

**California ISO**

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**2012 GMC Cost of Service Study  
Discussion Paper with Exhibits**

**October 8, 2010**

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## Introduction

The California Independent System Operator Corporation (the ISO) proposes to substantially revise the design of its grid management charge (GMC) beginning on January 1, 2012. The GMC is the vehicle through which the ISO recovers all of its annual administrative, operating and capital costs from the entities that utilize the ISO's services. The redesign of the GMC involves two main design activities, which will be the subjects of this initiative. The first design activity is to assign all of the ISO's annual costs to major cost categories or GMC buckets that reflect distinct aspects of the ISO's services or core functions. Fundamental to this first design activity is the ISO's completion of a cost of service study to determine how the activities of each ISO cost center or business unit should be distributed to cost categories. The ISO's efforts to date on this first design activity, including the methodology and results of the cost of service study, comprise the primary subject of this initial discussion paper and will be the main focus of the upcoming October 14, 2010 stakeholder meeting.

The second design activity is to specify how to allocate the dollar amounts in each of the cost categories to users of the ISO's services in an objective and transparent manner; i.e., to specify what are generally referred to as the billing determinants by which each user will be allocated an appropriate share of the costs. This second design activity will be the subject of a subsequent discussion paper and stakeholder meeting, although the present paper initiates the discussion and requests stakeholder input on this topic.

At the conclusion of this initiative in 2011, ISO management will present the proposed GMC redesign to its Board of Governors for approval and then file the appropriate tariff changes at the Federal Energy Regulatory Commission (FERC) on a schedule, which is discussed later in this paper, which will allow the new GMC to take effect on January 1, 2012.

The decision to redesign the GMC is based on five primary drivers: 1) corporate reorganization; 2) changes in debt structure due to the ISO's construction of a new office building; 3) imminent repayment of the bonds issued to fund the ISO's comprehensive market design that began operation on April 1, 2009; 4) implementation of the new market rules and

procedures under the new market structure that began in 2009; and 5) requests by stakeholders for greater GMC clarity, predictability and simplicity.

The GMC, as the vehicle through which the ISO recovers its costs, is a formula rate whereby the ISO's revenue requirement is allocated based on a matrix of percentages reflecting the activities of all the ISO cost centers to a set of GMC components, and then ultimately to GMC charge codes. These GMC charge codes are then recovered from the users of ISO services in accordance with objective billing determinants, which are calculated for each such user in each billing period and reflect each user's activities and use of ISO services.

The ISO's revenue requirement is reflected in the annual budget developed with stakeholder input according to a process set forth in the tariff and approved by the ISO Board. The tariff contains a revenue requirement "cap" under which the ISO may continue to recover the GMC without seeking FERC approval for changes to particular charges due to the formula rate implementation. As noted above, the changes being considered in the present initiative will require ISO Board approval and FERC approval of tariff changes.

The current GMC formula rate structure and revenue requirement cap, containing seven GMC components (buckets) and fifteen separate charge codes, is based largely on a settlement agreement with stakeholders approved by the FERC on September 22, 2005 for the period January 1, 2004 through December 31, 2006. Except for certain modifications needed to reflect the new market design and other market enhancements, the ISO and its stakeholders have agreed to successive extensions of the GMC until a cost of service study could be undertaken. Under the current cost of service study, the ISO proposes to substantially revise the GMC rate design based on seven guiding principles while preserving the fundamental design strategy of using a formula rate structure and a revenue requirement cap mechanism. This discussion paper describes the ISO's approach to the cost of service study, the results of the study and the ISO's rationale for proposing to change the GMC structure and cost allocations.

## Guiding Principles for Redesign

The ISO proposes to use the following guiding principles in developing the framework for a new GMC structure. The ISO requests stakeholder comments on these principles and any suggestions they may have for other principles to consider.

- 1) **Cost Causation** – Costs will be properly allocated to the correct GMC buckets and charged to those who benefit from or utilize those services.
- 2) **Focus on use of ISO services, not market behavior** – The new GMC design should reflect its primary purpose as a vehicle for recovering the ISO's revenue requirements based on each user's use of the ISO's services, not as a tool for shaping incentives based on market or operating behavior. Incentives such as these are appropriately addressed through the design of the market structure and market rules.
- 3) **Transparency** – Costs and billing determinants will be clear, visible, and understandable to all market participants.
- 4) **Predictability** – Market participants will be able to determine in advance what their GMC costs will be depending on their activity.
- 5) **Forecastability** – The rates should utilize billing determinants that can be easily forecasted by both the ISO and market participants. This should result in fewer rate adjustments during the year.
- 6) **Flexibility** – The new GMC structure should easily accommodate future market enhancements without excessive complexity or disrupting the overall structure.
- 7) **Simplicity** – Simplify the current GMC structure to reduce the amount of varying bill determinants and the number of charge codes.

## **GMC Background**

### ***2001-2003 Rate Structure***

The ISO originally proposed the first charge to recover its cost of operations in a filing made on October 17, 1997 in Docket No. ER 98-211-000. The original GMC was a bundled formula rate. Following a settlement with stakeholders that extended the bundled rate through 2000 and gave rise to a stakeholder process to unbundle the GMC, the ISO proposed an unbundled GMC on November 1, 2000 that had three service charges: 1) the Control Area Services Charge; 2) Congestion Management (the Inter-Zonal Scheduling Charge); and 3) Ancillary Services (AS) and Real-time Energy Operations (the Market Operations Charge). Each charge was recovered through a volumetric (MWh) rate designed to recover the costs through related customer usage.

The 2001 GMC was the subject of much litigation, and was not finally resolved until refunds were completed in March 2010. Although the three service charges were approved in an initial FERC decision issued on May 10, 2002, the ISO was directed to consider further unbundling and to re-evaluate the GMC rate design with its stakeholders. Pursuant to a negotiated settlement submitted in October 2002, in which the rate design was altered slightly, the ISO was allowed to avoid a new Section 205 rate filing if its rates for 2003 were kept under certain set ceilings for the three service categories. The 2002 GMC settlement also set forth certain procedures and milestones that were to be followed during the rate design evaluation process.

### ***2004 Rate Structure Redesign***

The 2002 GMC settlement gave rise to what became known as the 2004 rate structure project that involved a comprehensive stakeholder process and a re-examination of all parts of the rate design. During this process, the ISO and its consultants reviewed all aspects of ISO operations, conducted a cost of service analysis, and considered proposals and suggestions from other parties. Although the ISO started with the three GMC service categories approved in the 2001 GMC decision, the analysis included a re-assessment of ISO activities as assigned to

the service categories (functions), a review of the billing determinants used to classify customer usage patterns, and revisions to the ISO's cost allocation matrix.

The 2004 GMC proposal was submitted on October 31, 2003 in ER 04-115-000 and introduced the GMC rate components that generally remain in place today. Specifically, the ISO proposed to unbundle the Control Area Services charge into two sub-functions; Core Reliability Services (CRS) and Energy Transmission Services (ETS), and to unbundle the Market Operations / Inter-Zonal Scheduling Charges into three service categories; Forward Scheduling, Market Usage, and Congestion Management. The ISO also proposed to establish the Settlements, Metering, and Client Relations (SMCR) Charge, and further proposed that ETS be divided into ETS-Net Energy and ETS-Uninstructed Deviations. The GMC would continue to be a formula rate, using specific factors to allocate the ISO's expenses and capital spending to the service categories.

FERC accepted and suspended the revised GMC proposal and directed the parties to reach a settlement or the matter would be set for hearing. The ISO and its stakeholders were able to reach a partial settlement offer that was submitted to FERC in July 2004 and approved on September 22, 2005. The settlement introduced certain modifications to the ISO's proposed rate design, including capping the percentage of costs allocated to the CRS and Forward Scheduling Charges, dividing the CRS charge billing determinants into demand and energy (the latter for loads associated with Energy Exports), and reducing the applicability of Forward Scheduling Charges to Inter-SC Trades (ISTs). In addition, there were several GMC rate changes that were specific to individual market participants.

The settlement offer also outlined the current budget development process, reduced the 2004 revenue requirement, and provided revenue requirement caps for 2005 and 2006 below which the ISO would not be required to seek approval of its GMC rates. If the ISO's revenue requirement exceeded the caps during those years, the ISO would be required to seek approval of an adjustment to the charges to achieve the revenue requirement but not to modify the rate design. The parties agreed that no changes to the GMC rate design would be sought for rates

in effect prior to January 1, 2007 except to the extent necessary to implement a nodal system of congestion management employing locational marginal pricing (the ISO's new market design).

