Next Generation (STiNG)	250	500	750	0.89%	redacted
VMWARE	NT-servers	400	1,550	1,950	2.31%	redacted
Legato	Backup systems (Legato/Quantum)	200	450	650	0.77%	redacted
Exchange	Office Automation - desktop/laptop (OA)	500	1,700	2,200	2.60%	redacted
MA	Dept. of Market Analysis Tools (SAS/MARS)	-	1,700	1,700	2.01%	redacted
MRTU	MRTU Capital	4,000	7,000	11,000	13.02%	redacted
Infrastructure Services	Application Development Tools	400	1,200	1,600	1.89%	redacted
TOTAL USABLE Storage (GB)		32,205	52,275	84,480	100.00%	

California Independent System Operator
2008 GMC Cost of Service
Infrastructure Worksheet

Infrastructure - Direct Assigned Items
Used to allocate Trustee Expenses from Startup

System	System Name		Amount	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	ACC Upgrades (Communication between ISO & IOUs)	Direct	$ 1,162,000	99%	0%	1%	0%	0%	0%	0%	100%
BBS (Billing & Settlement)	Balance of Business Systems (BBS)	Direct	$ 48,173,000	0%	0%	0%	0%	0%	0%	100%	100%
Market Analysis Software	Dept. of Market Analysis Tools (SAS/MARS)	Direct	$ 238,000	22%	0%	0%	6%	47%	17%	8%	100%
EMS	Energy Management System (EMS)	Direct	$ 16,470,000	99%	0%	1%	0%	0%	0%	0%	100%
ETCC Software	Existing Transmission Contracts Calculator (ETCC)	Direct	$ 891,000	25%	4%	0%	20%	31%	0%	20%	100%
FERC Study Software	FERC Study Software	Direct	$ 11,000	0%	0%	0%	0%	100%	0%	0%	100%
SRS Software (FTR related)	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	$ 1,049,000	0%	17%	0%	15%	58%	0%	10%	100%
FTR Auction Software	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	$ 17,000	0%	17%	0%	15%	58%	0%	10%	100%
GRRMA-Software	Global Resource Reliability Management Application (GRRMA)	Direct	$ 56,000	74%	15%	1%	0%	10%	0%	0%	100%
MDAS	Meter Data Acquisition System (MDAS)	Direct	$ 8,166,000	0%	0%	0%	0%	0%	0%	100%	100%
Vehicles MDAS/Metering	Meter Data Acquisition System (MDAS)	Direct	$ 96,000	0%	0%	0%	0%	0%	0%	100%	100%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	$ 975,000	99%	0%	1%	0%	0%	0%	0%	100%
SA	Scheduling Architecture (SA)	Direct	$ 31,681,000	16%	12%	0%	20%	52%	0%	0%	100%
SI	Scheduling Infrastructure (SI)	Direct	$ 27,102,000	0%	0%	0%	65%	35%	0%	0%	100%

				CRS	ETS		FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	ACC Upgrades (Communication between ISO & IOUs)	Direct		$ 1,152,445	$ -	$ 9,555	$ -	$ -	$ -	$ -	$ 1,162,000
BBS (Billing & Settlement)	Balance of Business Systems (BBS)	Direct		$ -	$ -	$ -	$ -	$ -	$ -	$ 48,173,000	$ 48,173,000
Market Analysis Software	Dept. of Market Analysis Tools (SAS/MARS)	Direct		$ 53,301	$ -	$ -	$ 14,751	$ 111,127	$ 40,723	$ 18,099	$ 238,000
EMS	Energy Management System (EMS)	Direct		$ 16,334,567	$ -	$ 135,433	$ -	$ -	$ -	$ -	$ 16,470,000
ETCC Software	Existing Transmission Contracts Calculator (ETCC)	Direct		$ 220,918	$ 37,872	$ 2,146	$ 178,200	$ 273,664	$ -	$ 178,200	$ 891,000
FERC Study Software	FERC Study Software	Direct		$ -	$ -	$ -	$ -	$ 11,000	$ -	$ -	$ 11,000
SRS Software (FTR related)	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct		$ -	$ 178,350	$ 1,479	$ 157,350	$ 606,921	$ -	$ 104,900	$ 1,049,000
FTR Auction Software	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct		$ -	$ 2,890	$ 24	$ 2,550	$ 9,836	$ -	$ 1,700	$ 17,000
GRRMA-Software	Global Resource Reliability Management Application (GRRMA)	Direct		$ 41,655	$ 8,331	$ 414	$ -	$ 5,600	$ -	$ -	$ 56,000
MDAS	Meter Data Acquisition System (MDAS)	Direct		$ -	$ -	$ -	$ -	$ -	$ -	$ 8,166,000	$ 8,166,000
Vehicles MDAS/Metering	Meter Data Acquisition System (MDAS)	Direct		$ -	$ -	$ -	$ -	$ -	$ -	$ 96,000	$ 96,000
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct		$ 966,983	$ -	$ 8,017	$ -	$ -	$ -	$ -	$ 975,000
SA	Scheduling Architecture (SA)	Direct		$ 4,913,556	$ 3,802,904	$ 72,270	$ 6,333,135	$ 16,559,135	$ -	$ -	$ 31,681,000
SI	Scheduling Infrastructure (SI)	Direct		$ -	$ -	$ -	$ 17,549,500	$ 9,552,500	$ -	$ -	$ 27,102,000
	Total by Function			$ 23,683,425	$ 4,030,347	$ 229,338	$ 24,235,486	$ 27,129,783	$ 40,723	$ 56,737,899	$ 136,087,000
	Percent by Function			17.4%	3.0%	0.2%	17.8%	19.9%	0.0%	41.7%	100.0%

WAN Worksheets Follow

Some portions redacted due to confidentiality concerns.

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Related Applications to Functions

System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	redacted								
Ancillary Services Management (ASM) Component of SA	redacted								
Application Development Tools	redacted								
Automated Dispatch System (ADS)	redacted								
Automated Load Forecast System (ALFS)	redacted								
Automatic Mitigation Procedure (AMP)	redacted								
Backup systems (Legato/Quantum)	redacted								
Balance of Business Systems (BBS)	redacted								
Balancing Energy Ex Post Price (BEEP) Component of SA	redacted								
Bill's Interchange Schedule (BITS)	redacted								
CAISO Outage Modeling Tool (COMT)	redacted								
CaseWise (process modeling tool)	redacted								
CHASE	redacted								
Client Relations Tools	redacted								
Common Information Model (CIM)	redacted								
Compliance	redacted								
Congestion Management (CONG) Component of SA	redacted								
Congestion Reform-DSOW	redacted								
Congestion Revenue Rights (CRR)	redacted								
DataWarehouse	redacted								
Dept. of Market Analysis Tools (SAS/MARS)	redacted								
Dispute Tracking System (Remedy)	redacted								

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Related Applications to Functions

System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Documentum	redacted								
Electronic Tagging (Etag)	redacted								
Energy Management System (EMS)	redacted								
Engineering Analysis Tools	redacted								
Evaluation of Market Separation	redacted								
Existing Transmission Contracts Calculator (ETCC)	redacted								
FERC Study Software	redacted								
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	redacted								
Global Resource Reliability Management Application (GRRMA)	redacted								
Grid Operations Training Simulator (GOTS)	redacted								
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	redacted								
Human Resources	redacted								
IBM Contract (also known as Outsourced Contracts)	redacted								
Integrated Forward Market (IFM)	redacted								
Internal Development	redacted								
Interzonal Congestion Management reform - Real Time	redacted								
Land and Building Costs	redacted								
Local Area Network (LAN)	redacted								
Locational Marginal Pricing (LMPM)	redacted								
Market Quality System (MQS)	redacted								
Masterfile	redacted								
Meter Data Acquisition System (MDAS)	redacted								

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Related Applications to Functions

System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Miscellaneous (2004 related capital)	redacted								
Monitoring (Tivoli)	redacted								
MRTU Capital	redacted								
Network Applications	redacted								
New Resource Interconnection (NRI)	redacted								
New System Equipment (replacement of owned equipment)	redacted								
NT/web servers	redacted								
NT-servers	redacted								
Office Automation - desktop/laptop (OA)	redacted								
Office equipment (scanner, printer, copier, fax, Communication Equip.)	redacted								
Open Access Same Time Information System (OASIS)	redacted								
Operational Meter Analysis and Reporting (OMAR)	redacted								
Oracle Corporate Financials	redacted								
Oracle Enterprise Manager (OEM)	redacted								
Oracle Licenses	redacted								
Oracle Market Financials BBS	redacted								
Out of Sequence Market Operation Settlements Information System (OOS)	redacted								
Outage Scheduler (OS)	redacted								
Participating Intermittent Resource Project (PIRP)	redacted								
Physical Facilities Software Application/Furniture/Leasehold	redacted								
Portal	redacted								
Post Transaction Repository (PTR)	redacted								

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Related Applications to Functions

System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Process Information System (PI)	redacted								
Rational Buyer	redacted								
Real Time Energy Dispatch System (REDS)	redacted								
Real Time Nodal Market	redacted								
Reliability Management System (RMS)	redacted								
Remedy (related to Transmission Registry, New Resource Interconnection	redacted								
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	redacted								
Resource Adequacy	redacted								
Resource Register (RR)	redacted								
RMR Application Validation Engine (RAVE)	redacted								
Scheduling & Logging for ISO California (SLIC)	redacted								
Scheduling & Tagging Next Generation (STiNG)	redacted								
Scheduling Architecture (SA)	redacted								
Scheduling Infrastructure (SI)	redacted								
Scheduling Infrastructure Business Rules (SIBR)	redacted								
Security Constrained Economic Dispatch (SCED)	redacted								
Security- External/Physical	redacted								
Security-ISS (CUDA)	redacted								
Settlements and Market Clearing	redacted								
Sign Board (Symon Board maint.)	redacted								
Startup Costs through 3/31/98, Working Capital-3 months	redacted								
Storage (EMC symmetrix)	redacted								

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Related Applications to Functions

System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
System Equipment Buyouts (lease buyouts)	redacted								
Tactical Emergency Management System (TEMS)	redacted								
Telephone/PBX	redacted								
Training Systems	redacted								
Transmission Constrained Unit Commitment (TCUC) Must Offer	redacted								
Transmission Map Plotting & Display	redacted								
Treasury Workstation/Investment Program	redacted								
Trustee Costs, Interest-Capitalized, User Groups	redacted								
Utilities - System i.e. Print drivers	redacted								
Vitria (Middleware)	redacted								
Wide Area Network (WAN)	redacted								
Total									
Percent of Total		38.3%	0.9%	0.3%	19.9%	12.5%	0.6%	27.5%	100.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Costs by Application

	Internal WAN	External WAN	Total WAN	Percent of Total
ACC Upgrades (Communication between ISO & IOUs)	redacted	redacted	redacted	0.0%
Ancillary Services Management (ASM) Component of SA	redacted	redacted	redacted	0.0%
Application Development Tools	redacted	redacted	redacted	0.0%
Automated Dispatch System (ADS)	redacted	redacted	redacted	0.0%
Automated Load Forecast System (ALFS)	redacted	redacted	redacted	0.0%
Automatic Mitigation Procedure (AMP)	redacted	redacted	redacted	0.0%
Backup systems (Legato/Quantum)	redacted	redacted	redacted	0.0%
Balance of Business Systems (BBS)	redacted	redacted	redacted	0.0%
Balancing Energy Ex Post Price (BEEP) Component of SA	redacted	redacted	redacted	0.0%
Bill's Interchange Schedule (BITS)	redacted	redacted	redacted	0.0%
CAISO Outage Modeling Tool (COMT)	redacted	redacted	redacted	0.0%
CaseWise (process modeling tool)	redacted	redacted	redacted	0.0%
CHASE	redacted	redacted	redacted	0.0%
Client Relations Tools	redacted	redacted	redacted	0.0%
Common Information Model (CIM)	redacted	redacted	redacted	0.0%
Compliance	redacted	redacted	redacted	0.0%
Congestion Management (CONG) Component of SA	redacted	redacted	redacted	0.0%
Congestion Reform-DSOW	redacted	redacted	redacted	0.0%
Congestion Revenue Rights (CRR)	redacted	redacted	redacted	0.0%
DataWarehouse	redacted	redacted	redacted	0.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Costs by Application

	Internal WAN	External WAN	Total WAN	Percent of Total
Dept. of Market Analysis Tools (SAS/MARS)	redacted	redacted	redacted	0.0%
Dispute Tracking System (Remedy)	redacted	redacted	redacted	0.0%
Documentum	redacted	redacted	redacted	0.0%
Electronic Tagging (Etag)	redacted	redacted	redacted	0.0%
Energy Management System (EMS)	redacted	redacted	redacted	41.5%
Engineering Analysis Tools	redacted	redacted	redacted	0.0%
Evaluation of Market Separation	redacted	redacted	redacted	0.0%
Existing Transmission Contracts Calculator (ETCC)	redacted	redacted	redacted	0.0%
FERC Study Software	redacted	redacted	redacted	0.0%
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	redacted	redacted	redacted	0.0%
Global Resource Reliability Management Application (GRRMA)	redacted	redacted	redacted	0.0%
Grid Operations Training Simulator (GOTS)	redacted	redacted	redacted	0.0%
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	redacted	redacted	redacted	0.0%
Human Resources	redacted	redacted	redacted	0.0%
IBM Contract (also known as Outsourced Contracts)	redacted	redacted	redacted	0.0%
Integrated Forward Market (IFM)	redacted	redacted	redacted	0.0%
Internal Development	redacted	redacted	redacted	0.0%
Interzonal Congestion Management reform - Real Time	redacted	redacted	redacted	0.0%
Land and Building Costs	redacted	redacted	redacted	0.0%
Local Area Network (LAN)	redacted	redacted	redacted	0.0%
Locational Marginal Pricing (LMPM)	redacted	redacted	redacted	0.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Costs by Application

	Internal WAN	External WAN	Total WAN	Percent of Total
Market Quality System (MQS)	redacted	redacted	redacted	0.0%
Masterfile	redacted	redacted	redacted	0.0%
Meter Data Acquisition System (MDAS)	redacted	redacted	redacted	25.9%
Miscellaneous (2004 related capital)	redacted	redacted	redacted	0.0%
Monitoring (Tivoli)	redacted	redacted	redacted	0.0%
MRTU Capital	redacted	redacted	redacted	0.0%
Network Applications	redacted	redacted	redacted	0.0%
New Resource Interconnection (NRI)	redacted	redacted	redacted	0.0%
New System Equipment (replacement of owned equipment)	redacted	redacted	redacted	0.0%
NT/web servers	redacted	redacted	redacted	0.0%
NT-servers	redacted	redacted	redacted	0.0%
Office Automation - desktop/laptop (OA)	redacted	redacted	redacted	0.0%
Office equipment (scanner, printer, copier, fax, Communication Equip.)	redacted	redacted	redacted	0.0%
Open Access Same Time Information System (OASIS)	redacted	redacted	redacted	0.0%
Operational Meter Analysis and Reporting (OMAR)	redacted	redacted	redacted	0.0%
Oracle Corporate Financials	redacted	redacted	redacted	0.0%
Oracle Enterprise Manager (OEM)	redacted	redacted	redacted	0.0%
Oracle Licenses	redacted	redacted	redacted	0.0%
Oracle Market Financials BBS	redacted	redacted	redacted	0.0%
Out of Sequence Market Operation Settlements Information System (OOS)	redacted	redacted	redacted	0.0%
Outage Scheduler (OS)	redacted	redacted	redacted	0.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Costs by Application

	Internal WAN	External WAN	Total WAN	Percent of Total
Participating Intermittent Resource Project (PIRP)	redacted	redacted	redacted	0.0%
Physical Facilities Software Application/Furniture/Leasehold Improvements	redacted	redacted	redacted	0.0%
Portal	redacted	redacted	redacted	0.0%
Post Transaction Repository (PTR)	redacted	redacted	redacted	0.0%
Process Information System (PI)	redacted	redacted	redacted	0.0%
Rational Buyer	redacted	redacted	redacted	0.0%
Real Time Energy Dispatch System (REDS)	redacted	redacted	redacted	0.0%
Real Time Nodal Market	redacted	redacted	redacted	0.0%
Reliability Management System (RMS)	redacted	redacted	redacted	0.0%
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	redacted	redacted	redacted	0.0%
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	redacted	redacted	redacted	0.0%
Resource Adequacy	redacted	redacted	redacted	0.0%
Resource Register (RR)	redacted	redacted	redacted	0.0%
RMR Application Validation Engine (RAVE)	redacted	redacted	redacted	0.0%
Scheduling & Logging for ISO California (SLIC)	redacted	redacted	redacted	0.0%
Scheduling & Tagging Next Generation (STiNG)	redacted	redacted	redacted	0.0%
Scheduling Architecture (SA)	redacted	redacted	redacted	0.0%
Scheduling Infrastructure (SI)	redacted	redacted	redacted	0.0%
Scheduling Infrastructure Business Rules (SIBR)	redacted	redacted	redacted	32.6%
Security Constrained Economic Dispatch (SCED)	redacted	redacted	redacted	0.0%
Security- External/Physical	redacted	redacted	redacted	0.0%

California Independent System Operator
2008 GMC Cost of Service
Assignment of WAN Costs by Application

	Internal WAN	External WAN	Total WAN	Percent of Total
Security-ISS (CUDA)	redacted	redacted	redacted	0.0%
Settlements and Market Clearing	redacted	redacted	redacted	0.0%
Sign Board (Symon Board maint.)	redacted	redacted	redacted	0.0%
Startup Costs through 3/31/98, Working Capital-3 months	redacted	redacted	redacted	0.0%
Storage (EMC symmetrix)	redacted	redacted	redacted	0.0%
System Equipment Buyouts (lease buyouts)	redacted	redacted	redacted	0.0%
Tactical Emergency Management System (TEMS)	redacted	redacted	redacted	0.0%
Telephone/PBX	redacted	redacted	redacted	0.0%
Training Systems	redacted	redacted	redacted	0.0%
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	redacted	redacted	redacted	0.0%
Transmission Map Plotting & Display	redacted	redacted	redacted	0.0%
Treasury Workstation/Investment Program	redacted	redacted	redacted	0.0%
Trustee Costs, Interest-Capitalized, User Groups	redacted	redacted	redacted	0.0%
Utilities - System i.e. Print drivers	redacted	redacted	redacted	0.0%
Vitria (Middleware)	redacted	redacted	redacted	0.0%
Wide Area Network (WAN)	redacted	redacted	redacted	0.0%
				100.0%

Amounts redacted due to contract nondisclosure provisions.

California Independent System Operator
2008 GMC Cost of Service
EMC Storage by Type of Application

Internal WAN

		Alhambra	Folsom		% of storage	Budgeted amount	Budgeted by System
Subsystem	Application	Allocated (Gb)					
NAS	NT-servers	5,400	-	5,400	16.77%	redacted	redacted
Documentum	Documentum	750	-	750	2.33%	redacted	redacted
ALFS	Automated Load Forecast System (ALFS)	200	-	200	0.62%	redacted	redacted
Vitria	Vitria (Middleware)	200	-	200	0.62%	redacted	redacted
OASIS	Open Access Same Time Information System (OASIS)	1,600		1,600	4.97%	redacted	redacted
Settlements	Balance of Business Systems (BBS)	800	-	800	2.48%	redacted	redacted
OMAR	Operational Meter Analysis and Reporting (OMAR)	650	-	650	2.02%	redacted	redacted
ADS	Automated Dispatch System (ADS)	100	-	100	0.31%	redacted	redacted
SRS	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	60	-	60	0.19%	redacted	redacted
SLIC	Scheduling & Logging for ISO California (SLIC)	80	-	80	0.25%	redacted	redacted
BITS	Bill's Interchange Schedule (BITS)	100	-	100	0.31%	redacted	redacted
DW	DataWarehouse	6,300	-	6,300	19.56%	redacted	redacted
MHAP	Balance of Business Systems (BBS)	3,800	-	3,800	11.80%	redacted	redacted
RTMA	Real Time Nodal Market	1,000	-	1,000	3.11%	redacted	redacted
GIS	Transmission Map Plotting & Display	25	-	25	0.08%	redacted	redacted
PIRP	Participating Intermittent Resource Project (PIRP)	110	-	110	0.34%	redacted	redacted
OEM	Oracle Enterprise Manager (OEM)	200	-	200	0.62%	redacted	redacted
TRR	Resource Register (RR)	50	-	50	0.16%	redacted	redacted
SI/SA	Scheduling Infrastructure (SI)	3,800	-	3,800	11.80%	redacted	redacted
PI	Process Information System (PI)	1,000	-	1,000	3.11%	redacted	redacted
ESS	Human Resources	230	-	230	0.71%	redacted	redacted
STING	Scheduling & Tagging Next Generation (STiNG)	250	-	250	0.78%	redacted	redacted
VMWARE	NT-servers	400	-	400	1.24%	redacted	redacted
Legato	Backup systems (Legato/Quantum)	200	-	200	0.62%	redacted	redacted
Exchange	Office Automation - desktop/laptop (OA)	500	-	500	1.55%	redacted	redacted
MA	Dept. of Market Analysis Tools (SAS/MARS)	-	-	-	0.00%	redacted	redacted
MRTU	MRTU Capital	4,000	-	4,000	12.42%	redacted	redacted
Infrastructure Services	Application Development Tools	400	-	400	1.24%	redacted	redacted
TOTAL USABLE Storage (GB)		32,205	-	32,205	100.00%		

Amounts redacted due to contract nondisclosure provisions.

California Independent System Operator
2008 GMC Cost of Service
Connected Entities by Type of WAN Connection

External WAN

Type of Connection	System Assignment Type	Number of Connections	Percent of Total
Scheduling Coordinator Circuits - (Market Operations)	Scheduling Infrastructure Business Rules (SIBR)	117	32.6%
Meter Circuits (Settlements, Metering, Client Relations)	Meter Data Acquisition System (MDAS)	93	25.9%
ICCP, RIG, DPG Circuits to EMS (Grid Operations)	Energy Management System (EMS)	148	41.5%
Total Connected Entities		357	100.0%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 355,330	$ -	$ 2,946	$ 179,138	$ 143,311	$ -	$ 35,828	$ 716,553
Automated Load Forecast System (ALFS)	$ 19,886	$ -	$ 165	$ 2,864	$ 5,729	$ -	$ -	$ 28,644
Automatic Mitigation Procedure (AMP)	$ -	$ 528,842	$ 4,385	$ -	$ 94,099	$ -	$ -	$ 627,325
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ 170,146	$ -	$ 1,411	$ -	$ 30,275	$ -	$ -	$ 201,831
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 330,356	$ -	$ -	$ -	$ -	$ -	$ 460,939	$ 791,295
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 611,444	$ 5,070	$ -	$ 2,080,734	$ -	$ -	$ 2,697,248
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 1,853,296	$ -	$ 15,366	$ -	$ -	$ -	$ -	$ 1,868,662
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 27,417	$ 4,700	$ 266	$ 22,116	$ 33,963	$ -	$ 22,116	$ 110,578
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ 3,646	$ 729	$ 36	$ -	$ 490	$ -	$ -	$ 4,901
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 1,745,463	$ -	$ 14,472	$ 6,159,771	$ -	$ 9,679,640	$ -	$ 17,599,345
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,950,294	$ 2,950,294

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 217,452	$ -	$ 1,803	$ 219,255	$ 602,951	$ -	$ 54,814	$ 1,096,274
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ 5,086,252	$ 1,876,038	$ 55,927	$ 7,621,592	$ 4,312,083	$ 6,177,746	$ 14,967,656	$ 40,097,295
Network Applications	$ -	$ 1,112,815	$ 9,227	$ -	$ -	$ -	$ -	$ 1,122,041
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Open Access Same Time Information System (OASIS)	$ 74,602	$ 21,315	$ 795	$ 188,052	$ 317,002	$ -	$ 150,442	$ 752,209
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 61,875	$ 61,875
Oracle Corporate Financials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 74,409	$ 40,502	$ -	$ -	$ 114,911

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 305,726	$ 305,726
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,421,771	$ 2,421,771
Process Information System (PI)	$ 18,039	$ -	$ 150	$ -	$ 2,274	$ -	$ 2,274	$ 22,736
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 72,819	$ -	$ 604	$ 20,978	$ 115,379	$ -	$ -	$ 209,780
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 29,640	$ -	$ 246	$ -	$ -	$ -	$ -	$ 29,886
Scheduling & Logging for ISO California (SLIC)	$ 83,125	$ 1,827	$ 704	$ 19,342	$ 23,947	$ -	$ -	$ 128,946
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 5,010,386	$ 2,727,241	$ -	$ -	$ 7,737,627
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,229,177	$ 16,229,177
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 10,087,470	$ 4,157,710	$ 113,572	$ 19,517,903	$ 10,529,979	$ 15,857,386	$ 37,662,911	$ 97,926,931
Percent of Total	10.30%	4.25%	0.12%	19.93%	10.75%	16.19%	38.46%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 95,468	$ 95,468
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ 331,066	$ 7,276	$ 2,805	$ 77,033	$ 95,375	$ -	$ -	$ 513,556
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ 44,143	$ 21,077	$ 541	$ 1,666	$ 15,577	$ 1,858	$ 24,563	$ 109,426
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ 23,382	$ 23,382
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 26,750	$ 222	$ -	$ 91,029	$ -	$ -	$ 118,000
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 2,271,288	$ -	$ 18,832	$ -	$ -	$ -	$ -	$ 2,290,120
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ 84,216	$ 40,211	$ 1,032	$ 3,179	$ 29,718	$ 3,545	$ 46,862	$ 208,764
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 169,457	$ 169,457

