

Exhibit ISO-2

Functionalization of Activity Groupings For ISO Rate Structure

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Function	Sub-Function	Activities within proposed Grouping
Grid Reliability Services	<p>Core Reliability Services (base level)</p> <p>Energy Transmission Services (scalable portion)</p>	<p>Ancillary Services management:</p> <ul style="list-style-type: none"> • Dispatch of energy associated with Ancillary Services or Resource Adequacy, including: <ul style="list-style-type: none"> ○ Regulation ○ Spin ○ Non-spin ○ Replacement reserve ○ Black start ○ Residual Unit Commitment <p>Monitoring of system conditions and dispatching to maintain reliability:</p> <ul style="list-style-type: none"> • Load and resource balancing • Transmission line/path congestion management • Voltage control • Frequency control • System emergency management • Power flow studies and security analyses <p>Determination of resource adequacy in real time</p> <p>Coordinating Western Interconnection reliability with all WECC Reliability Coordinators</p> <p>Integration and communication with other Balancing Authorities:</p> <ul style="list-style-type: none"> • Interconnected switching operations for planned and unplanned outages • Generation and transmission equipment outage coordination <p>Interchange scheduling</p> <p>ETC scheduling and administration</p> <p>EMS and Telemetry management</p>

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Grid Reliability Services	<p>Core Reliability Services (base level)</p> <p>Energy Transmission Services (scalable portion)</p>	<p>Day-ahead/HASP intertie scheduling</p> <ul style="list-style-type: none"> • ETAG (NERC-required electronic schedule tagging) • Existing Transmission Contracts Calculator (ETCC) and scheduling • New Firm Uses (NFU) scheduling <p>Reconciliation of schedules and interchange after-the-fact</p> <p>NERC/WECC/CAISO Tariff required reporting</p> <p>Weekly:</p> <ul style="list-style-type: none"> • Inadvertent Interchange report • NERC reports (Inadvertent Interchange, ETAG) • WECC "donut" report <p>Monthly:</p> <ul style="list-style-type: none"> • WECC Unscheduled Flow curtailment report <p>Quarterly:</p> <ul style="list-style-type: none"> • Quarterly California Energy Commission 1305 report <p>Annually:</p> <ul style="list-style-type: none"> • SDG&E DOE report • FERC 714 report • Report of Economic Operation
Grid Reliability Services	<p>Core Reliability Services (base level)</p> <p>Energy Transmission Services (scalable portion)</p>	<p>Pre-planning of and preparation for generation and transmission outages</p> <p>Generation and transmission equipment outage tracking and data/record keeping</p> <p>On-site generation outage monitoring (SB-39 compliance)</p> <p>Outage reporting (web site updates and regulatory agency reporting)</p> <p>Supply of Generation and Transmission data for OASIS postings</p>

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Grid Reliability Services	<p>Core Reliability Services (base level)</p> <p>Energy Transmission Services (scalable portion)</p>	<p>Transmission Maintenance:</p> <ul style="list-style-type: none"> • 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. <p>Operations Engineering:</p> <ul style="list-style-type: none"> • 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 <p>Operations Support: Manage the development, preparation and revision of all ISO Operating Procedures:</p> <ul style="list-style-type: none"> • 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

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Grid Reliability Services	<p>Core Reliability Services (base level)</p> <p>Energy Transmission Services (scalable portion)</p>	<p>Transmission Planning:</p> <ul style="list-style-type: none"> • Perform system transmission planning to ensure overall reliability • Perform reserve requirement studies • Perform Long-term (monthly, annual and longer) load forecasting • Determine long term <i>transmission</i> resource adequacy <p>Regional Coordination:</p> <ul style="list-style-type: none"> • 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. <p>Determine long-term <i>generation</i> resource adequacy:</p> <ul style="list-style-type: none"> • 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 <p>Determine Reliability Must-Run ("RMR") contract requirements</p> <p>Review Participating Transmission Owners ("PTOs") Bulk Power Program and new generator or load interconnection studies</p>
Grid Reliability Services	Core Reliability Services (base level)	<p>Administration of RMR settlements</p> <p>Validation of Summer Reliability Generation invoices</p> <p>Development and implementation of Tariff modifications</p> <p>Maintenance of agreements with existing and new clients</p> <p>Meeting regulatory directives related to contract activities</p> <p>Non-vendor contract administration</p>
Grid Reliability Services	Energy Transmission Services (scalable portion)	<p>Evaluation of transmission capacity expansion</p> <p>Review and recommend changes to ISO rules and protocols</p> <p>Monitor and measure operational performance consistent with contractual commitments and Tariff requirements</p> <p>Ensure generator compliance with dispatch instructions and must offer requirements</p> <p>Administer ISO Oversight and Investigations Review</p>

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Function	Sub-Function	Activities within proposed Grouping
Market Services	Forward Scheduling	Manage transmission and generation schedules: <ul style="list-style-type: none"> • 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)
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: <ul style="list-style-type: none"> • 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

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Function	Sub-Function	Activities within proposed Grouping
Settlements, Metering and Client Relations		<p>Determine charges associated with:</p> <ul style="list-style-type: none"> • 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 <p>Manage settlement data</p> <p>Manage ETC manual settlements</p> <p>Prepare market and GMC invoices</p> <p>Prepare special invoices for FERC fees, interest, etc.</p> <p>Perform settlement statement reruns</p> <p>Market/settlements design and settlements training</p> <p>Dispute resolution, GFN, arbitration and monitoring</p> <p>Credit and collateral management</p> <ul style="list-style-type: none"> • Manage collections and payments • SC financial security analysis <p>Determination of losses and allocation</p> <p>Metering and data management</p> <ul style="list-style-type: none"> • 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 <p>Manage Participating Intermittent Resources settlements</p>

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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

Exhibit ISO-3
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
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

System	Description
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.
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.

System	Description
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.
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

System	Description
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.
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.
Outsourced Contracts, formerly IBM Contract	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.

System	Description
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 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 with 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 from ITRON-UTS that allows for the collection, validation, editing, storage and transfer of meter data from a wide range 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.

System	Description
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.
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.

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.
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.

System	Description
Portal	<p>The Portal allows access to Market Applications along with CAISO reports. Additionally, industry related news and links will be available through the Portal.</p> <p>The implementation of the Portal provides:</p> <ul style="list-style-type: none"> • 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.
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.

System	Description
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 and 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.
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.

System	Description
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.
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%
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

System	Description
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

Exhibit ISO-4
California Independent System Operator
Listing of Cost Centers

CC #	Cost Center
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
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
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

CC #	Cost Center
2722	Tariff and Regulatory/Policy Development
2723	Infrastructure Policy & Contracts
2731	Program Office
2741	MRTU Program
2811	External Affairs-General
2821	Communications & Public Relations
2822	Information Products & Services
2831	State/Federal Affairs
2841	Customer Services and Industry Affairs

Exhibit ISO-5

Forecast of CRS Billing Determinants

Exhibit ISO-5
Historical and Forecast Billing Determinants
Core Reliability Services

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,
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

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**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 the "Other" planning area.

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

Average Annual Growth Rate 2008-2018												
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	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
PG&E Service Area by CEC Forecasting Climate zone:												
Zone 1 (North Coast and Mountain)												
Zone 2 (Sacramento Region)	4,837	4,885	4,946	5,005	5,071	5,135	5,195	5,255	5,314	5,375	5,434	5,492
Zone 3 (Valley 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
Zone 4 (East Bay 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
Zone 5 (San Francisco Region)	25,795	26,100	26,460	26,814	27,208	27,590	27,967	28,399	28,646	28,967	29,311	29,626
PG&E Service Area Total	24,377	24,700	24,801	25,026	25,259	25,481	25,680	25,862	26,039	26,212	26,374	26,534
PG&E Direct Access	87,123	88,198	89,389	90,565	91,840	93,091	94,284	95,433	96,588	97,729	98,829	99,919
PG&E Bundled	7,943	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468	7,468
Northern California Power Agency	79,579	80,731	81,921	83,097	84,372	85,623	86,816	87,965	89,120	90,281	91,361	92,451
Silicon Valley Power	2,639	2,674	2,740	2,774	2,807	2,869	2,889	2,889	2,928	2,955	2,955	2,982
CCSF	2,920	2,958	2,992	3,026	3,064	3,099	3,131	3,161	3,190	3,219	3,245	3,269
Other Publicly Owned Utilities	1,376	1,383	1,390	1,397	1,403	1,410	1,416	1,421	1,426	1,431	1,435	1,439
Dept of Water Resources - North	510	512	516	520	524	528	533	536	540	544	547	551
Total North of Path 15	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558
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
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
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
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
Total North P15 + 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
Southern California Edison Planning Area Total												
SCE Service Area by CEC Forecasting Climate zone:												
Zone 7 (Southern San Joaquin Valley)	105,332	107,101	108,890	110,722	112,554	114,350	116,016	117,633	119,221	120,790	122,202	123,675
Zone 8 (Coastal LA Basin)	5,554	5,667	5,782	5,898	6,021	6,148	6,263	6,379	6,495	6,611	6,727	6,845
Zone 9 (Inland LA Basin)	46,374	46,901	47,434	48,000	48,569	49,115	49,604	50,061	50,488	50,914	51,294	51,701
Zone 10 (Inland Empire)	18,094	18,345	18,605	18,858	19,128	19,384	19,624	19,856	20,084	20,311	20,531	20,742
SCE Service Area Total	26,372	27,098	27,892	28,579	29,303	30,071	30,710	31,392	32,069	32,716	33,335	33,951
SCE Direct access	96,394	98,011	99,653	101,336	103,020	104,671	106,201	107,688	109,146	110,552	111,886	113,240
Anaheim Public Utilities Dept.	10,146	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045	10,045
Riverside Public Utilities Dept.	86,248	87,966	89,608	91,291	92,976	94,626	96,157	97,643	99,102	100,508	101,842	103,195
Shasta	2,902	2,936	2,968	3,001	3,036	3,068	3,098	3,125	3,151	3,175	3,197	3,221
Vernon Municipal Light 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
Metropolitan Water District	1,232	1,243	1,249	1,258	1,268	1,277	1,284	1,290	1,296	1,301	1,303	1,305
Other Publicly Owned Utilities	1,317	1,317	1,318	1,318	1,319	1,321	1,322	1,322	1,322	1,322	1,322	1,322
Pasadena Water and Power Dept	1,244	1,277	1,309	1,342	1,373	1,404	1,434	1,462	1,491	1,519	1,547	1,575
San Diego Gas & Electric	1,327	1,324	1,339	1,344	1,352	1,358	1,363	1,368	1,374	1,376	1,380	1,384
SDG&E Bundled Customers	21,733	22,020	22,373	22,721	23,073	23,419	23,750	24,074	24,400	24,722	25,032	25,337
SDG&E Direct Access	18,399	18,687	19,040	19,387	19,740	20,086	20,416	20,741	21,067	21,389	21,698	22,004
Dept of Water Resources - South	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333
Total South of Path 15	133,301	135,563	137,711	139,895	142,087	144,236	146,237	148,184	150,103	151,957	153,722	155,504
Turlock Irrigation District Control Area												
Sacramento Municipal Utilities District	2,532	2,570	2,608	2,645	2,686	2,727	2,767	2,805	2,844	2,883	2,920	2,958
WAPA	11,740	11,887	12,063	12,239	12,431	12,629	12,817	13,002	13,180	13,348	13,505	13,661
Redding	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406
Roseville	916	933	958	982	1,031	1,051	1,072	1,092	1,113	1,134	1,156	1,177
Shasta	1,379	1,412	1,451	1,489	1,529	1,570	1,610	1,650	1,691	1,731	1,771	1,811
Modesto Irrigation District	206	209	211	212	214	216	217	219	220	221	221	222
Total SMUD/WAPA Control Area	2,876	2,924	2,970	3,016	3,067	3,117	3,165	3,211	3,259	3,305	3,351	3,397
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
Los Angeles Department of Water and Power												
Burbank Public Service Dept	27,820	28,004	28,221	28,401	28,561	28,711	28,846	28,969	29,080	29,189	29,286	29,386
Glendale 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
Total LADWP Control Area	1,218	1,219	1,223	1,229	1,234	1,238	1,241	1,244	1,247	1,248	1,250	1,251
Imperial Irrigation District 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
Total CAISO	3,740	3,850	3,966	4,082	4,195	4,310	4,424	4,538	4,656	4,772	4,889	5,007
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
Total State	295,059	298,945	303,121	307,291	311,597	315,800	319,757	323,589	327,396	331,081	334,613	338,148

*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

Forecast of ETS Billing Determinants

Exhibit ISO-7
Historical and Forecast Billing Determinants
Energy Transmission Services

Date	Metered Balancing Authority Area Load	Uninstructed Imbalance Energy
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

Forecast of FS and MU Billing Determinants

Exhibit ISO-8
Historical and Forecast Billing Determinants
Forward Scheduling and Market Usage

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

Forecast of SMCR Billing Determinant

Exhibit ISO-9
Historical and Forecast Billing Determinants
Settlements, Metering & Client Relations

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

Assignment of Direct Labor and Contracts

Exhibit ISO-10
California Independent System Operator
2008 GMC Cost of Service
Functionalization of 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.