### ***GMC Changes Reflecting the New Market Implementation***

Due to delays in implementation of the new market, the ISO and its stakeholders agreed to extend the GMC rate design, the formula rate structure, and revenue requirement cap for 2007, 2008 and into 2009 until the effective date of the new market. Concurrently with extending the GMC on these three occasions, the ISO worked with its stakeholders to develop the rate design modifications that would be necessary to reflect service category changes brought about by the new market structure. The ISO proposed to retain the basic rate structure and make only those changes to the design needed to implement the new market, as well as updating the cost allocation matrix to reflect organizational changes and a cost allocation study conducted during 2007. Despite the need to make these modifications, the formula rate structure design and revenue requirement cap were retained in the proposed new grid management charge.

The ISO's proposed changes to the GMC rate design were submitted to FERC in February 2008 and consisted of: 1) the elimination of the Congestion Management Charge; 2) modifications to the CRS and ETS Charges to reflect flows on Transmission Ownership Rights (TORs); 3) changes in the billing determinants for Forward Scheduling and Market Usage Charges (including the introduction of the Market Usage-Forward Energy Charge (MUFE)); and 4) an increase in the SMCR Charge from \$500 to \$1,000. The proposal was approved by FERC on December 18, 2008 and went into effect on April 1, 2009.

### ***Modifications to the MUFE Charge***

Following the implementation of the new GMC, the ISO held a stakeholder process beginning in mid-2009 to address stakeholder concerns about the application of the MUFE charge to the inter-scheduling coordinator energy trades (ISTs) in the day-ahead market. This process culminated with a proposal to modify the billing determinants for the MUFE charge to: 1) eliminate ISTs from the MUFE charge code calculation; 2) eliminate "netting" forward energy



from the calculation; and 3) implement a “greater of” mitigation solution in the MUFE calculation. The ISO proposed that the “greater of” mitigation solution would remain in place on an interim basis until the ISO conducts a new cost of service study and considers, with its stakeholders, necessary changes to the GMC rate design that would be implemented in 2012.

The MUFE charge proposal, along with a proposal to extend the rest of the GMC until December 31, 2010, was approved by the Board at the October 2009 meeting and filed with FERC on October 30, 2009. On December 30, 2009, FERC approved the extension of the GMC but suspended the effective date of the MUFE charge proposal (subject to refund) until June 1, 2010 and scheduled a settlement conference.

Subsequent to the settlement conference, the ISO and participating parties came to an agreement that MUFE charge modifications, as proposed by the ISO, could be placed into effect on June 1, 2010 and remain in effect on an interim basis through December 31, 2011. The parties filed a settlement offer with FERC on March 23, 2010 that was approved on August 4, 2010. The MUFE charge proposal became effective on June 1, 2010.

### ***Proposed Charge for Convergence Bidding***

On June 25, 2010, the ISO submitted tariff changes to implement convergence bidding, including two new GMC categories applicable to convergence bidding participants. Specifically, the ISO proposed to implement a “virtual award” charge that will be assessed on dollars of cleared gross megawatt hours and a “virtual bid submission” transaction charge assessed on all bid segments that pass the ISO’s bid validation rules and are passed on to the integrated forward market software. The ISO has requested that all of the convergence bidding tariff changes, including the new convergence bidding GMC categories, become effective on February 1, 2011.

### ***Extending the Current GMC***

As discussed above, all of the GMC categories, except for the MUFE charge and the convergence bidding charge, will expire as of December 31, 2010. Accordingly, the ISO Board has approved a management proposal to maintain the revenue requirement cap at \$197 million

(which includes ISO costs related to convergence bidding) and to extend the current GMC formula rate through calendar year 2011 until January 1, 2012. This proposal will be submitted to FERC no later than November 1, 2010.

### ***Commitment to Conduct a Cost of Service Study***

The GMC rate design modifications proposed to implement the new market were, of necessity, developed without the actual market data reflecting customer usage and activities in the new market. Similarly, the 2007 cost study and modifications to the ISO cost allocation matrix were based on historic organizational changes and other cost changes that were anticipated once the new market became operational. For these reasons, among others that will be discussed in this paper, the ISO committed to its stakeholders that a complete cost of service study would be conducted once enough market information was available for evaluation. The ISO anticipated that this study could be completed in time to develop and propose GMC rate design changes that would become effective on January 1, 2012. According to this time schedule and commitment to its stakeholders, the ISO has completed the first step of its 2012 GMC cost of service study.

## **Cost of Service Studies and Ratemaking Principles**

As discussed above, the ISO committed to perform a cost of service study as part of the March 2010 offer of settlement addressing the MUFE billing determinant issues. This study will provide the information needed to address possible GMC rate design changes to be implemented in 2012. The purpose of this paper is to describe the methodology used by the ISO to conduct the cost of service study, and to present initial preliminary results. In contrast to the cost of service study conducted in 2007 that was intended to update cost allocations and billing determinants without requiring substantial changes to the GMC rate design, for the 2012 GMC Project the ISO proposes to start at ground level and re-evaluate all aspects of the GMC

structure.<sup>1</sup> Thus, before turning to the ISO's preliminary findings and proposals, a brief overview of cost of service study and rate design principles would be helpful to ensure that all stakeholders have the same expectations.

A traditional utility cost of service analysis is designed to determine the services provided by the utility (the ISO), to determine the costs incurred in providing these services, and to develop rates and charges to bill the customers using such services. The steps included in conducting a cost of service study are:

- |                            |   |
|----------------------------|---|
| 1) Functionalization -     | The process by which various activities are defined and sorted into service categories (functions and sub-functions) to reflect the different services provided by the ISO. |
| 2) Cost Allocation -       | The process by which the costs of providing services are allocated to the service categories (functions and sub-functions).   |
| 3) Classification -        | The determination of billing determinants based on the customer cost causation factors.   |
| 4) Rate Design -           | The process for deriving rates that divides the revenue requirement for each service category by the billing determinants.  |
| 5) Bill Impacts Analysis - | An evaluation of the impacts that the rate design will have on individual customer bills.   |

The ISO has completed the functionalization and cost allocation steps in accordance with these fundamental ratemaking principles and the overall rate design objectives outlined in this paper. The cost allocation step has been greatly simplified and expedited by the ISO's Activity Based Costing (ABC) methodology; whereas the 2004 and 2007 cost allocation approach was to interview the managers, directors and Vice Presidents of the existing cost center to elicit the information needed to allocate their budgeted costs to the existing (or proposed) GMC buckets.

The ISO seeks stakeholder input on these results as well as proposals for the next step - identifying the appropriate billing determinants for the proposed service categories. With this

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<sup>1</sup> This does not include the revenue requirement cap and current budget development process which the ISO proposes to retain in its tariff and will be addressed with stakeholders at later points in the 2012 GMC cost of service study process.

information, the ISO will develop rates and address bill impacts with stakeholders, according to the schedule set forth in the final section below.

## **Issue Overview**

The 2012 GMC cost of service study will need to address several factors. These include lessons learned from the launch of the new market, reviewing our current rate structure, utilizing activity based costing, and benchmarking against other ISO's.

### **The New Market**

The new market was launched on April 1, 2009 and is significantly different than the previous market construct. The major changes included an integrated forward market, nodal pricing, as well as future enhancements including convergence bidding. The structure of the new market has significant differences from the prior structure and the ISO believes there is an opportunity to use the cost of service study to more closely align the functionality of the new market with cost causation. Additionally, the ISO desires a system where future enhancements integrate into the rate structure without the need to create new GMC service categories and/ or charge codes.

### **GMC Service Categories**

The ISO currently has 7 GMC service categories which contain 17 charge codes (when convergence bidding goes live which is anticipated to be February 1, 2011). ISO management has observed that every market enhancement seems to require the addition of a new service category and recovery methodology. Management has concluded that absent a fundamental design change, the implementation of additional market enhancements will increase the number of GMC service categories and charge codes, further contributing to the complexity of the rate structure.