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 30,795	$ -	$ 255	$ 31,051	$ 85,389	$ -	$ 7,763	$ 155,253
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 55,924	$ 55,924
Miscellaneous (2004 related capital)	$ 395,877	$ 50,604	$ 3,682	$ 166,676	$ 108,019	$ 159,351	$ 797,919	$ 1,682,128
Monitoring (Tivoli)	$ 180,645	$ 23,091	$ 1,680	$ 76,057	$ 49,291	$ 72,714	$ 364,102	$ 767,580
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 2,400,151	$ 1,146,014	$ 29,402	$ 90,607	$ 846,968	$ 101,047	$ 1,335,576	$ 5,949,765
Office Automation - desktop/laptop (OA)	$ 190,296	$ 90,862	$ 2,331	$ 7,184	$ 67,152	$ 8,011	$ 105,891	$ 471,728
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 149,111	$ 71,197	$ 1,827	$ 5,629	$ 52,618	$ 6,278	$ 82,973	$ 369,633
Open Access Same Time Information System (OASIS)	$ 1,904	$ 544	$ 20	$ 4,800	$ 8,091	$ -	$ 3,840	$ 19,200
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 251,407	$ 251,407
Oracle Corporate Financials	$ 282,719	$ 134,992	$ 3,463	$ 10,673	$ 99,766	$ 11,903	$ 157,321	$ 700,837
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 279,027	$ 151,879	$ -	$ -	$ 430,907

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 75,899	$ 36,240	$ 930	$ 2,865	$ 26,783	$ 3,195	$ 42,234	$ 188,146
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 73,800	$ -	$ 612	$ 21,260	$ 116,932	$ -	$ -	$ 212,605
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 769,428	$ -	$ 6,379	$ -	$ -	$ -	$ -	$ 775,807
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ 598,031	$ -	$ 4,958	$ -	$ -	$ -	$ -	$ 602,989
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ 573,837	$ -	$ 4,758	$ -	$ 102,105	$ -	$ -	$ 680,700
Scheduling Architecture (SA)	$ 3,151	$ 2,439	$ 46	$ 4,061	$ 10,619	$ -	$ -	$ 20,317
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ 13,156	$ 7,161	$ -	$ -	$ 20,317
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 22,663	$ 2,897	$ 211	$ 9,542	$ 6,184	$ 9,123	$ 45,680	$ 96,300

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2004 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 81,561	$ 20,265	$ 690	$ 44,684	$ 57,778	$ 13,482	$ 109,544	$ 328,004
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ 11,672	$ -	$ 97	$ -	$ -	$ -	$ -	$ 11,769
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 5,093	$ 5,093	$ 84	$ -	$ -	$ -	$ -	$ 10,271
Treasury Workstation/Investment Program	$ 9,770	$ 4,680	$ 119	$ 441	$ 3,792	$ 487	$ 5,012	$ 24,300
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 8,587,117	$ 1,684,231	$ 84,976	$ 849,591	$ 2,032,227	$ 390,995	$ 3,724,920	$ 17,354,058
Percent of Total	49.48%	9.71%	0.49%	4.90%	11.71%	2.25%	21.46%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 39,649	$ -	$ 329	$ 19,989	$ 15,991	$ -	$ 3,998	$ 79,956
Automated Load Forecast System (ALFS)	$ 3,888	$ -	$ 32	$ 560	$ 1,120	$ -	$ -	$ 5,600
Automatic Mitigation Procedure (AMP)	$ -	$ 331,778	$ 2,751	$ -	$ 59,035	$ -	$ -	$ 393,564
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 44,783	$ -	$ -	$ -	$ -	$ -	$ 62,485	$ 107,268
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 199,217	$ 1,652	$ -	$ 677,934	$ -	$ -	$ 878,803
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 49,165	$ -	$ 408	$ -	$ -	$ -	$ -	$ 49,573
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 2,951	$ 506	$ 29	$ 2,380	$ 3,655	$ -	$ 2,380	$ 11,900
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ 5,192	$ 1,038	$ 52	$ -	$ 698	$ -	$ -	$ 6,981
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 729,605	$ -	$ 6,049	$ 2,574,789	$ -	$ 4,046,098	$ -	$ 7,356,541
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,838,620	$ 2,838,620

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 21,254	$ -	$ 176	$ 21,431	$ 58,934	$ -	$ 5,358	$ 107,153
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monitoring (Tivoli)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRTU Capital	$ 3,398,861	$ 1,253,652	$ 37,373	$ 5,093,087	$ 2,881,526	$ 4,128,246	$ 10,002,055	$ 26,794,800
Network Applications	$ -	$ 202,543	$ 1,679	$ -	$ -	$ -	$ -	$ 204,223
New Resource Interconnection (NRI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Open Access Same Time Information System (OASIS)	$ 16,482	$ 4,709	$ 176	$ 41,548	$ 70,038	$ -	$ 33,238	$ 166,191
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,372	$ 6,372
Oracle Corporate Financials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 8,289	$ 4,512	$ -	$ -	$ 12,801

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 47,244	$ 47,244
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 663,877	$ 663,877
Process Information System (PI)	$ 3,742	$ -	$ 31	$ -	$ 472	$ -	$ 472	$ 4,717
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 24,826	$ -	$ 206	$ -	$ -	$ -	$ -	$ 25,032
Scheduling & Logging for ISO California (SLIC)	$ 4,576	$ 101	$ 39	$ 1,065	$ 1,318	$ -	$ -	$ 7,098
Scheduling & Tagging Next Generation (STiNG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 2,115,152	$ 1,151,314	$ -	$ -	$ 3,266,466
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,250,329	$ 4,250,329
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 4,344,974	$ 1,993,546	$ 50,981	$ 9,878,289	$ 4,926,546	$ 8,174,343	$ 17,916,426	$ 47,285,104
Percent of Total	9.19%	4.22%	0.11%	20.89%	10.42%	17.29%	37.89%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Load Forecast System (ALFS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automatic Mitigation Procedure (AMP)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CAISO Outage Modeling Tool (COMT)	$ 66,822	$ 1,469	$ 566	$ 15,548	$ 19,250	$ -	$ -	$ 103,655
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 6,758	$ -	$ 56	$ -	$ -	$ -	$ -	$ 6,814
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 6,791	$ -	$ 56	$ 6,847	$ 18,829	$ -	$ 1,712	$ 34,235
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ 26,019	$ 3,326	$ 242	$ 10,955	$ 7,100	$ 10,473	$ 52,443	$ 110,558
Monitoring (Tivoli)	$ 76,690	$ 9,803	$ 713	$ 32,289	$ 20,926	$ 30,870	$ 154,575	$ 325,866
MRTU Capital	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Applications	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Resource Interconnection (NRI)	$ 575,107	$ -	$ 4,768	$ -	$ -	$ -	$ -	$ 579,875
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 255,803	$ 122,140	$ 3,134	$ 9,657	$ 90,268	$ 10,769	$ 142,343	$ 634,113
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 142,815	$ 68,191	$ 1,749	$ 5,391	$ 50,397	$ 6,013	$ 79,470	$ 354,027
Open Access Same Time Information System (OASIS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 76,082	$ 76,082
Oracle Corporate Financials	$ 109,376	$ 52,224	$ 1,340	$ 4,129	$ 38,597	$ 4,605	$ 60,863	$ 271,133
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 14,513	$ 7,900	$ -	$ -	$ 22,413

California Independent System Operator
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Listing of Systems

Assignment of 2007 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 827,864	$ 395,285	$ 10,141	$ 31,252	$ 292,138	$ 34,853	$ 460,669	$ 2,052,203
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Process Information System (PI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 6,757	$ -	$ 56	$ 1,947	$ 10,707	$ -	$ -	$ 19,466
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 216,937	$ -	$ 1,799	$ -	$ -	$ -	$ -	$ 218,736
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ 332,798	$ -	$ 2,759	$ -	$ -	$ -	$ -	$ 335,557
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Logging for ISO California (SLIC)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling & Tagging Next Generation (STiNG)	$ 14,518	$ -	$ 120	$ -	$ 2,583	$ -	$ -	$ 17,222
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 883	$ 113	$ 8	$ 372	$ 241	$ 355	$ 1,779	$ 3,750

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of 2007 Bond Funded Non-MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 52,335	$ 13,003	$ 443	$ 28,672	$ 37,075	$ 8,651	$ 70,291	$ 210,471
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 18,841	$ 18,841	$ 312	$ -	$ -	$ -	$ -	$ 37,995
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 2,737,114	$ 684,395	$ 28,264	$ 161,572	$ 596,009	$ 106,589	$ 1,100,227	$ 5,414,172
Percent of Total	50.55%	12.64%	0.52%	2.98%	11.01%	1.97%	20.32%	100.00%

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
ACC Upgrades (Communication between ISO & IOUs)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ancillary Services Management (ASM) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Application Development Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Automated Dispatch System (ADS)	$ 355,330	$ -	$ 2,946	$ 179,138	$ 143,311	$ -	$ 35,828	$ 716,553
Automated Load Forecast System (ALFS)	$ 19,886	$ -	$ 165	$ 2,864	$ 5,729	$ -	$ -	$ 28,644
Automatic Mitigation Procedure (AMP)	$ -	$ 528,842	$ 4,385	$ -	$ 94,099	$ -	$ -	$ 627,325
Backup systems (Legato/Quantum)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balance of Business Systems (BBS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Balancing Energy Ex Post Price (BEEP) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bill's Interchange Schedule (BITS)	$ 170,146	$ -	$ 1,411	$ -	$ 30,275	$ -	$ -	$ 201,831
CAISO Outage Modeling Tool (COMT)	$ 66,822	$ 1,469	$ 566	$ 15,548	$ 19,250	$ -	$ -	$ 103,655
CaseWise (process modeling tool)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CHASE	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Client Relations Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Common Information Model (CIM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compliance	$ 330,356	$ -	$ -	$ -	$ -	$ -	$ 460,939	$ 791,295
Congestion Management (CONG) Component of SA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Reform-DSOW	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Congestion Revenue Rights (CRR)	$ -	$ 611,444	$ 5,070	$ -	$ 2,080,734	$ -	$ -	$ 2,697,248
DataWarehouse	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dept. of Market Analysis Tools (SAS/MARS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Dispute Tracking System (Remedy)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Documentum	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Electronic Tagging (Etag)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Energy Management System (EMS)	$ 1,860,054	$ -	$ 15,422	$ -	$ -	$ -	$ -	$ 1,875,476
Engineering Analysis Tools	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Evaluation of Market Separation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Transmission Contracts Calculator (ETCC)	$ 27,417	$ 4,700	$ 266	$ 22,116	$ 33,963	$ -	$ 22,116	$ 110,578
FERC Study Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Firm Transmission Right (FTR) and Secondary Registration System (SRS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Global Resource Reliability Management Application (GRRMA)	$ 3,646	$ 729	$ 36	$ -	$ 490	$ -	$ -	$ 4,901
Grid Operations Training Simulator (GOTS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Human Resources	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
IBM Contract (also known as Outsourced Contracts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integrated Forward Market (IFM)	$ 1,745,463	$ -	$ 14,472	$ 6,159,771	$ -	$ 9,679,640	$ -	$ 17,599,345
Internal Development	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interzonal Congestion Management reform - Real Time	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Land and Building Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Local Area Network (LAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Locational Marginal Pricing (LMPM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Market Quality System (MQS)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,950,294	$ 2,950,294

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Masterfile	$ 224,243	$ -	$ 1,859	$ 226,102	$ 621,780	$ -	$ 56,525	$ 1,130,509
Meter Data Acquisition System (MDAS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous (2004 related capital)	$ 26,019	$ 3,326	$ 242	$ 10,955	$ 7,100	$ 10,473	$ 52,443	$ 110,558
Monitoring (Tivoli)	$ 76,690	$ 9,803	$ 713	$ 32,289	$ 20,926	$ 30,870	$ 154,575	$ 325,866
MRTU Capital	NA	NA	NA	NA	NA	NA	NA	NA
Network Applications	$ -	$ 1,112,815	$ 9,227	$ -	$ -	$ -	$ -	$ 1,122,041
New Resource Interconnection (NRI)	$ 575,107	$ -	$ 4,768	$ -	$ -	$ -	$ -	$ 579,875
New System Equipment (replacement of owned equipment)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT/web servers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NT-servers	$ 255,803	$ 122,140	$ 3,134	$ 9,657	$ 90,268	$ 10,769	$ 142,343	$ 634,113
Office Automation - desktop/laptop (OA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office equipment (scanner, printer, copier, fax, Communication Equip.)	$ 142,815	$ 68,191	$ 1,749	$ 5,391	$ 50,397	$ 6,013	$ 79,470	$ 354,027
Open Access Same Time Information System (OASIS)	$ 74,602	$ 21,315	$ 795	$ 188,052	$ 317,002	$ -	$ 150,442	$ 752,209
Operational Meter Analysis and Reporting (OMAR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,957	$ 137,957
Oracle Corporate Financials	$ 109,376	$ 52,224	$ 1,340	$ 4,129	$ 38,597	$ 4,605	$ 60,863	$ 271,133
Oracle Enterprise Manager (OEM)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Oracle Market Financials BBS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Out of Sequence Market Operation Settlements Information System (OOS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Outage Scheduler (OS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Participating Intermittent Resource Project (PIRP)	$ -	$ -	$ -	$ 88,923	$ 48,402	$ -	$ -	$ 137,325

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Physical Facilities Software Application/Furniture/Leasehold Improvements	$ 827,864	$ 395,285	$ 10,141	$ 31,252	$ 292,138	$ 34,853	$ 460,669	$ 2,052,203
Portal	$ -	$ -	$ -	$ -	$ -	$ -	$ 305,726	$ 305,726
Post Transaction Repository (PTR)	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,421,771	$ 2,421,771
Process Information System (PI)	$ 18,039	$ -	$ 150	$ -	$ 2,274	$ -	$ 2,274	$ 22,736
Rational Buyer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Energy Dispatch System (REDS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Real Time Nodal Market	$ 79,576	$ -	$ 660	$ 22,925	$ 126,086	$ -	$ -	$ 229,246
Reliability Management System (RMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	$ 216,937	$ -	$ 1,799	$ -	$ -	$ -	$ -	$ 218,736
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Adequacy	$ 332,798	$ -	$ 2,759	$ -	$ -	$ -	$ -	$ 335,557
Resource Register (RR)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RMR Application Validation Engine (RAVE)	$ 29,640	$ -	$ 246	$ -	$ -	$ -	$ -	$ 29,886
Scheduling & Logging for ISO California (SLIC)	$ 83,125	$ 1,827	$ 704	$ 19,342	$ 23,947	$ -	$ -	$ 128,946
Scheduling & Tagging Next Generation (STiNG)	$ 14,518	$ -	$ 120	$ -	$ 2,583	$ -	$ -	$ 17,222
Scheduling Architecture (SA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure (SI)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Scheduling Infrastructure Business Rules (SIBR)	$ -	$ -	$ -	$ 5,010,386	$ 2,727,241	$ -	$ -	$ 7,737,627
Security Constrained Economic Dispatch (SCED)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security- External/Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security-ISS (CUDA)	$ 883	$ 113	$ 8	$ 372	$ 241	$ 355	$ 1,779	$ 3,750

California Independent System Operator
2008 GMC Cost of Service
Listing of Systems

Assignment of Bond Funded MRTU Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Settlements and Market Clearing	$ -	$ -	$ -	$ -	$ -	$ -	$ 16,229,177	$ 16,229,177
Sign Board (Symon Board maint.)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Startup Costs through 3/31/98, Working Capital-3 months	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage (EMC symmetrix)	$ 52,335	$ 13,003	$ 443	$ 28,672	$ 37,075	$ 8,651	$ 70,291	$ 210,471
System Equipment Buyouts (lease buyouts)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tactical Emergency Management System (TEMS)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Telephone/PBX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training Systems	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Map Plotting & Display	$ 18,841	$ 18,841	$ 312	$ -	$ -	$ -	$ -	$ 37,995
Treasury Workstation/Investment Program	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Trustee Costs, Interest-Capitalized, User Groups	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utilities - System i.e. Print drivers	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Vitria (Middleware)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wide Area Network (WAN)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 7,738,332	$ 2,966,067	$ 85,909	$ 12,057,884	$ 6,813,905	$ 9,786,229	$ 23,795,482	$ 63,243,808
Percent of Total	12.24%	4.69%	0.14%	19.07%	10.77%	15.47%	37.62%	100.00%

Exhibit ISO-13

Functionalization of O&M Expenses

Exhibit ISO-13
California Independent System Operator
2008 GMC Cost of Service
Functionalization of O&M Expenses

This spreadsheet contains the assignment of O&M expenses to the ISO functions. The spreadsheet uses inputs from the non-IT direct labor templates (Direct Labor and Contracts.xls), the IT direct labor templates (IT assignments.xls) and system assignments (Systems Functionalization.xls).

California Independent System Operator
2008 GMC Cost of Service

Operations and Maintenance

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2111	CEO-General	OH	$ 773,725	$ 300,520	$ 8,764	$ 85,253	$ 264,986	$ 70,349	$ 485,732	$ 1,989,329
2121	Market Monitoring	DA	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor costs only)	DA	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2211	Planning and Infrastructure Development	SCC	$ 307,767	$ 270,254	$ -	$ -	$ -	$ -	$ -	$ 578,021
2221	Regional Transmission-North	DA	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	DA	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	DA	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	DA	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	DA	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
2311	CFO General	SCC	$ 266,762	$ 102,910	$ 3,032	$ 28,331	$ 76,482	$ 36,578	$ 200,457	$ 714,550
2321	Accounting	OH	$ 1,082,374	$ 420,402	$ 12,260	$ 119,262	$ 370,692	$ 98,412	$ 679,496	$ 2,782,896
2331	Financial Planning and Treasury	DA/OH	$ 1,084,970	$ 421,410	$ 12,290	$ 119,548	$ 371,581	$ 98,648	$ 1,345,264	$ 3,453,710
2341	Human Resources	FTE	$ 2,291,029	$ 934,599	$ 26,543	$ 168,971	$ 564,052	$ 336,557	$ 1,286,292	$ 5,608,043
2351	Facilities	FTE	$ 3,052,185	$ 1,245,105	$ 35,362	$ 225,109	$ 751,450	$ 448,372	$ 1,713,641	$ 7,471,223
2361	Procurement and Vendor Management	OH	$ 566,002	$ 219,839	$ 6,411	$ 62,365	$ 193,844	$ 51,462	$ 355,326	$ 1,455,250
2371	Enterprise Risk Management	SCC	$ 173,348	$ 59,062	$ 1,910	$ 27,608	$ 46,691	$ 33,830	$ 156,741	$ 499,190
2372	Internal Audit	OH	$ 263,953	$ 102,521	$ 2,990	$ 29,084	$ 90,399	$ 23,999	$ 165,705	$ 678,651
2373	Information Security	SD	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
2374	Physical Security	FTE	$ 885,299	$ 361,148	$ 10,257	$ 65,294	$ 217,961	$ 130,052	$ 497,049	$ 2,167,059
2411	Information Technology-General	SCC	$ 396,921	$ 90,770	$ 3,953	$ 91,323	$ 125,042	$ 52,562	$ 369,357	$ 1,129,927
2412	Asset Management (Non-Labor costs only)	DA	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2421	IT Projects	SD	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	SD	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	SD	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2451	IT Support & Operations	DS	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	SD	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2453	Data Center & Operations	DS	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	SD	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2462	EMS Information Technology	DS	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	DS	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	DS	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563
2511	Operations-General	SCC	$ 581,520	$ 206,703	$ 9,422	$ 16,609	$ 189,931	$ 26,098	$ 219,775	$ 1,250,058
2521	Grid Operations	SCC	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
2522	Real-Time Operations	DA	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	DA	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	DA	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461

California Independent System Operator
2008 GMC Cost of Service

Operations and Maintenance

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2531	Alhambra Grid Operations	DA	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2541	Market Services	SCC	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
2542	Market Operations	DA	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	DA	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	DA	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2551	Operations Support	SCC	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
2552	Operations Data and Compliance	DA	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	DA	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	DA	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	DA	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
2561	Reliability Coordination	DA	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2611	General Counsel-General	SCC	$ 2,445,765	$ 949,952	$ 27,704	$ 269,487	$ 837,626	$ 222,374	$ 1,535,410	$ 6,288,318
2621	Asst General Counsel-Corporate	OH	$ 266,264	$ 103,419	$ 3,016	$ 29,338	$ 91,190	$ 24,209	$ 167,156	$ 684,593
2631	Asst General Counsel-Regulatory	OH	$ 718,904	$ 279,227	$ 8,143	$ 79,213	$ 246,211	$ 65,364	$ 451,316	$ 1,848,378
2641	Asst General Counsel Tariff & Compliance	OH	$ 458,588	$ 178,119	$ 5,195	$ 50,530	$ 157,057	$ 41,696	$ 287,894	$ 1,179,077
2651	Asst Corporate Secretary	OH	$ 244,570	$ 94,993	$ 2,770	$ 26,948	$ 83,760	$ 22,237	$ 153,537	$ 628,815
2711	Market Development-Program Mgmt-General	SCC	$ 338,805	$ 384,088	$ 791	$ 158,579	$ 766,075	$ 7,692	$ 134,549	$ 1,790,578
2721	Market and Product Development	DA	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	DA	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	DA	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2731	Program Office	OH	$ 209,360	$ 81,317	$ 2,371	$ 23,068	$ 71,702	$ 19,035	$ 131,433	$ 538,287
2741	MRTU Program	DS	$ 2,757	$ 1,136	$ 31	$ 5,334	$ 2,878	$ 4,334	$ 10,293	$ 26,763
2811	External Affairs-General	SCC	$ 79,939	$ 31,049	$ 905	$ 8,808	$ 27,378	$ 7,268	$ 465,031	$ 620,379
2821	Communications & Public Relations	OH	$ 391,389	$ 152,018	$ 4,433	$ 43,125	$ 134,043	$ 35,586	$ 245,707	$ 1,006,303
2822	Information Products & Services	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2831	State/Federal Affairs	OH	$ 519,466	$ 201,764	$ 5,884	$ 57,237	$ 177,907	$ 47,231	$ 326,112	$ 1,335,600
2841	Customer Services and Industry Affairs	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
2011	Other		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total		$ 58,243,971	$ 22,865,887	$ 656,650	$ 6,546,321	$ 20,569,893	$ 5,302,936	$ 38,469,555	$ 152,655,212
	Percent of Total		38.2%	15.0%	0.4%	4.3%	13.5%	3.5%	25.2%	100.0%
			4	5	6	7	8	9	10	

Key to Method Acronyms	
Direct Assignment	DA
Direct System	DS
Supervised cost center (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

Revenue Requirement by Division

		Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Operations and Maintenance									
2100	CEO	$ 3,692,640	$ 1,235,120	$ 35,307	$ 403,390	$ 2,219,441	$ 818,716	$ 1,955,050	$ 10,359,663
2200	Planning and Infrastructure Development	$ 5,228,851	$ 4,591,509	$ -	$ -	$ -	$ -	$ -	$ 9,820,360
2300	Corporate Services	$ 7,713,572	$ 2,975,688	$ 87,661	$ 819,192	$ 2,211,511	$ 1,057,680	$ 5,796,309	$ 20,661,613
2400	Information Technology	$ 15,461,436	$ 3,535,794	$ 154,001	$ 3,557,331	$ 4,870,837	$ 2,047,454	$ 14,387,748	$ 44,014,600
2500	Operations	$ 19,654,427	$ 6,986,214	$ 318,436	$ 561,350	$ 6,419,371	$ 882,060	$ 7,428,048	$ 42,249,906
2600	Corporate Counsel	$ 4,134,091	$ 1,605,710	$ 46,828	$ 455,516	$ 1,415,844	$ 375,880	$ 2,595,312	$ 10,629,181
2700	Market Development and Program Management	$ 1,368,160	$ 1,551,022	$ -	$ 640,372	$ 3,093,562	$ 31,061	$ 543,336	$ 7,227,513
2800	External Affairs	$ 990,794	$ 384,831	$ 11,223	$ 109,171	$ 339,327	$ 90,085	$ 5,763,751	$ 7,689,183
Total Operations and Maintenance		**$ 58,243,971**	**$ 22,865,887**	**$ 653,457**	**$ 6,546,321**	**$ 20,569,893**	**$ 5,302,936**	**$ 38,469,555**	**$ 152,652,019**
		38.2%	15.0%	0.4%	4.3%	13.5%	3.5%	25.2%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Chief Executive Officer Division

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2111	CEO-General	OH	$ 773,725	$ 300,520	$ 8,764	$ 85,253	$ 264,986	$ 70,349	$ 485,732	$ 1,989,329
2121	Market Monitoring	DA	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor costs only)	DA	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2341	Human Resources	FTE	$ 2,291,029	$ 934,599	$ 26,543	$ 168,971	$ 564,052	$ 336,557	$ 1,286,292	$ 5,608,043
	Total (not including Officer)		$ 2,918,914	$ 934,599	$ 26,543	$ 318,136	$ 1,954,455	$ 748,367	$ 1,469,319	$ 8,370,334
	Percent of total		34.9%	11.2%	0.3%	3.8%	23.3%	8.9%	17.6%	100.0%
	Total including Officer		$ 3,692,640	$ 1,235,120	$ 35,307	$ 403,390	$ 2,219,441	$ 818,716	$ 1,955,050	$ 10,359,663
	Percent of total		35.6%	11.9%	0.3%	3.9%	21.4%	7.9%	18.9%	100.0%
			5	6	7	8	9	10	11	

Key to Method Acronyms	
Direct Assignment	DA
Direct System	DS
Supervised cost center (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