Sheet Index:	Description
Direct Factors	Listing of direct factors used to assign IT systems
Total Directs	Summary of directly assigned non-IT departments
Supervised Dept Directs	Assignment of supervisory departments
	Summary of directly assigned non-IT departments without supervisory departments by cost center
Directs	Summary of directly assigned contract/consultant/temporary employee costs by cost center
Contract	Summary of directly assigned non-contract costs by cost center
Staff	Summary of directly assigned non-contract costs by cost center
Direct Assignment Templates	Templates for the following departments
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
2522	Real-Time Operations
2523	Scheduling
2524	Outage Management
2531	Alhambra Grid Operations
2542	Market Operations
2543	Billing and Settlements
2544	Settlement Projects
2545	Market Information
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
Worksheets	
2252 M&S	Management and Support template for 2252
2252 G	Generation dispatchers for 2522
2252 T	Transmission dispatchers for 2522
2252 RT	Real Time dispatchers for 2522
2252 GRC	Grid Resource Coordinators for 2522
Budget	2007 Budget by cost center

California Independent System Operator
2008 GMC Cost of Service

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
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	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

**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%
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%

**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	2.9	-	-	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%

**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
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%	

**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
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	\$ 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	\$ 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	\$ -	\$ 483,108
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	\$ -	\$ 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	\$ 55,792,980
	Percent of total	43.5%	19.3%	0.5%	1.7%	12.6%	2.1%	100.0%

Individual templates for each directly assigned cost center follow.

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Keith Casey/Pearl O'Connor

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Keith Casey/Pearl O'Connor

California Independent System Operator
2008 GMC Cost of Service

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%		

completed by:
Date:

Keith Casey/Pearl O'Connor

California Independent System Operator
2008 GMC Cost of Service

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 Board 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%	

completed by:
Date:

Keith Casey/Pearl O'Connor

California Independent System Operator
2008 GMC Cost of Service

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%		

completed by:

Date:

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%	

completed by:

Date:

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) Probabilistic approach for capacity requirement determination: in the effort to support capacity, market initiative, regional transmission 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 engineering	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%		

completed by:

Date:

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%	

completed by:
Date:

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	<ol style="list-style-type: none"> 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 processes 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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		

completed by:
Date:

Steve Rutty

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%	

completed by:
Date:

Steve Rutty

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:

2242
Generator Interconnections
Steve Ruty

	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		

completed by:
Date:

Steve Ruty

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2242
Generator Interconnections
Steve Ruty

	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%	

completed by:
Date:

Steve Ruty

California Independent System Operator
2008 GMC Cost of Service

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	<p>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</p> <p>2. Maintain and Update CAISO Network Models</p> <p>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.</p> <p>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)</p> <p>5. Establish and provide Resource IDs for use in the market systems</p> <p>6. Coordinate with and assist EMS IT in QAS testing and SCADA-related tasks (load calculations, operating reserve calculation, etc.)</p> <p>7. Engineering assistance in ISO contracts and policy issues (e.g., Generator telemetry standards, Participating Generator Agreement ("PGA"), etc.)</p> <p>8. Participating in WECC & IEEE committees and workgroups related to in</p>	7	<p>Manager</p> <p>3 Sr. Network Applications Engineers</p> <p>2 Network Applications Engineers</p> <p>1 Associate Network Applications Engineer</p>	
CRS/ETS TOR				
Forward Scheduling Activities				
Market Usage Activities				
Market Usage Forward Energy				
Settlements, Metering and Client Relations				
Totals		7		

completed by:
Date:

Soumen Ghosh

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%	

completed by:
Date:

Soumen Ghosh

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Phil Leiber

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Phil Leiber

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Tim VanBlaricom

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

completed by:
Date:

Tim VanBlaricom

California Independent System Operator
2008 GMC Cost of Service

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, Disturbance 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 negotiation, resolution of FERC Seams issues, inter-Balancing Authority coordination, implementation 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		

completed by:

Date:

Gregory Van Pelt
31-Mar-07

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%	

completed by:

Gregory Van Pelt

Date:

31-Mar-07

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	1 Manager, 2 Lead Outage Coordinators, and 6 Outage Coordinators	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		

completed by:
Date:

Gregory Van Pelt
31-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Gregory Van Pelt
31-Mar-07

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 function to ensure continuity of control area operations in the event of a total 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		

completed by:

Date:

Lonnie Rush
23-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Lonnie Rush
23-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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 tariff 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 tariff and	4	Lead Market Design Engineering Specialist Senior Market Design Engineering Specialist	
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		

completed by:

Date:

Greg Ford
24-Apr-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Greg Ford

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

Assignment of Temporary Staff and Contractors/Consultants

For Cost Center:

2544
Settlements Projects
0

	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%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Alan Isemonger
22-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:

Date:

Alan Isemonger
22-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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 Requirements Data for use in Real Time Operational dispatch decisions. Field Data Acquisition: Supports the business functionality 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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 Acquisition: Supports the business functionality 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 requirement Meter application and business process support.	50%	MDAS Metering Analyst
Totals		100%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 Certification 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 for 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		

completed by:

Date:

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Gil Grotta
2-Apr-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Gil Grotta
2-Apr-07

California Independent System Operator
2008 GMC Cost of Service

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 repeating 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		

completed by:
Date:

Benik DerGevorgian
30-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Benik DerGevorgian
30-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Greg Tillitson
4-Apr-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Greg Tillitson
4-Apr-07

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 analysis for post MRTU design features (convergence bidding and scarcity pricing).	100%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 outstanding MRTU Release 1 issues.	100%	
Market Usage Forward Energy			
Settlements, Metering and Client Relations			
Totals		100%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:
Date:

Philip Pettingill
28-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Philip Pettingill
28-Mar-07

California Independent System Operator
2008 GMC Cost of Service

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		

completed by:

Date:

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 programs. 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 business interface with ISO clients and stakeholders. As such, it falls under the definition of Settlements, Metering and Client Relations.
Totals		23		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Worksheets for 2522 and Budget follow.

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	Management and Support
	2522
	Real-Time Manager Tim VanBlaricom

	Description of Activities	# of People	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 departments 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		

completed by: _____
Date: _____

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:

Generation Dispatcher

2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	# of People	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 intertie 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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:

Transmission Dispatcher
2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	# of People	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		

completed by:

Date:

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:	Real Time Scheduler
	2522
	Real-Time Manager
	Tim VanBlaricom

	Description of Activities	# of People	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		

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

Personnel Assignment of Directly Assigned Cost Centers

For Cost Center:

Grid Resource Coordinator
2522
Real-Time Manager
Tim VanBlaricom

	Description of Activities	# of People	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		

completed by:
Date:

**California Independent System Operator
2008 GMC Cost of Service**

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%

**California Independent System Operator
2008 GMC Cost of Service**

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%

**California Independent System Operator
2008 GMC Cost of Service**

Outage Management Allocation to TORs

Month	TOR Outages	Total ISO Outages	% of ISO Total
CCSF	123		
SWPL	714		
SSPN	573		
	1,410	51,652	2.7%

**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	\$ 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
2008 GMC Cost of Service**

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

Information Technology Assignments

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

**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	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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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	\$ 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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2412
Asset Management (Non-Labor costs only)

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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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								
Integrated Forward Market (IFM)								
Internal Development								

**California Independent System Operator
2008 GMC Cost of Service
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2451
IT Support & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Integrated Forward Market (IFM)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**California Independent System Operator
2008 GMC Cost of Service
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2453
Data Center & Operations
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2462
EMS Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2462
EMS Information Technology
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Integrated Forward Market (IFM)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**California Independent System Operator
2008 GMC Cost of Service
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2462
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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
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Cost Center Number
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2462
EMS Information Technology
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
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2462
EMS Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2462
EMS Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2463
Operations Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2463
Operations Information Technology
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Integrated Forward Market (IFM)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Internal Development	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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Operations Information Technology
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)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2463
Operations Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2463
Operations Information Technology
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2464
Corporate Systems
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2464
Corporate Systems
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Integrated Forward Market (IFM)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**California Independent System Operator
2008 GMC Cost of Service
Listing of Systems**

Cost Center Number
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Cost Center Director/Manager

2464
Corporate Systems
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
Listing of Systems**

Cost Center Number
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Cost Center Director/Manager

2464
Corporate Systems
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
Listing of Systems**

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Corporate Systems
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
Listing of Systems**

Cost Center Number
Cost Center Name
Cost Center Director/Manager

2464
Corporate Systems
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
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%
IBM Contract	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
Listing of Systems**

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
Listing of Systems**

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
Listing of Systems**

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
Listing of Systems**

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
2008 GMC Cost of Service

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	\$ 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
2008 GMC Cost of Service

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
2008 GMC Cost of Service

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
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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
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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							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
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
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		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%	

completed by:
Date:

California Independent System Operator
2008 GMC Cost of Service

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 administration.	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%	

completed by:
Date:

Robert Melis

California Independent System Operator
2008 GMC Cost of Service

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%	

completed by:
Date:

Brian Cummins
29-Mar-07

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%	
Automated Load Forecast System (ALFS)		3%	
Automatic Mitigation Procedure (AMP)		3%	
Balance of Business Systems (BBS)		5%	
Balancing Energy Ex Post Price (BEEP) Component of SA		3%	
Bill's Interchange Schedule (BITS)		5%	
Compliance		3%	
Congestion Management (CONG) Component of SA		3%	
Congestion Revenue Rights (CRR)		3%	
Electronic Tagging (Etag)		1%	
Existing Transmission Contracts Calculator (ETCC)		3%	
Firm Transmission Right (FTR) and Secondary Registration System (SRS)		3%	
Global Resource Reliability Management Application (GRRMA)		3%	
Hour-Ahead Data AnalysisTool, Day- Ahead Data AnalysisTool,		0%	
Interzonal Congestion Management reform - Real Time		5%	
Masterfile		5%	
Meter Data Acquisition System (MDAS)		5%	

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
Open Access Same Time Information System (OASIS)		3%	
Out of Sequence Market Operation Settlements Information System (OOS)		2%	
Outage Scheduler (OS)		2%	
Participating Intermittent Resource Project (PIRP)		3%	
Rational Buyer		2%	
Real Time Energy Dispatch System (REDS)		2%	
Resource Register (RR)		3%	
RMR Application Validation Engine (RAVE)		3%	
Scheduling & Logging for ISO California (SLIC)		6%	
Scheduling Architecture (SA)		5%	
Scheduling Infrastructure (SI)		8%	
Settlements and Market Clearing		5%	
Total		100.0%	

completed by:
Date:

Jami Long

California Independent System Operator
2008 GMC Cost of Service

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
2008 GMC Cost of Service

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%	

completed by:
Date:

Matt Willis

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			IBM Contract
	WAN			Wide Area Network (WAN)
	Telephone			Telephone/PBX
	Voice			Telephone/PBX
	PBX lease			Telephone/PBX
	Internet			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
Listing of Systems**

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
Listing of Systems**

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	\$ 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
Listing of Systems**

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
Listing of Systems**

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
Listing of Systems**

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
2008 GMC Cost of Service**

IT Support & Operations Contract Costs (CC 2451)

	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
Listing of Systems**

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
Listing of Systems**

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	\$ 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
Listing of Systems**

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
Listing of Systems**

System	Amount	Comment
Physical Facilities Software	\$ 6,491	
Application/Furniture/Leasehold Improvements		
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
Listing of Systems**

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)	\$ -	
	\$ 8,027,850	

Attachment F
California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/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
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

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
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.
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.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
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 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 aproval of interchange transaction requests.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/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 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. Its costs are assigned 25% to CRS, 20% to scheduling, 15% to congestion, 20% to MU, and 20% to CS, to reflect the interaction requirements.
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.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/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 56/44 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 employees and benefits and has a payroll module, for our in-house payroll system.
IBM Contract	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.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
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 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.
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 with 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 from ITRON-UTS that allows for the collection, validation, editing, storage and transfer of meter data from a wide range 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.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
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.
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 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.

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
Operational Meter Analysis and Reporting (OMAR)	<p>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.</p> <p>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.</p>
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)	<p>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.</p>

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California Independent System Operator
2008 GMC Cost of Service
Listing of Systems/Applications

System	Description
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 reject 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: <ul style="list-style-type: none"> • 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.

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California Independent System Operator
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Listing of Systems/Applications

System	Description
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.
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

Attachment F
California Independent System Operator
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Listing of Systems/Applications

System	Description
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 and 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 is an interchange transaction scheduling system to replace BITS and E-Tag.
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.

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System	Description
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.
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 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, pager costs. Telecommunication system which allows internal and external voice communications.

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System	Description
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 participants that participate in the market through connections to the ISO such as Generators, Scheduling Corordinators, and Revenue Meters connects).

Exhibit ISO-12

Functionalization of 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.