## Recent Issues with GMC Structure

- 1) Implementation of Convergence Bidding – The addition of convergence bidding to the new market design could not be accommodated under the current GMC structure. A new service category containing two new charge codes had to be created.
- 2) MUFE – The original structure of MUFE included IST's and netted supply and demand. This was the subject of a stakeholder process which the majority of the group agreed that netting was not appropriate and that ISTs should not be included. The revised structure used the greater of supply or demand and did not include ISTs. The ISO agreed to revisit the structure of this charge code in the cost of service study.
- 3) Significant changes in rates – A steady decline in the number of export MWh's continues to drive the export GMC rate higher, therefore having the unintended consequence of further reducing export volumes.
- 4) Current design attempts to manage behavior – The current GMC design charges scheduling coordinators for imbalances. These quantities are very difficult to forecast and are unnecessary as the new market already has uplift costs to deter deviations.
- 5) CRR recovery – Currently there is no cost recovery mechanism for direct costs associated with managing CRRs.
- 6) SMCR under recovery – The SMCR rate only collects a small fraction of the indirect costs associated with these functional areas. The remaining costs are allocated to the other service categories in recognition of the fact that increasing the rate to collect all of the costs would create a significant barrier to entry to the ISO markets. The SMCR rate needs to be aligned with its intended purpose, the effort required to manage the number of SCIDs that must be supported by ISO systems , not to recover a minimal percentage of allocated indirect costs.

## Activity Based Costing

Over the past 2 years, the ISO has undergone an effort to implement ABC. This effort was staged into two parts. The first was to use ABC level 1 activities consisting of ten

processes which align to corporate goals. This was then expanded to include 122 level 2 activities which align to the level 1 activities. The ISO believes that the use of ABC in the cost of service study will produce superior cost causation alignment than with the existing structure.

### **Best Practices**

The ISO conducted conference calls with other ISO's/ RTO's to gain a better understanding of how their administrative charges are structured, budgeted, and collected. This information is summarized in the section below and illuminates the fact that the ISO's current GMC structure is much more complex than other grid operators.

## **Activity Based Costing Overview**

ABC is a costing model that identifies activities in an organization and assigns the cost of each activity to all products and services according to the actual consumption by each. While the ISO did not begin using ABC until 2008, the underlying information needed to make the costing model successful began in 2006 with a company-wide process mapping effort which developed into a hierarchy of business processes.

In 2007 an effort to map the new market processes inspired reshaping the business process framework into five core areas:

- Initiative Lifecycle
- Infrastructure Development & Maintenance
- Bid-to-Bill
- External Relations & Interface
- Employee Services & Support

In 2008, the ISO's decision to implement ABC aligned well with the need to comply with increasingly complex tariff requirements. Research on ABC implementations revealed that many companies struggle to implement and support their ABC systems. Quite often companies start off by defining thousands of activities for time tracking, resulting in confusion for employees and a burdensome system to maintain. Of the multiple options considered, it was determined

that the initial rollout should follow a simple approach with one primary objective; to track time spent working on projects versus processes. The data management collected in the fourth quarter of 2009 would provide the basis for estimating resource availability for strategic initiatives in 2010. Research into governance, risk, and compliance initiatives revealed that companies contending with complex or rigid regulatory requirements, e.g. pharmaceutical, aviation, transportation, food safety and sanitation and electric utilities, often employ process-centric approaches to translate complex, abstract and legal requirements into implementable procedures.

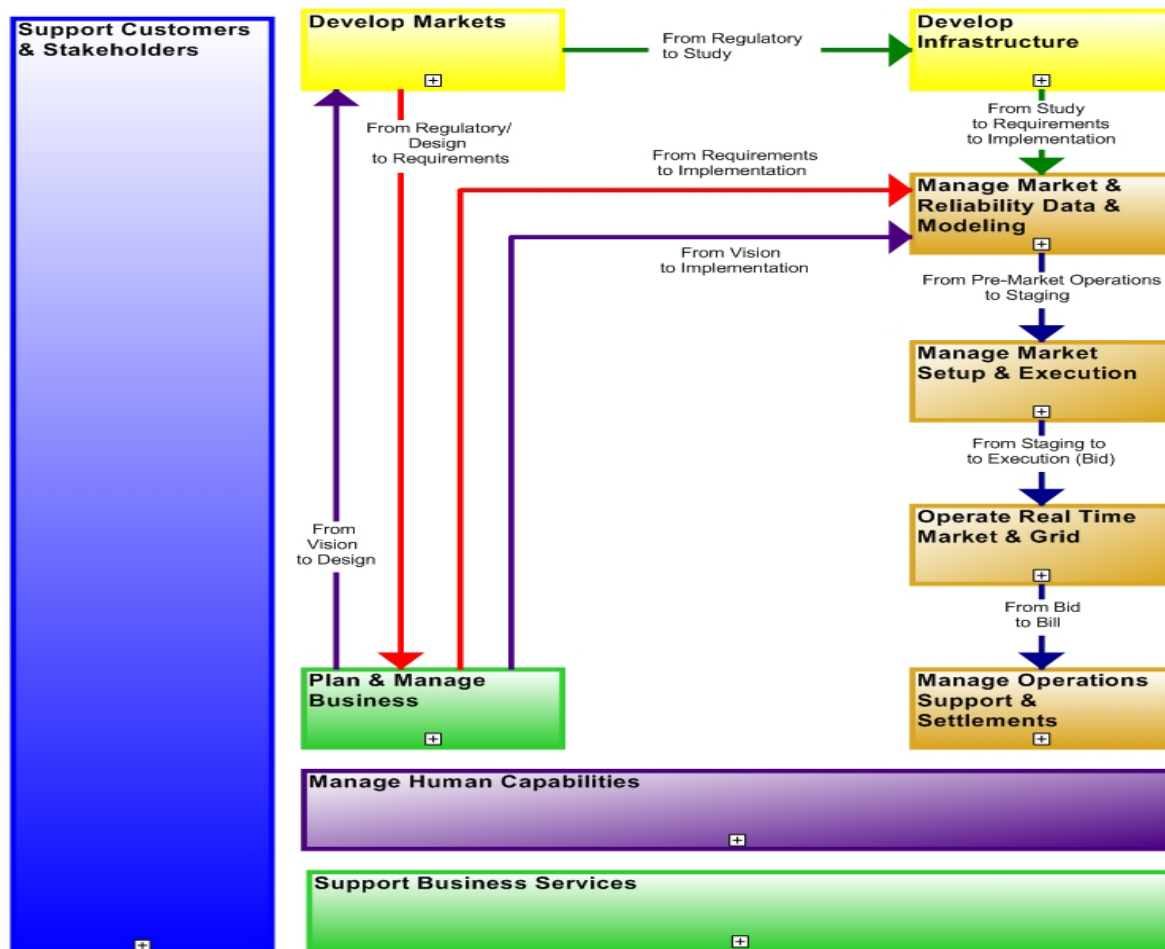
Of the multiple options considered, it was determined that the most sensible approach would include formalizing the ISO's business process framework. Best practices frequently show process frameworks visually organized into multiple levels which promote common understanding of processes for audiences at different levels. For example:

Process Level	Perspective	Description
1 - Strategic	Executive	High level business activities, objectives, goals and metrics
2 – Tactical	Process owner/ business unit	Core process activities and tactical performance metrics
3 – Operational	Desk/ role based	Task oriented, procedural activities

As divisions, departments and business units define metrics and goals, they focus on measures and controls that are defined vertically by their chain-of-command. As a result, business requirements are not integrated in a way that allows information technology (IT) to be optimized across process boundaries in a cost effective manner, leading to acquisition and support of disparate technologies and platforms. Ultimately, hierarchical structures often discourage collaboration, hinder agility, and have high systems maintenance costs.

Best practices also showed that when end-to-end process groupings are formed, they often reflect how the organization conducts its business. This perspective aligned well with both the ABC and compliance objectives. It was determined that all core business functions would be represented as individual processes that could be identified within a level 1 end-to-end process grouping (no outliers).

Further research into process classification frameworks led to the American Product Quality Center (APQC) best practice framework definition for the electric utility industry and helped shape the ten high level activities/ processes that the ISO is currently using.



The ISO process framework serves as a common business architecture blueprint that is reusable across multiple initiatives like ABC, enterprise risk management, compliance and controls, strategic planning, and performance management. Additionally, supporting process areas can align their services with the ISO's core business activities (e.g. IT support processes can align systems monitoring activities across process areas without being hindered by organizational boundaries).