Planning and Infrastructure Development Division

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2211	Planning and Infrastructure Development	SCC	$ 307,767	$ 270,254	$ -	$ -	$ -	$ -	$ -	$ 578,021
2221	Regional Transmission-North	DA	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	DA	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	DA	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	DA	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	DA	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
	Total (not including Officer)		$ 4,921,084	$ 4,321,255	$ -	$ -	$ -	$ -	$ -	$ 9,242,339
	Ratio of total (not including Officer)		53.2%	46.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	Total (including Officer)		$ 5,228,851	$ 4,591,509	$ -	$ -	$ -	$ -	$ -	$ 9,820,360
	Ratio of total (including Officer)		53.2%	46.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
			5	6	7	8	9	10	11	

Key to Method Acronyms	
Direct Assignment	DA
Direct System	DS
Supervised cost center (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

CFO and Corporate Services

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2311	CFO General	SCC	$ 266,762	$ 102,910	$ 3,032	$ 28,331	$ 76,482	$ 36,578	$ 200,457	$ 714,550
2321	Accounting	OH	$ 1,082,374	$ 420,402	$ 12,260	$ 119,262	$ 370,692	$ 98,412	$ 679,496	$ 2,782,896
2331	Financial Planning and Treasury	DA/OH	$ 1,084,970	$ 421,410	$ 12,290	$ 119,548	$ 371,581	$ 98,648	$ 1,345,264	$ 3,453,710
2331	Financial Planning and Treasury-Credit	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 664,138	$ 664,138
2331	Financial Planning and Treasury-Other	OH	$ 1,084,970	$ 421,410	$ 12,290	$ 119,548	$ 371,581	$ 98,648	$ 681,126	$ 2,789,572
2351	Facilities	FTE	$ 3,052,185	$ 1,245,105	$ 35,362	$ 225,109	$ 751,450	$ 448,372	$ 1,713,641	$ 7,471,223
2361	Procurement and Vendor Management	OH	$ 566,002	$ 219,839	$ 6,411	$ 62,365	$ 193,844	$ 51,462	$ 355,326	$ 1,455,250
2371	Enterprise Risk Management	SCC	$ 173,348	$ 59,062	$ 1,910	$ 27,608	$ 46,691	$ 33,830	$ 156,741	$ 499,190
2372	Internal Audit	OH	$ 263,953	$ 102,521	$ 2,990	$ 29,084	$ 90,399	$ 23,999	$ 165,705	$ 678,651
2373	Information Security	SD	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
2374	Physical Security	FTE	$ 885,299	$ 361,148	$ 10,257	$ 65,294	$ 217,961	$ 130,052	$ 497,049	$ 2,167,059
	Total (not including Officer)		$ 7,446,810	$ 2,872,779	$ 84,630	$ 790,861	$ 2,135,029	$ 1,021,102	$ 5,595,852	$ 19,947,062
	Ratio of total (not including Officer)		37.3%	14.4%	0.4%	4.0%	10.7%	5.1%	28.1%	100.0%
	Total (including Officer)		$ 7,713,572	$ 2,975,688	$ 87,661	$ 819,192	$ 2,211,511	$ 1,057,680	$ 5,796,309	$ 20,661,613
	Ratio of total (including Officer)		37.3%	14.4%	0.4%	4.0%	10.7%	5.1%	28.1%	100.0%
			5	6	7	8	9	10	11	

	Key to Method Acronyms		
	Direct Assignment	DA	3,465,909
	Direct System	DS	337,276
	Supervised cost center (directors/officers)	SCC	3,128,633
	Allocated by personnel headcount	FTE	
	Overhead	OH	
	System Direct - Proportional to allocation of directly functionalized systems	SD	

California Independent System Operator
2008 GMC Cost of Service

Information Technology

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2411	Information Technology-General	SCC	$ 396,921	$ 90,770	$ 3,953	$ 91,323	$ 125,042	$ 52,562	$ 369,357	$ 1,129,927
2412	Asset Management (Non-Labor costs only)	DA	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2421	IT Projects	SD	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	SD	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	SD	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2451	IT Support & Operations	DS	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	SD	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2453	Data Center & Operations	DS	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	SD	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2462	EMS Information Technology	DS	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	DS	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	DS	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563
	Total (not including Officer)		$ 15,064,515	$ 3,445,024	$ 150,048	$ 3,466,008	$ 4,745,795	$ 1,994,893	$ 14,018,390	$ 42,884,673
	Ratio of total (not including Officer)		35.1%	8.0%	0.3%	8.1%	11.1%	4.7%	32.7%	100.0%
	Total (including Officer)		$ 15,461,436	$ 3,535,794	$ 154,001	$ 3,557,331	$ 4,870,837	$ 2,047,454	$ 14,387,748	$ 44,014,600
	Ratio of total (including Officer)		35.1%	8.0%	0.3%	8.1%	11.1%	4.7%	32.7%	100.0%
			5	6	7	8	9	10	11	

	Key to Method Acronyms	
	Direct Assignment	DA
	Direct System	DS
	Supervised cost center (directors/officers)	SCC
	Allocated by personnel headcount	FTE
	Overhead	OH
	System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

Operations

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2511	Operations-General	SCC	$ 581,520	$ 206,703	$ 9,422	$ 16,609	$ 189,931	$ 26,098	$ 219,775	$ 1,250,058
2521	Grid Operations	SCC	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
2522	Real-Time Operations	DA	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	DA	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	DA	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2561	Reliability Coordination	DA	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2531	Alhambra Grid Operations	DA	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2541	Market Services	SCC	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
2542	Market Operations	DA	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	DA	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	DA	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2551	Operations Support	SCC	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
2552	Operations Data and Compliance	DA	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	DA	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	DA	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	DA	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
	Total (not including Officer)		$ 19,072,907	$ 6,779,512	$ 309,015	$ 544,741	$ 6,229,439	$ 855,962	$ 7,208,273	$ 40,999,848
	Ratio of total (not including Officer)		46.5%	16.5%	0.8%	1.3%	15.2%	2.1%	17.6%	100.0%
	Total (including Officer)		$ 19,654,427	$ 6,986,214	$ 318,436	$ 561,350	$ 6,419,371	$ 882,060	$ 7,428,048	$ 42,249,906
	Ratio of total (including Officer)		46.5%	16.5%	0.8%	1.3%	15.2%	2.1%	17.6%	100.0%
			5	6	7	8	9	10	11	

Key to Method Acronyms	
Direct Assignment	DA
Direct System	DS
Supervised cost center (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

Corporate Counsel, VP of Legal Affairs & Corporate Secretary

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2611	General Counsel-General	SCC	$ 2,445,765	$ 949,952	$ 27,704	$ 269,487	$ 837,626	$ 222,374	$ 1,535,410	$ 6,288,318
2621	Asst General Counsel-Corporate	OH	$ 266,264	$ 103,419	$ 3,016	$ 29,338	$ 91,190	$ 24,209	$ 167,156	$ 684,593
2631	Asst General Counsel-Regulatory	OH	$ 718,904	$ 279,227	$ 8,143	$ 79,213	$ 246,211	$ 65,364	$ 451,316	$ 1,848,378
2641	Asst General Counsel Tariff & Compliance	OH	$ 458,588	$ 178,119	$ 5,195	$ 50,530	$ 157,057	$ 41,696	$ 287,894	$ 1,179,077
2651	Asst Corporate Secretary	OH	$ 244,570	$ 94,993	$ 2,770	$ 26,948	$ 83,760	$ 22,237	$ 153,537	$ 628,815
	Total (not including Officer)		$ 1,688,326	$ 655,758	$ 19,124	$ 186,029	$ 578,218	$ 153,506	$ 1,059,902	$ 4,340,863
	Ratio of total (not including Officer)		38.9%	15.1%	0.4%	4.3%	13.3%	3.5%	24.4%	100.0%
	Total (including Officer)		$ 4,134,091	$ 1,605,710	$ 46,828	$ 455,516	$ 1,415,844	$ 375,880	$ 2,595,312	$ 10,629,181
	Ratio of total (including Officer)		38.9%	15.1%	0.4%	4.3%	13.3%	3.5%	24.4%	100.0%

	Key to Method Acronyms
Direct Assignment	DA
Direct System	DS
Supervised cost center (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

VP of Market Development and Program Management

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2711	Market Development-Program Mgmt-General	SCC	$ 338,805	$ 384,088	$ 791	$ 158,579	$ 766,075	$ 7,692	$ 134,549	$ 1,790,578
2721	Market and Product Development	DA	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	DA	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	DA	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2731	Program Office	OH	$ 209,360	$ 81,317	$ 2,371	$ 23,068	$ 71,702	$ 19,035	$ 131,433	$ 538,287
2741	MRTU Program	DS	$ 2,757	$ 1,136	$ 31	$ 5,334	$ 2,878	$ 4,334	$ 10,293	$ 26,763
	Total (not including Officer)		$ 1,029,356	$ 1,166,934	$ 2,403	$ 481,793	$ 2,327,487	$ 23,369	$ 408,787	$ 5,440,128
	Ratio of total (not including Officer)		18.9%	21.5%	0.0%	8.9%	42.8%	0.4%	7.5%	100.0%
	Total (including Officer)		$ 1,368,160	$ 1,551,022		$ 640,372	$ 3,093,562	$ 31,061	$ 543,336	$ 7,230,706
	Ratio of total (including Officer)		18.9%	21.5%		8.9%	42.8%	0.4%	7.5%	100.0%
			5	6	7	8	9	10	11	
	Key to Method Acronyms									
	Direct Assignment	DA								
	Direct System	DS								
	Supervised cost center (directors/officers)	SCC								
	Allocated by personnel headcount	FTE								
	Overhead	OH								
	System Direct - Proportional to allocation of directly functionalized systems	SD								

California Independent System Operator
2008 GMC Cost of Service

External Affairs-General

CC#	Cost Center	Method	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2811	External Affairs-General	SCC	$ 79,939	$ 31,049	$ 905	$ 8,808	$ 27,378	$ 7,268	$ 465,031	$ 620,379
2821	Communications & Public Relations	OH	$ 391,389	$ 152,018	$ 4,433	$ 43,125	$ 134,043	$ 35,586	$ 245,707	$ 1,006,303
2822	Information Products & Services	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2831	State/Federal Affairs	OH	$ 519,466	$ 201,764	$ 5,884	$ 57,237	$ 177,907	$ 47,231	$ 326,112	$ 1,335,600
2841	Customer Services and Industry Affairs	DA	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
	Total (not including Officer)		$ 910,855	$ 353,782	$ 10,317	$ 100,363	$ 311,950	$ 82,817	$ 5,298,720	$ 7,068,804
	Ratio of total (not including Officer)		12.9%	5.0%	0.1%	1.4%	4.4%	1.2%	75.0%	100.0%
	Total (including Officer)		$ 990,794	$ 384,831	$ 11,223	$ 109,171	$ 339,327	$ 90,085	$ 5,763,751	$ 7,689,183
	Ratio of total (including Officer)		12.9%	5.0%	0.1%	1.4%	4.4%	1.2%	75.0%	100.0%
			5	6	7	8	9	10	11	

	Key to Method Acronyms	
	Direct Assignment	DA
	Direct System	DS
	Supervised cost center (directors/officers)	SCC
	Allocated by personnel headcount	FTE
	Overhead	OH
	System Direct - Proportional to allocation of directly functionalized systems	SD

California Independent System Operator
2008 GMC Cost of Service

FTE by Cost Center

CC#	Cost Center	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2111	CEO-General	1.17	0.45	0.01	0.13	0.40	0.11	0.73	3.0
2121	Market Monitoring	2.91	-	-	0.81	6.07	2.22	0.99	13.0
2122	Market Surveillance Committee (Non-labor costs only)	-	-	-	-	-	-	-	-
2211	Planning and Infrastructure Development	0.80	0.70	-	-	-	-	-	1.5
2221	Regional Transmission-North	8.65	6.35	-	-	-	-	-	15.0
2231	Regional Transmission-South	9.28	7.72	-	-	-	-	-	17.0
2241	Grid Assets	6.15	2.85	-	-	-	-	-	9.0
2242	Generator Interconnections	5.00	-	-	-	-	-	-	5.0
2251	Network Applications	-	7.00	-	-	-	-	-	7.0
2311	CFO General	0.56	0.22	0.01	0.06	0.16	0.08	0.42	1.5
2321	Accounting	2.92	1.13	0.03	0.32	1.00	0.27	1.83	7.5
2331	Financial Planning and Treasury	2.36	0.92	0.03	0.26	0.81	0.21	2.92	7.5
2341	Human Resources	6.94	2.83	0.08	0.51	1.71	1.02	3.90	17.0
2351	Facilities	3.27	1.33	0.04	0.24	0.80	0.48	1.83	8.0
2361	Procurement and Vendor Management	3.11	1.21	0.04	0.34	1.07	0.28	1.95	8.0
2371	Enterprise Risk Management	1.04	0.35	0.01	0.17	0.28	0.20	0.94	3.0
2372	Internal Audit	1.56	0.60	0.02	0.17	0.53	0.14	0.98	4.0
2373	Information Security	1.65	0.21	0.02	0.69	0.45	0.66	3.32	7.0
2374	Physical Security	4.09	1.67	0.05	0.30	1.01	0.60	2.29	10.0
2411	Information Technology-General	1.23	0.28	0.01	0.28	0.39	0.16	1.14	3.5
2412	Asset Management (Non-Labor costs only)	-	-	-	-	-	-	-	-
2421	IT Projects	0.94	0.12	0.01	0.40	0.26	0.38	1.90	4.0
2431	IT Project Management	3.53	0.45	0.03	1.49	0.96	1.42	7.12	15.0
2441	Software Quality Assurance	1.18	0.15	0.01	0.50	0.32	0.47	2.37	5.0
2451	IT Support & Operations	1.12	0.30	0.01	0.29	0.37	0.07	0.83	3.0
2452	System & Database Administration	3.06	0.39	0.03	1.29	0.83	1.23	6.17	13.0
2453	Data Center & Operations	2.82	1.28	0.03	0.17	0.99	0.12	1.59	7.0
2454	Architecture & Systems Engineering	2.12	0.27	0.02	0.89	0.58	0.85	4.27	9.0
2462	EMS Information Technology	13.17	0.34	0.11	-	0.19	-	0.19	14.0
2463	Operations Information Technology	3.46	1.03	0.04	1.50	2.92	-	2.05	11.0
2464	Corporate Systems	3.90	1.24	0.04	0.15	1.23	0.23	5.22	12.0
2511	Operations-General	0.70	0.25	0.01	0.02	0.23	0.03	0.26	1.5
2521	Grid Operations	2.06	0.72	0.04	-	0.18	-	-	3.0
2522	Real-Time Operations	43.91	21.39	0.86	-	5.84	-	-	72.0
2523	Scheduling	5.92	2.96	0.12	-	-	-	-	9.0
2524	Outage Management	13.16	0.05	0.58	-	0.21	-	-	14.0
2531	Alhambra Grid Operations	3.00	-	-	-	-	-	-	3.0
2541	Market Services	0.16	-	-	0.15	1.33	0.24	1.12	3.0
2542	Market Operations	0.77	-	-	1.96	8.41	3.08	0.77	15.0
2543	Billing and Settlements	2.14	-	-	-	-	-	14.86	17.0
2544	Settlement Projects	-	-	-	-	-	-	7.00	7.0
2545	Market Information	-	-	-	-	14.00	-	-	14.0
2551	Operations Support	0.77	0.39	-	-	0.04	-	0.80	2.0

California Independent System Operator
2008 GMC Cost of Service

FTE by Cost Center

CC#	Cost Center	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2552	Operations Data and Compliance	5.43	-	-	-	-	-	7.57	13.0
2553	Operations Procedures and Training	6.32	3.68	-	-	-	-	-	10.0
2554	Model & Contract Implementation	3.20	-	-	-	0.79	-	5.01	9.0
2555	Information Engineering & Analysis	0.88	4.64	-	-	-	-	4.48	10.0
2561	Reliability Coordination	8.00	-	-	-	-	-	-	8.0
2611	General Counsel-General	0.78	0.30	0.01	0.09	0.27	0.07	0.49	2.0
2621	Asst General Counsel-Corporate	1.17	0.45	0.01	0.13	0.40	0.11	0.73	3.0
2631	Asst General Counsel-Regulatory	4.28	1.66	0.05	0.47	1.47	0.39	2.69	11.0
2641	Asst General Counsel Tariff & Compliance	1.94	0.76	0.02	0.21	0.67	0.18	1.22	5.0
2651	Asst Corporate Secretary	0.39	0.15	0.00	0.04	0.13	0.04	0.24	1.0
2711	Market Development-Program Mgmt-General	0.66	0.75	0.00	0.31	1.50	0.02	0.26	3.5
2721	Market and Product Development	0.37	0.74	-	0.37	3.14	-	0.37	5.0
2722	Tariff and Regulatory/Policy Development	-	0.84	-	1.68	6.48	-	-	9.0
2723	Infrastructure Policy & Contracts	3.63	3.56	-	-	-	-	0.81	8.0
2731	Program Office	0.78	0.30	0.01	0.09	0.27	0.07	0.49	2.0
2741	MRTU Program	-	-	-	-	-	-	-	-
2811	External Affairs-General	0.19	0.08	0.00	0.02	0.07	0.02	1.12	1.5
2821	Communications & Public Relations	1.56	0.60	0.02	0.17	0.53	0.14	0.98	4.0
2822	Information Products & Services	-	-	-	-	-	-	4.00	4.0
2831	State/Federal Affairs	2.33	0.91	0.03	0.26	0.80	0.21	1.47	6.0
2841	Customer Services and Industry Affairs	-	-	-	-	-	-	23.00	23.0
2011	Other								
	Total	212.5	86.6	2.4	16.9	70.1	15.8	134.7	539.0
	Percent of Total	39.4%	16.1%	0.5%	3.1%	13.0%	2.9%	25.0%	100.0%

California Independent System Operator
2008 GMC Cost of Service

FTE by Cost Center

CC#	Cost Center	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2111	CEO-General	39%	15%	0%	4%	13%	4%	24%	100%
2121	Market Monitoring	22%	0%	0%	6%	47%	17%	8%	100%
2122	Market Surveillance Committee (Non-labor costs only)	25%	0%	0%	0%	75%	0%	0%	100%
2211	Planning and Infrastructure Development	53%	47%	0%	0%	0%	0%	0%	100%
2221	Regional Transmission-North	58%	42%	0%	0%	0%	0%	0%	100%
2231	Regional Transmission-South	55%	45%	0%	0%	0%	0%	0%	100%
2241	Grid Assets	68%	32%	0%	0%	0%	0%	0%	100%
2242	Generator Interconnections	100%	0%	0%	0%	0%	0%	0%	100%
2251	Network Applications	0%	100%	0%	0%	0%	0%	0%	100%
2311	CFO General	37%	14%	0%	4%	11%	5%	28%	100%
2321	Accounting	39%	15%	0%	4%	13%	4%	24%	100%
2331	Financial Planning and Treasury	31%	12%	0%	3%	11%	3%	39%	100%
2341	Human Resources	41%	17%	0%	3%	10%	6%	23%	100%
2351	Facilities	41%	17%	0%	3%	10%	6%	23%	100%
2361	Procurement and Vendor Management	39%	15%	0%	4%	13%	4%	24%	100%
2371	Enterprise Risk Management	35%	12%	0%	6%	9%	7%	31%	100%
2372	Internal Audit	39%	15%	0%	4%	13%	4%	24%	100%
2373	Information Security	24%	3%	0%	10%	6%	9%	47%	100%
2374	Physical Security	41%	17%	0%	3%	10%	6%	23%	100%
2411	Information Technology-General	35%	8%	0%	8%	11%	5%	33%	100%
2412	Asset Management (Non-Labor costs only)	32%	10%	0%	8%	13%	5%	32%	100%
2421	IT Projects	24%	3%	0%	10%	6%	9%	47%	100%
2431	IT Project Management	24%	3%	0%	10%	6%	9%	47%	100%
2441	Software Quality Assurance	24%	3%	0%	10%	6%	9%	47%	100%
2451	IT Support & Operations	37%	10%	0%	10%	12%	2%	28%	100%
2452	System & Database Administration	24%	3%	0%	10%	6%	9%	47%	100%
2453	Data Center & Operations	40%	18%	0%	2%	14%	2%	23%	100%
2454	Architecture & Systems Engineering	24%	3%	0%	10%	6%	9%	47%	100%
2462	EMS Information Technology	94%	2%	1%	0%	1%	0%	1%	100%
2463	Operations Information Technology	31%	9%	0%	14%	27%	0%	19%	100%
2464	Corporate Systems	33%	10%	0%	1%	10%	2%	43%	100%
2511	Operations-General	47%	17%	1%	1%	15%	2%	18%	100%
2521	Grid Operations	69%	24%	1%	0%	6%	0%	0%	100%
2522	Real-Time Operations	61%	30%	1%	0%	8%	0%	0%	100%
2523	Scheduling	66%	33%	1%	0%	0%	0%	0%	100%
2524	Outage Management	94%	0%	4%	0%	1%	0%	0%	100%
2531	Alhambra Grid Operations	100%	0%	0%	0%	0%	0%	0%	100%
2541	Market Services	5%	0%	0%	5%	44%	8%	37%	100%
2542	Market Operations	5%	0%	0%	13%	56%	21%	5%	100%
2543	Billing and Settlements	13%	0%	0%	0%	0%	0%	87%	100%
2544	Settlement Projects	0%	0%	0%	0%	0%	0%	100%	100%
2545	Market Information	0%	0%	0%	0%	100%	0%	0%	100%
2551	Operations Support	39%	20%	0%	0%	2%	0%	40%	100%

California Independent System Operator
2008 GMC Cost of Service

FTE by Cost Center

CC#	Cost Center	Core Reliability Services	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2552	Operations Data and Compliance	42%	0%	0%	0%	0%	0%	58%	100%
2553	Operations Procedures and Training	63%	37%	0%	0%	0%	0%	0%	100%
2554	Model & Contract Implementation	36%	0%	0%	0%	9%	0%	56%	100%
2555	Information Engineering & Analysis	9%	46%	0%	0%	0%	0%	45%	100%
2561	Reliability Coordination	100%	0%	0%	0%	0%	0%	0%	100%
2611	General Counsel-General	39%	15%	0%	4%	13%	4%	24%	100%
2621	Asst General Counsel-Corporate	39%	15%	0%	4%	13%	4%	24%	100%
2631	Asst General Counsel-Regulatory	39%	15%	0%	4%	13%	4%	24%	100%
2641	Asst General Counsel Tariff & Compliance	39%	15%	0%	4%	13%	4%	24%	100%
2651	Asst Corporate Secretary	39%	15%	0%	4%	13%	4%	24%	100%
2711	Market Development-Program Mgmt-General	19%	21%	0%	9%	43%	0%	8%	100%
2721	Market and Product Development	7%	15%	0%	7%	63%	0%	7%	100%
2722	Tariff and Regulatory/Policy Development	0%	9%	0%	19%	72%	0%	0%	100%
2723	Infrastructure Policy & Contracts	45%	44%	0%	0%	0%	0%	10%	100%
2731	Program Office	39%	15%	0%	4%	13%	4%	24%	100%
2741	MRTU Program	10%	4%	0%	20%	11%	16%	38%	100%
2811	External Affairs-General	13%	5%	0%	1%	4%	1%	75%	100%
2821	Communications & Public Relations	39%	15%	0%	4%	13%	4%	24%	100%
2822	Information Products & Services	0%	0%	0%	0%	0%	0%	100%	100%
2831	State/Federal Affairs	39%	15%	0%	4%	13%	4%	24%	100%
2841	Customer Services and Industry Affairs	0%	0%	0%	0%	0%	0%	100%	100%
2011	Other								

O&M Worksheets Follow

California Independent System Operator
2008 GMC Cost of Service

2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE
2111	CEO-General	$ 1,989,329	$ 1,689,329	$ 300,000	3.0
2121	Market Monitoring	$ 2,406,791	$ 1,982,791	$ 424,000	13.0
2122	Market Surveillance Committee (Non-labor costs only)	$ 355,500	$ 3,000	$ 352,500	-
2211	Planning and Infrastructure Development	$ 578,021	$ 590,021	$ (12,000)	1.5
2221	Regional Transmission-North	$ 2,574,370	$ 2,474,370	$ 100,000	15.0
2231	Regional Transmission-South	$ 2,998,212	$ 2,728,212	$ 270,000	17.0
2241	Grid Assets	$ 1,687,922	$ 1,647,922	$ 40,000	9.0
2242	Generator Interconnections	$ 645,990	$ 645,990	$ -	5.0
2251	Network Applications	$ 1,335,846	$ 1,235,846	$ 100,000	7.0
2311	CFO General	$ 714,550	$ 639,550	$ 75,000	1.5
2321	Accounting	$ 2,782,896	$ 2,550,896	$ 232,000	7.5
2331	Financial Planning and Treasury	$ 3,453,710	$ 3,297,710	$ 156,000	7.5
2341	Human Resources	$ 5,608,043	$ 5,191,043	$ 417,000	17.0
2351	Facilities	$ 7,471,223	$ 7,471,223	$ -	8.0
2361	Procurement and Vendor Management	$ 1,455,250	$ 1,455,250	$ -	8.0
2371	Enterprise Risk Management	$ 499,190	$ 471,190	$ 28,000	3.0
2372	Internal Audit	$ 678,651	$ 653,651	$ 25,000	4.0
2373	Information Security	$ 1,439,083	$ 1,324,083	$ 115,000	7.0
2374	Physical Security	$ 2,167,059	$ 2,161,059	$ 6,000	10.0
2411	Information Technology-General	$ 1,129,927	$ 1,069,927	$ 60,000	3.5
2412	Asset Management (Non-Labor costs only)	$ 11,652,282	$ 11,562,282	$ 90,000	-
2421	IT Projects	$ 726,793	$ 706,793	$ 20,000	4.0
2431	IT Project Management	$ 4,634,251	$ 2,614,251	$ 2,020,000	15.0
2441	Software Quality Assurance	$ 1,096,274	$ 801,274	$ 295,000	5.0
2451	IT Support & Operations	$ 11,984,556	$ 11,984,556	$ -	3.0