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Assignment MRTU	Summary of the functionalization of MRTU expenditures funded by bonds
Directs	Direct allocations without CRS/ETS TOR

	A	B
	<p align="center">California Independent System Operator 2008 GMC Cost of Service Listing of Systems</p>	
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4	System	Description
5	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
6	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
7	Application Development Tools	Various third party software applications used for internal application development and maintenance of ISO systems.
8	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
9	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
10	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
11	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 system:
12	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
13	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
14	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).
15	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.
16	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.
17	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
18	Client Relations Tools	Applications used to improve communication with customers and issue tracking.
19	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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20	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
21	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
22	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
23	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.
24	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
25	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.
26	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
27	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.
28	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
29	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
30	Engineering Analysis Tools	Custom developed tools for ISO Engineering group analysis as required to complete various function at the ISO.
31	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

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32	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.
33	FERC Study Software	FERC requested Study on ISO Markets
34	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.
35	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.
36	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
37	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.
38	Human Resources	Human Resources Software applications the tracks employees and benefits and has a payroll module, for our in house payroll system.
39	IBM Contract	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.
40	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%
41	Internal Development	Cost for ISO employees that work on Capital Projects during the year. GAAP required reclassification.
42	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
43	Land and Building Costs	This is the cost of purchasing land and preliminary design cost for the property located on Iron Point Road.
44	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

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45	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."
46	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.
47	Masterfile	An ISO data bank used to store information on each Scheduling Coordinator, Transmission Owner, Generation Owner and Control Area that does business with the ISO. Also, the specific file within that database associated with a particular entity.
48	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 from ITRON-UTS that allows for the collection, validation, editing, storage and transfer of meter data from a wide range 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.
49	Miscellaneous (2004 related capital)	Represents the amount determined to cover maintenance costs for software and hardware for items approved during 2004 Capital period.
50	Monitoring (Tivoli)	Monitoring software system, that is used to monitor and report the health of all applications at the ISO. Use system direct allocation.
51	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.
52	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.
53	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.
54	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.
55	NT/web servers	Servers that are running the applications that allow the ISO to communicate with the Internet.
56	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.
57	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.
58	Office equipment (scanner, printer, copier, fax, Communication Equip.)	Capital costs for the purchase of non computer hardware.

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59	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.
60	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.
61	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
62	Oracle Enterprise Manager (OEM)	Utility used by our Data Base Administrator (DBA) to monitor and manage all the ISO Oracle Databases
63	Oracle Licenses	Oracle Licenses that are needed for most of our applications/ database infrastructure. Used by most of the Operational applications.
64	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
65	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.
66	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
67	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
68	Physical Facilities Software Application/Furniture/Leasehold Improvements	All locations, leasehold improvement, furniture and software to manage physical facilities.
69	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

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4	System	Description
70	Post Transaction Repository (PTR)	PTR is an application that manages all post-operational market data prior to being settled.
71	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
72	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.
73	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.
74	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
75	Reliability Management System (RMS)	Reliability Management System: WECC mandated performance criteria reporting system.
76	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
77	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 were 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
78	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.
79	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
80	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 and 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.
81	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
82	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.
83	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

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84	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.
85	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
86	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
87	Security- External/Physical	ISO Corporate security equipment, for all Folsom and Alhambra locations. Includes camera's card readers, hand readers, and monitoring equipment.
88	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
89	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
90	Sign Board (Symon Board maint.)	Provides OASIS information and activity to ISO personnel, via a reader board displayed in various locations in ISO buildings
91	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.
92	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, Celerra. Allocation based on amount of storage currently being used by applications
93	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.
94	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.
95	Telephone/PBX	Third party costs for regular telephone, cell phone, pager costs. Telecommunication system which allows internal and external voice communications.
96	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
97	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.
98	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%
99	Treasury Workstation/Investment Program	Software or hardware that allows more efficient tracking and reporting of the CAISO investment portfolio.

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100	Trustee Costs, Interest-Capitalized, User Groups	Start up costs for non-ISO employees from Dec. 1996 - July, 1998
101	Utilities - System i.e. Print drivers	Part of EMC storage usage for various system utilities.
102	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
103	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).

**California Independent System Operator
2008 GMC Cost of Service
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%

**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
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	\$ 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
Listing of Systems**

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	\$ 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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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
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
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)								
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								
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 2008 Cash 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)								
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								
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 2008 Cash Funded Capital Expenditures

System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
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)								
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)								

**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								
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)								
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)								

**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								
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	\$ 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	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%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Systems Allocated by FTE									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4	CaseWise (process modeling tool)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
5	CHASE	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
6	Documentum	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
7	Human Resources	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
8	Land and Building Costs	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
9	Local Area Network (LAN)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
10	NT/web servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
11	NT-servers	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
12	Office Automation - desktop/laptop (OA)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
13	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%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Systems Allocated by FTE									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
14	Oracle Corporate Financials	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
15	Physical Facilities Software Application/Furniture/Leasehold Improvements	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
16	Security- External/Physical	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
17	Sign Board (Symon Board maint.)	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
18	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%
19	Telephone/PBX	FTE	40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%
20	FTE factors based on Direct Labor assignment		40.34%	19.26%	0.49%	1.52%	14.24%	1.70%	22.45%	100.00%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Systems Allocated by System Directs									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU_FE	SMCR	Total
4	Application Development Tools	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
5	Backup systems (Legato/Quantum)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
6	Internal Development	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
7	Miscellaneous (2004 related capital)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
8	Monitoring (Tivoli)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
9	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%
10	Security-ISS (CUDA)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
11	Training Systems	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
12	Utilities - System i.e. Print drivers	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%
13	Vitria (Middleware)	System directs	23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Systems Allocated by Departments									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4	Compliance	Dept direct	41.75%	0.00%	0.00%	0.00%	0.00%	0.00%	58.25%	100.00%
5	DataWarehouse	Dept direct	31.59%	2.86%	0.00%	3.07%	18.90%	6.93%	36.65%	100.00%
6	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%
7	IBM Contract	Dept direct	34.79%	13.90%	0.40%	4.29%	11.66%	4.26%	30.69%	100.00%
8	Treasury Workstation/Investment Program	Dept direct	40.21%	19.26%	0.49%	1.81%	15.60%	2.00%	20.62%	100.00%
9										

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Identified Costs of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
4	ACC Upgrades (Communication between ISO & IOUs)	Direct	\$ 1,152,445	\$ -	\$ 9,555	\$ -	\$ -	\$ -	\$ -	\$ 1,162,000
5	Ancillary Services Management (ASM) Component of SA	Direct	\$ 86,297	\$ -	\$ 716	\$ 232,034	\$ 261,039	\$ -	\$ -	\$ 580,086
6	Automated Dispatch System (ADS)	Direct	\$ 1,644,949	\$ -	\$ 13,639	\$ 829,294	\$ 663,435	\$ -	\$ 165,859	\$ 3,317,174
7	Automated Load Forecast System (ALFS)	Direct	\$ 23,774	\$ -	\$ 197	\$ 3,424	\$ 6,849	\$ -	\$ -	\$ 34,244
8	Automatic Mitigation Procedure (AMP)	Direct	\$ -	\$ 860,620	\$ 7,136	\$ -	\$ 153,133	\$ -	\$ -	\$ 1,020,889
9	Balance of Business Systems (BBS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 52,005,904	\$ 52,005,904
10	Balancing Energy Ex Post Price (BEEP) Component of SA	Direct	\$ 1,606,934	\$ 91,825	\$ 14,085	\$ 648,103	\$ 879,569	\$ -	\$ -	\$ 3,240,516
11	Bill's Interchange Schedule (BITS)	Direct	\$ 697,874	\$ -	\$ 5,786	\$ -	\$ 124,175	\$ -	\$ -	\$ 827,836
12	CAISO Outage Modeling Tool (COMT)	Direct	\$ 397,888	\$ 8,745	\$ 3,371	\$ 92,582	\$ 114,625	\$ -	\$ -	\$ 617,211
13	Client Relations Tools	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,382	\$ 23,382
14	Common Information Model (CIM)	Direct	\$ 975,227	\$ -	\$ 8,086	\$ -	\$ -	\$ -	\$ -	\$ 983,313
15	Congestion Management (CONG) Component of SA	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16	Congestion Reform-DSOW	Direct	\$ -	\$ 216,453	\$ 1,795	\$ -	\$ 121,249	\$ -	\$ -	\$ 339,496
17	Congestion Revenue Rights (CRR)	Direct	\$ -	\$ 837,411	\$ 6,943	\$ -	\$ 2,849,696	\$ -	\$ -	\$ 3,694,051
18	Dispute Tracking System (Remedy)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 692,000	\$ 692,000
19	Electronic Tagging (Etag)	Direct	\$ 1,315,353	\$ -	\$ 10,906	\$ -	\$ -	\$ -	\$ -	\$ 1,326,259
20	Energy Management System (EMS)	Direct	\$ 32,274,774	\$ -	\$ 267,596	\$ -	\$ -	\$ -	\$ -	\$ 32,542,369
21	Engineering Analysis Tools	Direct	\$ 386,793	\$ 257,862	\$ 5,345	\$ -	\$ -	\$ -	\$ -	\$ 650,000
22	Evaluation of Market Separation	Direct	\$ -	\$ 22,429	\$ 186	\$ -	\$ 135,688	\$ -	\$ -	\$ 158,303
23	Existing Transmission Contracts Calculator (ETCC)	Direct	\$ 322,760	\$ 55,330	\$ 3,135	\$ 260,349	\$ 399,821	\$ -	\$ 260,349	\$ 1,301,743
24	FERC Study Software	Direct	\$ -	\$ -	\$ -	\$ -	\$ 11,000	\$ -	\$ -	\$ 11,000
25	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	\$ -	\$ 208,652	\$ 1,730	\$ 184,084	\$ 710,039	\$ -	\$ 122,723	\$ 1,227,228

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Identified Costs of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
26	Global Resource Reliability Management Application (GRRMA)	Direct	\$ 307,914	\$ 61,583	\$ 3,064	\$ -	\$ 41,396	\$ -	\$ -	\$ 413,955
27	Grid Operations Training Simulator (GOTS)	Direct	\$ 379,178	\$ 222,692	\$ 4,990	\$ -	\$ -	\$ -	\$ -	\$ 606,860
28	Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	Direct	\$ -	\$ -	\$ -	\$ 350,813	\$ -	\$ -	\$ -	\$ 350,813
29	Integrated Forward Market (IFM)	Direct	\$ 2,475,067	\$ -	\$ 20,521	\$ 8,734,560	\$ -	\$ 13,725,737	\$ -	\$ 24,955,886
30	Interzonal Congestion Management reform - Real Time	Direct	\$ -	\$ 164,135	\$ 1,361	\$ -	\$ 91,942	\$ -	\$ -	\$ 257,439
31	Locational Marginal Pricing (LMPM)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
32	Market Quality System (MQS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,078,372	\$ 6,078,372
33	Masterfile	Direct	\$ 276,292	\$ -	\$ 2,291	\$ 278,583	\$ 766,103	\$ -	\$ 69,646	\$ 1,392,915
34	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
35	Meter Data Acquisition System (MDAS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,532,904	\$ 8,532,904
36	Network Applications	Direct	\$ -	\$ 1,315,358	\$ 10,906	\$ -	\$ -	\$ -	\$ -	\$ 1,326,264
37	New Resource Interconnection (NRI)	Direct	\$ 575,107	\$ -	\$ 4,768	\$ -	\$ -	\$ -	\$ -	\$ 579,875
38	Open Access Same Time Information System (OASIS)	Direct	\$ 288,883	\$ 82,538	\$ 3,080	\$ 728,195	\$ 1,227,528	\$ -	\$ 582,556	\$ 2,912,779
39	Operational Meter Analysis and Reporting (OMAR)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,058,434	\$ 1,058,434
40	Oracle Market Financials BBS	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,706,010	\$ 1,706,010
41	Out of Sequence Market Operation Settlements Information System (OOS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
42	Outage Scheduler (OS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
43	Portal	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 352,969	\$ 352,969
44	Process Information System (PI)	Direct	\$ 1,173,066	\$ -	\$ 9,726	\$ -	\$ 147,849	\$ -	\$ 147,849	\$ 1,478,490
45	Rational Buyer	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
46	Real Time Energy Dispatch System (REDS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
47	Real Time Nodal Market	Direct	\$ 153,376	\$ -	\$ 1,272	\$ 44,185	\$ 243,018	\$ -	\$ -	\$ 441,851