For ABC purposes the consistent process framework primarily enables:



- Gathering and providing data for resource allocation decision making by demonstrating how resources are allocated to the ISO's end-to-end business processes
- Tracking actual time spent on processes and projects that allows managers the ability to compare results to what was expected/planned
- Data compilation for stimulating continuous business process improvement efforts related to efficiency and best use of resources
- The alignment of strategies with executable processes which ensures that metrics support corporate objectives and goals

Due to the complexities of running the day-to-day business, costing by business process is better suited to management for decision making than traditional cost accounting. Traditional cost/ financial accounting is constrained by external reporting needs and generally accepted accounting principles (GAAP) rules. While these constraints provide value for financial statements and reporting purposes, they limit management's ability to use the information for internal decision making, whereas the purpose of costing by business process is to provide useful information for operating the business and identifying opportunities for improvement.

## **Application of ABC to GMC Structure**

The ABC analysis has disaggregated the CAISO into ten core processes (level 1 activities). Each of the core activities were broken down into major processes (level 2 activities) which were mapped to the level 1 activities. A significant initiative is underway to complete the definition of the level 2 processes by the end of 2010. Time reporting on level 1 activities commenced October 2009 and pilot programs have started on level 2 activities with the goal of full level 2 reporting on January 1, 2011. This process is continually being reviewed and developed, and changes in definitions and levels will occur as the ISO continues to improve the documentation and definitions. The level 2 processes discussed in this study are the processes

mapped and defined as of May 2010. The level 1 activities can be categorized into two types:

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

**Table 1- Level 1 ABC Activities**

<b>Level 1 ABC Activity</b>	<b>Direct or support cost</b>	<b>Number of Level 2 ABC activities</b>
Develop Infrastructure	Direct operating cost	8
Develop Markets	Direct operating cost	8
Manage Market & Reliability Data & Modeling	Direct operating cost	16
Manage Market Setup & Execution	Direct operating cost	6
Manage Real Time Market & Grid	Direct operating cost	8
Manage Operations Support & Settlements	Direct operating cost	14
Support Customers & Stakeholders	Support or indirect cost	5
Plan & Manage Business	Support or indirect costs	12
Support Business Services	Support or indirect costs	30
Manage Human Capabilities	Support or indirect costs	15

This ABC functionality is superior to the earlier descriptions of ISO activities for developing cost categories. These activities are defined, linked to specific processes, and measurable. A complete list of level 2 activities is attached as **Exhibit 1**.

Several options to aggregate activities were considered. The first option was to map activities to the existing GMC service categories. However, as discussed above, the existing structure was considered too complex given a goal of more transparency, predictability and simplicity. Level 2 activities would need to be further broken down or mapping was not possible. For example the ISO does not have any activity related specifically to deviations.

Thus, the ISO considered the second option, which was to map activities to customer categories. A list of 31 customer categories was prepared. The categories included utility distribution companies, merchant generation, proxy demand response, self-scheduled exports,

and many more. These categories were then mapped to the level 2 activities. As seen in **Exhibit 2**, it soon became apparent that in a majority of cases the level 2 activity applied to all categories.

This raised the question that if customer activity was the common theme then what were the common activities across all customers? An examination of the ISO's new nodal market systems process map of customer activity revealed the following:

**Customers**                      **Market systems**                      **Energy**  
**submit bids**                      **>> award schedules**                      **>> flows**

In addition, there are processes related to Congestion Revenue Rights (CRRs).

Based on this process map, the following three cost categories were developed:

1. Market Services
2. System Operations
3. CRR Services

This structure is very similar to what other ISO/ RTOs with nodal markets have implemented to recover their administrative charges.

Using these three categories, the level 2 activities were mapped as either: 1) all in one category or not in the category (100% or 0%), 2) a split between two categories (50% / 50%), or 3) partially in one category or another (80% or 20%), or in the case of CRRs, a small portion of the activity (10%). This mapping was also applied to the software underlying the debt service portion of the revenue requirement. Indirect costs are allocated proportional to direct costs.

**See Exhibit 3.**

**Table 2 - Mapping Level 2 Activities to Categories**

Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				

Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Develop Infrastructure (DI) (80001)</b>					
Develop & monitor regulatory contract procedures		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage LGIP cluster studies		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage long-term transmission planning		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage new transmission resources & grid changes		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage SGIP studies		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage short-term transmission planning		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage transmission maintenance standards		100%			managing the building of the grid thus the costs are entirely to support system operations
NERC / WECC loads & resources data requests		100%			managing the building of the grid thus the costs are entirely to support system operations
Regulatory contract negotiations		100%			managing the building of the grid thus the costs are entirely to support system operations
<b>Develop Markets (DM) (80002)</b>					
BPM change management process				100%	not distinguishable attribute to any specific category
Develop State / Federal regulatory policy				100%	not distinguishable attribute to any specific category
Manage regulatory filings				100%	not distinguishable attribute to any specific category
Manage tariff amendments				100%	not distinguishable attribute to any specific category
Market design & regulatory policy	100%				the costs are entirely to support the market results & function
Manage market analysis & development	100%				the costs are entirely to support the market results & function
Perform market analysis	100%				the costs are entirely to support the market results & function
<b>Manage Market &amp; Reliability Data &amp; Modeling (MMR) (80004)</b>					
ISO meter certification		100%			measuring flows on the grid thus the costs are entirely to support system operations
Facilitate SC certification				100%	not distinguishable attribute to any specific category
High level manage FNM maintenance	50%	50%			the costs support equally both market and system operations
Manage & facilitate procedure maintenance	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Manage CRRs			100%		the costs are entirely to support the CRR process
Manage credit & collateral	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage network applications		100%			involves EMS thus the costs are entirely to support system operations

Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Manage operations engineering studies		100%			studying flows on the grid thus the costs are entirely to support system operations
Execute & track operations training	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Plan & develop operations training	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Manage reliability requirements		100%			relates to actual system operations thus the costs are entirely to support system operations
Master file updates	50%	50%			resource attributes that support both thus the costs support equally both market and system operations
EMAA telemetry (RIGs)		100%			relates to actual system operations thus the costs are entirely to support system operations
Provide stakeholder training				100%	not distinguishable attribute to any specific category
Station power application procedure	80%	20%			based on procedures for station power
Market services implementation	50%	50%			resource attributes that support both thus the costs support equally both market and system operations
<b>Manage Market Setup &amp; Execution (MMS) (80005)</b>					
Manage D+2 analysis	50%	50%			the costs support equally both market and system operations
Manage DA market	50%	50%			while managing market it results in system starting point for operational flows thus the costs support equally both market and system operations
Manage DA & RT runs & price validations	50%	50%			the costs support equally both market and system operations
Manage generation outages		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage interchange scheduling		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage transmission outages		100%			relates to actual system operations thus the costs are entirely to support system operations
<b>Operate Real Time Market &amp; Grid (OMG) (80006)</b>					
Manage critical facility systems				100%	not distinguishable attribute to any specific category
Manage emergency operations		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage operations engineering support	20%	80%			based on support of day-ahead and real time thus the costs are predominantly operational flow based but have some market relationship
Manage RT market - after close of market	50%	50%			the costs support equally both market and system operations
Manage RT market - prior to close of market bidding	50%	50%			the costs support equally both market and system operations
Manage RT operations - generation dispatch		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage RT operations - transmission dispatch		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage RT interchange scheduling		100%			relates to actual system operations thus the costs are entirely to support system operations
<b>Manage Operations Support &amp; Settlements (MOS) (80007)</b>					
Manage rules of conduct				100%	not distinguishable attribute to any specific category
Manage regulation no pay & deviation penalty calculations		100%			measuring actual performance thus the costs are entirely to support system operations
Manage dispute analysis & resolution				100%	not distinguishable attribute to any specific category
Manage energy measurement acquisition & analysis		100%			measuring actual performance thus the costs are entirely to support system operations
Manage market billing &	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs

Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
settlements					
Manage market clearing	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage market performance	50%	50%			the costs support equally both market and system operations
Manage price validation & corrections	50%	50%			related to proper outage allocation thus the costs support equally both market and system operations
Manage the market quality system (MQS)	50%	50%			portion of MQS relates to operational flows thus the costs support equally both market and system operations
Manage data requests				100%	not distinguishable attribute to any specific category
WREGIS application process		100%			measuring actual performance thus the costs are entirely to support system operations
ISO meter engineering		100%			measuring actual performance thus the costs are entirely to support system operations
ISO RIG engineering		100%			measuring actual performance thus the costs are entirely to support system operations
Market issues steering committee	50%	50%			portion related to operational practices & procedures thus the costs support equally both market and system operations

**Table 3 – Mapping Software Underlying Debt Service to Categories**

Allocation of Debt Service and Out of Pocket Capital to GMC cost categories					
System	Market services	System operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Operations Related Software</b>					
Automated Dispatch System (ADS)		100%			RT instructions from market to system operations thus the costs are entirely to support system operations
Automated Load Forecast System (ALFS)	50%	50%			market & operations both need forecasts thus the costs support equally both market and system operations
Automatic Mitigation Procedure (AMP)		100%			the costs are entirely to support system operations
Congestion Revenue Rights (CRR)			100%		the costs are entirely to support the CRR process
Credit Liabilities	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Data Warehouse	20%	80%			5 min intervals in RT only hourly intervals in market thus the costs are predominantly operational flow based but have some market relationship
Energy Management System (EMS)		100%			the costs are entirely to support system operations
Existing Transmission Contracts Calculator (ETCC)	50%	50%			needed for market & system operations thus the costs support equally both market and system operations

Allocation of Debt Service and Out of Pocket Capital to GMC cost categories					
System	Market services	System operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Full Network Model / State estimator	50%	50%			needed for market & system operations thus the costs support equally both market and system operations
Grid operations Training Simulator (GOTS)	20%	80%			staff training where substantially more procedures in operations versus market thus the costs are predominantly operational flow based but have some market relationship
Integrated Forward Market (IFM)	50%	50%			results support both financially binding schedules and system operations thus the costs support equally both market and system operations
Market Quality System (MQS)	50%	50%			aligns with direct operating process thus the costs support equally both market and system operations
Master file	50%	50%			aligns with direct operating process thus the costs support equally both market and system operations
Meter Data Acquisition System (MDAS)		100%			data feed reflecting settling actual flow of systems operations performance thus the costs are entirely to support system operations
Multistage Generation (MSG)	50%	50%			the costs support equally both market and system operations
Network Applications	50%	50%			the costs support equally both market and system operations
New Resource Interconnection (RIMs)	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Open Access Same Time Information System (OASIS)	50%	50%			the costs support equally both market and system operations
Operational Meter Analysis & Reporting (OMAR)		100%			same as MDAS thus the costs are entirely to support system operations
Proxy Demand response (PDR)	50%	50%			the costs support equally both market and system operations
Participating Intermittent Resource Project (PIRP)	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Portal	50%	50%			the costs support equally both market and system operations
CAISO Market Results interface (CMRI)	50%	50%			the costs support equally both market and system operations
Process Information System (PI)		100%			the costs are entirely to support system operations
Real Time markets (RTMA)	20%	80%			support & provide actual dispatches to balance system thus the costs are predominantly operational flow based but have some market relationship
Hour Ahead Market (HASP)	50%	50%			includes market power mitigation thus the costs support equally both market and system operations
Resource Adequacy	50%	50%			the costs support equally both market and system operations
<b>Operations Related Software (continued)</b>					
RMR application Validation Engine (RAVE)	50%	50%			the costs support equally both market and system operations
Scheduling & Logging for ISO CA (SLIC)	50%	50%			the costs support equally both market and system operations
Control Area Scheduler (CAS)	50%	50%			the costs support equally both market and system operations
Scheduling Infrastructure Business Rules (SIBR)	50%	50%			this contains interface to operations thus the costs support equally both market and system operations
Settlements & Market Clearing (SaMC)	15%	75%	10%		based on DA & RT charge codes which settle 12 intervals operations hour for operations versus hourly for market thus after a minimum allocation to CRRs the costs are predominantly operational flow based but have some market relationship
<b>General Software</b>					
Client relations & engineering analysis tools				100%	not distinguishable attribute to any specific category

Allocation of Debt Service and Out of Pocket Capital to GMC cost categories					
System	Market services	System operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
DMM & compliance Tools (SAS MARS)	50%	50%			the costs support equally both market and system operations
Local Area Network (LAN), WAN & monitoring (Tivoli)				100%	not distinguishable attribute to any specific category
Office automation desktop laptop (OA)				100%	not distinguishable attribute to any specific category
Oracle Corporate Financials				100%	not distinguishable attribute to any specific category
Security External Physical & ISS (CUDA)				100%	not distinguishable attribute to any specific category
Storage (EMC symmetrix)				100%	not distinguishable attribute to any specific category
<b>Fixed Assets</b>					
Land & feasibility studies				100%	not distinguishable attribute to any specific category
NT servers & WEB servers				100%	not distinguishable attribute to any specific category
New system equipment				100%	not distinguishable attribute to any specific category
Office equipment, physical facilities software, furniture & leasehold improvements				100%	not distinguishable attribute to any specific category

After this mapping is completed it can be applied to the ISOs revenue requirement to derive the related cost of service.

## Costing the 2010 Revenue Requirement

The allocation matrix of level 2 activities and software was applied to the ISO's 2010 revenue requirement to determine the costs associated with the three categories:

1. Market services
2. System operations and
3. CRR services

Using the 2010 revenue requirement has several advantages. It is recent; 2009 and 2010 are very similar, and it can be used to compare with existing GMC, which is available for the same period. The 2010 revenue requirement is made up of the following categories:

**Table 4 - Mapping of 2010 Revenue Requirement Categories**

Revenue Requirement	2010 Budget (\$ in thousands)
---------------------	-------------------------------



O&M	\$ 162,695
Debt Service and out of pocket capital	76,000
Other income	(8,100)
Operating reserve	(35,500)
<b>Total Revenue Requirement</b>	<b>\$ 195,095</b>

Completing the analysis required the following steps:

1. Mapping the O&M costs into three components: level 2 activities, support costs, and non-ABC support costs
  - a. Allocating cost centers to level 1 ABC activities
  - b. Applying cost category percentages to level 1 support costs
  - c. Obtaining time estimates for level 2 activities for those level 1 activities that are direct operating costs
  - d. Allocating costs to level 2 activities
  - e. Applying cost category percentages
2. Breaking out non-ABC support costs and applying cost category percentages to these costs
3. Mapping debt service and out of pocket capital expenses to cost categories and applying cost category percentages to these costs
4. Mapping revenue credit and miscellaneous revenue to cost categories and applying cost category percentages to these costs
5. Aggregating costs and allocate indirect costs to cost categories based on percentage of direct costs

### **Step 1: Allocation of Operating and Maintenance (O&M) Costs**

There are two types of O&M costs; those that are activity related such as costs attributed to personnel, and non-ABC costs - such as facilities costs. The O&M budget was broken down into those two categories.

For activity related O&M costs, the recent ABC structure was utilized to allocate costs between the cost categories. The ISO's activities have been broken out into ten level 1 ABC activities. These Level 1 activities have been further broken out into Level 2 activities. The Level 1 activities were determined to be either direct or support activities. For those Level 1 activities that were attributed to direct costs, the associated level 2 activities were mapped to one of the three cost categories as described in the previous section. Support activities were allocated to indirect costs category.

The O&M budget is comprised of approximately 80 cost centers. ISO staff has been coding their time to ABC level 1 activities during 2010 and in some instances to level 2 activities. A questionnaire was prepared for those cost centers that showed time in one of the Level 1 activities that could be directly allocated.

The cost center managers reviewed the questionnaire and allocated their time to Level 2 activities. These percentages were applied to the 2010 O&M budget which resulted in the costs of each cost center being allocated into the appropriate level 2 activities. The costs of all cost centers were aggregated for each level 2 activity.

The percentages of the Level 2 activity by cost category for market services, system operations, CRR services and indirect were applied to the costs. Non-ABC costs were analyzed separately to determine the appropriate category. The breakdown and allocation of cost center costs to direct or support activities and non-ABC costs is shown in **Exhibit 4**.