California Independent System Operator
2008 GMC Cost of Service

2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE
2452	System & Database Administration	$ 2,611,512	$ 2,411,512	$ 200,000	13.0
2453	Data Center & Operations	$ 1,341,314	$ 1,341,314	$ -	7.0
2454	Architecture & Systems Engineering	$ 1,655,993	$ 1,530,993	$ 125,000	9.0
2462	EMS Information Technology	$ 2,353,122	$ 2,303,122	$ 50,000	14.0
2463	Operations Information Technology	$ 2,185,014	$ 1,932,514	$ 252,500	11.0
2464	Corporate Systems	$ 2,643,563	$ 2,238,563	$ 405,000	12.0
2511	Operations-General	$ 1,250,058	$ 700,058	$ 550,000	1.5
2521	Grid Operations	$ 457,260	$ 457,260	$ -	3.0
2522	Real-Time Operations	$ 15,213,453	$ 15,013,453	$ 200,000	72.0
2523	Scheduling	$ 1,806,524	$ 1,806,524	$ -	9.0
2524	Outage Management	$ 2,284,461	$ 2,242,511	$ 41,950	14.0
2531	Alhambra Grid Operations	$ 558,538	$ 558,538	$ -	3.0
2541	Market Services	$ 906,165	$ 706,165	$ 200,000	3.0
2542	Market Operations	$ 3,815,451	$ 2,745,451	$ 1,070,000	15.0
2543	Billing and Settlements	$ 2,694,422	$ 2,369,422	$ 325,000	17.0
2544	Settlement Projects	$ 1,169,767	$ 1,079,767	$ 90,000	7.0
2545	Market Information	$ 2,255,115	$ 2,035,115	$ 220,000	14.0
2551	Operations Support	$ 379,211	$ 379,211	$ -	2.0
2552	Operations Data and Compliance	$ 2,421,707	$ 1,998,207	$ 423,500	13.0
2553	Operations Procedures and Training	$ 1,911,731	$ 1,726,731	$ 185,000	10.0
2554	Model & Contract Implementation	$ 1,509,103	$ 1,323,583	$ 185,520	9.0
2555	Information Engineering & Analysis	$ 1,661,320	$ 1,461,320	$ 200,000	10.0
2561	Reliability Coordination	$ 1,955,620	$ 1,955,620	$ -	8.0

California Independent System Operator
2008 GMC Cost of Service

2008 Budget Amount By Cost Center

CC #	Cost Center	Amount (total)	Salaries and other	Temp/Contract Staff	FTE
2611	General Counsel-General	$ 6,288,318	$ 6,181,318	$ 107,000	2.0
2621	Asst General Counsel-Corporate	$ 684,593	$ 684,593	$ -	3.0
2631	Asst General Counsel-Regulatory	$ 1,848,378	$ 1,848,378	$ -	11.0
2641	Asst General Counsel Tariff & Compliance	$ 1,179,077	$ 1,179,077	$ -	5.0
2651	Asst Corporate Secretary	$ 628,815	$ 528,815	$ 100,000	1.0
2711	Market Development-Program Mgmt-General	$ 1,790,578	$ 1,340,578	$ 450,000	3.5
2721	Market and Product Development	$ 1,479,177	$ 1,098,677	$ 380,500	5.0
2722	Tariff and Regulatory/Policy Development	$ 1,838,353	$ 1,545,853	$ 292,500	9.0
2723	Infrastructure Policy & Contracts	$ 1,557,548	$ 1,257,548	$ 300,000	8.0
2731	Program Office	$ 538,287	$ 288,287	$ 250,000	2.0
2741	MRTU Program	$ 26,763	$ 26,763	$ -	-
2811	External Affairs-General	$ 620,379	$ 620,379	$ -	1.5
2821	Communications & Public Relations	$ 1,006,303	$ 967,882	$ 38,421	4.0
2822	Information Products & Services	$ 823,237	$ 645,009	$ 178,228	4.0
2831	State/Federal Affairs	$ 1,335,600	$ 1,135,600	$ 200,000	6.0
2841	Customer Services and Industry Affairs	$ 3,903,664	$ 3,703,383	$ 200,281	23.0
2011	Other	$ -	$ -	$ -	
		$ 152,655,212	$ 140,321,312	$ 12,333,900	539.0

California Independent System Operator
2008 GMC Cost of Service

Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2121	Market Monitoring	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor costs only)	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2221	Regional Transmission-North	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
2331	Financial Planning and Treasury	$ -	$ -	$ -	$ -	$ -	$ -	$ 664,138	$ 664,138
2521	Grid Operations	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
2522	Real-Time Operations	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2531	Alhambra Grid Operations	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2541	Market Services	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2551	Operations Support	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2721	Market and Product Development	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
		$ 25,439,114	$ 12,185,247	$ 309,015	$ 1,147,297	$ 9,872,749	$ 1,267,773	$ 13,049,400	$ 63,270,595

California Independent System Operator
2008 GMC Cost of Service

Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability	Energy Transmission	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
		4	5	6	7	8	9	10	
2412	Asset Management (Non-Labor costs only)	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2373	Information Security	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
2421	IT Projects	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2451	IT Support & Operations	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2453	Data Center & Operations	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2462	EMS Information Technology	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563
		$ 15,403,194	$ 3,488,316	$ 153,198	$ 3,608,602	$ 4,838,206	$ 2,131,220	$ 14,701,021	$ 44,323,756

California Independent System Operator
2008 GMC Cost of Service

Total Direct Dollar Allocations of Expenditures by Cost Center for Direct Assignments

CC#	Cost Center	FTE	Budget	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
				3	4	5	6	7	8	9	
2121	Market Monitoring	13	$ 2,406,791	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor costs only)	0	$ 355,500	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2221	Regional Transmission-North	15	$ 2,574,370	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	17	$ 2,998,212	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	9	$ 1,687,922	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	5	$ 645,990	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	7	$ 1,335,846	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
2331	Financial Planning and Treasury	7.5	$ 3,453,710	$ -	$ -	$ -	$ -	$ -	$ -	$ 664,138	$ 664,138
2373	Information Security	7	$ 1,439,083	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
2412	Asset Management (Non-Labor costs only)	0	$ 11,652,282	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2421	IT Projects	4	$ 726,793	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	15	$ 4,634,251	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	5	$ 1,096,274	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2451	IT Support & Operations	3	$ 11,984,556	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	13	$ 2,611,512	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512
2453	Data Center & Operations	7	$ 1,341,314	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	9	$ 1,655,993	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2462	EMS Information Technology	14	$ 2,353,122	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	11	$ 2,185,014	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	12	$ 2,643,563	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563

California Independent System Operator
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Total Direct Dollar Allocations of Expenditures by Cost Center for Direct Assignments

CC#	Cost Center	FTE	Budget	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2521	Grid Operations	3	$ 457,260	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
2522	Real-Time Operations	72	$ 15,213,453	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	9	$ 1,806,524	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	14	$ 2,284,461	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2531	Alhambra Grid Operations	3	$ 558,538	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2541	Market Services	3	$ 906,165	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
2542	Market Operations	15	$ 3,815,451	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	17	$ 2,694,422	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	7	$ 1,169,767	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	14	$ 2,255,115	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2551	Operations Support	2	$ 379,211	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
2552	Operations Data and Compliance	13	$ 2,421,707	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	10	$ 1,911,731	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	9	$ 1,509,103	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103
2555	Information Engineering & Analysis	10	$ 1,661,320	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
2561	Reliability Coordination	8	$ 1,955,620	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2721	Market and Product Development	5	$ 1,479,177	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	9	$ 1,838,353	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	8	$ 1,557,548	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2822	Information Products & Services	4	$ 823,237	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2841	Customer Services and Industry Affairs	23	$ 3,903,664	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
	Totals	431.5	$ 110,383,923	$ 40,842,308	$ 15,673,563	$ 462,212	$ 4,755,899	$ 14,710,956	$ 3,398,993	$ 27,750,420	$ 107,594,351
	Percent of Total			38.0%	14.6%	0.4%	4.4%	13.7%	3.2%	25.8%	100.0%
	FTEs			163.8	62.9	1.9	19.1	59.0	13.6	111.3	431.5
	FTEs as Percent of Total			38.0%	14.6%	0.4%	4.4%	13.7%	3.2%	25.8%	100.0%

California Independent System Operator
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Summary of Allocators

	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Direct Costs	$ 40,842,308	$ 15,673,563	$ 462,212	$ 4,755,899	$ 14,710,956	$ 3,398,993	$ 27,750,420	$ 107,594,351
Ratios								
Direct Costs	38.0%	14.6%	0.43%	4.4%	13.7%	3.2%	25.8%	100.0%
FTE Ratios (FTE)	40.9%	16.7%	0.47%	3.0%	10.1%	6.0%	22.9%	100.0%
Overhead Allocator (OH)	38.9%	15.1%	0.44%	4.3%	13.3%	3.5%	24.4%	100.0%
MRTU Capital	10.3%	4.2%	0.1%	19.9%	10.8%	16.2%	38.5%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Calculation of FTE Allocator

CC #	Cost Center		FTE	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total FTE
2111	CEO-General	SCC	3.0								
2121	Market Monitoring	DA	13.0	2.9	-	-	0.8	6.1	2.2	1.0	13.0
2122	Market Surveillance Committee (Non-labor costs onl	DA	-	-	-		-	-	-	-	-
2211	Planning and Infrastructure Development	SCC	1.5	0.8	0.7	-	-	-	-	-	1.5
2221	Regional Transmission-North	DA	15.0	8.7	6.3	-	-	-	-	-	15.0
2231	Regional Transmission-South	DA	17.0	9.3	7.7	-	-	-	-	-	17.0
2241	Grid Assets	DA	9.0	6.2	2.8	-	-	-	-	-	9.0
2242	Generator Interconnections	DA	5.0	5.0	-		-	-	-	-	5.0
2251	Network Applications	DA	7.0	-	7.0	-	-	-	-	-	7.0
2311	CFO General	SCC	1.5								
2321	Accounting	OH	7.5	-	-		-	-	-	-	-
2331	Financial Planning and Treasury	OH	2.0	-	-		-	-	-	-	-
2341	Human Resources	FTE	17.0	-	-		-	-	-	-	-
2351	Facilities	FTE	8.0	-	-		-	-	-	-	-
2361	Procurement and Vendor Management	OH	8.0	-	-		-	-	-	-	-
2371	Enterprise Risk Management	OH	3.0	-	-		-	-	-	-	-
2372	Internal Audit	OH	4.0	-	-		-	-	-	-	-
2373	Information Security	SD	7.0	1.6	0.2	0.0	0.7	0.4	0.7	3.3	7.0
2374	Physical Security	FTE	10.0	-	-		-	-	-	-	-
2411	Information Technology-General	SD	3.5	1.2	0.3	0.0	0.3	0.4	0.2	1.1	3.5
2412	Asset Management (Non-Labor costs only)	DS	-	-	-		-	-	-	-	-
2421	IT Projects	SCC	4.0	0.9	0.1	0.0	0.4	0.3	0.4	1.9	4.0
2431	IT Project Management	SD	15.0	3.5	0.5	0.0	1.5	1.0	1.4	7.1	15.0
2441	Software Quality Assurance	SD	5.0	1.2	0.2	0.0	0.5	0.3	0.5	2.4	5.0
2451	IT Support & Operations	DS	3.0	1.1	0.3	0.0	0.3	0.4	0.1	0.8	3.0
2452	System & Database Administration	SD	13.0	3.1	0.4	0.0	1.3	0.8	1.2	6.2	13.0
2453	Data Center & Operations	DS	7.0	2.8	1.3	0.0	0.2	1.0	0.1	1.6	7.0
2454	Architecture & Systems Engineering	SD	9.0	2.1	0.3	0.0	0.9	0.6	0.9	4.3	9.0
2462	EMS Information Technology	DS	14.0	13.2	0.3	0.1	-	0.2	-	0.2	14.0
2463	Operations Information Technology	DS	11.0	3.5	1.0	0.0	1.5	2.9	-	2.1	11.0
2464	Corporate Systems	DS	12.0	3.9	1.2	0.0	0.1	1.2	0.2	5.2	12.0
2511	Operations-General	SCC	1.5	0.7	0.2	0.0	0.0	0.2	0.0	0.3	1.5
2521	Grid Operations	SCC	3.0	2.1	0.7	0.0	-	0.2	-	-	3.0
2522	Real-Time Operations	DA	72.0	43.9	21.4	0.9	-	5.8	-	-	72.0

California Independent System Operator
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Calculation of FTE Allocator

CC #	Cost Center		FTE	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total FTE
2523	Scheduling	DA	9.0	5.9	3.0	0.1	-	-	-	-	9.0
2524	Outage Management	DA	14.0	13.2	0.1	0.6	-	0.2	-	-	14.0
2531	Alhambra Grid Operations	DA	3.0	3.0	-	-	-	-	-	-	3.0
2541	Market Services	SCC	3.0	0.2	-	-	0.2	1.3	0.2	1.1	3.0
2542	Market Operations	DA	15.0	0.8	-	-	2.0	8.4	3.1	0.8	15.0
2543	Billing and Settlements	DA	17.0	2.1	-	-	-	-	-	14.9	17.0
2544	Settlement Projects	DA	7.0	-	-		-	-	-	-	-
2545	Market Information	DA	14.0	-	-		-	-	14.0	-	14.0
2551	Operations Support	SCC	2.0	0.8	0.4	-	-	0.0	-	0.8	2.0
2552	Operations Data and Compliance	DA	13.0	5.4	-	-	-	-	-	7.6	13.0
2553	Operations Procedures and Training	DA	10.0	6.3	3.7	-	-	-	-	-	10.0
2554	Model & Contract Implementation	DA	9.0	3.2	-	-	-	0.8	-	5.0	9.0
2555	Information Engineering & Analysis	DA	10.0	0.9	4.6	-	-	-	-	4.5	10.0
2561	Reliability Coordination	DA	8.0	8.0	-	-	-	-	-	-	8.0
2611	General Counsel-General	SCC	2.0								
2621	Asst General Counsel-Corporate	OH	3.0	-	-		-	-	-	-	-
2631	Asst General Counsel-Regulatory	OH	11.0	-	-		-	-	-	-	-
2641	Asst General Counsel Tariff & Compliance	OH	5.0	-	-		-	-	-	-	-
2651	Asst Corporate Secretary	OH	1.0	-	-		-	-	-	-	-
2711	Market Development-Program Mgmt-General	SCC	3.5								
2721	Market and Product Development	DA	5.0	0.4	0.7	-	0.4	3.1	-	0.4	5.0
2722	Tariff and Regulatory/Policy Development	DA	9.0	-	0.8	-	1.7	6.5	-	-	9.0
2723	Infrastructure Policy & Contracts	DA	8.0	3.6	3.6	-	-	-	-	0.8	8.0
2731	Program Office	OH	2.0	-	-		-	-	-	-	-
2741	MRTU Program	DS	-	-	-	-	-	-	-	-	-
2811	External Affairs-General	SCC	1.5								
2821	Communications & Public Relations	OH	4.0	-	-		-	-	-	-	-
2822	Information Products & Services	OH	4.0	-	-		-	-	-	-	-
2831	State/Federal Affairs	OH	6.0	-	-		-	-	-	-	-
2841	Customer Services and Industry Affairs	DA	23.0	-	-	-	-	-	-	23.0	23.0
2011	Other		-	-	-	-	-	-	-	-	-
	Totals		534	171	70	2	13	42	25	96	420
				40.9%	16.7%	0.5%	3.0%	10.1%	6.0%	22.9%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Calculation of Overhead Allocator

CC #	Cost Center		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2111	CEO-General	SCC	Overhead Department							
2121	Market Monitoring	DA	539,011	-	-	149,166	1,123,778	411,811	183,027	2,406,791
2122	Market Surveillance Committee (Non-labor costs on	DA	88,875	-	-	-	266,625	-	-	355,500
2211	Planning and Infrastructure Development	SCC	307,767	270,254	-	-	-	-	-	578,021
2221	Regional Transmission-North	DA	1,484,622	1,089,748	-	-	-	-	-	2,574,370
2231	Regional Transmission-South	DA	1,636,927	1,361,285	-	-	-	-	-	2,998,212
2241	Grid Assets	DA	1,153,545	534,376	-	-	-	-	-	1,687,922
2242	Generator Interconnections	DA	645,990	-	-	-	-	-	-	645,990
2251	Network Applications	DA	-	1,335,846	-	-	-	-	-	1,335,846
2311	CFO General	SCC	Overhead Department							
2321	Accounting	OH	Overhead Department							
2331	Financial Planning and Treasury	OH	Overhead Department							
2341	Human Resources	FTE	2,291,029	934,599	26,543	168,971	564,052	336,557	1,286,292	5,608,043
2351	Facilities	FTE	3,052,185	1,245,105	35,362	225,109	751,450	448,372	1,713,641	7,471,223
2361	Procurement and Vendor Management	OH	Overhead Department							
2371	Enterprise Risk Management	OH	Overhead Department							
2372	Internal Audit	OH	Overhead Department							
2373	Information Security	SD	338,678	43,292	3,150	142,593	92,412	136,327	682,630	1,439,083
2374	Physical Security	FTE	885,299	361,148	10,257	65,294	217,961	130,052	497,049	2,167,059
2411	Information Technology-General	SD	396,921	90,770	3,953	91,323	125,042	52,562	369,357	1,129,927
2412	Asset Management (Non-Labor costs only)	DS	3,774,814	1,140,186	38,983	875,567	1,488,820	625,431	3,708,481	11,652,282
2421	IT Projects	SCC	171,046	21,864	1,591	72,015	46,671	68,851	344,755	726,793
2431	IT Project Management	SD	1,090,639	139,413	10,144	459,190	297,591	439,012	2,198,261	4,634,251
2441	Software Quality Assurance	SD	258,001	32,979	2,400	108,626	70,398	103,852	520,019	1,096,274
2451	IT Support & Operations	DS	4,465,552	1,200,864	46,544	1,163,931	1,497,366	280,712	3,329,586	11,984,556
2452	System & Database Administration	SD	614,601	78,563	5,716	258,765	167,700	247,394	1,238,773	2,611,512
2453	Data Center & Operations	DS	539,696	246,064	6,509	32,747	189,751	22,061	304,486	1,341,314
2454	Architecture & Systems Engineering	SD	389,727	49,818	3,625	164,086	106,341	156,876	785,522	1,655,993
2462	EMS Information Technology	DS	2,213,972	57,566	18,834	-	31,375	-	31,375	2,353,122
2463	Operations Information Technology	DS	686,840	205,362	7,171	298,744	579,446	-	407,451	2,185,014
2464	Corporate Systems	DS	859,627	272,344	8,532	32,337	270,336	50,704	1,149,682	2,643,563

California Independent System Operator
2008 GMC Cost of Service

Calculation of Overhead Allocator

CC #	Cost Center		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2511	Operations-General	SCC	581,520	206,703	9,422	16,609	189,931	26,098	219,775	1,250,058
2521	Grid Operations	SCC	313,345	110,147	6,506	-	27,262	-	-	457,260
2522	Real-Time Operations	DA	9,278,122	4,518,938	182,410	-	1,233,982	-	-	15,213,453
2523	Scheduling	DA	1,187,767	593,884	24,873	-	-	-	-	1,806,524
2524	Outage Management	DA	2,147,286	8,390	95,225	-	33,560	-	-	2,284,461
2531	Alhambra Grid Operations	DA	558,538	-	-	-	-	-	-	558,538
2541	Market Services	SCC	48,767	-	-	45,534	400,851	71,548	339,466	906,165
2542	Market Operations	DA	196,104	-	-	499,207	2,139,622	784,415	196,104	3,815,451
2543	Billing and Settlements	DA	338,550	-	-	-	-	-	2,355,871	2,694,422
2544	Settlement Projects	DA	-	-	-	-	-	-	1,169,767	1,169,767
2545	Market Information	DA	-	-	-	-	2,255,115	-	-	2,255,115
2551	Operations Support	SCC	146,661	74,473	-	-	6,689	-	151,388	379,211
2552	Operations Data and Compliance	DA	1,011,033	-	-	-	-	-	1,410,674	2,421,707
2553	Operations Procedures and Training	DA	1,208,712	703,019	-	-	-	-	-	1,911,731
2554	Model & Contract Implementation	DA	536,270	-	-	-	132,358	-	840,475	1,509,103
2555	Information Engineering & Analysis	DA	146,132	770,660	-	-	-	-	744,528	1,661,320
2561	Reliability Coordination	DA	1,955,620	-	-	-	-	-	-	1,955,620
2611	General Counsel-General	SCC	Overhead Department							
2621	Asst General Counsel-Corporate	OH	Overhead Department							
2631	Asst General Counsel-Regulatory	OH	Overhead Department							
2641	Asst General Counsel Tariff & Compliance	OH	Overhead Department							
2651	Asst Corporate Secretary	OH	Overhead Department							
2711	Market Development-Program Mgmt-General	SCC	Overhead Department							
2721	Market and Product Development	DA	109,868	219,735	-	109,868	929,838	-	109,868	1,479,177
2722	Tariff and Regulatory/Policy Development	DA	-	171,761	-	343,523	1,323,069	-	-	1,838,353
2723	Infrastructure Policy & Contracts	DA	707,371	692,984	-	-	-	-	157,194	1,557,548
2731	Program Office	OH	Overhead Department							
2741	MRTU Program	DS	2,757	1,136	31	5,334	2,878	4,334	10,293	26,763
2811	External Affairs-General	SCC	Overhead Department							-
2821	Communications & Public Relations	OH	Overhead Department							
2822	Information Products & Services	OH	Overhead Department							
2831	State/Federal Affairs	OH	Overhead Department							
2841	Customer Services and Industry Affairs	DA	-	-	-	-	-	-	3,903,664	3,903,664
2011	Other		-	-	-	-	-	-	-	-
	Totals		48,359,786	18,783,277	547,780	5,328,537	16,562,270	4,396,967	30,359,452	124,338,070
			38.9%	15.1%	0.4%	4.3%	13.3%	3.5%	24.4%	100.0%

California Independent System Operator
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Assignment/Allocation Method by Cost Center

CC #	Cost Center	Sheet	Method	Description
2111	CEO-General	2100	SCC	Allocated using overhead ratios
2121	Market Monitoring	2100	DA	Direct assignment
2122	Market Surveillance Committee (Non-labor c	2100	DA	Direct assignment
2211	Planning and Infrastructure Development	2200	SCC	Allocated using supervised cost centers in 2200
2221	Regional Transmission-North	2200	DA	Direct assignment
2231	Regional Transmission-South	2200	DA	Direct assignment
2241	Grid Assets	2200	DA	Direct assignment
2242	Generator Interconnections	2200	DA	Direct assignment
2251	Network Applications	2200	DA	Direct assignment
2311	CFO General	2300	SCC	Allocated using supervised cost centers in 2300
2321	Accounting	2300	OH	Allocated using overhead ratios
2331	Financial Planning and Treasury	2300	OH	Allocated using overhead ratios; portion related to credit administration directly assigned
2341	Human Resources	2300	FTE	Allocated proportional to FTE
2351	Facilities	2300	FTE	Allocated proportional to FTE
2361	Procurement and Vendor Management	2300	OH	Allocated using overhead ratios
2371	Enterprise Risk Management	2300	OH	Allocated using overhead ratios
2372	Internal Audit	2300	OH	Allocated using overhead ratios
2373	Information Security	2300	SD	Proportional to directly allocated system applications
2374	Physical Security	2300	FTE	Allocated proportional to FTE
2411	Information Technology-General	2400	SD	Allocated using supervised cost centers in 2400
2412	Asset Management (Non-Labor costs only)	2400	DS	Direct functionalization of contract expenditures
2421	IT Projects	2400	SCC	Allocated using supervised cost centers in 2400
2431	IT Project Management	2400	SD	Proportional to directly allocated system applications
2441	Software Quality Assurance	2400	SD	Proportional to directly allocated system applications
2451	IT Support & Operations	2400	DS	Direct assignment
2452	System & Database Administration	2400	SD	Proportional to directly allocated system applications
2453	Data Center & Operations	2400	DS	Direct assignment
2454	Architecture & Systems Engineering	2400	SD	Proportional to directly allocated system applications
2461	Information Technology Applications-Genera	2400	OH	Proportional to directly allocated system applications
2462	EMS Information Technology	2400	DS	Supports EMS and PI
2463	Operations Information Technology	2400	DS	Direct assignment
2464	Corporate Systems	2400	DS	Direct assignment
2511	Operations-General	2500	SCC	Allocated using supervised cost centers in 2500
2521	Grid Operations	2500	SCC	Allocated using supervised cost centers in 2500

California Independent System Operator
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Assignment/Allocation Method by Cost Center

CC #	Cost Center	Sheet	Method	Description
2522	Real-Time Operations	2500	DA	Direct assignment
2523	Scheduling	2500	DA	Direct assignment
2524	Outage Management	2500	DA	Direct assignment
2531	Alhambra Grid Operations	2500	DA	Direct assignment
2541	Market Services	2500	SCC	Allocated using supervised cost centers in 2500
2542	Market Operations	2500	DA	Direct assignment
2543	Billing and Settlements	2500	DA	Direct assignment
2544	Settlement Projects	2500	DA	Direct assignment
2545	Market Information	2500	DA	Direct assignment
2551	Operations Support	2500	SCC	Allocated using supervised cost centers in 2500
2552	Operations Data and Compliance	2500	DA	Direct assignment
2553	Operations Procedures and Training	2500	DA	Direct assignment
2554	Model & Contract Implementation	2500	DA	Direct assignment
2555	Information Engineering & Analysis	2500	DA	Direct assignment
2561	Reliability Coordination	2500	DA	Direct assignment
2611	General Counsel-General	2600	SCC	Allocated using supervised cost centers in 2600
2621	Asst General Counsel-Corporate	2600	OH	Allocated using overhead ratios
2631	Asst General Counsel-Regulatory	2600	OH	Allocated using overhead ratios
2641	Asst General Counsel Tariff & Compliance	2600	OH	Allocated using overhead ratios
2651	Asst Corporate Secretary	2600	OH	Allocated using overhead ratios
2711	Market Development-Program Mgmt-Genera	2700	SCC	Allocated using supervised cost centers in 2700
2721	Market and Product Development	2700	DA	Direct assignment
2722	Tariff and Regulatory/Policy Development	2700	DA	Direct assignment
2723	Infrastructure Policy & Contracts	2700	DA	Direct assignment
2731	Program Office	2700	OH	Allocated using overhead ratios
2741	MRTU Program	2700	DS	Allocated using MRTU assignment
2811	External Affairs-General	2800	SCC	Allocated using supervised cost centers in 2800
2821	Communications & Public Relations	2800	OH	Allocated using overhead ratios
2822	Information Products & Services	2800	OH	Allocated using overhead ratios
2831	State/Federal Affairs	2800	OH	Allocated using overhead ratios
2841	Customer Services and Industry Affairs	2800	OH	Allocated using overhead ratios

Key to Method Acronyms	
Direct Assignment	DA
Direct System	DS
Supervised cost centers (directors/officers)	SCC
Allocated by personnel headcount	FTE
Overhead	OH
System Direct - Proportional to allocation of directly functionalized systems	SD

Exhibit ISO-14

Revenue Requirement and Rate Calculations

Exhibit ISO-14
California Independent System Operator
2008 GMC Cost of Service
Revenue Requirement and Rate Calculations

This spreadsheet takes the O&M requirement requirement and functionalizes the debt service requirement, capital project funding, expense recovery budget and the excess Operating and Capital Reserve. It sums these, applies the functional association of Settlements, Metering and Client Relations costs and calculates rates.