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Identified Costs of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total Dollars
48	Reliability Management System (RMS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
49	Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	Direct	\$ 986,365	\$ -	\$ 8,178	\$ -	\$ -	\$ -	\$ -	\$ 994,543
50	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	\$ 1,487,708	\$ -	\$ 12,335	\$ -	\$ -	\$ -	\$ -	\$ 1,500,043
51	Resource Adequacy	Direct	\$ 930,829	\$ -	\$ 7,718	\$ -	\$ -	\$ -	\$ -	\$ 938,546
52	Resource Register (RR)	Direct	\$ 65,915	\$ -	\$ 547	\$ -	\$ -	\$ -	\$ -	\$ 66,462
53	RMR Application Validation Engine (RAVE)	Direct	\$ 387,160	\$ -	\$ 3,210	\$ -	\$ -	\$ -	\$ -	\$ 390,370
54	Scheduling & Logging for ISO California (SLIC)	Direct	\$ 152,166	\$ 3,344	\$ 1,289	\$ 35,406	\$ 43,837	\$ -	\$ -	\$ 236,043
55	Scheduling & Tagging Next Generation (STING)	Direct	\$ 588,355	\$ -	\$ 4,878	\$ -	\$ 104,688	\$ -	\$ -	\$ 697,921
56	Security Constrained Economic Dispatch (SCED)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
57	Settlements and Market Clearing	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,479,506	\$ 20,479,506
58	Tactical Emergency Management System (TEMS)	Direct	\$ 11,672	\$ -	\$ 97	\$ -	\$ -	\$ -	\$ -	\$ 11,769
59	Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60	Transmission Map Plotting & Display	Direct	\$ 92,863	\$ 92,863	\$ 1,540	\$ -	\$ -	\$ -	\$ -	\$ 187,266
61	Post Transaction Repository (PTR)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,085,648	\$ 3,085,648
62										
63	Total		\$ 59,702,096	\$ 7,631,531	\$ 555,275	\$ 25,136,292	\$ 16,290,287	\$ 24,031,729	\$120,333,819	\$ 253,681,028
64	Percent of Total		23.53%	3.01%	0.22%	9.91%	6.42%	9.47%	47.44%	100.00%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4	ACC Upgrades (Communication between ISO & IOUs)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
5	Ancillary Services Management (ASM) Component of SA	Direct	14.9%	0.0%	0.1%	40.0%	45.0%	0.0%	0.0%	100.0%
6	Automated Dispatch System (ADS)	Direct	49.6%	0.0%	0.4%	25.0%	20.0%	0.0%	5.0%	100.0%
7	Automated Load Forecast System (ALFS)	Direct	69.4%	0.0%	0.6%	10.0%	20.0%	0.0%	0.0%	100.0%
8	Automatic Mitigation Procedure (AMP)	Direct	0.0%	84.3%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
9	Balance of Business Systems (BBS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
10	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%
11	Bill's Interchange Schedule (BITS)	Direct	84.3%	0.0%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
12	CAISO Outage Modeling Tool (COMT)	Direct	64.5%	1.4%	0.5%	15.0%	18.6%	0.0%	0.0%	100.0%
13	Client Relations Tools	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
14	Common Information Model (CIM)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
15	Congestion Management (CONG) Component of SA	Direct	0.0%	28.3%	0.2%	0.0%	71.4%	0.0%	0.0%	100.0%
16	Congestion Reform-DSOW	Direct	0.0%	63.8%	0.5%	0.0%	35.7%	0.0%	0.0%	100.0%
17	Congestion Revenue Rights (CRR)	Direct	0.0%	22.7%	0.2%	0.0%	77.1%	0.0%	0.0%	100.0%
18	Dispute Tracking System (Remedy)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
19	Electronic Tagging (Etag)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
20	Energy Management System (EMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
21	Engineering Analysis Tools	Direct	59.5%	39.7%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
22	Evaluation of Market Separation	Direct	0.0%	14.2%	0.1%	0.0%	85.7%	0.0%	0.0%	100.0%
23	Existing Transmission Contracts Calculator (ETCC)	Direct	24.8%	4.3%	0.2%	20.0%	30.7%	0.0%	20.0%	100.0%
24	FERC Study Software	Direct	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
25	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%
26	Global Resource Reliability Management Application (GRRMA)	Direct	74.4%	14.9%	0.7%	0.0%	10.0%	0.0%	0.0%	100.0%
27	Grid Operations Training Simulator (GOTS)	Direct	62.5%	36.7%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
28	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%
29	Integrated Forward Market (IFM)	Direct	9.9%	0.0%	0.1%	35.0%	0.0%	55.0%	0.0%	100.0%
30	Interzonal Congestion Management reform - Real Time	Direct	0.0%	63.8%	0.5%	0.0%	35.7%	0.0%	0.0%	100.0%
31	Locational Marginal Pricing (LMPM)	Direct	9.9%	0.0%	0.1%	35.0%	55.0%	0.0%	0.0%	100.0%
32	Market Quality System (MQS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
33	Masterfile	Direct	19.8%	0.0%	0.2%	20.0%	55.0%	0.0%	5.0%	100.0%
34	MRTU Capital	Direct	12.7%	4.7%	0.1%	19.0%	10.8%	15.4%	37.3%	100.0%
35	Meter Data Acquisition System (MDAS)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
36	Network Applications	Direct	0.0%	99.2%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
37	New Resource Interconnection (NRI)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
38	Open Access Same Time Information System (OASIS)	Direct	9.9%	2.8%	0.1%	25.0%	42.1%	0.0%	20.0%	100.0%
39	Operational Meter Analysis and Reporting (OMAR)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
40	Oracle Market Financials BBS	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
41	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%
42	Outage Scheduler (OS)	Direct	49.6%	5.7%	0.5%	10.0%	34.3%	0.0%	0.0%	100.0%
43	Portal	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
44	Process Information System (PI)	Direct	79.3%	0.0%	0.7%	0.0%	10.0%	0.0%	10.0%	100.0%
45	Rational Buyer	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
46	Real Time Energy Dispatch System (REDS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
47	Real Time Nodal Market	Direct	34.7%	0.0%	0.3%	10.0%	55.0%	0.0%	0.0%	100.0%
48	Reliability Management System (RMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
49	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%
50	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%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Directly Functionalized Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
51	Resource Adequacy	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
52	Resource Register (RR)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
53	RMR Application Validation Engine (RAVE)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
54	Scheduling & Logging for ISO California (SLIC)	Direct	64.5%	1.4%	0.5%	15.0%	18.6%	0.0%	0.0%	100.0%
55	Scheduling & Tagging Next Generation (STiNG)	Direct	84.3%	0.0%	0.7%	0.0%	15.0%	0.0%	0.0%	100.0%
56	Security Constrained Economic Dispatch (SCED)	Direct	0.0%	39.7%	0.3%	0.0%	60.0%	0.0%	0.0%	100.0%
57	Settlements and Market Clearing	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
58	Tactical Emergency Management System (TEMS)	Direct	99.2%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
59	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%
60	Transmission Map Plotting & Display	Direct	49.6%	49.6%	0.8%	0.0%	0.0%	0.0%	0.0%	100.0%
61	Post Transaction Repository (PTR)	Direct	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

	A	B	C	D	E	F	G	H	I	J
1	California Independent System Operator 2008 GMC Cost of Service Listing of Systems Allocations Calculated from Other Systems									
2										
3	System	Method	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4	Participating Intermittent Resource Project (PIRP)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
5	Oracle Enterprise Manager (OEM)	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
6	Oracle Licenses	Calculated Direct	6.46%	0.68%	0.06%	43.90%	26.52%	0.00%	22.38%	100.00%
7	Scheduling Architecture (SA)	Calculated Direct	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%	100.00%
8	Scheduling Infrastructure (SI)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
9	Scheduling Infrastructure Business Rules (SIBR)	Calculated Direct	0.00%	0.00%	0.00%	64.75%	35.25%	0.00%	0.00%	100.00%
10	Storage (EMC symmetrix)	Calculated Direct	24.87%	6.18%	0.21%	13.62%	17.62%	4.11%	33.40%	100.00%
11	System Equipment Buyouts (lease buyouts)	Calculated Direct	44.00%	1.00%	0.00%	7.00%	11.00%	0.00%	37.00%	100.00%
12	Trustee Costs, Interest-Capitalized, User Groups	Calculated Direct	17.40%	2.96%	0.17%	17.81%	19.94%	0.03%	41.69%	100.00%
13	Wide Area Network (WAN)	Calculated Direct	38.26%	0.93%	0.32%	19.89%	12.46%	0.63%	27.51%	100.00%

	A	B	C	D	E	F	G	H	I	J
1		California Independent System Operator 2008 GMC Cost of Service Historical and Forecast Capital Expenditures by Funding Source								
2		System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
3				MRTU	Non-MRTU	MRTU	Non-MRTU			
4		ACC Upgrades (Communication between ISO & IOUs)	\$ 1,162,000	\$ -	\$ -	\$ -	\$ -		\$ 1,162,000	\$ -
5		Ancillary Services Management (ASM) Component of SA	\$ 580,086	\$ -	\$ -	\$ -	\$ -		\$ 580,086	\$ -
6		Application Development Tools	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
7		Automated Dispatch System (ADS)	\$ 2,520,666	\$ 716,553	\$ -	\$ 79,956	\$ -		\$ 3,317,174	\$ 716,553
8		Automated Load Forecast System (ALFS)	\$ -	\$ 28,644	\$ -	\$ 5,600	\$ -		\$ 34,244	\$ 28,644
9		Automatic Mitigation Procedure (AMP)	\$ -	\$ 627,325	\$ -	\$ 393,564	\$ -		\$ 1,020,889	\$ 627,325
10		Backup systems (Legato/Quantum)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
11		Balance of Business Systems (BBS)	\$ 51,910,435	\$ -	\$ 95,468	\$ -	\$ -		\$ 52,005,904	\$ -
12		Balancing Energy Ex Post Price (BEEP) Component of SA	\$ 3,240,516	\$ -	\$ -	\$ -	\$ -		\$ 3,240,516	\$ -
13		Bill's Interchange Schedule (BITS)	\$ 626,004	\$ 201,831	\$ -	\$ -	\$ -		\$ 827,836	\$ 201,831
14		CAISO Outage Modeling Tool (COMT)	\$ -	\$ -	\$ 513,556	\$ -	\$ 103,655		\$ 617,211	\$ 103,655
15		CaseWise (process modeling tool)	\$ 117,277	\$ -	\$ -	\$ -	\$ -		\$ 117,277	\$ -
16		CHASE	\$ 800,249	\$ -	\$ 109,426	\$ -	\$ -		\$ 909,675	\$ -
17		Client Relations Tools	\$ -	\$ -	\$ 23,382	\$ -	\$ -		\$ 23,382	\$ -
18		Common Information Model (CIM)	\$ 983,313	\$ -	\$ -	\$ -	\$ -		\$ 983,313	\$ -
19		Compliance	\$ -	\$ 791,295	\$ -	\$ 107,268	\$ -		\$ 898,564	\$ 791,295
20		Congestion Management (CONG) Component of SA	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
21		Congestion Reform-DSOW	\$ 339,496	\$ -	\$ -	\$ -	\$ -		\$ 339,496	\$ -
22		Congestion Revenue Rights (CRR)	\$ -	\$ 2,697,248	\$ 118,000	\$ 878,803	\$ -		\$ 3,694,051	\$ 2,697,248
23		DataWarehouse	\$ 2,307,134	\$ -	\$ -	\$ -	\$ -		\$ 2,307,134	\$ -
24		Dept. of Market Analysis Tools (SAS/MARS)	\$ 812,968	\$ -	\$ -	\$ -	\$ -		\$ 1,912,968	\$ -
25		Dispute Tracking System (Remedy)	\$ 692,000	\$ -	\$ -	\$ -	\$ -		\$ 692,000	\$ -
26		Documentum	\$ 2,212,709	\$ -	\$ -	\$ -	\$ -		\$ 2,212,709	\$ -
27		Electronic Tagging (Etag)	\$ 1,326,259	\$ -	\$ -	\$ -	\$ -		\$ 1,326,259	\$ -
28		Energy Management System (EMS)	\$ 23,082,201	\$ 1,868,662	\$ 2,290,120	\$ 49,573	\$ 6,814		\$ 32,542,369	\$ 1,875,476
29		Engineering Analysis Tools	\$ -	\$ -	\$ -	\$ -	\$ -		\$ 650,000	\$ -
30		Evaluation of Market Separation	\$ 158,303	\$ -	\$ -	\$ -	\$ -		\$ 158,303	\$ -
31		Existing Transmission Contracts Calculator (ETCC)	\$ 1,179,265	\$ 110,578	\$ -	\$ 11,900	\$ -		\$ 1,301,743	\$ 110,578
32		FERC Study Software	\$ 11,000	\$ -	\$ -	\$ -	\$ -		\$ 11,000	\$ -
33		Firm Transmission Right (FTR) and Secondary Registration System (SRS)	\$ 1,227,228	\$ -	\$ -	\$ -	\$ -		\$ 1,227,228	\$ -
34		Global Resource Reliability Management Application (GRRMA)	\$ 402,074	\$ 4,901	\$ -	\$ 6,981	\$ -		\$ 413,955	\$ 4,901
35		Grid Operations Training Simulator (GOTS)	\$ 356,860	\$ -	\$ -	\$ -	\$ -		\$ 606,860	\$ -
36		Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,	\$ 350,813	\$ -	\$ -	\$ -	\$ -		\$ 350,813	\$ -
37		Human Resources	\$ 670,617	\$ -	\$ 208,764	\$ -	\$ -		\$ 879,381	\$ -
38		IBM Contract	\$ 6,816,000	\$ -	\$ -	\$ -	\$ -		\$ 6,816,000	\$ -
39		Integrated Forward Market (IFM)	\$ -	\$ 17,599,345	\$ -	\$ 7,356,541	\$ -		\$ 24,955,886	\$ 17,599,345
40		Internal Development	\$ 1,405,037	\$ -	\$ -	\$ -	\$ -		\$ 1,405,037	\$ -