**Table 5 – Cost Allocation to Direct and Support Activity and Non-ABC Costs**

**Activity and Non-ABC Costs**

Mapping costs to direct and support activities & Other costs	2010 Budget (\$ in thousands)		
	Total	Activities	Other
Chief Executive Officer	\$ 6,514	\$ 6,514	\$ -
VP of Human Resources	6,104	6,104	-
VP of Market & Infrastructure Development	14,093	14,093	-
VP of Technology, Corporate Services & CFO	65,412	36,592	28,820

VP of Operations	48,994	48,994	-
VP, General Counsel & Corporate Secretary	12,671	8,471	4,200
VP of Policy & Client Services	8,907	8,907	-
<b>Total</b>	<b>\$ 162,695</b>	<b>\$ 129,675</b>	<b>\$ 33,020</b>

### Allocating Direct Operating Activities

Mapping costs to direct and support activities & Other costs	Percentage of time related to direct operating activities					
	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)
Organization Name	80001	80002	80004	80005	80006	80007
Chief Executive Officer	2%	2%	0%	0%	0%	0%
VP of Human Resources	0%	0%	0%	0%	0%	0%
VP of Market & Infrastructure Development	64%	36%	0%	0%	0%	0%
VP of Technology, Corporate Services & CFO	0%	0%	3%	0%	0%	1%
VP of Operations	2%	3%	21%	18%	38%	16%
VP, General Counsel & Corporate Secretary	1%	7%	0%	0%	0%	0%
VP of Policy & Client Services	1%	0%	0%	0%	0%	0%
<b>Total</b>	<b>8%</b>	<b>6%</b>	<b>9%</b>	<b>7%</b>	<b>14%</b>	<b>6%</b>

Mapping costs to direct and support activities & Other costs	Allocation of direct operating costs (\$ in thousands)						
	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct operating activities
Organization Name	80001	80002	80004	80005	80006	80007	Total
Chief Executive Officer	\$ 159	\$ 159	\$ -	\$ -	\$ -	\$ -	\$ 318
VP of Human Resources	-	-	-	-	-	-	-
VP of Market & Infrastructure Development	8,959	5,036	49	-	49	-	14,093
VP of Technology, Corporate Services & CFO	124	-	947	-	-	234	1,305
VP of Operations	1,050	1,507	10,431	8,762	18,642	7,943	48,335
VP, General Counsel & Corporate Secretary	88	561	-	-	-	-	649
VP of Policy & Client Services	125	-	-	-	-	-	125
<b>Total</b>	<b>\$ 10,505</b>	<b>\$ 7,263</b>	<b>\$ 11,427</b>	<b>\$ 8,762</b>	<b>\$ 18,691</b>	<b>\$ 8,177</b>	<b>\$ 64,825</b>

## Allocating Support Activities

Mapping support activities	Percentage of time to support activities			
	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)
Organization Name	80010	80003	80008	80009
Chief Executive Officer	0%	0%	55%	40%
VP of Human Resources	0%	100%	0%	0%
VP of Market & Infrastructure Development	0%	0%	0%	0%
VP of Technology, Corporate Services & CFO	0%	0%	20%	76%
VP of Operations	0%	0%	0%	1%
VP, General Counsel & Corporate Secretary	0%	0%	12%	80%
VP of Policy & Client Services	88%	0%	11%	0%
<b>Total</b>	<b>6%</b>	<b>5%</b>	<b>10%</b>	<b>29%</b>

Mapping support activities	Allocation of support costs \$ in thousands				
	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
Organization Name	80010	80003	80008	80009	Total
Chief Executive Officer	\$ -	\$ -	\$ 3,565	\$ 2,631	\$ 6,196
VP of Human Resources	-	6,104	-	-	6,104
VP of Market & Infrastructure Development	-	-	-	-	-
VP of Technology, Corporate Services & CFO	131	77	7,405	27,674	35,287
VP of Operations	40	-	-	619	659
VP, General Counsel & Corporate Secretary	-	-	1,018	6,804	7,822
VP of Policy & Client Services	7,813	-	969	-	8,782
<b>Total</b>	<b>\$ 7,984</b>	<b>\$ 6,181</b>	<b>\$ 12,957</b>	<b>\$ 37,728</b>	<b>\$ 64,850</b>

## ABC Direct Operating Activities

For direct operating activities the costs were aggregated at the level 2 basis and allocated to the cost category identified earlier.

**Table 6 - Mapping ABC Direct Operating Activities to Cost Categories**

ABC Direct Operating Activities									
ABC Level 2 Activities	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Develop Infrastructure (DI) (80001)									
Various level 2 activities		100%			\$10,324	\$ -	\$ 10,324	\$ -	\$ -
Develop Markets (DM) (80002)									
BPM change management process				100%	790	-	-	-	790
Develop State / Federal regulatory policy				100%	1,121	-	-	-	1,121
Manage regulatory filings				100%	806	-	-	-	806
Manage tariff amendments				100%	661	-	-	-	661
Market design & regulatory policy	100%				2,563	2,563	-	-	-
Manage market analysis & development	100%				1,307	1,307	-	-	-
Perform market analysis	100%				173	173	-	-	-
Total					7,421	4,043	-	-	3,378
Manage Market & Reliability Data & Modeling (MMR) (80004)									
ISO meter certification		100%			240	-	240	-	-
Facilitate SC certification				100%	-	-	-	-	-
High level manage FNM maintenance	50%	50%			1,131	565	566	-	-
Manage & facilitate procedure maintenance	20%	80%			591	118	473	-	-
Manage CRRs			100%		1,299	-		1,299	-
Manage credit & collateral	45%	45%	10%		645	290	290	65	-
Manage network applications		100%			1,249	-	1,249	-	-
Manage operations engineering studies		100%			1,047	-	1,047	-	-
Execute & track operations training	20%	80%			915	183	732	-	-
Plan & develop operations training	20%	80%			1,523	305	1,218	-	-
Manage reliability requirements		100%			786	-	786	-	-
Master file updates	50%	50%			306	153	153	-	-
EMAA telemetry		100%			190	-	190	-	-
Provide stakeholder training				100%	231	-	-	-	231
Station power implementation	80%	20%			316	253	63	-	-
Market services implementation	50%	50%			1,118	559	559	-	-
Total					11,587	2,426	7,566	1,364	231

ABC Direct Operating Activities									
ABC Level 2 Activities	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Manage Market Setup & Execution (MMS) (80005)									
Manage D+2 analysis	50%	50%			714	357	357	-	-
Manage DA market	50%	50%			994	497	497	-	-
Manage DA & RT runs & price validations	50%	50%			3,093	1,546	1,547	-	-
Manage generation outages		100%			1,028	-	1,028	-	-
Manage interchange scheduling		100%			1,051	-	1,051	-	-
Manage transmission outages		100%			1,727	-	1,727	-	-
Total					8,607	2,400	6,207	-	-
Operate Real Time Market & Grid (OMG) (80006)									
Manage critical facility systems				100%	555	-	-	-	555
Manage emergency operations		100%			327	-	327	-	-
Manage operations engineering support	20%	80%			808	162	646	-	-
Manage RT market - after close of market	50%	50%			253	126	127	-	-
Manage RT market - prior to close of market bidding	50%	50%			252	126	126	-	-
Manage RT operations - generation dispatch		100%			6,005	-	6,005	-	-
Manage RT operations - transmission dispatch		100%			5,264	-	5,264	-	-
Manage RT interchange scheduling		100%			5,247	-	5,247	-	-
Total					18,711	414	17,742	-	555
Manage Operations Support & Settlements (MOS) (80007)									
Manage rules of conduct				100%	109	-	-	-	109
Manage regulation no pay & deviation penalty calculations		100%			438	-	438	-	-
Manage dispute analysis & resolution				100%	1,364	-	-	-	1,364
Manage energy measurement acquisition & analysis		100%			794	-	794	-	-
Manage market billing & settlements	45%	45%	10%		1,028	462	463	103	-
Manage market clearing	45%	45%	10%		325	146	146	33	-
Manage market performance	50%	50%			834	417	417	-	-
Manage price validation & corrections	50%	50%			1,079	539	540	-	-
Manage the market quality system (MQS)	50%	50%			906	453	453	-	-
Manage data requests				100%	291	-	-	-	291