The proposed CAISO MRTU GMC Rate Structure includes:
80/20 revenue split between ETS-NE and ETS-UE
Recovery of excess SMCR revenue based on Functional Association of Charge Types
No discount for Forward Scheduling or Inter SC trades, but retaining the discount for Path 15 Facilitator Inter SC trades
MU-Forward Energy based on cost of service
SMCR rate increased to $1000
Forward Energy bill determinant set to 20% of net of withdrawals and injections
CRS/ETS TOR rate based on cost of service

Sheet Index:	Description
Rev Req Detail	Shows the detailed calculation of revenue requirement as the sum of O&M, Financing Budget, Capital Project Funding, Expense Recovery Budget and the Financial and Capital Operating Reserve
Rev Req Summary	Shows the summary calculation of revenue requirement as the sum of O&M, Financing Budget, Capital Project Funding, Expense Recovery Budget and the Financial and Capital Operating Reserve
As filed Rates	Summarizes revenue requirement calculation, applies functional association of charge types and billing determinants to calculate rates using as filed 2004 GMC method
MRTU rate	Summarizes revenue requirement calculation, applies functional association of charge types and billing determinants to calculate rates using as settled 2004 GMC method
Worksheet divider	
Billing determinants	Historical and estimated billing units for 2006
Financing Budget	Functionalization of the debt service costs for bonds
Expense Recovery Budget	Functionalization of miscellaneous credits and interest
F&C Op Reserve	Functionalization of Operating and Capital Reserve credit
Revenue Forecast	Forecast of GMC revenues
Ass'n of CTs	Functional association of Charge Types used to allocate excess SMCR costs
Ass'n of CTs for TOR	Functional association of Charge Types used to allocate excess SMCR costs to TOR charge
Rates by Charge Type	GMC rates by charge type
Last updated:	2/19/2008 9:46 bta

California Independent System Operator
2008 GMC Cost of Service

Detailed Revenue Requirement

		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Operations and Maintenance									
2111	CEO-General	$ 773,725	$ 300,520	$ 8,764	$ 85,253	$ 264,986	$ 70,349	$ 485,732	$ 1,989,329
2121	Market Monitoring	$ 539,011	$ -	$ -	$ 149,166	$ 1,123,778	$ 411,811	$ 183,027	$ 2,406,791
2122	Market Surveillance Committee (Non-labor cost	$ 88,875	$ -	$ -	$ -	$ 266,625	$ -	$ -	$ 355,500
2211	Planning and Infrastructure Development	$ 307,767	$ 270,254	$ -	$ -	$ -	$ -	$ -	$ 578,021
2221	Regional Transmission-North	$ 1,484,622	$ 1,089,748	$ -	$ -	$ -	$ -	$ -	$ 2,574,370
2231	Regional Transmission-South	$ 1,636,927	$ 1,361,285	$ -	$ -	$ -	$ -	$ -	$ 2,998,212
2241	Grid Assets	$ 1,153,545	$ 534,376	$ -	$ -	$ -	$ -	$ -	$ 1,687,922
2242	Generator Interconnections	$ 645,990	$ -	$ -	$ -	$ -	$ -	$ -	$ 645,990
2251	Network Applications	$ -	$ 1,335,846	$ -	$ -	$ -	$ -	$ -	$ 1,335,846
2311	CFO General	$ 266,762	$ 102,910	$ 3,032	$ 28,331	$ 76,482	$ 36,578	$ 200,457	$ 714,550
2321	Accounting	$ 1,082,374	$ 420,402	$ 12,260	$ 119,262	$ 370,692	$ 98,412	$ 679,496	$ 2,782,896
2331	Financial Planning and Treasury	$ 1,084,970	$ 421,410	$ 12,290	$ 119,548	$ 371,581	$ 98,648	$ 1,345,264	$ 3,453,710
2341	Human Resources	$ 2,291,029	$ 934,599	$ 26,543	$ 168,971	$ 564,052	$ 336,557	$ 1,286,292	$ 5,608,043
2351	Facilities	$ 3,052,185	$ 1,245,105	$ 35,362	$ 225,109	$ 751,450	$ 448,372	$ 1,713,641	$ 7,471,223
2361	Procurement and Vendor Management	$ 566,002	$ 219,839	$ 6,411	$ 62,365	$ 193,844	$ 51,462	$ 355,326	$ 1,455,250
2371	Enterprise Risk Management	$ 173,348	$ 59,062	$ 1,910	$ 27,608	$ 46,691	$ 33,830	$ 156,741	$ 499,190
2372	Internal Audit	$ 263,953	$ 102,521	$ 2,990	$ 29,084	$ 90,399	$ 23,999	$ 165,705	$ 678,651
2373	Information Security	$ 338,678	$ 43,292	$ 3,150	$ 142,593	$ 92,412	$ 136,327	$ 682,630	$ 1,439,083
2374	Physical Security	$ 885,299	$ 361,148	$ 10,257	$ 65,294	$ 217,961	$ 130,052	$ 497,049	$ 2,167,059
2411	Information Technology-General	$ 396,921	$ 90,770	$ 3,953	$ 91,323	$ 125,042	$ 52,562	$ 369,357	$ 1,129,927
2412	Asset Management (Non-Labor costs only)	$ 3,774,814	$ 1,140,186	$ 38,983	$ 875,567	$ 1,488,820	$ 625,431	$ 3,708,481	$ 11,652,282
2421	IT Projects	$ 171,046	$ 21,864	$ 1,591	$ 72,015	$ 46,671	$ 68,851	$ 344,755	$ 726,793
2431	IT Project Management	$ 1,090,639	$ 139,413	$ 10,144	$ 459,190	$ 297,591	$ 439,012	$ 2,198,261	$ 4,634,251
2441	Software Quality Assurance	$ 258,001	$ 32,979	$ 2,400	$ 108,626	$ 70,398	$ 103,852	$ 520,019	$ 1,096,274
2451	IT Support & Operations	$ 4,465,552	$ 1,200,864	$ 46,544	$ 1,163,931	$ 1,497,366	$ 280,712	$ 3,329,586	$ 11,984,556
2452	System & Database Administration	$ 614,601	$ 78,563	$ 5,716	$ 258,765	$ 167,700	$ 247,394	$ 1,238,773	$ 2,611,512

California Independent System Operator
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Detailed Revenue Requirement

		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2453	Data Center & Operations	$ 539,696	$ 246,064	$ 6,509	$ 32,747	$ 189,751	$ 22,061	$ 304,486	$ 1,341,314
2454	Architecture & Systems Engineering	$ 389,727	$ 49,818	$ 3,625	$ 164,086	$ 106,341	$ 156,876	$ 785,522	$ 1,655,993
2462	EMS Information Technology	$ 2,213,972	$ 57,566	$ 18,834	$ -	$ 31,375	$ -	$ 31,375	$ 2,353,122
2463	Operations Information Technology	$ 686,840	$ 205,362	$ 7,171	$ 298,744	$ 579,446	$ -	$ 407,451	$ 2,185,014
2464	Corporate Systems	$ 859,627	$ 272,344	$ 8,532	$ 32,337	$ 270,336	$ 50,704	$ 1,149,682	$ 2,643,563
2511	Operations-General	$ 581,520	$ 206,703	$ 9,422	$ 16,609	$ 189,931	$ 26,098	$ 219,775	$ 1,250,058
2521	Grid Operations	$ 313,345	$ 110,147	$ 6,506	$ -	$ 27,262	$ -	$ -	$ 457,260
2522	Real-Time Operations	$ 9,278,122	$ 4,518,938	$ 182,410	$ -	$ 1,233,982	$ -	$ -	$ 15,213,453
2523	Scheduling	$ 1,187,767	$ 593,884	$ 24,873	$ -	$ -	$ -	$ -	$ 1,806,524
2524	Outage Management	$ 2,147,286	$ 8,390	$ 95,225	$ -	$ 33,560	$ -	$ -	$ 2,284,461
2531	Alhambra Grid Operations	$ 558,538	$ -	$ -	$ -	$ -	$ -	$ -	$ 558,538
2541	Market Services	$ 48,767	$ -	$ -	$ 45,534	$ 400,851	$ 71,548	$ 339,466	$ 906,165
2542	Market Operations	$ 196,104	$ -	$ -	$ 499,207	$ 2,139,622	$ 784,415	$ 196,104	$ 3,815,451
2543	Billing and Settlements	$ 338,550	$ -	$ -	$ -	$ -	$ -	$ 2,355,871	$ 2,694,422
2544	Settlement Projects	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,169,767	$ 1,169,767
2545	Market Information	$ -	$ -	$ -	$ -	$ 2,255,115	$ -	$ -	$ 2,255,115
2551	Operations Support	$ 146,661	$ 74,473	$ -	$ -	$ 6,689	$ -	$ 151,388	$ 379,211
2552	Operations Data and Compliance	$ 1,011,033	$ -	$ -	$ -	$ -	$ -	$ 1,410,674	$ 2,421,707
2553	Operations Procedures and Training	$ 1,208,712	$ 703,019	$ -	$ -	$ -	$ -	$ -	$ 1,911,731
2554	Model & Contract Implementation	$ 536,270	$ -	$ -	$ -	$ 132,358	$ -	$ 840,475	$ 1,509,103

California Independent System Operator
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Detailed Revenue Requirement

		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
2555	Information Engineering & Analysis	$ 146,132	$ 770,660	$ -	$ -	$ -	$ -	$ 744,528	$ 1,661,320
2561	Reliability Coordination	$ 1,955,620	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,955,620
2611	General Counsel-General	$ 2,445,765	$ 949,952	$ 27,704	$ 269,487	$ 837,626	$ 222,374	$ 1,535,410	$ 6,288,318
2621	Asst General Counsel-Corporate	$ 266,264	$ 103,419	$ 3,016	$ 29,338	$ 91,190	$ 24,209	$ 167,156	$ 684,593
2631	Asst General Counsel-Regulatory	$ 718,904	$ 279,227	$ 8,143	$ 79,213	$ 246,211	$ 65,364	$ 451,316	$ 1,848,378
2641	Asst General Counsel Tariff & Compliance	$ 458,588	$ 178,119	$ 5,195	$ 50,530	$ 157,057	$ 41,696	$ 287,894	$ 1,179,077
2651	Asst Corporate Secretary	$ 244,570	$ 94,993	$ 2,770	$ 26,948	$ 83,760	$ 22,237	$ 153,537	$ 628,815
2711	Market Development-Program Mgmt-General	$ 338,805	$ 384,088	$ 791	$ 158,579	$ 766,075	$ 7,692	$ 134,549	$ 1,790,578
2721	Market and Product Development	$ 109,868	$ 219,735	$ -	$ 109,868	$ 929,838	$ -	$ 109,868	$ 1,479,177
2722	Tariff and Regulatory/Policy Development	$ -	$ 171,761	$ -	$ 343,523	$ 1,323,069	$ -	$ -	$ 1,838,353
2723	Infrastructure Policy & Contracts	$ 707,371	$ 692,984	$ -	$ -	$ -	$ -	$ 157,194	$ 1,557,548
2731	Program Office	$ 209,360	$ 81,317	$ 2,371	$ 23,068	$ 71,702	$ 19,035	$ 131,433	$ 538,287
2741	MRTU Program	$ 2,757	$ 1,136	$ 31	$ 5,334	$ 2,878	$ 4,334	$ 10,293	$ 26,763
2811	External Affairs-General	$ 79,939	$ 31,049	$ 905	$ 8,808	$ 27,378	$ 7,268	$ 465,031	$ 620,379
2821	Communications & Public Relations	$ 391,389	$ 152,018	$ 4,433	$ 43,125	$ 134,043	$ 35,586	$ 245,707	$ 1,006,303
2822	Information Products & Services	$ -	$ -	$ -	$ -	$ -	$ -	$ 823,237	$ 823,237
2831	State/Federal Affairs	$ 519,466	$ 201,764	$ 5,884	$ 57,237	$ 177,907	$ 47,231	$ 326,112	$ 1,335,600
2841	Customer Services and Industry Affairs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,903,664	$ 3,903,664
2011	Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operations and Maintenance		$ 58,243,971	$ 22,865,887	$ 656,650	$ 6,546,321	$ 20,569,893	$ 5,302,936	$ 38,469,555	$ 152,655,212

California Independent System Operator
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Detailed Revenue Requirement

		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Financing and Capital Project Budgets									
	1998/2000 Bond Financed Capital	$ 5,202,322	$ 1,452,255	$ 54,619	$ 2,045,992	$ 2,859,859	$ 185,711	$ 5,565,456	$ 17,366,214
	2004 Bond Financed Capital	$ 6,375,191	$ 1,994,341	$ 67,781	$ 6,953,121	$ 4,288,527	$ 5,546,925	$ 14,129,112	$ 39,354,999
	2007 Bond Financed Capital	$ 376,129	$ 142,225	$ 4,209	$ 533,215	$ 293,302	$ 439,799	$ 1,009,971	$ 2,798,850
	Cash Funded Capital	$ 6,548,050	$ 420,474	$ 55,731	$ 100,373	$ 623,035	$ 219,785	$ 532,552	$ 8,500,000
Total Financing and Capital Project Budgets		$ 18,501,691	$ 4,009,295	$ 182,340	$ 9,632,702	$ 8,064,724	$ 6,392,220	$ 21,237,091	$ 68,020,063
Revenue Requirement before application of credits (debits)		$ 76,745,662	$ 26,875,182	$ 838,990	$ 16,179,023	$ 28,634,617	$ 11,695,155	$ 59,706,646	$ 220,675,276
		34.8%	12.2%	0.4%	7.3%	13.0%	5.3%	27.1%	100.0%
Credits									
	Expense Recovery Budget	$ (5,467,526)	$ (832,363)	$ (8,383)	$ (161,662)	$ (286,119)	$ (116,859)	$ (941,592)	$ (7,814,504)
	Operating and Capital Reserves	$ (12,650,291)	$ (1,855,280)	$ (117,434)	$ (2,820,615)	$ 390,670	$ 100,715	$ (4,273,268)	$ (21,225,503)
Total Credits		$ (18,117,817)	$ (2,687,643)	$ (125,818)	$ (2,982,277)	$ 104,552	$ (16,144)	$ (5,214,860)	$ (29,040,007)
Total Revenue Requirement		$ 58,627,846	$ 24,187,539	$ 713,173	$ 13,196,746	$ 28,739,168	$ 11,679,012	$ 54,491,785	$ 191,635,269
	Percent of Total	30.6%	12.6%	0.4%	6.9%	15.0%	6.1%	28.4%	100.0%

California Independent System Operator
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Summary of Revenue Requirement

		Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Operations and Maintenance									
2100	CEO	$ 3,692,640	$ 1,235,120	$ 35,307	$ 403,390	$ 2,219,441	$ 818,716	$ 1,955,050	$ 10,359,663
2200	Planning and Infrastructure	$ 5,228,851	$ 4,591,509	$ -	$ -	$ -	$ -	$ -	$ 9,820,360
2300	CFO & Corporate Services	$ 7,713,572	$ 2,975,688	$ 87,661	$ 819,192	$ 2,211,511	$ 1,057,680	$ 5,796,309	$ 20,661,613
2400	IT	$ 15,461,436	$ 3,535,794	$ 154,001	$ 3,557,331	$ 4,870,837	$ 2,047,454	$ 14,387,748	$ 44,014,600
2500	Operations	$ 19,654,427	$ 6,986,214	$ 318,436	$ 561,350	$ 6,419,371	$ 882,060	$ 7,428,048	$ 42,249,906
2600	Legal	$ 4,134,091	$ 1,605,710	$ 46,828	$ 455,516	$ 1,415,844	$ 375,880	$ 2,595,312	$ 10,629,181
2700	Market & Product Development	$ 1,368,160	$ 1,551,022	$ 3,193	$ 640,372	$ 3,093,562	$ 31,061	$ 543,336	$ 7,230,706
2800	External Affairs	$ 990,794	$ 384,831	$ 11,223	$ 109,171	$ 339,327	$ 90,085	$ 5,763,751	$ 7,689,183
Total Operations and Maintenance		$ 58,243,971	$ 22,865,887	$ 656,650	$ 6,546,321	$ 20,569,893	$ 5,302,936	$ 38,469,555	$ 152,655,212
	Percent Allocations	38.2%	15.0%	0.4%	4.3%	13.5%	3.5%	25.2%	100.0%
Total Financing Budget - 2000 Debt		$ 5,202,322	$ 1,452,255	$ 54,619	$ 2,045,992	$ 2,859,859	$ 185,711	$ 5,565,456	$ 17,366,214
Total Financing Budget - 2004 Debt		$ 6,375,191	$ 1,994,341	$ 67,781	$ 6,953,121	$ 4,288,527	$ 5,546,925	$ 14,129,112	$ 39,354,999
Total Financing Budget - 2007 Debt		$ 376,129	$ 142,225	$ 4,209	$ 533,215	$ 293,302	$ 439,799	$ 1,009,971	$ 2,798,850
Total Financing Budget - Cash funded		$ 6,548,050	$ 420,474	$ 55,731	$ 100,373	$ 623,035	$ 219,785	$ 532,552	$ 8,500,000
	Percent Allocations	27.2%	5.9%	0.3%	14.2%	11.9%	9.4%	31.2%	100.0%
Total Expense Recovery Budget		$ (5,467,526)	$ (832,363)	$ (8,383)	$ (161,662)	$ (286,119)	$ (116,859)	$ (941,592)	$ (7,814,504)
	Percent Allocations	70.0%	10.7%	0.1%	2.1%	3.7%	1.5%	12.0%	100.0%
Total Operating and Capital Reserves Credit		$ (12,650,291)	$ (1,855,280)	$ (117,434)	$ (2,820,615)	$ 390,670	$ 100,715	$ (4,273,268)	$ (21,225,503)
	Percent Allocations	59.6%	8.7%	0.6%	13.3%	-1.8%	-0.5%	20.1%	100.0%
Total Revenue Requirement		$ 58,627,846	$ 24,187,539	$ 713,173	$ 13,196,746	$ 28,739,168	$ 11,679,012	$ 54,491,785	$ 191,635,269
	Percent Allocations	30.6%	12.6%	0.4%	6.9%	15.0%	6.1%	28.4%	100.0%

California Independent System Operator
2008 GMC Cost of Service

Summary of Revenue Requirement and Rates

	Core Reliability	Energy Transmission - Net Energy	Energy Transmission - Deviations	Forward Scheduling	Market Usage	Settlements, Metering and Client Relations	Total
Revenue Requirement	$ 58,627,846	$ 19,920,569	$ 4,980,142	$ 13,196,746	$ 40,418,180	$ 54,491,785	$ 191,635,269
	30.6%	10.4%	2.6%	6.9%	21.1%	28.4%	
Functional Association of SMCR	$ -	$ 27,775,588	$ 6,943,897	$ 369,008	$ 17,573,992	$ (52,662,485)	$ -
Percent of SMCR	0.0%	52.7%	13.2%	0.7%	33.4%		
Adjusted Revenue Requirement	$ 58,627,846	$ 47,696,157	$ 11,924,039	$ 13,565,754	$ 57,992,172	$ 1,829,300	$ 191,635,269
	30.6%	24.9%	6.2%	7.1%	30.3%	1.0%	100.0%
Billing Determinants	582,223	253,658,530	12,300,654	16,208,327	47,801,844	1,829	
Units	MW-months	MWh	MWh	Schedules	MWh	customer-months	
Rate	$ 100.696	$ 0.188	$ 0.969	$ 0.837	$ 1.213	$ 1,000.00	

Notes

1. The "as-filed" rate structure and rates form the basis for the rate structure and rates under the proposed GMC. As described in the accompanying testimony, Exhibit ISO-1, the proposed rate structure and rates are adjustments to the "as-filed" rate structure.

California Independent System Operator
2008 GMC Cost of Service
Proposed Rate Structure

Development of Proposed GMC Rate Structure

	CRS - Peak	CRS - Off Peak	CRS Export Rate	ETS-NE	ETS-UE	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
Revenue Requirement	$ 58,627,846	$ -	$ -	$ 19,207,397	$ 4,980,142	$ 713,173	$ 13,196,746	$ 28,739,168	$ 11,679,012	$ 54,491,785	$ 191,635,269
Reassigned SMCR	$ -	$ -	$ -	$ 27,641,521	$ 6,943,897	134,066	$ 369,008	$ 12,495,910	$ 5,078,083	$ (52,662,485)	$ -
AS Filed Revenue Requirement	$ 58,627,846	$ -	$ -	$ 46,848,918	$ 11,924,039	$ 847,239	$ 13,565,754	$ 41,235,078	$ 16,757,095	$ 1,829,300	$ 191,635,269
Reassignment of revenues per 2004 GMC Settlement											
CRS discount (35%)	$ (20,519,746)	$ -	$ -	$ 20,519,746	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CRS split to off peak and export	$ (7,950,315)	$ 1,005,780	$ 6,944,534	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Settlement reassignments	$ (28,470,061)	$ 1,005,780	$ 6,944,534	$ 20,519,746	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Revenue Requirement	$ 30,157,785	$ 1,005,780	$ 6,944,534	$ 67,368,664	$ 11,924,039	$ 847,239	$ 13,565,754	$ 41,235,078	$ 16,757,095	$ 1,829,300	$ 191,635,269
Billing units	445,518	22,512	10,304,044	249,760,120	12,300,654	3,898,411	16,208,327	47,801,844	38,087,802	1,829	
	MW-months	MW-months	MWh	MWh	MWh	MWh	Schedules	MWh		Customer months	
Settlement rates	$ 67.6915	$ 44.6780	$ 0.6740	$ 0.2697	$ 0.9694	$ 0.2173	$ 0.8370	$ 0.8626	$ 0.4400	$ 1,000	

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California Independent System Operator
2008 GMC Cost of Service
Proposed Rate Structure

Development of Proposed GMC Rate Structure

Development of Peak/Off Peak CRS Rates

		CRS Peak		CRS off peak		
		Load	Export	Load	Export	
NCP	582,223	445,518	80,066	22,512	34,128	
Escalation	-	-	-	-	-	
Subtotal	582,223	445,518	80,066	22,512	34,128	
Escalated Total	582,223	445,518	80,066	22,512	34,128	
Revenue collected	$ 38,108,100	$ 29,160,366	$ 5,240,522	$ 1,473,455	$ 2,233,756	
Off Peak discount @						
32%		$ 997,419	$ 179,250	$ (467,675)	$ (708,994)	Application of off peak CRS discount
Revenue after off peak discount	$ 38,108,100	$ 30,157,785	$ 5,419,772	$ 1,005,780	$ 1,524,762	
Remaining revenue req	$ 38,108,100	$ 30,157,785	$ 5,419,772	$ 1,005,780	$ 1,524,762	
Remaining NCP		445,518	80,066	22,512	34,128	
CRS NCP load rate		$ 67.692		$ 44.678		
CRS off peak discount				34.00%		

Development of CRS Volumetric Export Rate

	Total (MWh)	Load (MWh)	Export (MWh)	
Billing Units	253,658,530	243,354,486	10,304,044	
Escalation	-	-	-	
Subtotal	253,658,530	243,354,486	10,304,044	
Escalated Total	253,658,530	243,354,486	10,304,044	
Export revenue (from above)			$ 6,944,534	CRS demand revenue requirement, sum of peak and off peak CRS
Remaining revenue req			$ 6,944,534	
CRS volumetric export rate before revenue adjustment			$ 0.6740	

Worksheets on O&M, Financing Budget, Capital Project Funding, Expense Recovery Budget, Operating and Capital Reserve and Revenue Requirement follow

California Independent System Operator
2008 GMC Cost of Service
Billing Determinant Forecast