A	B	C	D	E	F	G	H	I	J
1	<p align="center">California Independent System Operator 2008 GMC Cost of Service Historical and Forecast Capital Expenditures by Funding Source</p>								
2	System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
3			MRTU	Non-MRTU	MRTU	Non-MRTU			
41	Interzonal Congestion Management reform - Real Time	\$ 257,439	\$ -	\$ -	\$ -	\$ -		\$ 257,439	\$ -
42	Land and Building Costs	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
43	Local Area Network (LAN)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
44	Locational Marginal Pricing (LMPM)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
45	Market Quality System (MQS)	\$ -	\$ 2,950,294	\$ 169,457	\$ 2,838,620	\$ -		\$ 6,078,372	\$ 2,950,294
46	Masterfile	\$ -	\$ 1,096,274	\$ 155,253	\$ 107,153	\$ 34,235		\$ 1,392,915	\$ 1,130,509
47	Meter Data Acquisition System (MDAS)	\$ 8,396,979	\$ -	\$ 55,924	\$ -	\$ -		\$ 8,532,904	\$ -
48	Miscellaneous (2004 related capital)	\$ -	\$ -	\$ 1,682,128	\$ -	\$ 110,558		\$ 1,792,686	\$ 110,558
49	Monitoring (Tivoli)	\$ 1,154,331	\$ -	\$ 767,580	\$ -	\$ 325,866		\$ 2,247,777	\$ 325,866
50	MRTU Capital	\$ -	\$ 40,097,295	\$ -	\$ 26,794,800	\$ -		\$ 66,892,094	\$ 40,097,295
51	Network Applications	\$ -	\$ 1,122,041	\$ -	\$ 204,223	\$ -		\$ 1,326,264	\$ 1,122,041
52	New Resource Interconnection (NRI)	\$ -	\$ -	\$ -	\$ -	\$ 579,875		\$ 579,875	\$ 579,875
53	New System Equipment (replacement of owned equipment)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
54	NT/web servers	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
55	NT-servers	\$ 630,000	\$ -	\$ 5,949,765	\$ -	\$ 634,113		\$ 7,213,878	\$ 634,113
56	Office Automation - desktop/laptop (OA)	\$ 2,418,286	\$ -	\$ 471,728	\$ -	\$ -		\$ 2,890,014	\$ -
57	Office equipment (scanner, printer, copier, fax, Communication Equip.)	\$ 33,281	\$ -	\$ 369,633	\$ -	\$ 354,027		\$ 756,940	\$ 354,027
58	Open Access Same Time Information System (OASIS)	\$ 1,975,179	\$ 752,209	\$ 19,200	\$ 166,191	\$ -		\$ 2,912,779	\$ 752,209
59	Operational Meter Analysis and Reporting (OMAR)	\$ 662,698	\$ 61,875	\$ 251,407	\$ 6,372	\$ 76,082		\$ 1,058,434	\$ 137,957
60	Oracle Corporate Financials	\$ 1,431,184	\$ -	\$ 700,837	\$ -	\$ 271,133		\$ 2,403,154	\$ 271,133
61	Oracle Enterprise Manager (OEM)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
62	Oracle Licenses	\$ 1,152,118	\$ -	\$ -	\$ -	\$ -		\$ 1,152,118	\$ -
63	Oracle Market Financials BBS	\$ 1,706,010	\$ -	\$ -	\$ -	\$ -		\$ 1,706,010	\$ -
64	Out of Sequence Market Operation Settlements Information System (OOS)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
65	Outage Scheduler (OS)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
66	Participating Intermittent Resource Project (PIRP)	\$ -	\$ 114,911	\$ 430,907	\$ 12,801	\$ 22,413		\$ 581,032	\$ 137,325
67	Physical Facilities Software Application/Furniture/Leasehold Improvements	\$ 28,060,241	\$ -	\$ 188,146	\$ -	\$ 2,052,203		\$ 30,300,591	\$ 2,052,203
68	Portal	\$ -	\$ 305,726	\$ -	\$ 47,244	\$ -		\$ 352,969	\$ 305,726
69	Post Transaction Repository (PTR)	\$ -	\$ 2,421,771	\$ -	\$ 663,877	\$ -		\$ 3,085,648	\$ 2,421,771
70	Process Information System (PI)	\$ 996,037	\$ 22,736	\$ -	\$ 4,717	\$ -		\$ 1,478,490	\$ 22,736
71	Rational Buyer	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
72	Real Time Energy Dispatch System (REDS)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
73	Real Time Nodal Market	\$ -	\$ 209,780	\$ 212,605	\$ -	\$ 19,466		\$ 441,851	\$ 229,246
74	Reliability Management System (RMS)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
75	Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)	\$ -	\$ -	\$ 775,807	\$ -	\$ 218,736		\$ 994,543	\$ 218,736
76	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	\$ 1,500,043	\$ -	\$ -	\$ -	\$ -		\$ 1,500,043	\$ -
77	Resource Adequacy	\$ -	\$ -	\$ 602,989	\$ -	\$ 335,557		\$ 938,546	\$ 335,557

A	B	C	D	E	F	G	H	I	J
1	<p align="center">California Independent System Operator 2008 GMC Cost of Service Historical and Forecast Capital Expenditures by Funding Source</p>								
2	System	1998-2000 Bonds	2004 Bond expenditures		2007 Bond expenditures		2008 Cash Financed	Total by System	Total MRTU
3			MRTU	Non-MRTU	MRTU	Non-MRTU			
78	Resource Register (RR)	\$ 66,462	\$ -	\$ -	\$ -	\$ -		\$ 66,462	\$ -
79	RMR Application Validation Engine (RAVE)	\$ 335,452	\$ 29,886	\$ -	\$ 25,032	\$ -		\$ 390,370	\$ 29,886
80	Scheduling & Logging for ISO California (SLIC)	\$ 99,999	\$ 128,946	\$ -	\$ 7,098	\$ -		\$ 236,043	\$ 128,946
81	Scheduling & Tagging Next Generation (STING)	\$ -	\$ -	\$ 680,700	\$ -	\$ 17,222		\$ 697,921	\$ 17,222
82	Scheduling Architecture (SA)	\$ 32,927,229	\$ -	\$ 20,317	\$ -	\$ -		\$ 32,947,546	\$ -
83	Scheduling Infrastructure (SI)	\$ 30,766,253	\$ -	\$ 20,317	\$ -	\$ -		\$ 30,786,570	\$ -
84	Scheduling Infrastructure Business Rules (SIBR)	\$ -	\$ 7,737,627	\$ -	\$ 3,266,466	\$ -		\$ 11,004,093	\$ 7,737,627
85	Security Constrained Economic Dispatch (SCED)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
86	Security- External/Physical	\$ -	\$ -	\$ -	\$ -	\$ -		\$ 325,000	\$ -
87	Security-ISS (CUDA)	\$ 7,553,085	\$ -	\$ 96,300	\$ -	\$ 3,750		\$ 7,928,134	\$ 3,750
88	Settlements and Market Clearing	\$ -	\$ 16,229,177	\$ -	\$ 4,250,329	\$ -		\$ 20,479,506	\$ 16,229,177
89	Sign Board (Symon Board maint.)	\$ 44,196	\$ -	\$ -	\$ -	\$ -		\$ 44,196	\$ -
90	Startup Costs through 3/31/98, Working Capital-3 months	\$ 74,589,000	\$ -	\$ -	\$ -	\$ -		\$ 74,589,000	\$ -
91	Storage (EMC symmetrix)	\$ 71,449	\$ -	\$ 328,004	\$ -	\$ 210,471		\$ 609,924	\$ 210,471
92	System Equipment Buyouts (lease buyouts)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
93	Tactical Emergency Management System (TEMS)	\$ -	\$ -	\$ 11,769	\$ -	\$ -		\$ 11,769	\$ -
94	Telephone/PBX	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
95	Training Systems	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
96	Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
97	Transmission Map Plotting & Display	\$ 139,000	\$ -	\$ 10,271	\$ -	\$ 37,995		\$ 187,266	\$ 37,995
98	Treasury Workstation/Investment Program	\$ -	\$ -	\$ 24,300	\$ -	\$ -		\$ 24,300	\$ -
99	Trustee Costs, Interest-Capitalized, User Groups	\$ 7,910,000	\$ -	\$ -	\$ -	\$ -		\$ 7,910,000	\$ -
100	Utilities - System i.e. Print drivers	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
101	Vitria (Middleware)	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
102	Wide Area Network (WAN)	\$ 27,333,540	\$ -	\$ -	\$ -	\$ -		\$ 27,333,540	\$ -
103									
104	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
105									

	A	B	C	D	E	F	G	H
1								
2								
3	Worksheets for SA, SI, Oracle Licenses, EMC, WAN, Infrastructure and Equipment Follow							

	A	B	C	D	E	F	G	H	I
1	<p align="center">California Independent System Operator 2008 GMC Cost of Service SA Worksheet</p>								
2	Input Tables	Average # of records/month 2001-2006	ASM	CONG	BEEP	Total			
3	I_SUP_ENERGY_BID	27,624	27,624	27,624	27,624	82,873			
4	LOAD_SCH	153,597	153,597	153,597	153,597	460,790			
5	NON_SPIN_RESERVE_GEN	111,424	111,424		111,424	222,848			
6	NON_SPIN_RESERVE_LOAD	3,048	3,048		3,048	6,097			
7	REGULATION	64,547	64,547	64,547	64,547	193,641			
8	REPLACEMENT_RES_GEN	44,603	44,603	44,603	44,603	133,808			
9	RT_BEEP_OUTPUT	444,610			444,610	444,610			
10	SPIN_RESERVE_SCH	96,491	96,491	96,491	96,491	289,472			
11	TIE_LOSS_FACTOR	48,303	48,303	48,303		96,605			
12	UNIT_SPECIFIC_DATA	1,422,001	1,422,001	1,422,001		2,844,003			
13	USAGES	118,266		118,266	118,266	236,533			
14	I_INTERCHANGE_SCH	438,429	438,429	438,429	438,429	1,315,286			
15	GENERATION_SCH	758,637	758,637	758,637		1,517,274			
16	Totals	3,731,579	3,168,703	3,172,497	1,502,638	7,843,839			
17	Percentage of Total		40.40%	40.45%	19.16%	100.00%			
18									
19	Functionalization	Percent of Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR
20	Ancillary Services Management (ASM) Component of SA	40.40%	6.01%	0.00%	0.05%	16.16%	18.18%	0.00%	0.00%
21	Congestion Management (CONG) Component of SA	40.45%	0.00%	11.46%	0.10%	0.00%	28.89%	0.00%	0.00%
22	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%
23	Weighted Average	100.0%	15.51%	12.00%	0.23%	19.99%	52.27%	0.00%	0.00%

	A	B	C	D	E	F	G	H
1	California Independent System Operator 2008 GMC Cost of Service SI Worksheet							
2		Year	Schedule Count	Ancillary Services Bids		Annual Total		
3				Market	Self Provided			
4		2002	12,474,883	4,212,397	4,172,406	20,859,686		
5		2003	12,754,073	3,210,755	3,210,151	19,174,979		
6		2004	14,916,924	3,576,719	3,536,399	22,030,042		
7		2005	14,546,349	3,920,462	3,729,533	22,196,344		
8		2006	15,065,307	4,332,957	4,068,469	23,466,733		
9		Total	69,757,536	19,253,290	18,716,958	107,727,784		
10		Percent of Total	64.8%	17.9%	17.4%	100.0%		
11								
12		Functionalization						
13		CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR
14		0.0%	0.0%	0.0%	64.8%	35.2%	0.0%	0.0%
15								

	A	B	C	D	E	F	G	H	I	J	K
1		California Independent System Operator 2008 GMC Cost of Service Oracle License Worksheet									
2											
3		Expenditures on System	System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4		\$ 3,317,174	Automated Dispatch System (ADS)	\$ 1,644,949	\$ -	\$ 13,639	\$ 829,294	\$ 663,435	\$ -	\$ 165,859	\$ 3,317,174
5		\$ 827,836	Bill's Interchange Schedule (BITS)	\$ 697,874	\$ -	\$ 5,786	\$ -	\$ 124,175	\$ -	\$ -	\$ 827,836
6		\$ 1,301,743	Existing Transmission Contracts Calculator (ETCC)	\$ 322,760	\$ 55,330	\$ 3,135	\$ 260,349	\$ 399,821	\$ -	\$ 260,349	\$ 1,301,743
7		\$ 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
8		\$ 413,955	Global Resource Reliability Management Application (GRRMA)	\$ 307,914	\$ 61,583	\$ 3,064	\$ -	\$ 41,396	\$ -	\$ -	\$ 413,955
9		\$ 8,532,904	Meter Data Acquisition System (MDAS)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,532,904	\$ 8,532,904
10		\$ 1,058,434	Operational Meter Analysis and Reporting (OMAR)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,058,434	\$ 1,058,434
11		\$ 692,000	Dispute Tracking System (Remedy)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 692,000	\$ 692,000
12		\$ 236,043	Scheduling & Logging for ISO California (SLIC)	\$ 152,166	\$ 3,344	\$ 1,289	\$ 35,406	\$ 43,837	\$ -	\$ -	\$ 236,043
13		\$ 30,786,570	Scheduling Infrastructure (SI)	\$ -	\$ -	\$ -	\$ 19,935,389	\$ 10,851,181	\$ -	\$ -	\$ 30,786,570
14		\$ 48,393,887	Totals	\$ 3,125,662	\$ 328,909	\$ 28,642	\$ 21,244,522	\$ 12,833,884	\$ -	\$ 10,832,268	\$ 48,393,887
15				6.5%	0.7%	0.1%	43.9%	26.5%	0.0%	22.4%	100.0%