ABC Direct Operating Activities									
ABC Level 2 Activities	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
WREGIS application process		100%			41	-	41	-	-
ISO meter engineering		100%			206	-	206	-	-
ISO RIG engineering		100%			412	-	412	-	-
Market issues steering committee	50%	50%			348	174	174	-	-
<b>Total</b>					<b>8,175</b>	<b>2,191</b>	<b>4,084</b>	<b>136</b>	<b>1,764</b>
<b>Total</b>					<b>\$ 64,825</b>	<b>\$ 11,474</b>	<b>\$ 45,923</b>	<b>\$1,500</b>	<b>\$ 5,928</b>
<b>Direct O&amp;M %</b>					<b>100%</b>	<b>19%</b>	<b>78%</b>	<b>3%</b>	

## ABC Support Activities

For non direct activities the costs were aggregated at the level 1 basis and allocated to the indirect cost category

**Table 7 - Mapping ABC Support Activities to Cost Categories**

Allocation of ABC Support Activities									
ABC Level 1 Activities	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Support Customers & Stakeholders (SCS) (80010)				100%	\$ 7,984	\$ -	\$ -	\$ -	\$ 7,984
Manage Human Capabilities (MHC) (80003)				100%	6,181	-	-		6,181
Plan & Manage Business (PMB) (80008)				100%	12,957	-	-		12,957
Support Business Services (SBS) (80009)				100%	37,728	-	-	-	37,728
<b>Total</b>					<b>\$64,850</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$64,850</b>

## Step 2: Breaking Out Non-ABC Support Costs

The significant non specific department costs were removed from the ABC analysis and reviewed separately. Except for the SAS 70 audit and operations review the costs were

allocated to the indirect cost category. These budgeted audit costs were allocated using the same percentages as the level 2 manage market billings and settlements.

**Table 8 - Mapping Non-ABC Costs to Cost Categories**

Allocation of Non-ABC support costs									
Non-ABC support costs	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Corporate Services									
occupancy				100%	\$ 6,759	\$ -	\$ -	\$ -	\$ 6,759
hardware and software maintenance				100%	10,900	-	-	-	10,900
communications (AT&T)				100%	6,050	-	-		6,050
insurance				100%	2,205	-	-		2,205
software & equipment leases				100%	1,906	-	-		1,906
professional fees - SAS 70 audit	45%	45%	10%		1,000	450	450	100	-
Subtotal					28,820	450	450	100	27,820
General Counsel									
professional fees - legal				100%	4,200				4,200
Subtotal					4,200	-	-		4,200
Total					\$ 33,020	\$ 450	\$ 450	\$ 100	\$ 32,020

### **Step 3 - Allocating Debt Service and Out-of-Pocket Capital to Cost Categories**

Debt service is the aggregation of principle, interest, and a debt service reserve on the 2008 bonds of \$61 million and 2009 out of pocket capital of \$15 million. The debt service is the capital spent on projects over the last four years because the 2008 bonds rolled up the 2004, 2006, and 2007 bonds. The assets funded were broken down into operations related software, general software, and fixed assets. Based on the percentage allocation discussed in the previous section, the cost allocation of costs is as follows:



**Table 9 - Mapping Debt Service and Out-of-Pocket Capital to Cost Categories**

Debt Service and Out of Pocket Capital									
System	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Operations Related Software									
Automated Dispatch System		100%			\$ 74	\$ -	\$ 74	\$ -	\$ -
Automated Load Forecast System	50%	50%			1,446	723	723	-	-
Automatic Mitigation Procedure		100%			308	-	308	-	-
CAISO Market Results interface	50%	50%			1,016	508	508	-	-
Congestion Revenue Rights			100%		2,114	-	-	2,114	-
Control Area Scheduler	50%	50%			116	58	58	-	-
Credit Liabilities	45%	45%	10%		70	32	32	6	-
Data Warehouse	20%	80%			1,500	300	1,200	-	-
Energy Management System		100%			3,279	-	3,279	-	-
Existing Transmission Contracts Calculator	50%	50%			13	6	7	-	-
Full Network Model / State estimator	50%	50%			451	225	226	-	-
Grid operations Training Simulator	20%	80%			262	52	210	-	-
Hour Ahead Market HASP	50%	50%			3,173	1,586	1,587	-	-
Integrated Forward Market IFM	50%	50%			15,432	7,716	7,716	-	-
Market Quality System	50%	50%			2,506	1,253	1,253	-	-
Master file	50%	50%			1,012	506	506	-	-
Meter Data Acquisition System		100%			38	-	38	-	-
Multistage Generation MSG	50%	50%			214	107	107	-	-
Network Applications	50%	50%			1,668	834	834	-	-
New Resource Interconnection	20%	80%			542	108	434	-	-
Open Access Same Time Information System OASIS	50%	50%			163	81	82	-	-
Operational Meter Analysis & Reporting OMAR		100%			239	-	239	-	-
Participating Intermittent Resource Project PIRP	20%	80%			3,511	702	2,809	-	-
Portal	50%	50%			2,520	1,260	1,260	-	-
Process Information System		100%			338	-	338	-	-
Proxy Demand response	50%	50%			212	106	106	-	-
Real Time markets RTMA	20%	80%			3,173	635	2,538	-	-
Resource Adequacy	50%	50%			107	53	54	-	-
RMR application Validation Engine	50%	50%			12	6	6	-	-
Scheduling & Logging for ISO	50%	50%			729	364	365	-	-
Scheduling Infrastructure Business Rules SIBR	50%	50%			4,453	2,226	2,227	-	-
Settlements & Market Clearing	15%	75%	10%		8,422	1,263	6,317	842	-

Debt Service and Out of Pocket Capital									
System	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Total Operations related software	35%	60%	5%	0%	59,113	20,710	35,441	2,962	-
<b>General Software</b>									
Client relations & engineering analysis tools				100%	761	-	-	-	761
DMM & compliance Tools	50%	50%			1,180	590	590	-	-
Local Area Network, WAN & monitoring (Tivoli)				100%	1,598	-	-	-	1,598
Office automation desktop laptop				100%	209	-	-	-	209
Oracle Corporate Financials				100%	1,713	-	-	-	1,713
Security External Physical & ISS				100%	406	-	-	-	406
Storage (EMC symmetrix)				100%	4,297	-	-	-	4,297
Total general related software	6%	6%	0%	88%	10,164	590	590	-	8,984
<b>Fixed Assets</b>									
Land & feasibility studies				100%	700	-	-	-	700
NT servers & WEB servers				100%	573	-	-	-	573
New system equipment				100%	4,411	-	-	-	4,411
Office equipment, physical facilities software, furniture & leasehold improvements				100%	1,039	-	-	-	1,039
<b>Total fixed assets</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>100%</b>	<b>6,723</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6,723</b>
<b>Total debt service</b>	<b>27%</b>	<b>48%</b>	<b>4%</b>	<b>21%</b>	<b>76,000</b>	<b>21,300</b>	<b>36,031</b>	<b>2,962</b>	<b>15,707</b>
<b>Direct software %</b>	<b>35%</b>	<b>60%</b>	<b>5%</b>		<b>\$60,293</b>	<b>\$21,300</b>	<b>\$36,031</b>	<b>\$2,962</b>	<b>\$ -</b>

#### Step 4 – Allocating Miscellaneous Revenue and Operating Reserve

##### Miscellaneous Revenue

The components of other revenue were reviewed and all revenues were included in the indirect cost category.

**Table 10 - Mapping Miscellaneous Revenue to Cost Categories**

Allocation of Miscellaneous Revenue									
Type	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
SC application fee				100%	\$ 50	\$ -	\$ -	\$ -	\$ 50

Allocation of Miscellaneous Revenue									
Type	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
MSS penalties				100%	100	-	-	-	100
Wind forecasting fee				100%	250	-	-	-	250
Station power				100%	50	-	-	-	50
SC training fees				100%	50	-	-	-	50
LGIP study fees				100%	1,800	-	-	-	1,800
Interest				100%	3,800	-	-	-	3,800
COI path operator fees				100%	2,000	-	-	-	2,000
<b>Total</b>					<b>\$ 8,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 8,100</b>

### Operating Reserve Credit

The components of the Operating reserve credit were reviewed. The change in the debt service was allocated based on the percentages derived from the debt service and out of pocket capital allocation. All other costs were allocated to indirect costs.