Date	Core Reliability Services NCP by Mo	Core Reliability Services-Peak Load Peak NCP by Mo	Core Reliability Services- Off Peak Load Off Peak NCP by Mo	Core Reliability Services-Export (Peak) NCP by Mo	Core Reliability Services-Export (Off-Peak) NCP by Mo	Core Reliability Services-Export Energy MWh	Energy Transmission Services: Withdrawals MWh	Energy Transmission Services: Withdrawals Without TOR load and exports	Energy Transmission Services: Deviations Monthly Net UE	CRS/ETS TOR MWh	Forward Scheduling Total Sch Count	Scheduling (without inter SC trades) Total Sch Count	Forward Scheduling (inter SC trades) Inter SC trades adjusted for PGAB discount	Market Usage Mkt Usage	Market Usage Forward Energy MWh	Settlements, Metering & Client Relations Cust Mo
Jan-06	41,914	30,762	1,784	6,508	2,860	702,179	19,439,075	19,163,347	1,153,532	275,728	1,199,182	485,218	713,964	4,707,571	2,740,988	111
Feb-06	41,427	30,121	1,881	7,407	2,018	649,965	17,427,427	17,196,271	956,320	231,156	1,109,641	445,103	664,538	4,187,719	2,506,963	111
Mar-06	41,689	30,816	1,773	5,956	3,143	573,270	19,230,562	18,886,626	923,453	343,935	1,213,796	479,614	734,182	4,272,020	2,804,415	113
Apr-06	41,912	29,619	1,634	10,220	440	1,051,738	18,405,443	18,108,021	1,104,211	297,421	1,232,230	480,070	752,160	4,887,089	2,699,689	113
May-06	50,751	36,060	1,739	8,169	4,783	1,295,162	20,710,541	20,383,323	1,090,181	327,218	1,263,965	502,764	761,201	4,636,399	2,735,945	117
Jun-06	59,716	44,472	2,072	12,028	1,144	1,424,734	23,128,774	22,768,022	1,206,282	360,752	1,296,706	524,938	771,768	4,970,061	3,068,262	122
Jul-06	64,894	49,171	2,251	11,300	2,172	1,510,088	26,788,497	26,428,095	1,375,267	360,402	1,355,809	564,553	791,256	5,567,125	4,117,737	121
Aug-06	55,230	43,160	1,960	9,431	679	964,591	23,669,216	23,365,890	1,079,036	303,326	1,341,184	521,398	819,786	4,260,738	3,455,218	125
Sep-06	55,347	43,963	2,139	7,585	1,660	766,723	21,383,115	21,114,308	1,023,505	268,807	1,317,448	490,424	827,024	4,010,048	3,357,502	126
Oct-06	43,508	32,631	1,755	4,463	4,658	758,507	19,610,185	19,337,923	958,422	272,262	1,261,421	480,418	781,003	3,716,605	3,056,550	125
Nov-06	45,387	32,958	1,800	6,881	3,748	789,252	18,768,972	18,509,879	955,578	259,093	1,234,441	465,055	769,386	3,678,656	2,968,433	125
Dec-06	44,597	33,040	1,783	6,128	3,646	880,369	19,841,086	19,594,460	1,037,944	246,626	1,272,857	480,075	792,782	3,700,987	3,030,371	130
Jan-07	44,177	32,590	1,727	5,725	4,134	766,130	20,263,900	20,009,158	1,028,173	254,742	1,248,116	483,588	764,528	3,577,431	3,000,641	132
Feb-07	42,169	31,090	1,980	4,231	4,868	712,072	17,732,252	17,483,230	829,393	249,022	1,114,625	424,747	689,878	3,031,077	2,488,358	130
Mar-07	42,795	30,775	2,228	4,956	4,836	722,247	19,697,325	19,379,056	1,105,833	318,269	1,284,703	481,665	803,038	3,593,992	2,765,155	132
Apr-07	44,219	31,887	1,888	5,682	4,763	564,578	19,111,250	18,804,372	1,044,386	306,879	1,246,783	481,951	764,832	3,351,180	2,812,164	132
May-07	46,586	35,797	1,596	8,486	707	607,140	20,644,796	20,283,182	1,061,753	361,614	1,354,352	518,384	835,968	3,419,429	3,286,464	131
Jun-07	54,436	40,703	1,710	11,600	423	915,329	21,624,752	21,303,647	1,006,012	321,106	1,359,910	504,002	855,908	3,779,556	3,278,636	142
Jul-07	62,857	45,462	1,969	13,457	1,969	1,449,555	25,156,830	24,816,172	1,157,056	340,658	1,390,408	534,730	855,678	4,732,090	3,760,649	145
Aug-07	61,614	47,865	1,875	10,511	1,363	1,159,131	25,497,393	25,130,470	1,250,419	366,923	1,430,827	532,405	898,422	4,713,587	4,018,972	142
Sep-07	58,146	45,502	1,834	8,376	2,434	865,287	21,873,338	21,579,836	1,053,378	293,502	1,319,929	483,263	836,666	3,988,617	3,224,911	145
Oct-07	43,200	34,870	1,979	4,301	2,049	632,700	20,211,746	19,912,521	1,040,695	299,225	1,328,545	497,673	830,872	3,773,600	3,140,942	144
Nov-07	41,009	31,833	1,928	4,909	2,339	608,416	19,013,542	18,712,070	1,047,552	301,471	1,274,768	477,842	796,925	3,778,350	3,147,975	144
Dec-07	42,634	32,733	1,796	5,489	2,615	805,151	20,319,937	20,014,934	1,055,216	305,003	1,326,193	497,256	828,937	3,786,658	3,162,936	144
Jan-08	44,014	35,546	1,746	4,713	2,009	804,899	20,327,338	20,060,265	1,073,559	267,073	1,312,088	487,439	824,650	3,756,303	3,000,641	152
Feb-08	42,165	32,938	1,742	5,248	2,237	748,106	18,174,625	17,913,549	1,001,503	261,076	1,203,526	444,735	758,791	3,182,631	2,488,358	152
Mar-08	39,406	31,036	2,031	4,444	1,894	758,795	19,983,607	19,649,931	1,036,786	333,675	1,323,347	484,542	838,805	3,773,691	2,765,155	152
Apr-08	44,147	34,308	1,841	5,608	2,390	593,148	19,085,689	18,763,955	974,903	321,734	1,279,062	473,100	805,962	3,518,739	2,812,164	152
May-08	47,670	37,661	1,817	5,743	2,448	637,864	20,935,413	20,556,294	1,093,774	379,119	1,362,996	495,663	867,333	3,590,400	3,286,464	152
Jun-08	56,527	40,485	1,817	9,973	4,251	961,648	22,009,391	21,672,742	1,060,054	336,650	1,370,740	503,771	866,968	3,968,533	3,278,636	152
Jul-08	62,562	45,211	1,902	10,832	4,617	1,522,908	25,451,657	25,094,508	1,177,095	357,148	1,449,135	536,883	912,251	4,968,695	3,760,649	152
Aug-08	57,614	43,524	1,937	8,521	3,632	1,217,787	24,669,644	24,284,960	1,134,208	384,685	1,448,725	522,466	926,258	4,949,266	4,018,972	152
Sep-08	55,911	42,914	1,974	7,729	3,294	909,074	22,289,329	21,981,619	1,060,346	307,710	1,391,356	498,685	892,671	4,188,048	3,224,911	152
Oct-08	44,912	35,732	1,979	5,049	2,152	664,717	20,614,524	20,300,815	919,755	313,709	1,374,574	496,291	878,283	3,962,280	3,140,942	152
Nov-08	42,766	32,620	1,928	5,762	2,456	639,204	19,392,443	19,076,378	863,174	316,065	1,319,581	477,137	842,444	3,967,268	3,147,975	152
Dec-08	44,528	33,542	1,796	6,443	2,746	845,894	20,724,871	20,405,104	905,497	319,767	1,373,197	496,793	876,404	3,975,991	3,162,936	152
Totals 01-08 to 12-08	582,223	445,518	22,512	80,066	34,128	10,304,044	253,658,530	249,760,120	12,300,654	3,898,411	16,208,327	5,917,507	10,290,821	47,801,844	38,087,802	1,829
2006	586,371	436,773	22,570	96,076	30,951	11,366,578	248,402,891	244,856,165	12,863,731	3,546,727	15,098,680	5,919,630	9,179,050	52,595,018	36,542,072	1,439
2007	583,843	441,107	22,512	87,723	32,501	9,807,735	251,147,060	247,428,646	12,679,865	3,718,413	15,679,159	5,917,507	9,761,653	45,525,566	38,087,802	1,663
2008	582,223	445,518	22,512	80,066	34,128	10,304,044	253,658,530	249,760,120	12,300,654	3,898,411	16,208,327	5,917,507	10,290,821	47,801,844	38,087,802	1,829
2006-2007	-0.4%	1.0%	-0.3%	-8.7%	5.0%	-13.7%	1.1%	1.1%	-1.4%	4.8%	3.8%	0.0%	6.3%	-13.4%	4.2%	15.6%
2007-2008	-0.3%	1.0%	0.0%	-8.7%	5.0%	5.1%	1.0%	0.9%	-3.0%	4.8%	3.4%	0.0%	5.4%	5.0%	0.0%	10.0%

Notes:
Sums may not equal totals due to rounding.

California Independent System Operator
2008 GMC Cost of Service

	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
1998-2000 Bonds	30.0%	8.4%	0.3%	11.8%	16.5%	1.1%	32.0%	100.0%
2004 Bonds	16.2%	5.1%	0.2%	17.7%	10.9%	14.1%	35.9%	100.0%
2007 Bonds	13.4%	5.1%	0.2%	19.1%	10.5%	15.7%	36.1%	100.0%
2007 Cash Financed	77.0%	4.9%	0.7%	1.2%	7.3%	2.6%	6.3%	100.0%
1998-2000 Bonds Debt Service	$ 5,202,322	$ 1,452,255	$ 54,619	$ 2,045,992	$ 2,859,859	$ 185,711	$ 5,565,456	$ 17,366,214
2004 Bond Debt Service	$ 6,375,191	$ 1,994,341	$ 67,781	$ 6,953,121	$ 4,288,527	$ 5,546,925	$ 14,129,112	$ 39,354,999
2007 Bond Debt Service	$ 376,129	$ 142,225	$ 4,209	$ 533,215	$ 293,302	$ 439,799	$ 1,009,971	$ 2,798,850
2007 Cash Financed	$ 6,548,050	$ 420,474	$ 55,731	$ 100,373	$ 623,035	$ 219,785	$ 532,552	$ 8,500,000
Capital and Debt Service	$ 18,501,691	$ 4,009,295	$ 182,340	$ 9,632,702	$ 8,064,724	$ 6,392,220	$ 21,237,091	$ 68,020,063
	27.2%	5.9%	0.3%	14.2%	11.9%	9.4%	31.2%	100%

California Independent System Operator
2008 GMC Cost of Service

Summary of Expense Recovery Budget

	Budget	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Expense Recovery Budget									
SC Application and Training Fees	$ (345,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ (345,000)	$ (345,000)
WECC Reimbursement/NERC Reimbursement	$ (2,296,504)	$ (2,296,504)	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,296,504)
COI Path Operator Fee	$ (2,000,000)	$ (1,436,175)	$ (563,825)	$ -	$ -	$ -	$ -	$ -	$ (2,000,000)
Large Generator Interconnection Project	$ (968,000)	$ (968,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ (968,000)
Interest Earnings	$ (2,205,000)	$ (766,847)	$ (268,538)	$ (8,383)	$ (161,662)	$ (286,119)	$ (116,859)	$ (596,592)	$ (2,205,000)
Total Expense Recovery Budget	$ (7,814,504)	$ (5,467,526)	$ (832,363)	$ (8,383)	$ (161,662)	$ (286,119)	$ (116,859)	$ (941,592)	$ (7,814,504)
Percent		70%	11%	0%	2%	4%	1%	12%	100%

California Independent System Operator
2008 GMC Cost of Service

Summary of Operating and Capital Reserves

	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Total Operating and Capital Reserves Credit	$ 12,650,291	$ 1,855,280	$ 117,434	$ 2,820,615	$ (390,670)	$ (100,715)	$ 4,273,268	$ 21,225,503

California Independent System Operator
2008 GMC Cost of Service
2007 Revenue Requirement Forecast by Month

Date	Core Reliability Services Peak NCP by Mo	Core Reliability Services Off Peak NCP by Mo	Core Reliability ServicesEnergy Export MWh	Energy Transmission Services: Energy Control Area Metered Load	Energy Transmission Services: Deviations Monthly Net UE	CRS/ETS TOR	Forward Scheduling Total Sch Count	Inter SC Trades Total Sch Count	Market Usage MWh	Market Usage Forward Energy MWh	Settlements, Metering & Client Relations Cust Mo
Jan-08	35,546	1,746	804,899	20,060,265	1,073,559	267,073	487,439	824,650	3,756,303	3,000,641	152
Feb-08	32,938	1,742	748,106	17,913,549	1,001,503	261,076	444,735	758,791	3,182,631	2,488,358	152
Mar-08	31,036	2,031	758,795	19,649,931	1,036,786	333,675	484,542	838,805	3,773,691	2,765,155	152
Apr-08	34,308	1,841	593,148	18,763,955	974,903	321,734	473,100	805,962	3,518,739	2,812,164	152
May-08	37,661	1,817	637,864	20,556,294	1,093,774	379,119	495,663	867,333	3,590,400	3,286,464	152
Jun-08	40,485	1,817	961,648	21,672,742	1,060,054	336,650	503,771	866,968	3,968,533	3,278,636	152
Jul-08	45,211	1,902	1,522,908	25,094,508	1,177,095	357,148	536,883	912,251	4,968,695	3,760,649	152
Aug-08	43,524	1,937	1,217,787	24,284,960	1,134,208	384,685	522,466	926,258	4,949,266	4,018,972	152
Sep-08	42,914	1,974	909,074	21,981,619	1,060,346	307,710	498,685	892,671	4,188,048	3,224,911	152
Oct-08	35,732	1,979	664,717	20,300,815	919,755	313,709	496,291	878,283	3,962,280	3,140,942	152
Nov-08	32,620	1,928	639,204	19,076,378	863,174	316,065	477,137	842,444	3,967,268	3,147,975	152
Dec-08	33,542	1,796	845,894	20,405,104	905,497	319,767	496,793	876,404	3,975,991	3,162,936	152
Total	445,518	22,512	10,304,044	249,760,120	12,300,654	3,898,411	5,917,507	10,290,821	47,801,844	38,087,802	1,829

Forecasted Monthly Revenue

	Core Reliability Services Peak	Core Reliability Services Off Peak	Core Reliability ServicesEnergy Export	Energy Transmission Services: Energy	Energy Transmission Services: Deviations	CRS/ETS TOR	Forward Scheduling	Inter SC Trades	Market Usage	Market Usage Forward Energy	Settlements, Metering & Client Relations	Total
Jan-08	$ 2,406,167	$ 78,023	$ 542,471	$ 5,410,925	$ 1,040,689	$ 58,043	$ 407,968	$ 690,201	$ 3,240,282	$ 1,320,161	$ 152,442	$ 15,347,370
Feb-08	$ 2,229,625	$ 77,823	$ 504,195	$ 4,831,884	$ 970,840	$ 56,740	$ 372,226	$ 635,079	$ 2,745,417	$ 1,094,777	$ 152,442	$ 13,671,048
Mar-08	$ 2,100,880	$ 90,756	$ 511,399	$ 5,300,244	$ 1,005,042	$ 72,517	$ 405,543	$ 702,048	$ 3,255,281	$ 1,216,557	$ 152,442	$ 14,812,709
Apr-08	$ 2,322,358	$ 82,239	$ 399,759	$ 5,061,267	$ 945,054	$ 69,922	$ 395,967	$ 674,560	$ 3,035,353	$ 1,237,239	$ 152,442	$ 14,376,159
May-08	$ 2,549,317	$ 81,193	$ 429,896	$ 5,544,721	$ 1,060,285	$ 82,394	$ 414,851	$ 725,924	$ 3,097,170	$ 1,445,911	$ 152,442	$ 15,584,103
Jun-08	$ 2,740,516	$ 81,196	$ 648,115	$ 5,845,864	$ 1,027,597	$ 73,164	$ 421,637	$ 725,620	$ 3,423,357	$ 1,442,467	$ 152,442	$ 16,581,975
Jul-08	$ 3,060,418	$ 84,990	$ 1,026,382	$ 6,768,829	$ 1,141,055	$ 77,619	$ 449,351	$ 763,520	$ 4,286,121	$ 1,654,534	$ 152,442	$ 19,465,260
Aug-08	$ 2,946,236	$ 86,521	$ 820,742	$ 6,550,467	$ 1,099,482	$ 83,603	$ 437,284	$ 775,243	$ 4,269,362	$ 1,768,186	$ 152,442	$ 18,989,568
Sep-08	$ 2,904,888	$ 88,199	$ 612,682	$ 5,929,178	$ 1,027,881	$ 66,874	$ 417,380	$ 747,132	$ 3,612,716	$ 1,418,830	$ 152,442	$ 16,978,203
Oct-08	$ 2,418,766	$ 88,423	$ 447,994	$ 5,475,809	$ 891,595	$ 68,178	$ 415,377	$ 735,089	$ 3,417,963	$ 1,381,888	$ 152,442	$ 15,493,523
Nov-08	$ 2,208,118	$ 86,154	$ 430,800	$ 5,145,538	$ 836,746	$ 68,690	$ 399,346	$ 705,094	$ 3,422,265	$ 1,384,982	$ 152,442	$ 14,840,174
Dec-08	$ 2,270,495	$ 80,263	$ 570,101	$ 5,503,940	$ 877,773	$ 69,495	$ 415,797	$ 733,517	$ 3,429,790	$ 1,391,564	$ 152,442	$ 15,495,176
Total GMC	$ 30,157,785	$ 1,005,780	$ 6,944,534	$ 67,368,664	$ 11,924,039	$ 847,239	$ 4,952,728	$ 8,613,026	$ 41,235,078	$ 16,757,095	$ 1,829,300	$ 191,635,269
Other revenue												
Total collections	$ 30,157,785	$ 1,005,780	$ 6,944,534	$ 67,368,664	$ 11,924,039	$ 847,239	$ 4,952,728	$ 8,613,026	$ 41,235,078	$ 16,757,095	$ 1,829,300	$ 191,635,269
Rate	$ 67.6915	$ 44.6780	$ 0.6740	$ 0.2697	$ 0.9694	$ 0.2173	$ 0.8370	$ 0.8370	$ 0.8626	$ 0.4400	$ 1,000	

Notes:
Revenues are not known until approximately two months after the trade month ends. Forecast revenues will be subject to later adjustments.

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
1	Day Ahead Spinning Reserve due SC	Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	3,106	3,576	3,341	2,506			835		3,341
2	Day Ahead Non-Spinning Reserve due SC	Non-Spinning Reserve Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	2,082	1,888	1,985	1,489			496		1,985
5	Day Ahead Regulation Up due SC	Day Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	2,048	2,385	2,217	1,662			554		2,217
6	Day Ahead Regulation Down due SC	Day Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	1,722	1,969	1,846	1,384			461		1,846
51	Hour Ahead Spinning Reserve due SC	Hour-Ahead additional Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	3,196	3,455	3,326	2,494			831		3,326
52	Hour Ahead Non-Spinning Reserve due SC	Hour-Ahead additional Non-Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	2,512	2,245	2,379	1,784			595		2,379
55	Hour Ahead Regulation Up due SC	Hour Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	1,809	1,946	1,878	1,408			469		1,878
56	Hour Ahead Regulation Down due SC	Hour Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	1,524	1,671	1,598	1,198			399		1,598
61	Hour Ahead RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	3	1	2	2			1		2
62	Hour Ahead RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage		1	1	1			0		1
65	Hour Ahead RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage		1	1	1			0		1
71	Real Time RMR Preemption of Spinning Reserve (DA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	306	301	304	228			76		304
72	Real Time RMR Preemption of Non-Spinning Reserve (DA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	127	161	144	108			36		144
74	Real Time RMR Preemption of Replacement Reserve (DA Price)	Amount of Replacement Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	1		1	1			0		1
75	Real Time RMR Preemption of Regulation Up (DA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	38	66	52	39			13		52
81	Real Time RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	17	43	30	23			8		30
82	Real Time RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	15	39	27	20			7		27
85	Real Time RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	10	17	14	10			3		14
111	Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	25,860	27,439	26,650	19,987			6,662		26,650
112	Non-Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	25,434	26,445	25,940	19,455			6,485		25,940
114	Replacement Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	22,353	24,070	23,212	17,409			5,803		23,212
115	Regulation Up Due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	25,205	27,193	26,199	19,649			6,550		26,199
116	Regulation Down Due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	25,141	26,837	25,989	19,492			6,497		25,989
124	Dispatched Replacement Reserve (Self-Provided) Capacity Withhold	Amount of Excess Self-Provided Replacement Reserve capacity that has been dispatched by ISO [per SC, per region]	AS procurement with no market component	2	5	4	4					4
141	No Pay Charge - Spinning Reserve	No Pay Spin Qty = max[NPSR(1)i,h,k, NPSR(2)i,h,k, NPSR(3)i,h,k] [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	3		3	2			1		3
145	Non Compliance Charge for Regulation Up	Unavailable A/S Capacity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	982	1,090	1,036	777			259		1,036
146	Non Compliance Charge for Regulation Down	Unavailable A/S Capacity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	838	909	874	655			218		874
203	Day-Ahead Inter-Zonal Congestion Settlement	SC's Day-Ahead net New Firm Use (NFU) import into a Zone [per SC, per Zone]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	14,382	16,278	15,330		4,384		10,946		15,330
204	Day-Ahead Inter-Zonal Congestion Refund due TO	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Branch Group NFU loading [per SC, per Branch Group]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	3,641	3,436	3,539		1,012		2,526		3,539
253	Hour-Ahead Inter-Zonal Congestion	SC's Hour-Ahead additional New Firm Use (NFU) import into a Zone [per SC, per Zone]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	7,460	9,607	8,534		2,441		6,093		8,534
254	Hour-Ahead Inter-Zonal Congestion Refund due TO	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Increase in Branch Group NFU loading from Day-Ahead to Hour-Ahead [per SC, per Branch Group]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	2,076	2,837	2,457		703		1,754		2,457
255	Hour-Ahead Inter-Zonal Congestion Debit to TOs	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Decrease in Branch Group NFU loading from Dayahead to Hourahead [per SC, per Branch Group]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	1,072	765	919		263		656		919
256	Hour-Ahead Inter-Zonal Congestion Debit to SCs	SC's Day-Ahead Path Utilization in the Congested Direction [per SC, per Branch Group]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	1,259	1,146	1,203		344		859		1,203
271	Real-Time Intra-zonal Congestion INC/DEC Settlement	Energy delivered [per SC, per Location/Interchange] having a price segment > MCP+	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	46	347	197		56		140		197
302	Supplemental Reactive Power Due SC	Total payment to resources providing Supplemental Reactive Power in a Participating Transmission Owner's area [per Transmission Owner]	Control Area reliability management: CRS	12	13	13	13					13
351	Monthly Grid Management Charge due ISO	SC Measured Load plus Gross Export in the Control Area [per SC]	Control Area Services charge 1998-2001	3		3	3					3
372	High Voltage Access Charge due ISO	UDCs, MSS, SCs Metered Loads adjusted for ETC exemptions, Transition Charge, Proportionality, and Burden Caps [per SC, per TAC Area]	Pass through charge; recovery of PTOs TRRs	108	108	108	108					108