	A	B	C	D	E	F	G	H	I	J
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage Assignment by System								
2										
3		System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4		ACC Upgrades (Communication between ISO & IOUs)								
5		Ancillary Services Management (ASM) Component of SA								
6		Application Development Tools								
7		Automated Dispatch System (ADS)								
8		Automated Load Forecast System (ALFS)								
9		Automatic Mitigation Procedure (AMP)								
10		Backup systems (Legato/Quantum)								
11		Balance of Business Systems (BBS)								
12		Balancing Energy Ex Post Price (BEEP) Component of SA								
13		Bill's Interchange Schedule (BITS)								
14		CAISO Outage Modeling Tool (COMT)								
15		CaseWise (process modeling tool)								
16		CHASE								
17		Client Relations Tools								
18		Common Information Model (CIM)								
19		Compliance								
20		Congestion Management (CONG) Component of SA								
21		Congestion Reform-DSOW								
22		Congestion Revenue Rights (CRR)								
23		DataWarehouse								
24		Dept. of Market Analysis Tools (SAS/MARS)								
25		Dispute Tracking System (Remedy)								
26		Documentum								
27		Electronic Tagging (Etag)								
28		Energy Management System (EMS)								
29		Engineering Analysis Tools								
30		Evaluation of Market Separation								

	A	B	C	D	E	F	G	H	I	J
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage Assignment by System								
2										
3		System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
31		Existing Transmission Contracts Calculator (ETCC)								
32		FERC Study Software								
33		Firm Transmission Right (FTR) and Secondary Registration System (SRS)								
34		Global Resource Reliability Management Application (GRRMA)								
35		Grid Operations Training Simulator (GOTS)								
36		Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,								
37		Human Resources								
38		IBM Contract								
39		Integrated Forward Market (IFM)								
40		Internal Development								
41		Interzonal Congestion Management reform - Real Time								
42		Land and Building Costs								
43		Local Area Network (LAN)								
44		Locational Marginal Pricing (LMPM)								
45		Market Quality System (MQS)								
46		Masterfile								
47		Meter Data Acquisition System (MDAS)								
48		Miscellaneous (2004 related capital)								
49		Monitoring (Tivoli)								
50		MRTU Capital								
51		Network Applications								
52		New Resource Interconnection (NRI)								
53		New System Equipment (replacement of owned equipment)								
54		NT/web servers								
55		NT-servers								
56		Office Automation - desktop/laptop (OA)								
57		Office equipment (scanner, printer, copier, fax, Communication Equip.)								

	A	B	C	D	E	F	G	H	I	J
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage Assignment by System								
2										
3		System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
58		Open Access Same Time Information System (OASIS)								
59		Operational Meter Analysis and Reporting (OMAR)								
60		Oracle Corporate Financials								
61		Oracle Enterprise Manager (OEM)								
62		Oracle Licenses								
63		Oracle Market Financials BBS								
64		Out of Sequence Market Operation Settlements Information System (OOS)								
65		Outage Scheduler (OS)								
66		Participating Intermittent Resource Project (PIRP)								
67		Physical Facilities Software Application/Furniture/Leasehold Improvements								
68		Portal								
69		Post Transaction Repository (PTR)								
70		Process Information System (PI)								
71		Rational Buyer								
72		Real Time Energy Dispatch System (REDS)								
73		Real Time Nodal Market								
74		Reliability Management System (RMS)								
75		Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)								
76		Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)								
77		Resource Adequacy								
78		Resource Register (RR)								
79		RMR Application Validation Engine (RAVE)								
80		Scheduling & Logging for ISO California (SLIC)								
81		Scheduling & Tagging Next Generation (STiNG)								
82		Scheduling Architecture (SA)								
83		Scheduling Infrastructure (SI)								
84		Scheduling Infrastructure Business Rules (SIBR)								

	A	B	C	D	E	F	G	H	I	J
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage Assignment by System								
2										
3		System	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
85		Security Constrained Economic Dispatch (SCED)								
86		Security- External/Physical								
87		Security-ISS (CUDA)								
88		Settlements and Market Clearing								
89		Sign Board (Symon Board maint.)								
90		Startup Costs through 3/31/98, Working Capital-3 months								
91		Storage (EMC symmetrix)								
92		System Equipment Buyouts (lease buyouts)								
93		Tactical Emergency Management System (TEMS)								
94		Telephone/PBX								
95		Training Systems								
96		Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation								
97		Transmission Map Plotting & Display								
98		Treasury Workstation/Investment Program								
99		Trustee Costs, Interest-Capitalized, User Groups								
100		Utilities - System i.e. Print drivers								
101		Vitria (Middleware)								
102		Wide Area Network (WAN)								
103										
104		Total								
105		Percent of Total	24.9%	6.2%	0.2%	13.6%	17.6%	4.1%	33.4%	100.0%
106			3	4	5	6	7	8	9	

	A	B	C	D	E	F	G	H
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage by Type of Application						
2				Alhambra	Folsom		% of storage	Share of EMC Lease Cost
3		Subsystem	Application	Allocated (GB)				
4		NAS	NT-servers	5,400	9,500	14,900	17.64%	
5		Documentum	Documentum	750	750	1,500	1.78%	
6		ALFS	Automated Load Forecast System (ALFS)	200	450	650	0.77%	
7		Vitria	Vitria (Middleware)	200	200	400	0.47%	
8		OASIS	Open Access Same Time Information System (OASIS)	1,600	1,600	3,200	3.79%	
9		Settlements	Balance of Business Systems (BBS)	800	2,450	3,250	3.85%	
10		OMAR	Operational Meter Analysis and Reporting (OMAR)	650	650	1,300	1.54%	
11		ADS	Automated Dispatch System (ADS)	100	120	220	0.26%	
12		SRS	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	60	100	160	0.19%	
13		SLIC	Scheduling & Logging for ISO California (SLIC)	80	120	200	0.24%	
14		BITS	Bill's Interchange Schedule (BITS)	100	150	250	0.30%	
15		DW	DataWarehouse	6,300	6,300	12,600	14.91%	
16		MHAP	Balance of Business Systems (BBS)	3,800	3,800	7,600	9.00%	
17		RTMA	Real Time Nodal Market	1,000	1,200	2,200	2.60%	
18		GIS	Transmission Map Plotting & Display	25	25	50	0.06%	
19		PIRP	Participating Intermittent Resource Project (PIRP)	110	250	360	0.43%	
20		OEM	Oracle Enterprise Manager (OEM)	200	200	400	0.47%	
21		TRR	Resource Register (RR)	50	120	170	0.20%	
22		SI/SA	Scheduling Infrastructure (SI)	3,800	6,600	10,400	12.31%	
23		PI	Process Information System (PI)	1,000	3,000	4,000	4.73%	
24		ESS	Human Resources	230	590	820	0.97%	
25		STING	Scheduling & Tagging Next Generation (STING)	250	500	750	0.89%	
26		VMWARE	NT-servers	400	1,550	1,950	2.31%	
27		Legato	Backup systems (Legato/Quantum)	200	450	650	0.77%	
28		Exchange	Office Automation - desktop/laptop (OA)	500	1,700	2,200	2.60%	
29		MA	Dept. of Market Analysis Tools (SAS/MARS)	-	1,700	1,700	2.01%	
30		MRTU	MRTU Capital	4,000	7,000	11,000	13.02%	
31		Infrastructure Services	Application Development Tools	400	1,200	1,600	1.89%	
32								
33		TOTAL USABLE Storage (GB)		32,205	52,275	84,480	100.00%	

	A	B	C	D	E	F	G	H	I	J	K	L
1	<p align="center">California Independent System Operator 2008 GMC Cost of Service Infrastructure Worksheet</p>											
2	Infrastructure - Direct Assigned Items											
3	Used to allocate Trustee Expenses from Startup											
4	System	System Name		Amount	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
5	ACC Upgrades (Communication between ISO & IOUs)	ACC Upgrades (Communication between ISO & IOUs)	Direct	\$ 1,162,000	99%	0%	1%	0%	0%	0%	0%	100%
6	BBS (Billing & Settlement)	Balance of Business Systems (BBS)	Direct	\$ 48,173,000	0%	0%	0%	0%	0%	0%	100%	100%
7	Market Analysis Software	Dept. of Market Analysis Tools (SAS/MARS)	Direct	\$ 238,000	22%	0%	0%	6%	47%	17%	8%	100%
8	EMS	Energy Management System (EMS)	Direct	\$ 16,470,000	99%	0%	1%	0%	0%	0%	0%	100%
9	ETCC Software	Existing Transmission Contracts Calculator (ETCC)	Direct	\$ 891,000	25%	4%	0%	20%	31%	0%	20%	100%
10	FERC Study Software	FERC Study Software	Direct	\$ 11,000	0%	0%	0%	0%	100%	0%	0%	100%
11	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%
12	FTR Auction Software	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	\$ 17,000	0%	17%	0%	15%	58%	0%	10%	100%
13	GRRMA-Software	Global Resource Reliability Management Application (GRRMA)	Direct	\$ 56,000	74%	15%	1%	0%	10%	0%	0%	100%
14	MDAS	Meter Data Acquisition System (MDAS)	Direct	\$ 8,166,000	0%	0%	0%	0%	0%	0%	100%	100%
15	Vehicles MDAS/Metering	Meter Data Acquisition System (MDAS)	Direct	\$ 96,000	0%	0%	0%	0%	0%	0%	100%	100%
16	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%
17	SA	Scheduling Architecture (SA)	Direct	\$ 31,681,000	16%	12%	0%	20%	52%	0%	0%	100%
18	SI	Scheduling Infrastructure (SI)	Direct	\$ 27,102,000	0%	0%	0%	65%	35%	0%	0%	100%
19												
20					CRS	ETS		FS	MU	MU-FE	SMCR	Total
21	ACC Upgrades (Communication between ISO & IOUs)	ACC Upgrades (Communication between ISO & IOUs)	Direct	\$ 1,152,445	\$ -	\$ -	\$ 9,555	\$ -	\$ -	\$ -	\$ -	\$ 1,162,000
22	BBS (Billing & Settlement)	Balance of Business Systems (BBS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48,173,000	\$ 48,173,000
23	Market Analysis Software	Dept. of Market Analysis Tools (SAS/MARS)	Direct	\$ 53,301	\$ -	\$ -	\$ -	\$ 14,751	\$ 111,127	\$ 40,723	\$ 18,099	\$ 238,000
24	EMS	Energy Management System (EMS)	Direct	\$ 16,334,567	\$ -	\$ -	\$ 135,433	\$ -	\$ -	\$ -	\$ -	\$ 16,470,000
25	ETCC Software	Existing Transmission Contracts Calculator (ETCC)	Direct	\$ 220,918	\$ 37,872	\$ 2,146	\$ 178,200	\$ 273,664	\$ -	\$ 178,200	\$ 891,000	\$ 891,000
26	FERC Study Software	FERC Study Software	Direct	\$ -	\$ -	\$ -	\$ -	\$ 11,000	\$ -	\$ -	\$ 11,000	\$ 11,000
27	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	\$ 1,049,000
28	FTR Auction Software	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	Direct	\$ -	\$ 2,890	\$ 24	\$ 2,550	\$ 9,836	\$ -	\$ 1,700	\$ 17,000	\$ 17,000
29	GRRMA-Software	Global Resource Reliability Management Application (GRRMA)	Direct	\$ 41,655	\$ 8,331	\$ 414	\$ -	\$ 5,600	\$ -	\$ -	\$ 56,000	\$ 56,000
30	MDAS	Meter Data Acquisition System (MDAS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,166,000	\$ 8,166,000
31	Vehicles MDAS/Metering	Meter Data Acquisition System (MDAS)	Direct	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 96,000	\$ 96,000
32	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)	Direct	\$ 966,983	\$ -	\$ 8,017	\$ -	\$ -	\$ -	\$ -	\$ 975,000	\$ 975,000
33	SA	Scheduling Architecture (SA)	Direct	\$ 4,913,556	\$ 3,802,904	\$ 72,270	\$ 6,333,135	\$ 16,559,135	\$ -	\$ -	\$ 31,681,000	\$ 31,681,000
34	SI	Scheduling Infrastructure (SI)	Direct	\$ -	\$ -	\$ -	\$ 17,549,500	\$ 9,552,500	\$ -	\$ -	\$ 27,102,000	\$ 27,102,000
35												
36		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	\$ 136,087,000
37		Percent by Function			17.4%	3.0%	0.2%	17.8%	19.9%	0.0%	41.7%	100.0%

	A
1	
2	
3	WAN Worksheets Follow
4	
5	Some portions redacted due to confidentiality concerns.
6	
7	

	A	B	C	D	E	F	G	H	I	J	K
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Related Applications to Functions									
2											
3		System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
4		ACC Upgrades (Communication between ISO & IOUs)									
5		Ancillary Services Management (ASM) Component of SA									
6		Application Development Tools									
7		Automated Dispatch System (ADS)									
8		Automated Load Forecast System (ALFS)									
9		Automatic Mitigation Procedure (AMP)									
10		Backup systems (Legato/Quantum)									
11		Balance of Business Systems (BBS)									
12		Balancing Energy Ex Post Price (BEEP) Component of SA									
13		Bill's Interchange Schedule (BITS)									
14		CAISO Outage Modeling Tool (COMT)									
15		CaseWise (process modeling tool)									
16		CHASE									
17		Client Relations Tools									
18		Common Information Model (CIM)									
19		Compliance									
20		Congestion Management (CONG) Component of SA									
21		Congestion Reform-DSOW									
22		Congestion Revenue Rights (CRR)									
23		DataWarehouse									
24		Dept. of Market Analysis Tools (SAS/MARS)									