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
374	High Voltage Access Revenue due PTO	Please refer to ISO Tariff 7.1.3 and Section 10 of Appendix F Schedule 3	Pass through charge; recovery of PTOs TRRs	120	120	120	120					120
382	High Voltage Wheeling Charge due ISO	Real time gross export excluding amounts exempted due to ETCs [per SC, per location]	Pass through charge; recovery of PTOs TRRs	636	651	644	644					644
383	Low Voltage Wheeling Charge due ISO	Real time gross export excluding amounts exempted due to ETCs [per SC, per location]	Pass through charge; recovery of PTOs TRRs	204	192	198	198					198
384	High Voltage Wheeling Revenue due TO	(Real time gross export excluding amounts exempted due to ETCs * TO allocation percentage) [per TO, per location]	Pass through charge; recovery of PTOs TRRs	179	193	186	186					186
385	Low Voltage Wheeling Revenue due TO	(Real time gross export excluding amounts exempted due to ETCs * TO allocation percentage) [per TO, per location]	Pass through charge; recovery of PTOs TRRs	54	99	77	77					77
401	Instructed Energy	[per SC, Per Location/Interchange]. Instructed energy is settled in the following sequence:	Market payment for energy in excess of schedule after ISO instruction	321	279	300				300		300
405	Import Deviation	Import Deviation Quantity [per SC, per zone]	Market payment for energy in excess of schedule after ISO instruction	473		473				473		473
406	SC Unaccounted for Energy (UFElogical)	UFE Quantity [per SC, per Zone]	Market payment for energy in excess of metered demand	18,197	884	9,541				9,541		9,541
407	Uninstructed Energy	Sum of Uninstructed Energy [Per SC, per Congestion Region]	Market payment for energy in excess of schedule	3,244	1,510	2,377				2,377		2,377
410	Unscheduled RMR Energy	Energy generated in excess of scheduled energy, up to RMR dispatched amount [per SC, per location]	Market payment for energy in excess of RMR schedule	7	6	7				7		7
452	Real-time Intra-Zonal Congestion Charge/Refund (Grid Operations Charge)	SC's Metered Demand5 in the Zone [per SC]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	1,573		1,573		450		1,123		1,573
481	Excess Cost for Instructed Energy	Energy delivered [per SC, per Location/Interchange] having a price segment > MCP+	Market payment for energy in excess of schedule	22	63	43				43		43
0487	Allocation of Excess Cost for Instructed Energy	SC's Net Negative Uninstructed Energy in the Control Area [Per SC]	Market payment for energy in excess of schedule	1,128	4,735	2,932				2,932		2,932
521	GMC-Control Area Services	SC metered Gross Load and real time gross export [per SC]	Control Area component of GMC 2001-2003	61		61	61					61
522	GMC-Congestion Management	Aggregate of the absolute values of the hourly net scheduled inter-zonal New Firm Use flows [per SC]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	1,336		1,336		382		954		1,336
523	Market Operations Grid Management Charge	Aggregate of the absolute values of the hourly purchases/sales of Ancillary Services and 10-Minute Imbalance Energy [per SC]	Market GMC CT	12		12				12		12
524	GMC-A/S and RT Energy Operations	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services, 50% of Effective Self Provision, and 10-Minute Imbalance Energy [per SC]	Market GMC CT for 2002, was eliminated as result of settlement	54		54				54		54
532	GMC-Energy and Transmission Services - Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge in 2004, prior to settlement	587		587		587				587
534	GMC-Market Usage	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services. Instructed Energy by settlement interval and Uninstructed portfolio deviations over the settlement interval [per SC]	MU charge in 2004, prior to settlement	604		604				604		604
547	MSS Deviation Penalty Charges due ISO Trustee	Derived BQ = Settlement Amount	Penalty for exceeding contractual bandwidth	203	109	156	156					156
550	FERC Fee	SC's Metered Demand5 in the Control Area [Per SC]	Control area collection of FERC fee	1,244	869	1,057	1,057					1,057
570	GMC-Core Reliability Services	Peak hourly Non-coincident peak demand [per SC]	CRS charge 2004, prior to settlement	1,181		1,181	1,181					1,181
571	GMC-Energy and Transmission Services - Net Energy	Hourly Net Demand [per SC]	ETS charge in 2004, prior to settlement	1,181		1,181		1,181				1,181
572	GMC-Energy and Transmission Services - Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge 2004, prior to settlement	1,025		1,025		1,025				1,025
573	GMC-Forward Scheduling	Per-Unit - All Final hour ahead schedules including Awarded ancillary service bids with a value greater than .03 or less than (.03)[per SC]	FS charge 2004, prior to settlement	1,837		1,837			1,837			1,837
574	GMC-Market Usage	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services. Instructed Energy by settlement interval and Uninstructed portfolio deviations over the settlement interval [per SC]	MU charge in 2004, prior to settlement	1,052		1,052				1,052		1,052
575	GMC-Settlements, Metering, and Client Relations	$500 per Month charge for any active Scheduling Coordinator in the current trade month [per SC]	SMCR charge in 2004, prior to settlement	2,117		2,117				-	2,117	2,117
579	GMC-2004 Adjustment	Bill Qty is same as the $$ amount (As this charge is a combination of many GMC charges assessed as per the proposed GMC scheme)	Preliminary rerun adjustment for GMC in 2004	1,101		1,101					1,101	1,101
591	Emissions Cost Recovery	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	55	24	40	40					40
592	Start-Up Cost Recovery	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	728	689	709	709					709
593	Emissions Cost Due Trustee	Total in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas)	Excess cost recovery to generators under must offer obligations, result of capped energy price	31	8	20	20					20
594	Start-Up Cost Due Trustee	Total in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas)	Excess cost recovery to generators under must offer obligations, result of capped energy price	89	79	84	84					84

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Functional Association of Charge Types
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
595	Minimum Load Cost Allocation Due ISO	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	3,273		3,273	3,273					3,273
692	Start-Up Cost Payment	Start-up cost incurred by SC as a result of ISO dispatch [per SC, per location]	Excess cost recovery to generators under must offer obligations, result of capped energy price	68	90	79	79					79
695	Minimum Load Cost Compensation Due SC	Billable Quantity paid for the month	Excess cost recovery to generators under must offer obligations, result of capped energy price	237		237	237					237
701	Forecasting Service Fee	Net Meter Quantity for each PIR unit i and for the whole month (BQ)	Forecast scheduling fee for PIRP resources	86	95	91			91			91
702	Forecasting Service Fee Due Trustee	Net Meter Quantity for all PIR units for the whole month (BQ)	Forecast scheduling fee for PIRP resources	13	12	13			13			13
711	Intermittent Resource Net Deviation	Net Uninstructed Deviation for each valid PIR unit for the whole month (BQ)	Market payment by PIRP resource for energy provided	86	97	92				92		92
721	Intermittent Resource Net Deviation Allocation Charge	SC's Net Negative UIE (UIE-j,h,k)	Excess cost over market payment by PIRP resource for energy provided	959	2,185	1,572				1,572		1,572
731	Intermittent Resource Net Deviation Reversal	Net billable quantity related to ISOIR reversal for all valid PIR units for the whole month (BQ)	Excess cost over market payment by PIRP resource for energy provided	13	26	20				20		20
790	Market Transaction Bill Period Adjustment	Total Settlement Amount of Market Charges/Payments for Bill Period	Settlements related	136	206	171				-	171	171
791	GMC Transaction Bill Period Adjustment	Total Settlement Amount of GMC Charges/Payments for Bill Period	Settlements related	479	569	524				-	524	524
792	FERC Fee Transaction Bill Period Adjustment	Total Settlement Amount of FERC Fee Charges/Payments for Bill Period	Settlements related	48	43	46				-	46	46
793	TAC Refund Transaction Bill Period Adjustment	Total Settlement Amount of TAC Refund Charges/Payments for Bill Period	Settlements related	26	11	19				-	19	19
1010	Neutrality Adjustments	SC's Metered Demand5 in the Control Area [Per SC]	Recovery of excess cost of market charges	30,969		30,969		30,969		-		30,969
1011	Ancillary Service Rational Buyer Adjustment	SC's user payment for Ancillary Services [per SC, per Control Area]	AS procurement 75% CRS, 25% Market Usage	20,814	23,084	21,949	16,462			5,487		21,949
1030	No Pay Provision Market Refund	SC's Metered Demand5 in the Control Area [Per SC]	AS procurement 75% CRS, 25% Market Usage	20,103	21,469	20,786	15,590			5,197		20,786
1061	Distribution of Preempted Spinning Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	13,067	11,516	12,292	9,219			3,073		12,292
1062	Distribution of Preempted Non-Spinning Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	5,371	7,117	6,244	4,683			1,561		6,244
1064	Distribution of Preempted Replacement Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	40		40	30			10		40
1065	Distribution of Preempted Regulation Up	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	1,701	3,010	2,356	1,767			589		2,356
1121	Adj. Summer Reliab. Contract Capacity Pymt/Charge	SC's Metered Demand5 in the Control Area [Per SC]	Payment/charge to maintain reliability	545		545	545					545
1210	Existing Contracts Cash Neutrality Charge/Refund	SC's Metered Demand5 in the Control Area [Per SC, Per Interval]	AS procurement 75% CRS, 25% Market Usage	78,293	43,550	60,922	45,691			15,230		60,922
1273	FMU Adder Allocation	SC's Metered Demand in the Zone [Per SC]	Bid adder for frequently mitigated units		39	39				39		39
1277	Real-Time Intra-zonal Congestion Charge/Refund (Grid Operations Charge)	SC's Metered Demand in the Zone [Per SC]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	26,085	28,318	27,202		7,780		19,422		27,202
1278	Alloc of Above MCP Cost for Real-Time Non-Mkt Dsptch	Total OOM Instructed Energy to be allocated to the TO(s)	Excess cost recovery to generators under must offer obligations, result of capped energy price	20	19	20				20		20
1302	Long Term Voltage Support due ISO	SC's Metered Demand5 in the Zone [Per SC]	Control Area reliability management: CRS	558	657	608	608					608
1353	Black Start Energy due ISO	SC's Metered Load in the Control Area [per SC]	Control Area reliability management: CRS		299	299	299					299
1401	Imbalance Energy Offset	SC's Metered Demand5 in the Control Area [Per SC]	Excess market cost recovery	38,499	42,019	40,259		40,259		-		40,259
1407	MSS Deviation Penalty for Positive Deviations	SC's MSS Positive Energy that is outside the allowable deviation band	Penalty for not adhering to schedules	153	76	115			115			115
1471	Excess Cost Neutrality Allocation	SC's Metered Demand5 in the Control Area [Per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	13,730	16,396	15,063		15,063		-		15,063
1487	Energy Exchange Program Neutrality Adjustment	SC's total Negative Uninstructed Energy during those 10-min intervals in which ISO imports energy through the Exchange Account [per SC, per region, per Exchange Account]	Recovery of excess for purchases of emergency energy exchanges	1		1	1					1
1591	Enforcement Protocol Penalty Charge, Due ISO Trustee	N/A; Set to 1	Charge for sanctions against SCs for violations of ISO Tariff		6	6	2	2	2	2		6
1596	FERCMOO Capacity Payment Neutrality Allocation	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Control Area reliability management: ETS		56	56		56				56
1597	FERCMOO Capacity Payment System Allocation	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS		83	83		83				83
1599	FERCMOO Capacity Payment Zonal Allocation	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS		76	76		76				76
1680	Unrecovered Cost Neutrality Allocation	SC's Metered Demand5 in the Control Area [Per SC]	Assessment of bid cost recovery to load and participating generators	19,602	21,026	20,314		20,314		-		20,314
1691	Minimum Load Cost Neutrality Allocation Due ISO	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Control Area reliability management: ETS		52	52		52				52
1697	Tier 1 MLCC Allocation for System Needs	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS	1,809	1,929	1,869		1,869				1,869

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				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
1698	Allocation of Reliability Service Costs attributed to MLCC	Total Must-Offer Minimum Load Energy associated with the Inter-Zonal MLCC to be allocated to the TO	Control Area reliability management: ETS	32	11	22		22				22
1699	Allocation of MLCC for Inter-Zonal Congestion	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS	1,043	566	805		805				805
1797	Tier 1 MLCC Allocation of Resource Adequacy for System Needs	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS		652	652		652				652
1798	Allocation of Reliability Service Costs attributed to MLCC for Resource Adequacy	Total Must-Offer Minimum Load Energy associated with the Inter-Zonal MLCC to be allocated to the TO	Control Area reliability management: ETS		7	7		7				7
1799	Allocation of MLCC for Inter-Zonal Congestion for Resource Adequacy	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS		343	343		343				343
2407	MSS Deviation Penalty for Negative Deviations	SC's MSS Negative Energy that is outside the allowable deviation band		114	68	91	91					91
2999	Interest - Due SC	Distribution allocation of Interest earned per SC	Settlements related	2,015	106	1,061					1,061	1,061
3372	High Voltage Access Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	77	117	97	97					97
3374	High Voltage Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	83	121	102	102					102
3382	High Voltage Wheeling Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	322	1,222	772	772					772
3383	Low Voltage Wheeling Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	3	32	18	18					18
3384	High Voltage Wheeling Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	76	216	146	146					146
3385	Low Voltage Wheeling Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	3	23	13	13					13
4141	Compliance No Pay Charge - Spinning Reserve	No Pay Spin Qty = Undispatchable Spin i,h,k + Undelivered Spin i,h,k + Unavailable Spin i,h,k [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	2,992	3,602	3,297	2,473			824		3,297
4142	Compliance No Pay Charge - Non Spinning Reserve	No Pay Non-Spin Qty = Undispatchable Non-Spin i,h,k + Undelivered Non-Spin i,h,k + Unavailable Non-Spin i,h,k [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	1,984	2,479	2,232	1,674			558		2,232
4144	Compliance No Pay Charge - Replacement Reserve	No Pay Repl Qty = Undispatchable Repl i,h,o + Undelivered Repl i,h,o + Unavailable Repl i,h,o [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	3	2	3	2			1		3
4271	Real-Time Intra-zonal Congestion INC/DEC Settlement	Instructed Energy [per SC, per Location/Interchange] having a bid segment > STLMT_PRICE	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	1,690	1,574	1,632		467		1,165		1,632
4272	Real-Time Above MCP Cost for Non-Market Dispatches	Energy delivered [per SC, per Location/Interchange] having a price segment > STLMT Price	Excess cost recovery to generators under must offer obligations, result of capped energy price	21	21	21	21					21
4273	Frequently Mitigated Unit Adder Settlement	Energy delivered (per Location, per SC) has had its Supplemental Incremental bids mitigated for local-area constraints more than four (4) times in a Trading Day.	Excess cost recovery to generators under must offer obligations, result of capped energy price		1	1	1			-		1
4401	Instructed Energy	Energy delivered in excess of Schedule in accordance with ISO Dispatch Instructions [per SC, Per Location/Interchange]. Instructed energy is settled deemed delivered for the following Instructed Imbalance Energy subcomponents: 1) Supplemental Energy; 1) Energy out of dispatched Ancillary Service capacity (Spin, Non-Spin, Replacement Reserve);	Market payment for energy in excess of schedule after ISO instruction	10,912	14,339	12,626				12,626		12,626
4406	SC Unaccounted for Energy (UFElogical)	UFE Quantity [per SC, per Zone]	Recovery of excess costs of procurement of Energy	18,463	23,025	20,744		20,744		-		20,744
4407	Uninstructed Energy	Sum of Uninstructed Energy [Per SC, per Location]	Market payment for energy in excess of schedule after ISO instruction	25,155	26,599	25,877				25,877		25,877
4410	Unscheduled RMR Energy	Energy generated in excess of scheduled energy, up to RMR dispatched amount [per SC, per location]	Market payment for energy in excess of schedule after ISO instruction	227	117	172	172			-		172
4450	Transmission Loss Obligation	Metered Energy less self x (1 - GMMa) for each resource (in MWh)	Adjustment for losses	24,706	25,904	25,305	12,653			12,653		25,305
4481	Excess Cost for Instructed Energy	Instructed Energy [per SC, per Location/Interchange] having a bid segment > Ex Post Price	Market payment for energy in excess of schedule after ISO instruction	243	597	420				420		420
4487	Allocation of Excess Cost for Instructed Energy	SC's Net Negative Uninstructed Energy in the Control Area [Per SC]	Market payment for energy in excess of schedule after ISO instruction	11,505	9,954	10,730		5,365		5,365		10,730
4501	GMC-Core Reliability Services Non-Coincident Peak	Peak hourly Non-coincident peak metered load [per SC]	CRS charge 2004-2006 after settlement	432	448	440	440					440
4502	GMC-Core Reliability Services Non-Coincident Off Peak	Peak hourly Non-coincident off-peak metered load [per SC]	CRS charge 2004-2006 after settlement	54	68	61	61					61
4503	GMC-Core Reliability Services Export Energy	Volumetric Exports	CRS charge 2004-2006 after settlement	428	522	475	475					475
4504	GMC-Core Reliability Services Export Energy and Energy Transmission Services Net Energy - Mohave	Volumetric Exports from Mohave to Nevada Power and Salt River Project	CRS/ETS charge 2004-2006 after settlement	12		12	6	6				12
4505	GMC-Energy Transmission Services Net Energy	Load and export	ETS charge 2004-2006 after settlement	737	883	810		810				810
4506	GMC-Energy Transmission Services Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge 2004-2006 after settlement	986	1,113	1,050		1,050				1,050
4511	GMC-Forward Scheduling	Number of non-zero MW Load, Generation, Import, Export, and Awarded Ancilary Services energy schedules (+/- .03MW)	FS charge 2004-2006 after settlement	966	1,120	1,043			1,043			1,043
4512	GMC-Forward Scheduling - Inter SC Trades	Number of non-zero MW Inter SC trade schedules (+/- .03MW)	FS charge 2004-2006 after settlement	1,022	1,175	1,099			1,099			1,099
4513	GMC-Forward Scheduling Path 15 Facilitator	Number of non-zero MW PGAB Inter SC trade schedules	FS charge 2004-2006 after settlement	12	12	12			12			12
4522	GMC-Congestion Management	Aggregate of the absolute values of the hourly net scheduled inter-zonal New Firm Use flows [per SC]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	774	886	830		237		593		830
4534	GMC-Market Usage Ancillary Services	Purchases and sales of Ancillary Services MWh	MU charge 2004-2006 after settlement	808	935	872				872		872

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				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
4535	GMC-Market Usage Instructed Energy	MWh of Instructed Energy summed by interval	MU charge 2004-2006 after settlement	543	599	571				571		571
4536	GMC-Market Usage Uninstructed Energy	MWh of Net Uninstructed Deviations summed by interval	MU charge 2004-2006 after settlement	985	1,113	1,049				1,049		1,049
4575	GMC-Settlements, Metering, and Client Relations	$500 per Month charge for any active Scheduling Coordinator in the current trade month [per SC]	SMCR charge 2004-2006 after settlement	1,247	1,422	1,335				-	1,335	1,335
4576	GMC-Modesto Irrigation District Charge	$75,000 per Month charge for Modesto Irrigation District	Payment for CRS/ETS portion of GMC	63	33	48	24	24				48
4595	FERC MOO Capacity Settlement Due SC	Billable Quantity paid based on Qualifying Capacity[per SC, Per Location]	Control Area reliability management: ETS		7	7		7				7
4660	Above Ex Post Price Payments for Hourly Pre-Dispatched Resources	Unrecovered Cost Pmt., which is equal to the portion of incremental energy bid segments with IIE_PRICEi,h,o,k,m less than or equal to the Maximum Bid	Market payment for energy in excess of schedule after ISO instruction	2,968	3,956	3,462				3,462		3,462
4680	Unrecovered Cost Payment	BQ = Net Instructed IIE quantities that are elibible for Unrecovered Cost Pmt. [per SC, Per Location]		2,530	2,324	2,427				2,427		2,427
4695	FERC MOO Minimum Load Cost Compensation Due SC	Billable Quantity paid for the month [per SC, Per Location]	Control Area reliability management: ETS	200	126	163		163				163
4795	Minimum Load Cost Uplift Compensation for Resource Adequacy Due SC	Billable Quantity paid for the month [per SC, Per Location]	Control Area reliability management: ETS		76	76		76				76
4999	Neutrality Adjustment	SC's Metered Demand5 in the Control Area [Per SC]	Charge for energy difference between ISO and SC meters that is assessed to Load	2,506	1,022	1,764		1,764				1,764
6609	Station Power Fee	$200 service charge assessed on each Remote and Third Party Station Power location per month	Energy used on-site, ETS		7	7		7				7
6610	Station Power Fee Allocation	Derived BQ = Settlement Amount	Energy used on-site, ETS		7	7		7				7
	Raw total	Total including SMCR		610,775	552,483	607,125	234,162	161,904	4,210	200,477	6,372	607,125
	Total without SMCR	Total excluding SMCR					234,162	161,904	4,210	200,477	-	600,753
	Percent without SMCR	Percent excluding SMCR					39%	27%	1%	33%	0%	100%
	Total without SMCR and FS	Total excluding FS and SMCR					234,162	161,904	4,210	200,477	-	600,753
	Percent without SMCR and FS	Percent excluding FS and SMCR					39%	27%	1%	33%	0%	

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Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued								
				2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
1	Day Ahead Spinning Reserve due SC	Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
2	Day Ahead Non-Spinning Reserve due SC	Non-Spinning Reserve Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
5	Day Ahead Regulation Up due SC	Day Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
6	Day Ahead Regulation Down due SC	Day Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
51	Hour Ahead Spinning Reserve due SC	Hour-Ahead additional Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
52	Hour Ahead Non-Spinning Reserve due SC	Hour-Ahead additional Non-Spinning Reserve accepted bid quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
55	Hour Ahead Regulation Up due SC	Hour Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
56	Hour Ahead Regulation Down due SC	Hour Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
61	Hour Ahead RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
62	Hour Ahead RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
65	Hour Ahead RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted before close of HA Market [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
71	Real Time RMR Preemption of Spinning Reserve (DA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
72	Real Time RMR Preemption of Non-Spinning Reserve (DA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
74	Real Time RMR Preemption of Replacement Reserve (DA Price)	Amount of Replacement Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
75	Real Time RMR Preemption of Regulation Up (DA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
81	Real Time RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
82	Real Time RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
85	Real Time RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
111	Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	**363**	**1,023**	**693**	**520**			**173**		**693**
112	Non-Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	**363**	**1,025**	**694**	**521**			**174**		**694**
114	Replacement Reserve due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	**301**	**330**	**316**	**237**			**79**		**316**
115	Regulation Up Due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	**363**	**1,022**	**693**	**519**			**173**		**693**
116	Regulation Down Due ISO	Net Reserve Obligation [per SC, per zone]	AS procurement 75% CRS, 25% Market Usage	**363**	**1,022**	**693**	**519**			**173**		**693**
124	Dispatched Replacement Reserve (Self-Provided) Capacity Withhold	Amount of Excess Self-Provided Replacement Reserve capacity that has been dispatched by ISO [per SC, per region]	AS procurement with no market component	-	-	-	-					-
141	No Pay Charge - Spinning Reserve	No Pay Spin Qty = max[NPSR(1)i,h,k, NPSR(2)i,h,k, NPSR(3)i,h,k] [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
145	Non Compliance Charge for Regulation Up	Unavailable A/S Capacity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
146	Non Compliance Charge for Regulation Down	Unavailable A/S Capacity [per SC, per location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
203	Day-Ahead Inter-Zonal Congestion Settlement	SC's Day-Ahead net New Firm Use (NFU) import into a Zone [per SC, per Zone]	Was CONG previously, now 28.6% ETS and 71.4% MU as congestion management uses scheduling and market to correct	**238**	**266**	**252**		**72**		**180**		**252**
204	Day-Ahead Inter-Zonal Congestion Refund due TO	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Branch Group NFU loading [per SC, per Branch Group]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
253	Hour-Ahead Inter-Zonal Congestion	SC's Hour-Ahead additional New Firm Use (NFU) import into a Zone [per SC, per Zone]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	**11**	**22**	**17**		**5**		**12**		**17**

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				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
254	Hour-Ahead Inter-Zonal Congestion Refund due TO	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Increase in Branch Group NFU loading from Day-Ahead to Hour-Ahead [per SC, per Branch Group]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
255	Hour-Ahead Inter-Zonal Congestion Debit to TOs	SC's (TO or FTR Owner) Percentage Entitlement on Branch Group * Decrease in Branch Group NFU loading from Dayahead to Hourahead [per SC, per Branch Group]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
256	Hour-Ahead Inter-Zonal Congestion Debit to SCs	SC's Day-Ahead Path Utilization in the Congested Direction [per SC, per Branch Group]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	12	13	13		4		9		13
271	Real-Time Intra-zonal Congestion INC/DEC Settlement	Energy delivered [per SC, per Location/Interchange] having a price segment > MCP+	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
302	Supplemental Reactive Power Due SC	Total payment to resources providing Supplemental Reactive Power in a Participating Transmission Owner's area [per Transmission Owner]	Control Area reliability management: CRS	-	-	-	-					-
351	Monthly Grid Management Charge due ISO	SC Measured Load plus Gross Export in the Control Area [per SC]	Control Area Services charge 1998-2001	-	-	-	-					-
372	High Voltage Access Charge due ISO	UDCs, MSS, SCs Metered Loads adjusted for ETC exemptions, Transition Charge, Proportionality, and Burden Caps [per SC, per TAC Area]	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
374	High Voltage Access Revenue due PTO	Please refer to ISO Tariff 7.1.3 and Section 10 of Appendix F Schedule 3	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
382	High Voltage Wheeling Charge due ISO	Real time gross export excluding amounts exempted due to ETCs [per SC, per location]	Pass through charge; recovery of PTOs TRRs	20	17	19	19					19
383	Low Voltage Wheeling Charge due ISO	Real time gross export excluding amounts exempted due to ETCs [per SC, per location]	Pass through charge; recovery of PTOs TRRs	6	4	5	5					5
384	High Voltage Wheeling Revenue due TO	(Real time gross export excluding amounts exempted due to ETCs * TO allocation percentage) [per TO, per location]	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
385	Low Voltage Wheeling Revenue due TO	(Real time gross export excluding amounts exempted due to ETCs * TO allocation percentage) [per TO, per location]	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
401	Instructed Energy	Energy delivered in excess of schedule in accordance with ISO instructions [per SC, Per Location/Interchange]. Instructed energy is settled in the following sequence: 1) Ramping Energy; 2) Negative Out of stack and Supplemental Energy; 3) Out of stack En	Market payment for energy in excess of schedule after ISO instruction	-	-	-				-		-
405	Import Deviation	Import Deviation Quantity [per SC, per zone]	Market payment for energy in excess of schedule after ISO instruction	-	-	-				-		-
406	SC Unaccounted for Energy (UFElogical)	UFE Quantity [per SC, per Zone]	Market payment for energy in excess of metered demand	-	-	-				-		-
407	Uninstructed Energy	Sum of Uninstructed Energy [Per SC, per Congestion Region]	Market payment for energy in excess of schedule	-	-	-				-		-
410	Unscheduled RMR Energy	Energy generated in excess of scheduled energy, up to RMR dispatched amount [per SC, per location]	Market payment for energy in excess of RMR schedule	-	-	-				-		-
452	Real-time Intra-Zonal Congestion Charge/Refund (Grid Operations Charge)	SC's Metered Demand5 in the Zone [per SC]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
481	Excess Cost for Instructed Energy	Energy delivered [per SC, per Location/Interchange] having a price segment > MCP+	Market payment for energy in excess of schedule	-	-	-				-		-
0487	Allocation of Excess Cost for Instructed Energy	SC's Net Negative Uninstructed Energy in the Control Area [Per SC]	Market payment for energy in excess of schedule	-	-	-				-		-
521	GMC-Control Area Services	SC metered Gross Load and real time gross export [per SC]	Control Area component of GMC 2001-2003	-	-	-	-					-
522	GMC-Congestion Management	Aggregate of the absolute values of the hourly net scheduled inter-zonal New Firm Use flows [per SC]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	15	-	8		2		5		8
523	Market Operations Grid Management Charge	Aggregate of the absolute values of the hourly purchases/sales of Ancillary Services and 10-Minute Imbalance Energy [per SC]	Market GMC CT	-	-	-				-		-

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				Count of Charge Type Issued								
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524	GMC-A/S and RT Energy Operations	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services, 50% of Effective Self Provision, and 10-Minute Imbalance Energy [per SC]	Market GMC CT for 2002, was eliminated as result of settlement	-	-	-				-		-
532	GMC-Energy and Transmission Services - Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge in 2004, prior to settlement	-	-	-		-				-
534	GMC-Market Usage	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services. Instructed Energy by settlement interval and Uninstructed portfolio deviations over the settlement interval [per SC]	MU charge in 2004, prior to settlement	-	-	-				-		-
547	MSS Deviation Penalty Charges due ISO Trustee	Derived BQ = Settlement Amount	Penalty for exceeding contractual bandwidth	-	-	-	-					-
550	FERC Fee	SC's Metered Demand5 in the Control Area [Per SC]	Control area collection of FERC fee	12	8	10	10					10
570	GMC-Core Reliability Services	Peak hourly Non-coincident peak demand [per SC]	CRS charge 2004, prior to settlement	15	-	8	8					8
571	GMC-Energy and Transmission Services - Net Energy	Hourly Net Demand [per SC]	ETS charge in 2004, prior to settlement	15	-	8		8				8
572	GMC-Energy and Transmission Services - Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge 2004, prior to settlement	15	-	8		8				8
573	GMC-Forward Scheduling	Per-Unit - All Final hour ahead schedules including Awarded ancillary service bids with a value greater than .03 or less than (.03)[per SC]	FS charge 2004, prior to settlement	15	-	8			8			8
574	GMC-Market Usage	Aggregate of the absolute values of the following: hourly purchases/sales of Ancillary Services. Instructed Energy by settlement interval and Uninstructed portfolio deviations over the settlement interval [per SC]	MU charge in 2004, prior to settlement	15	-	8				8		8
575	GMC-Settlements, Metering, and Client Relations	$500 per Month charge for any active Scheduling Coordinator in the current trade month [per SC]	SMCR charge in 2004, prior to settlement	15	-	8				-	8	8
579	GMC-2004 Adjustment	Bill Qty is same as the $$ amount (As this charge is a combination of many GMC charges assessed as per the proposed GMC scheme)	Preliminary rerun adjustment for GMC in 2004	-	-	-					-	-
591	Emissions Cost Recovery	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
592	Start-Up Cost Recovery	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	14	35	25	25					25
593	Emissions Cost Due Trustee	Total in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas)	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
594	Start-Up Cost Due Trustee	Total in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas)	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
595	Minimum Load Cost Allocation Due ISO	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
692	Start-Up Cost Payment	Start-up cost incurred by SC as a result of ISO dispatch [per SC, per location]	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
695	Minimum Load Cost Compensation Due SC	Billable Quantity paid for the month	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
701	Forecasting Service Fee	Net Meter Quantity for each PIR unit i and for the whole month (BQ)	Forecast scheduling fee for PIRP resources	-	-	-			-			-
702	Forecasting Service Fee Due Trustee	Net Meter Quantity for all PIR units for the whole month (BQ)	Forecast scheduling fee for PIRP resources	-	-	-			-			-
711	Intermittent Resource Net Deviation	Net Uninstructed Deviation for each valid PIR unit for the whole month (BQ)	Market payment by PIRP resource for energy provided	-	-	-				-		-
721	Intermittent Resource Net Deviation Allocation Charge	SC's Net Negative UIE (UIE-j,h,k)	Excess cost over market payment by PIRP resource for energy provided	2	3	3				3		3
731	Intermittent Resource Net Deviation Reversal	Net billable quantity related to ISOIR reversal for all valid PIR units for the whole month (BQ)	Excess cost over market payment by PIRP resource for energy provided	-	-	-				-		-
790	Market Transaction Bill Period Adjustment	Total Settlement Amount of Market Charges/Payments for Bill Period	Settlements related	2	14	8				-	8	8
791	GMC Transaction Bill Period Adjustment	Total Settlement Amount of GMC Charges/Payments for Bill Period	Settlements related	2	16	9				-	9	9
792	FERC Fee Transaction Bill Period Adjustment	Total Settlement Amount of FERC Fee Charges/Payments for Bill Period	Settlements related	-	-	-				-	-	-

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types for TOR Allocation
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
793	TAC Refund Transaction Bill Period Adjustment	Total Settlement Amount of TAC Refund Charges/Payments for Bill Period	Settlements related	2	-	1				-	1	1
1010	Neutrality Adjustments	SC's Metered Demand5 in the Control Area [Per SC]	Recovery of excess cost of market charges	-	-	-		-		-		-
1011	Ancillary Service Rational Buyer Adjustment	SC's user payment for Ancillary Services [per SC, per Control Area]	AS procurement 75% CRS, 25% Market Usage	62	743	403	302			101		403
1030	No Pay Provision Market Refund	SC's Metered Demand5 in the Control Area [Per SC]	AS procurement 75% CRS, 25% Market Usage	441	1,249	845	634			211		845
1061	Distribution of Preempted Spinning Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	307	705	506	380			127		506
1062	Distribution of Preempted Non-Spinning Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	130	456	293	220			73		293
1064	Distribution of Preempted Replacement Reserve	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	1	-	1	0			0		1
1065	Distribution of Preempted Regulation Up	SC's Metered Demand5 [per SC, per Zone]	AS procurement 75% CRS, 25% Market Usage	44	169	107	80			27		107
1121	Adj. Summer Reliab. Contract Capacity Pymt/Charge	SC's Metered Demand5 in the Control Area [Per SC]	Payment/charge to maintain reliability	-	-	-	-					-
1210	Existing Contracts Cash Neutrality Charge/Refund	SC's Metered Demand5 in the Control Area [Per SC, Per Interval]	AS procurement 75% CRS, 25% Market Usage	2	229	116	87			29		116
1273	FMU Adder Allocation	SC's Metered Demand in the Zone [Per SC]	Bid adder for frequently mitigated units	-	14	7				7		7
1277	Real-Time Intra-zonal Congestion Charge/Refund (Grid Operations Charge)	SC's Metered Demand in the Zone [Per SC]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	491	613	552		158		394		552
1278	Alloc of Above MCP Cost for Real-Time Non-Mkt Dsptch	Total OOM Instructed Energy to be allocated to the TO(s)	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-				-		-
1302	Long Term Voltage Support due ISO	SC's Metered Demand5 in the Zone [Per SC]	Control Area reliability management: CRS	3	28	16	16					16
1353	Black Start Energy due ISO	SC's Metered Load in the Control Area [per SC]	Control Area reliability management: CRS	-	-	-	-					-
1401	Imbalance Energy Offset	SC's Metered Demand5 in the Control Area [Per SC]	Excess market cost recovery	605	1,296	951		951		-		951
1407	MSS Deviation Penalty for Positive Deviations	SC's MSS Positive Energy that is outside the allowable deviation band	Penalty for not adhering to schedules	-	-	-			-			-
1471	Excess Cost Neutrality Allocation	SC's Metered Demand5 in the Control Area [Per SC]	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	232	116		116		-		116
1487	Energy Exchange Program Neutrality Adjustment	SC's total Negative Uninstructed Energy during those 10-min intervals in which ISO imports energy through the Exchange Account [per SC, per region, per Exchange Account]	Recovery of excess for purchases of emergency energy exchanges	-	-	-	-					-
1591	Enforcement Protocol Penalty Charge, Due ISO Trustee	N/A; Set to 1	Charge for sanctions against SCs for violations of ISO Tariff	-	-	-	-	-	-	-		-
1596	FERCMOO Capacity Payment Neutrality Allocation	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Control Area reliability management: ETS	-	20	10		10				10
1597	FERCMOO Capacity Payment System Allocation	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS	-	6	3		3				3
1599	FERCMOO Capacity Payment Zonal Allocation	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS	-	25	13		13				13
1680	Unrecovered Cost Neutrality Allocation	SC's Metered Demand5 in the Control Area [Per SC]	Assessment of bid cost recovery to load and participating generators	427	1,250	839		839		-		839
1691	Minimum Load Cost Neutrality Allocation Due ISO	SC in-state metered Load (consists of metered load within ISO Control Area and real time gross export to other in-state Control Areas) [per SC]	Control Area reliability management: ETS	-	3	2		2				2
1697	Tier 1 MLCC Allocation for System Needs	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS	4	13	9		9				9
1698	Allocation of Reliability Service Costs attributed to MLCC	with the Inter-Zonal MLCC to be allocated to the TO	Control Area reliability management: ETS	-	-	-		-				-
1699	Allocation of MLCC for Inter-Zonal Congestion	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS	20	19	20		20				20
1797	Tier 1 MLCC Allocation of Resource Adequacy for System Needs	SC's monthly absolute total of Settlement Interval Net Negative Uninstructed Imbalance Energy (UIE) in the Control Area [per SC]	Control Area reliability management: ETS	-	12	6		6				6
1798	Allocation of Reliability Service Costs attributed to MLCC for Resource Adequacy	Total Must-Offer Minimum Load Energy associated with the Inter-Zonal MLCC to be allocated to the TO	Control Area reliability management: ETS	-	-	-		-				-

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types for TOR Allocation
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
1799	Allocation of MLCC for Inter-Zonal Congestion for Resource Adequacy	SC's Metered Demand in the Zone [Per SC]	Control Area reliability management: ETS	-	21	11		11				11
2407	MSS Deviation Penalty for Negative Deviations	SC's MSS Negative Energy that is outside the allowable deviation band		-	-	-	-					-
2999	Interest - Due SC	Distribution allocation of Interest earned per SC	Settlements related	17	11	14					14	14
3372	High Voltage Access Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
3374	High Voltage Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
3382	High Voltage Wheeling Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	10	18	14	14					14
3383	Low Voltage Wheeling Charge adjustments due ISO	For UDC, MSS=Billable quantity used during trade month	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
3384	High Voltage Wheeling Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
3385	Low Voltage Wheeling Access Revenue adjustments due PTO	For PTOs=Billable quantity paid for trade month	Pass through charge; recovery of PTOs TRRs	-	-	-	-					-
4141	Compliance No Pay Charge - Spinning Reserve	No Pay Spin Qty = Undispatchable Spin i,h,k + Undelivered Spin i,h,k + Unavailable Spin i,h,k [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
4142	Compliance No Pay Charge - Non Spinning Reserve	No Pay Non-Spin Qty = Undispatchable Non-Spin i,h,k + Undelivered Non-Spin i,h,k + Unavailable Non-Spin i,h,k [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
4144	Compliance No Pay Charge - Replacement Reserve	No Pay Repl Qty = Undispatchable Repl i,h,o + Undelivered Repl i,h,o + Unavailable Repl i,h,o [per SC, Per Location]	AS procurement 75% CRS, 25% Market Usage	-	-	-	-			-		-
4271	Real-Time Intra-zonal Congestion INC/DEC Settlement	Instructed Energy [per SC, per Location/Interchange] having a bid segment > STLMT_PRICE	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	-	-	-		-		-		-
4272	Real-Time Above MCP Cost for Non-Market Dispatches	Energy delivered [per SC, per Location/Interchange] having a price segment > STLMT Price	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-					-
4273	Frequently Mitigated Unit Adder Settlement	Energy delivered (per Location, per SC) has had its Supplemental Incremental bids mitigated for local-area constraints more than four (4) times in a Trading Day.	Excess cost recovery to generators under must offer obligations, result of capped energy price	-	-	-	-			-		-
4401	Instructed Energy	Energy delivered in excess of schedule in accordance with ISO Dispatch Instructions [per SC, Per Location/Interchange]. Instructed energy is settled deemed delivered for the following Instructed Imbalance Energy subcomponents: 1) Supplemental Energy; 1)	Market payment for energy in excess of schedule after ISO instruction	-	-	-				-		-
4406	SC Unaccounted for Energy (UFElogical)	UFE Quantity [per SC, per Zone]	Recovery of excess costs of procurement of Energy	525	1,260	893		893		-		893
4407	Uninstructed Energy	Sum of Uninstructed Energy [Per SC, per Location]	Market payment for energy in excess of schedule after ISO instruction	370	371	371				371		371
4410	Unscheduled RMR Energy	Energy generated in excess of scheduled energy, up to RMR dispatched amount [per SC, per location]	Market payment for energy in excess of schedule after ISO instruction	-	-	-	-			-		-
4450	Transmission Loss Obligation	Metered Energy less self x (1 - GMMa) for each resource (in MWh)	Adjustment for losses	365	562	464	232			232		464
4481	Excess Cost for Instructed Energy	Instructed Energy [per SC, per Location/Interchange] having a bid segment > Ex Post Price	Market payment for energy in excess of schedule after ISO instruction	-	-	-				-		-
4487	Allocation of Excess Cost for Instructed Energy	SC's Net Negative Uninstructed Energy in the Control Area [Per SC]	Market payment for energy in excess of schedule after ISO instruction	1	6	4		2		2		4
4501	GMC-Core Reliability Services Non-Coincident Peak	Peak hourly Non-coincident peak metered load [per SC]	CRS charge 2004-2006 after settlement	-	-	-	-					-
4502	GMC-Core Reliability Services Non-Coincident Off Peak	Peak hourly Non-coincident off-peak metered load [per SC]	CRS charge 2004-2006 after settlement	-	-	-	-					-
4503	GMC-Core Reliability Services Export Energy	Volumetric Exports	CRS charge 2004-2006 after settlement	9	41	25	25					25

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types for TOR Allocation
Charge Type Count for 2005-2006

				Count of Charge Type Issued								
Charge Type Number	Name	Billable Quantity	Comment	2005	2006	Average	CRS	ETS	FS	MU	SMCR	Total
4504	GMC-Core Reliability Services Export Energy and Energy Transmission Services Net Energy - Mohave	Volumetric Exports from Mohave to Nevada Power and Salt River Project	CRS/ETS charge 2004-2006 after settlement	-	-	-	-	-				-
4505	GMC-Energy Transmission Services Net Energy	Load and export	ETS charge 2004-2006 after settlement	9	41	25		25				25
4506	GMC-Energy Transmission Services Deviations	Uninstructed portfolio deviations over the settlement interval[per SC]	ETS charge 2004-2006 after settlement	9	14	12		12				12
4511	GMC-Forward Scheduling	Number of non-zero MW Load, Generation, Import, Export, and Awarded Ancilary Services energy schedules (+/- .03MW)	FS charge 2004-2006 after settlement	9	41	25			25			25
4512	GMC-Forward Scheduling - Inter SC Trades	Number of non-zero MW Inter SC trade schedules (+/- .03MW)	FS charge 2004-2006 after settlement	3	35	19			19			19
4513	GMC-Forward Scheduling Path 15 Facilitator	Number of non-zero MW PGAB Inter SC trade schedules	FS charge 2004-2006 after settlement	-	-	-			-			-
4522	GMC-Congestion Management	Aggregate of the absolute values of the hourly net scheduled inter-zonal New Firm Use flows [per SC]	Was CONG previously, now 28.6% FS and 71.4% MU as congestion management uses scheduling and market to correct	4	5	5		1		3		5
4534	GMC-Market Usage Ancillary Services	Purchases and sales of Ancillary Services MWh	MU charge 2004-2006 after settlement	3	36	20				20		20
4535	GMC-Market Usage Instructed Energy	MWh of Instructed Energy summed by interval	MU charge 2004-2006 after settlement	-	-	-				-		-
4536	GMC-Market Usage Uninstructed Energy	MWh of Net Uninstructed Deviations summed by interval	MU charge 2004-2006 after settlement	9	14	12				12		12
4575	GMC-Settlements, Metering, and Client Relations	$500 per Month charge for any active Scheduling Coordinator in the current trade month [per SC]	SMCR charge 2004-2006 after settlement	9	41	25				-	25	25
4576	GMC-Modesto Irrigation District Charge	$75,000 per Month charge for Modesto Irrigation District	Payment for CRS/ETS portion of GMC	-	-	-	-	-				-
4595	FERC MOO Capacity Settlement Due SC	Billable Quantity paid based on Qualifying Capacity[per SC, Per Location]	Control Area reliability management: ETS	-	-	-		-				-
4660	Above Ex Post Price Payments for Hourly Pre-Dispatched Resources	BQ = Net Instructed Pre-dispatched IIE quantities that are elibible for above Unrecovered Cost Pmt., which is equal to the portion of incremental energy bid segments with IIE_PRICEi,h,o,k,m less than or equal to the Maximum Bid Level and all decremental e	Market payment for energy in excess of schedule after ISO instruction	-	-	-				-		-
4680	Unrecovered Cost Payment	BQ = Net Instructed IIE quantities that are elibible for Unrecovered Cost Pmt. [per SC, Per Location]		-	-	-				-		-
4695	FERC MOO Minimum Load Cost Compensation Due SC	Billable Quantity paid for the month [per SC, Per Location]	Control Area reliability management: ETS	-	-	-		-				-
4795	Minimum Load Cost Uplift Compensation for Resource Adequacy Due SC	Billable Quantity paid for the month [per SC, Per Location]	Control Area reliability management: ETS	-	-	-		-				-
4999	Neutrality Adjustment	SC's Metered Demand5 in the Control Area [Per SC]	Charge for energy difference between ISO and SC meters that is assessed to Load	-	10	5		5				5
6609	Station Power Fee	$200 service charge assessed on each Remote and Third Party Station Power location per month	Energy used on-site, ETS	-	-	-		-				-
6610	Station Power Fee Allocation	Derived BQ = Settlement Amount	Energy used on-site, ETS	-	-	-		-				-
				6,068	14,429	10,249	4,369	3,169	52	2,594	65	10,184
							43%	31%	1%	25%	1%	100%

Total CRS/ETS for TOR	7,538
Total CRS/ETS	396,066
TOR as a percent of total	1.90%

California Independent System Operator
2008 GMC Cost of Service
2008 Rates Under MRTU

Function	Charge	Amount	Billing Unit
CRS	CRS - Demand	$ 67.6915	MW-months
	CRS-Export Energy	$ 0.6740	MWh
ETS	ETS-Net Energy	$ 0.2697	MWh
	ETS-Uninstructed Deviations	$ 0.9694	MWh
CRS/ETS	CRS/ETS-TOR	$ 0.2173	MWh
FS	Forward Scheduling	$ 0.8370	Schedules and trades
MU	AS, IE and UIE	$ 0.8626	MWh
	Forward Energy	$ 0.4400	MWh
SMCR	SMCR	$ 1,000	Customer months

The proposed CAISO MRTU GMC Rate Structure includes:
80/20 revenue split between ETS-NE and ETS-UE
Recovery of excess SMCR revenue based on Functional Association of Charge Types
No discount for Forward Scheduling or Inter SC trades, but retaining the discount for Path 15 Facilitator Inter SC trades
MU-Forward Energy based on cost of service
SMCR rate increased to $1000
Forward Energy bill determinant set to 20% of net of withdrawals and injections
CRS/ETS TOR rate based on cost of service

Exhibit ISO-15

Listing of Directly Assigned Non-Information Technology Cost Centers

Listing of Directly Assigned Non-Information Technology Cost Centers

CC #	Cost Center Name
2121	Market Monitoring
2122	Market Surveillance Committee (Non-labor costs only)
2221	Regional Transmission-North
2231	Regional Transmission-South
2241	Grid Assets
2242	Generator Interconnections
2251	Network Applications
2331	Financial Planning and Treasury (credit related portion)
2521	Grid Operations
2522	Real-Time Operations
2523	Scheduling
2524	Outage Management
2531	Alhambra Grid Operations
2541	Market Services
2542	Market Operations
2543	Billing and Settlements
2544	Settlement Projects
2545	Market Information
2551	Operations Support
2552	Operations Data and Compliance
2553	Operations Procedures and Training
2554	Model & Contract Implementation
2555	Information Engineering & Analysis
2561	Reliability Coordination
2721	Market and Product Development
2722	Tariff and Regulatory/Policy Development
2723	Infrastructure Policy & Contracts
2822	Information Products & Services
2841	Customer Services and Industry Affairs

Exhibit ISO-16

Listing of Directly Assigned Systems and Applications

Listing of Directly Assigned Systems and Applications

ACC Upgrades (Communication between ISO & IOUs)
Ancillary Services Management (ASM) Component of SA
Automated Dispatch System (ADS)
Automated Load Forecast System (ALFS)
Automatic Mitigation Procedure (AMP)
Balance of Business Systems (BBS)
Balancing Energy Ex Post Price (BEEP) Component of SA
Bill's Interchange Schedule (BITS)
CAISO Outage Modeling Tool (COMT)
Client Relations Tools
Common Information Model (CIM)
Congestion Management (CONG) Component of SA
Congestion Reform-DSOW
Congestion Revenue Rights (CRR)
Dispute Tracking System (Remedy)
Electronic Tagging (Etag)
Energy Management System (EMS)
Engineering Analysis Tools
Evaluation of Market Separation
Existing Transmission Contracts Calculator (ETCC)
FERC Study Software
Firm Transmission Right (FTR) and Secondary Registration System (SRS)
Global Resource Reliability Management Application (GRRMA)
Grid Operations Training Simulator (GOTS)
Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,
Integrated Forward Market (IFM)
Interzonal Congestion Management reform - Real Time
Locational Marginal Pricing (LMPM)
Market Quality System (MQS)
Masterfile
Meter Data Acquisition System (MDAS)
MRTU Capital
Network Applications
New Resource Interconnection (NRI)
Open Access Same Time Information System (OASIS)
Operational Meter Analysis and Reporting (OMAR)
Oracle Enterprise Manager (OEM)
Oracle Licenses
Oracle Market Financials BBS
Out of Sequence Market Operation Settlements Information System (OOS)
Outage Scheduler (OS)
Participating Intermittent Resource Project (PIRP)
Portal
Post Transaction Repository (PTR)
Process Information System (PI)

Listing of Directly Assigned Systems and Applications

Rational Buyer
Real Time Energy Dispatch System (REDS)
Real Time Nodal Market
Reliability Management System (RMS)
Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)
Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)
Resource Adequacy
Resource Register (RR)
RMR Application Validation Engine (RAVE)
Scheduling & Logging for ISO California (SLIC)
Scheduling & Tagging Next Generation (STiNG)
Scheduling Architecture (SA)
Scheduling Infrastructure (SI)
Scheduling Infrastructure Business Rules (SIBR)
Security Constrained Economic Dispatch (SCED)
Settlements and Market Clearing
Storage (EMC symmetrix)
System Equipment Buyouts (lease buyouts)
Tactical Emergency Management System (TEMS)
Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation
Transmission Map Plotting & Display
Trustee Costs, Interest-Capitalized, User Groups
Wide Area Network (WAN)

Exhibit ISO-17

Listing of Allocated Cost Centers

Listing of Allocated Cost Centers

CC #	Cost Center Name
2111	CEO-General
2211	Planning and Infrastructure Development
2311	CFO General
2321	Accounting
2331	Financial Planning and Treasury (non-credit related portion)
2341	Human Resources
2351	Facilities
2361	Procurement and Vendor Management
2371	Enterprise Risk Management
2372	Internal Audit
2373	Information Security
2374	Physical Security
2511	Operations-General
2611	General Counsel-General
2621	Asst General Counsel-Corporate
2631	Asst General Counsel-Regulatory
2641	Asst General Counsel Tariff & Compliance
2651	Asst Corporate Secretary
2711	Market Development-Program Mgmt-General
2731	Program Office
2741	MRTU Program
2811	External Affairs-General
2821	Communications & Public Relations
2831	State/Federal Affairs

Exhibit ISO-18

Allocation of
Operating and Capital Reserve Credit

California Independent System Operator
Allocation of Operating and Capital Reserve Credit
2008

	Core Reliability	Energy Transmission Services	CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
Operating and Capital Reserves Credit after allocation	**$12,650,291**	**$ 1,855,280**	**$117,434**	**$2,820,615**	**(390,670)**	**$(100,715)**	**$4,273,268**	**$21,225,503**
Percent of Total	**59.6%**	**8.7%**	**0.6%**	**13.3%**	**-1.8%**	**-0.5%**	**20.1%**	**100.0%**

Exhibit ISO-19

Comparison of Monthly Revenue Forecasts

California Independent System Operator
Comparison of Monthly Revenue Forecasts
Current and Proposed GMC Rate Structures

Month	Current GMC (in millions)	Proposed GMC (in millions)	Variance (current less proposed)	Percent Variance
Jan-08	$15.4	$15.3	$0.1	0.0%
Feb-08	$14.1	$13.7	$0.4	0.2%
Mar-08	$15.0	$14.8	$0.2	0.1%
Apr-08	$14.6	$14.4	$0.2	0.1%
May-08	$16.0	$15.6	$0.4	0.2%
Jun-08	$16.6	$16.6	$0.0	0.0%
Jul-08	$19.2	$19.5	$(0.3)	-0.1%
Aug-08	$18.4	$19.0	$(0.6)	-0.3%
Sep-08	$16.9	$17.0	$(0.1)	0.0%
Oct-08	$15.4	$15.5	$(0.1)	0.0%
Nov-08	$14.6	$14.8	$(0.3)	-0.1%
Dec-08	$15.5	$15.5	$0.0	0.0%
Annual Total	$191.6	$191.6	$0.0	0.0%

Exhibit ISO-20

Settlements, Metering and Client Relations
Fully Allocated Cost per Customer-Month

California Independent System Operator
Settlements, Metering and Client Relations
Fully Allocated Cost per Customer Month

SMCR Revenue Requirement	**$**	**54,491,785**
Forecast of customer-months for 2008		**1,829**
Fully allocated cost per customer-month	**$**	**29,793**