	A	B	C	D	E	F	G	H	I	J	K
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Related Applications to Functions									
2											
3		System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
25		Dispute Tracking System (Remedy)									
26		Documentum									
27		Electronic Tagging (Etag)									
28		Energy Management System (EMS)									
29		Engineering Analysis Tools									
30		Evaluation of Market Separation									
31		Existing Transmission Contracts Calculator (ETCC)									
32		FERC Study Software									
33		Firm Transmission Right (FTR) and Secondary Registration System (SRS)									
34		Global Resource Reliability Management Application (GRRMA)									
35		Grid Operations Training Simulator (GOTS)									
36		Hour-Ahead Data AnalysisTool, Day- Ahead Data AnalysisTool,									
37		Human Resources									
38		IBM Contract									
39		Integrated Forward Market (IFM)									
40		Internal Development									
41		Interzonal Congestion Management reform - Real Time									
42		Land and Building Costs									
43		Local Area Network (LAN)									
44		Locational Marginal Pricing (LMPPM)									
45		Market Quality System (MQS)									

	A	B	C	D	E	F	G	H	I	J	K
1		<p align="center">California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Related Applications to Functions</p>									
2											
3		System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
46		Masterfile									
47		Meter Data Acquisition System (MDAS)									
48		Miscellaneous (2004 related capital)									
49		Monitoring (Tivoli)									
50		MRTU Capital									
51		Network Applications									
52		New Resource Interconnection (NRI)									
53		New System Equipment (replacement of owned equipment)									
54		NT/web servers									
55		NT-servers									
56		Office Automation - desktop/laptop (OA)									
57		Office equipment (scanner, printer, copier, fax, Communication Equip.)									
58		Open Access Same Time Information System (OASIS)									
59		Operational Meter Analysis and Reporting (OMAR)									
60		Oracle Corporate Financials									
61		Oracle Enterprise Manager (OEM)									
62		Oracle Licenses									
63		Oracle Market Financials BBS									
64		Out of Sequence Market Operation Settlements Information System (OOS)									
65		Outage Scheduler (OS)									
66		Participating Intermittent Resource Project (PIRP)									

	A	B	C	D	E	F	G	H	I	J	K
1		<p align="center">California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Related Applications to Functions</p>									
2											
3		System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
67		Physical Facilities Software Application/Furniture/Leasehold									
68		Portal									
69		Post Transaction Repository (PTR)									
70		Process Information System (PI)									
71		Rational Buyer									
72		Real Time Energy Dispatch System (REDS)									
73		Real Time Nodal Market									
74		Reliability Management System (RMS)									
75		Remedy (related to Transmission Registry, New Resource Interconnection									
76		Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)									
77		Resource Adequacy									
78		Resource Register (RR)									
79		RMR Application Validation Engine (RAVE)									
80		Scheduling & Logging for ISO California (SLIC)									
81		Scheduling & Tagging Next Generation (STING)									
82		Scheduling Architecture (SA)									
83		Scheduling Infrastructure (SI)									
84		Scheduling Infrastructure Business Rules (SIBR)									
85		Security Constrained Economic Dispatch (SCED)									
86		Security- External/Physical									
87		Security-ISS (CUDA)									

	A	B	C	D	E	F	G	H	I	J	K
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Related Applications to Functions									
2											
3		System	WAN Total	CRS	ETS	CRS/ETS TOR	FS	MU	MU-FE	SMCR	Total
88		Settlements and Market Clearing									
89		Sign Board (Symon Board maint.)									
90		Startup Costs through 3/31/98, Working Capital-3 months									
91		Storage (EMC symmetrix)									
92		System Equipment Buyouts (lease buyouts)									
93		Tactical Emergency Management System (TEMS)									
94		Telephone/PBX									
95		Training Systems									
96		Transmission Constrained Unit Commitment (TCUC) Must Offer									
97		Transmission Map Plotting & Display									
98		Treasury Workstation/Investment Program									
99		Trustee Costs, Interest-Capitalized, User Groups									
100		Utilities - System i.e. Print drivers									
101		Vitria (Middleware)									
102		Wide Area Network (WAN)									
103											
104		Total									
105		Percent of Total		38.3%	0.9%	0.3%	19.9%	12.5%	0.6%	27.5%	100.0%

	A	B	C	D	E	F
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Costs by Application				
2			Internal WAN	External WAN	Total WAN	Percent of Total
3						
4		ACC Upgrades (Communication between ISO & IOUs)				0.0%
5		Ancillary Services Management (ASM) Component of SA				0.0%
6		Application Development Tools				0.0%
7		Automated Dispatch System (ADS)				0.0%
8		Automated Load Forecast System (ALFS)				0.0%
9		Automatic Mitigation Procedure (AMP)				0.0%
10		Backup systems (Legato/Quantum)				0.0%
11		Balance of Business Systems (BBS)				0.0%
12		Balancing Energy Ex Post Price (BEEP) Component of SA				0.0%
13		Bill's Interchange Schedule (BITS)				0.0%
14		CAISO Outage Modeling Tool (COMT)				0.0%
15		CaseWise (process modeling tool)				0.0%
16		CHASE				0.0%
17		Client Relations Tools				0.0%
18		Common Information Model (CIM)				0.0%
19		Compliance				0.0%
20		Congestion Management (CONG) Component of SA				0.0%
21		Congestion Reform-DSOW				0.0%
22		Congestion Revenue Rights (CRR)				0.0%
23		DataWarehouse				0.0%

	A	B	C	D	E	F
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Costs by Application				
2			Internal WAN	External WAN	Total WAN	Percent of Total
24		Dept. of Market Analysis Tools (SAS/MARS)				0.0%
25		Dispute Tracking System (Remedy)				0.0%
26		Documentum				0.0%
27		Electronic Tagging (Etag)				0.0%
28		Energy Management System (EMS)				41.5%
29		Engineering Analysis Tools				0.0%
30		Evaluation of Market Separation				0.0%
31		Existing Transmission Contracts Calculator (ETCC)				0.0%
32		FERC Study Software				0.0%
33		Firm Transmission Right (FTR) and Secondary Registration System (SRS)				0.0%
34		Global Resource Reliability Management Application (GRRMA)				0.0%
35		Grid Operations Training Simulator (GOTS)				0.0%
36		Hour-Ahead Data AnalysisTool, Day-Ahead Data AnalysisTool,				0.0%
37		Human Resources				0.0%
38		IBM Contract				0.0%
39		Integrated Forward Market (IFM)				0.0%
40		Internal Development				0.0%
41		Interzonal Congestion Management reform - Real Time				0.0%
42		Land and Building Costs				0.0%
43		Local Area Network (LAN)				0.0%
44		Locational Marginal Pricing (LMPM)				0.0%

	A	B	C	D	E	F
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Costs by Application				
2			Internal WAN	External WAN	Total WAN	Percent of Total
45		Market Quality System (MQS)				0.0%
46		Masterfile				0.0%
47		Meter Data Acquisition System (MDAS)				25.9%
48		Miscellaneous (2004 related capital)				0.0%
49		Monitoring (Tivoli)				0.0%
50		MRTU Capital				0.0%
51		Network Applications				0.0%
52		New Resource Interconnection (NRI)				0.0%
53		New System Equipment (replacement of owned equipment)				0.0%
54		NT/web servers				0.0%
55		NT-servers				0.0%
56		Office Automation - desktop/laptop (OA)				0.0%
57		Office equipment (scanner, printer, copier, fax, Communication Equip.)				0.0%
58		Open Access Same Time Information System (OASIS)				0.0%
59		Operational Meter Analysis and Reporting (OMAR)				0.0%
60		Oracle Corporate Financials				0.0%
61		Oracle Enterprise Manager (OEM)				0.0%
62		Oracle Licenses				0.0%
63		Oracle Market Financials BBS				0.0%
64		Out of Sequence Market Operation Settlements Information System (OOS)				0.0%
65		Outage Scheduler (OS)				0.0%

	A	B	C	D	E	F
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Costs by Application				
2			Internal WAN	External WAN	Total WAN	Percent of Total
66		Participating Intermittent Resource Project (PIRP)				0.0%
67		Physical Facilities Software Application/Furniture/Leasehold Improvements				0.0%
68		Portal				0.0%
69		Post Transaction Repository (PTR)				0.0%
70		Process Information System (PI)				0.0%
71		Rational Buyer				0.0%
72		Real Time Energy Dispatch System (REDS)				0.0%
73		Real Time Nodal Market				0.0%
74		Reliability Management System (RMS)				0.0%
75		Remedy (related to Transmission Registry, New Resource Interconnection and Resource Registry)				0.0%
76		Remote Intelligent Gateway (RIG) & Data Processing Gateway (DPG)				0.0%
77		Resource Adequacy				0.0%
78		Resource Register (RR)				0.0%
79		RMR Application Validation Engine (RAVE)				0.0%
80		Scheduling & Logging for ISO California (SLIC)				0.0%
81		Scheduling & Tagging Next Generation (STiNG)				0.0%
82		Scheduling Architecture (SA)				0.0%
83		Scheduling Infrastructure (SI)				0.0%
84		Scheduling Infrastructure Business Rules (SIBR)				32.6%
85		Security Constrained Economic Dispatch (SCED)				0.0%
86		Security- External/Physical				0.0%

	A	B	C	D	E	F
1		California Independent System Operator 2008 GMC Cost of Service Assignment of WAN Costs by Application				
2			Internal WAN	External WAN	Total WAN	Percent of Total
87		Security-ISS (CUDA)				0.0%
88		Settlements and Market Clearing				0.0%
89		Sign Board (Symon Board maint.)				0.0%
90		Startup Costs through 3/31/98, Working Capital-3 months				0.0%
91		Storage (EMC symmetrix)				0.0%
92		System Equipment Buyouts (lease buyouts)				0.0%
93		Tactical Emergency Management System (TEMS)				0.0%
94		Telephone/PBX				0.0%
95		Training Systems				0.0%
96		Transmission Constrained Unit Commitment (TCUC) Must Offer Obligation				0.0%
97		Transmission Map Plotting & Display				0.0%
98		Treasury Workstation/Investment Program				0.0%
99		Trustee Costs, Interest-Capitalized, User Groups				0.0%
100		Utilities - System i.e. Print drivers				0.0%
101		Vitria (Middleware)				0.0%
102		Wide Area Network (WAN)				0.0%
103						
104						100.0%
105		Amounts redacted due to contract nondisclosure provisions.				

	A	B	C	D	E	F	G	H	I
1		California Independent System Operator 2008 GMC Cost of Service EMC Storage by Type of Application							
2		Internal WAN							
3				Alhambra	Folsom		% of storage	Budgeted amount	Budgeted by System
4		Subsystem	Application	Allocated (Gb)					
5		NAS	NT-servers	5,400	-	5,400	16.77%		
6		Documentum	Documentum	750	-	750	2.33%		
7		ALFS	Automated Load Forecast System (ALFS)	200	-	200	0.62%		
8		Vitria	Vitria (Middleware)	200	-	200	0.62%		
9		OASIS	Open Access Same Time Information System (OASIS)	1,600		1,600	4.97%		
10		Settlements	Balance of Business Systems (BBS)	800	-	800	2.48%		
11		OMAR	Operational Meter Analysis and Reporting (OMAR)	650	-	650	2.02%		
12		ADS	Automated Dispatch System (ADS)	100	-	100	0.31%		
13		SRS	Firm Transmission Right (FTR) and Secondary Registration System (SRS)	60	-	60	0.19%		
14		SLIC	Scheduling & Logging for ISO California (SLIC)	80	-	80	0.25%		
15		BITS	Bill's Interchange Schedule (BITS)	100	-	100	0.31%		
16		DW	DataWarehouse	6,300	-	6,300	19.56%		
17		MHAP	Balance of Business Systems (BBS)	3,800	-	3,800	11.80%		
18		RTMA	Real Time Nodal Market	1,000	-	1,000	3.11%		
19		GIS	Transmission Map Plotting & Display	25	-	25	0.08%		
20		PIRP	Participating Intermittent Resource Project (PIRP)	110	-	110	0.34%		
21		OEM	Oracle Enterprise Manager (OEM)	200	-	200	0.62%		
22		TRR	Resource Register (RR)	50	-	50	0.16%		
23		SI/SA	Scheduling Infrastructure (SI)	3,800	-	3,800	11.80%		
24		PI	Process Information System (PI)	1,000	-	1,000	3.11%		
25		ESS	Human Resources	230	-	230	0.71%		
26		STING	Scheduling & Tagging Next Generation (STING)	250	-	250	0.78%		
27		VMWARE	NT-servers	400	-	400	1.24%		
28		Legato	Backup systems (Legato/Quantum)	200	-	200	0.62%		
29		Exchange	Office Automation - desktop/laptop (OA)	500	-	500	1.55%		
30		MA	Dept. of Market Analysis Tools (SAS/MARS)	-	-	-	0.00%		
31		MRTU	MRTU Capital	4,000	-	4,000	12.42%		
32		Infrastructure Services	Application Development Tools	400	-	400	1.24%		
33									
34		TOTAL USABLE Storage (GB)		32,205	-	32,205	100.00%		
35		Amounts redacted due to contract nondisclosure provisions.							

	A	B	C	D
1	California Independent System Operator 2008 GMC Cost of Service Connected Entities by Type of WAN Connection			
2	External WAN			
3	Type of Connection	System Assignment Type	Number of Connections	Percent of Total
4				
5	Scheduling Coordinator Circuits - (Market Operations)	Scheduling Infrastructure Business Rules (SIBR)	117	32.6%
6	Meter Circuits (Settlements, Metering, Client Relations)	Meter Data Acquisition System (MDAS)	93	25.9%
7	ICCP, RIG, DPG Circuits to EMS (Grid Operations)	Energy Management System (EMS)	148	41.5%
8	Total Connected Entities		357	100.0%
9				
10				

**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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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
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
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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

Calculation of O&M Allocations

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).

Sheet Index:	Description
Total	Summary of total assignments by cost center
O&M by division	Summary of total assignments by division
	2100 Summary of assignments for CEO division
	Summary of assignments for Planning and Infrastructure Development
	2200 division
	2300 Summary of assignments for CFO\Corporate Services division
	2400 Summary of assignments for IT division
	2500 Summary of assignments for Operations division
	2600 Summary of assignments for Legal division
	Summary of assignments for Market Development and Project
	2700 Management division
	2800 Summary of assignments for External Affairs division
Total FTE	Summary of FTE by cost center
Worksheets	
Budget	Summary of budget and FTE by cost center
Non-IT direct labor	Cost assignment by non-IT cost center
IT direct	Cost assignment by IT cost center
Total direct O&M	Summary of non-IT and IT direct labor
Ratios	Allocation ratios
FTE	Calculation of FTE allocation factor
OH	Calculation of overhead allocation factor
Methods	Brief description of assignment methods for each cost center

**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**

2007 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**

2007 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**

2007 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
2007 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
2007 GMC Cost of Service

Personnel Allocation of Directly Assigned Cost Centers

CC#	Cost Center	Core Reliability 4	Energy Transmission 5	CRS/ETS TOR 6	Forward Scheduling 7	Market Usage 8	Market Usage Forward Energy 9	Settlements, Metering and Client Relations 10	Total
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		CRS/ETS TOR	Forward Scheduling	Market Usage	Market Usage Forward Energy	Settlements, Metering and Client Relations	Total
					Transmission Services							
				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
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		CRS/ETS TOR	Forward Scheduling	Market Usage	Forward Energy	Settlements, Metering and Client Relations	Total
					Transmission	Services						
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
2008 GMC Cost of Service**

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
				3	4	5	6	7	8	9	
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 only)	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
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
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
			4	5	6	7	8	9	10	
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
2008 GMC Cost of Service**

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
2008 GMC Cost of Service**

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-General	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 Calculation

Exhibit ISO-14 California Independent System Operator 2008 GMC Cost of Service Revenue Requirement and Rate Calculations	
<p>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.</p> <p>The CAISO MRTU GMC Rate Structure includes: 80/20 revenue split between ETS-withdrawals (CC4505) and ETS-UE (CC4506) Recovery of excess SMCR revenue based on Functional Association of Charge Types No discount for Forward Scheduling (CC4511) or Inter SC trades (CC4512), but retain discount for Path 15 Facilitator Inter SC trades (CC4513) MU-Forward Energy (CC4537) based on cost of service ETS/MU UIE PIRP rate (CC 4546) to be simple sum of ETS-withdrawals (CC4505) and MU-deviations (CC4536) rates SMCR rate (CC4575) increased to \$1000 Forward Energy bill determinant set to 20% of net of withdrawals and injections CRS/ETS TOR rate (CC 4508) based on cost of service</p>	
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:	1/21/2008 22:36 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 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
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 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
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 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
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%
	1/21/2008 22:36 bta			0.861%					
	Notes								
	1. Functionalization to 2005 cost centers shown here is developed in the "Functional Mapping of 2006 Cost Centers to 2005 Cost Centers." Please look to that document for more detail on this calculation								

California Independent System Operator 2008 GMC Cost of Service									
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									
	Percent Allocations	38.2%	15.0%	0.4%	4.3%	13.5%	3.5%	25.2%	100.0%
Total Financing Budget - 2000 Debt									
	Percent Allocations	27.2%	5.9%	0.3%	14.2%	11.9%	9.4%	31.2%	100.0%
Total Financing Budget - 2004 Debt									
	Percent Allocations	70.0%	10.7%	0.1%	2.1%	3.7%	1.5%	12.0%	100.0%
Total Financing Budget - 2007 Debt									
	Percent Allocations	59.6%	8.7%	0.6%	13.3%	-1.8%	-0.5%	20.1%	100.0%
Total Financing Budget - Cash funded									
	Percent Allocations	30.6%	12.6%	0.4%	6.9%	15.0%	6.1%	28.4%	100.0%
Total Expense Recovery Budget									
	Percent Allocations								
Total Operating and Capital Reserves Credit									
	Percent Allocations								
Total Revenue Requirement									
	Percent Allocations								
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<p align="center">California Independent System Operator 2008 GMC Cost of Service</p>									
<p align="center">Summary of Revenue Requirement and Rates</p>									
			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							
<p>1. The as-filed rate structure and rates form the basis for the rate structure and rates under the GMC Settlement. Per the Settlement, the settled rates are adjustments to the rate structure filed on October 29, 2003.</p>									
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California Independent System Operator 2008 GMC Cost of Service Settlement Rate Structure												
Development of Revised CAISO MRTU GMC Rate Proposal												
	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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
FS discount (20%)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CRS split to off peak and export	\$ (7,950,315)	\$ 1,005,780	\$ 6,944,534	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
FS split to inter SC trade	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
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 Settlement Rate Structure										
Development of Revised CAISO MRTU GMC Rate Proposal										
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					
Additional Discounts @65%	-	0	-	0	-	Application of targeted CRS discount				
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							
Less Discounted volume @65%	-	-	-	Application of targeted ETS discount						
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
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California Independent System Operator 2008 GMC Cost of Service Billing Determinant Forecast																	
	Core Reliability Services	Core Reliability Services-Peak Load	Core Reliability Services- Off Peak Load	Core Reliability Services- Export (Peak)	Core Reliability Services- Export (Off-Peak)	Core Reliability Services- Export Energy	Energy Transmission Services: Withdrawals	Energy Transmission Services: Withdrawals	Energy Transmission Services: Deviations	CRS/ETS TOR	Forward Scheduling	Scheduling (without inter SC trades)	Forward Scheduling (inter SC trades)	Market Usage	Market Usage Forward Energy	Settlements, Metering & Client Relations	
								Without TOR load and exports	Monthly Net UE		Total Sch Count	Total Sch Count	Inter SC trades adjusted for PGAB discount	Mkt Usage	MWh	Cust Mo	
Date	NCP by Mo	Peak NCP by Mo	Off Peak NCP by Mo	NCP by Mo	NCP by Mo	MWh	MWh			MWh							
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	251,147,080	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%
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California Independent System Operator 2008 GMC Cost of Service 2007 Revenue Requirement Forecast by Month												
	Core Reliability Services Peak	Core Reliability Services Off Peak	Core Reliability Services Energy Export	Energy Transmission Services: Energy Control Area Metered Load	Energy Transmission Services: Deviations	CRS/ETS TOR	Forward Scheduling	Inter SC Trades	Market Usage	Market Usage Forward Energy	Settlements, Metering & Client Relations	
Date	NCP by Mo	NCP by Mo	MWh		Monthly Net UE		Total Sch Count	Total Sch Count	MWh	MWh	Cust Mo	
Jan-07	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-07	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-07	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-07	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-07	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-07	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-07	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-07	43,524	1,937	1,217,787	24,284,960	1,134,208	384,885	522,466	926,258	4,949,266	4,018,972	152	
Sep-07	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-07	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-07	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-07	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 Services Energy 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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-07	\$ 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

Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued							Total		
				2005	2006	Average	CRS	ETS	FS	MU		SMCR	
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);h,k, NPSR(2);h,k, NPSR(3);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

Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued									
				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

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types
Charge Type Count for 2005-2006

Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued								Total
				2005	2006	Average	CRS	ETS	FS	MU	SMCR	
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 Dspch	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	FERC MOO 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	FERC MOO 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	FERC MOO 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

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types
Charge Type Count for 2005-2006

Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued								Total
				2005	2006	Average	CRS	ETS	FS	MU	SMCR	
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	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 Ancillary 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

California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types
Charge Type Count for 2005-2006

Charge Type Number	Name	Billable Quantity	Comment	Count of Charge Type Issued								
				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_PRICE[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 eligible 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%	

**California Independent System Operator
2008 GMC Cost of Service
Functional Association of Charge Types for TOR Allocation
Charge Type Count for 2005-2006**

Functionalization of Charge
Types

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	-	-	-	-			-		-
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
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	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	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	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	-	-	-				-		-
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	-	-	-				-	-	-
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 Dspth	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	FERC MOO 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	FERC MOO 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	FERC MOO 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	associated 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	-	-	-	-	-				-
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;	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

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 Ancillary 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 PG&B 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 eligible for above Unrecovered Cost Pmt., which is equal to the portion of incremental energy bid segments with IIE_PRICE[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 eligible 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
Total CRS/ETS
TOR as a percent of total

7,538
396,066
1.90%

California Independent System Operator 2008 GMC Cost of Service Rates by Charge Type					
Function	Charge	CC #	Amount	Billing Unit	
CRS	CRS Peak	4501	\$ 67.6915	MW-months	
	CRS Off-Peak	4502	\$ 44.6780	MW-months	
	CRS-Export Energy	4503	\$ 0.6740	MWh	
ETS	ETS-NE	4505	\$ 0.2697	MWh	
	ETS-UE	4506	\$ 0.9694	MWh	
CRS/ETS	CRS/ETS-TOR	4508	\$ 0.2173	MWh	
FS	Non-IS Trades	4511	\$ 0.8370	Schedules	
	IS Trades	4512	\$ 0.8370	IS Trade	
	PGAB	4513	\$ 0.6327	PGAB IS Trade	
MU	AS	4534	\$ 0.8626	MWh	
	IE	4535	\$ 0.8626	MWh	
	UE	4536	\$ 0.8626	MWh	
	Forward Energy	4537	\$ 0.4400	MWh	
ETS/MU	PIRP	4546	\$ 1.8320	MWh	
SMCR	SMCR	4575	\$ 1,000	Customer months	
The revised CAISO MRTU GMC Rate Structure includes: 80/20 revenue split between ETS-withdrawals (CC4505) and ETS-UE (CC4506) Recovery of excess SMCR revenue based on Functional Association of Charge Types No discount for Forward Scheduling (CC4511) or Inter SC trades (CC4512), but retain discount for Path 15 Facilitator Inter SC trades (CC4513) MU-Forward Energy (CC4537) based on cost of service ETS/MU UIE PIRP rate (CC 4546) to be simple sum of ETS-withdrawals (CC4505) and MU-deviations (CC4536) rates SMCR rate (CC4575) 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					
		1/21/2008 22:36 bta			

Exhibit ISO-15

List of Non IT Directly Assigned Cost Centers

Exhibit ISO-15
Listing of Directly Assigned Non-Information Technology Cost Centers

Number	Cost Center
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
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

List of CAISO Directly Assigned Systems

Exhibit ISO-16
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)
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

List of Allocated Cost Centers

Exhibit ISO-17
Listing of Directly Assigned Non-Information Technology Cost Centers

Number	Cost Center
2111	CEO-General
2211	Planning and Infrastructure Development
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
2374	Physical Security
2421	IT Projects
2461	Information Technology Applications-General
2511	Operations-General
2521	Grid Operations
2541	Market Services
2551	Operations Support
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
2811	External Affairs-General
2821	Communications & Public Relations
2822	Information Products & Services
2831	State/Federal Affairs
2841	Customer Services and Industry Affairs

Exhibit ISO-18

Allocation of Operating Reserve Credit

Exhibit ISO-18
Allocation of Operating Reserve Credit

	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

Exhibit ISO-19
Comparison of Monthly Revenue Forecasts
Current and Proposed GMC Rate Structures
(in millions)

Month	Current GMC	Proposed GMC	April 1, 2008 MRTU Startup
Jan-08	\$ 15.4	\$ 15.3	\$ 15.4
Feb-08	\$ 14.1	\$ 13.7	\$ 14.1
Mar-08	\$ 15.0	\$ 14.8	\$ 15.0
Apr-08	\$ 14.6	\$ 14.4	\$ 14.4
May-08	\$ 16.0	\$ 15.6	\$ 15.6
Jun-08	\$ 16.6	\$ 16.6	\$ 16.6
Jul-08	\$ 19.2	\$ 19.5	\$ 19.5
Aug-08	\$ 18.4	\$ 19.0	\$ 19.0
Sep-08	\$ 16.9	\$ 17.0	\$ 17.0
Oct-08	\$ 15.4	\$ 15.5	\$ 15.5
Nov-08	\$ 14.6	\$ 14.8	\$ 14.8
Dec-08	\$ 15.5	\$ 15.5	\$ 15.5
Annual Total	\$ 191.6	\$ 191.6	\$ 192.2
Variance			\$ 0.6
Percent Variance			0.3%

Exhibit ISO-20

**Settlements, Metering and Client Relations,
Fully Allocated Cost Per Customer Month**

Exhibit ISO-20
California Independent System Operator
Settlements, Metering and Client Relations
Fully Allocated Cost per Customer Month

SMCR Revenue Requirement (in millions)	\$	54.5
Forecast of billing determinant		1,829
Cost per customer-month	\$	29,793