**Table 11 – Mapping Reserve Credit to Cost Categories**

Allocation of Operating reserve credit									
Type	Market Services	System Operations	CRRs	Indirect	2010 Budget	Market Services	System Operations	CRRs	Indirect
	% of costs allocated to activity				Cost of category \$ in thousands				
Increase (decrease) in 15% reserve for O&M				100%	\$ (900)	\$ -	\$ -	\$ -	\$ (900)
25% debt service reserve	27%	48%	4%	21%	12,200	3,295	5,856	488	2,561
Collection of additional months GMC				100%	15,400	-	-	-	15,400
Reduction of interest on Generator fines				100%	8,800	-	-	-	8,800
<b>Total</b>					<b>\$ 35,500</b>	<b>\$ 3,295</b>	<b>\$ 5,856</b>	<b>\$ 488</b>	<b>\$ 25,861</b>

### Step 5 - Aggregating Revenue Requirement into Cost Categories

The individual revenue requirements were aggregated and indirect costs allocated based on the total of direct costs.

**Table 12 – Mapping Revenue Requirement to Cost Categories**

<b>ABC Direct Operating Activities</b>					
<b>Revenue Requirement (\$ in thousands)</b>	<b>2010 Budget</b>	<b>Market Services</b>	<b>System Operations</b>	<b>CRRs</b>	<b>Indirect</b>
Direct O&M \$	\$ 64,825	\$ 11,474	\$ 45,923	\$ 1,500	\$ 5,928
Support O&M \$	64,850	-	-	-	64,850
Non-ABC support O&M \$	33,020	450	450	100	32,020
<b>Total O&amp;M</b>	<b>162,695</b>	<b>11,924</b>	<b>46,373</b>	<b>1,600</b>	<b>102,798</b>
<b>O&amp;M Direct %</b>		<b>20%</b>	<b>77%</b>	<b>3%</b>	
Debt Service	76,000	21,300	36,031	2,962	15,707
Debt service Direct %		35%	60%	5%	
Other income	(8,100)	-	-	-	(8,100)
Operating reserve	(35,500)	(3,295)	(5,856)	(488)	(25,861)
<b>Total before allocation of indirect</b>	<b>195,095</b>	<b>29,929</b>	<b>76,548</b>	<b>4,074</b>	<b>84,544</b>
Direct Costs %		27%	69%	4%	
Allocate indirect	-	22,827	58,335	3,382	(84,544)
<b>Total Revenue Requirement \$</b>	<b>\$ 195,095</b>	<b>\$ 52,756</b>	<b>\$ 134,883</b>	<b>\$ 7,456</b>	
<b>Total Revenue Requirement %</b>	<b>100%</b>	<b>27%</b>	<b>69%</b>	<b>4%</b>	

Mapping the revenue requirement to cost categories is shown in **Exhibit 5**. This completes the first part of the cost of service study. The cost categories have been identified and the revenue requirement for 2010 allocated into those cost categories. The next step will be to determine how those costs will be recovered from ISO customers. These issues will be discussed at the next stakeholder meeting.

## Comparison of ISOs and RTOs

Set forth below is a summary comparison of ISO/RTOs throughout the country. There are two groups; those that do not have a nodal market, and those that have a nodal market similar to the nodal market implemented by the ISO in 2009.

### ISO/RTOs without a Nodal Market

#### **Southwest Power Pool (SPP)**

- Tariff administration service: 100% of Revenue Requirement charged to capacity or load (MWh of capacity reserved or load)

**SPP Rates**

\$0.195 per MWh of load and capacity

**ERCOT**

- Administrative fee: 100% of Revenue Requirement charged to withdrawals (MWh of exports and load)
- Also has charges for:
  - Nodal implementation surcharge (MWh of gen)
  - Application fees
  - Wide area network installation and monthly fee
  - Mismatched schedule fee

**ERCOT Rates**

\$0.4171 – withdrawals

\$0.375 – nodal implementation surcharge

**ISO/RTOs with a Nodal Market****New York ISO**

- Injections: 20% of Revenue Requirement charged to injections (MWh of imports, internal gen, and wheels)
- Withdrawals: 80% of Revenue Requirement charged to withdrawals (MWh of exports, internal load, and wheels)
- Transmission Congestion Contracts
- Also have charges for:
  - Virtual bids at \$.065 per MWh of
  - Station power and reliability payments use actual costs
- Indirect costs allocated by percentage of direct costs

**NYISO Rates**

\$0.1784 – injections

\$0.7136 – withdrawals

\$0.02 – transmission contracts

\$0.065 – virtual bids

\$0.7136 – actual costs

**PJM**

- Control area administrative service: 60% of Revenue Requirement charged to withdrawals (MWh of load)
- Market support service: 32% of Revenue Requirement charged to injections and withdrawals (MWh of load and gen) and a per bid segment charge
- FTR service: 5% of Revenue Requirement charged to FTR's (MWh of FTR's)
- Also have charges for:
  - Regulation & frequency response administration: 1% of Revenue Requirement charged to regulation and frequency (MWh of hourly regulation)
  - Capacity resource & obligation management: 2% of Revenue Requirement charged to capacity (MWh of unforced capacity obligation charged to LSE's)
  - Actual costs for cost of second control center
- Indirect costs allocated by percentage of direct costs

**PJM Rates**

\$0.1809 – withdrawals  
\$0.0016 – hours of FTR bid  
\$0.0024 – MWh of FTR  
\$0.0525 – per bid segment  
\$0.0338 – MWh of injections and withdrawals  
\$0.2026 – MWh of hourly regulation  
\$0.0803 – MWh of unforced capacity obligation

**Midwest ISO (MISO)**

- Energy & operating reserve market support administration service cost recovery adder: 50% of Revenue Requirement charged to injections, withdrawals and virtual (MWh of gen, load, and virtual)
- ISO cost recovery adder: 45% of Revenue Requirement charged to load (50% to MWh of load, 50% based on peak capacity for month)
- FTR administration service cost recovery adder: 5% of Revenue Requirement charged to FTR's (MW of FTR capacity)
- Indirect costs allocated by percentage of direct costs

**MISO Rates**

\$0.0585 – MWh of load  
\$0.0465 – Peak capacity for month  
\$0.0145 – MWh of FTR capacity  
\$0.0816 – MWh of injections and withdrawals

**ISO New England (ISO-NE)**

- Energy administration service: 40% of Revenue Requirement charged to load, gen, and FTR's (15% based on energy, incremental and decremental changes, and FTR bids, 85% based on monthly load and gen obligation)
- Reliability administration service: 35% of Revenue Requirement charged to withdrawals (MWh of peak load and exports)
- Scheduling service: 25% of Revenue Requirement charged to load (MWh and reserved capacity of the highest hourly amount during the month)
- Indirect costs allocated by percentage of direct costs

**ISO-NE Rates**

\$0.19 – MWh of load  
\$0.065 – energy, inc, dec, and FTR bids  
\$0.1813-\$0.1483 – monthly load and gen obligation  
\$0.242 – non-coincident peak load  
\$0.37 – MWh of exports

**Comparison - California ISO**

Core reliability service: 23.1% of Revenue Requirement charged to load and exports (18% based on peak load MWh in month, 0.5% to off peak load MWh in month, 4.5% to exports MWh)

- Energy transmission services:
  - 36% of Revenue Requirement charged to load (MWh of load)

- 6% of Revenue Requirement charged to Uninstructed Imbalance Energy (MWh of UIE)
- Core reliability service / energy transmission services: 0.5% of Revenue Requirement charged to Transmission Ownership Rights (MWh of load for TOR's)
- Forward scheduling: 7% of Revenue Requirement charged to schedules (# of schedules submitted)
- Market usage 17.5% of Revenue Requirement charged to market usage (MWh of AS, IE, or UIE)
- Market usage forward energy: 8.1% of Revenue Requirement charged to forward energy (max MWh of supply or demand in forward market)
- Convergence bidding: 9% of forward scheduling and market usage forward energy charged to convergence bidding (\$.005 per bid segment and MWh of convergence bidding)
- Energy transmission service / market usage: 0.5% of Revenue Requirement charged to PIRP deviations (MWh of UIE for PIRP resources)
- Also have charges for:
  - \$1000 per scheduling coordinator per month charge
  - Data requests
  - Station power
  - PIRP forecasting fee
  - Customized training
  - Operating fee on a specific transmission line
- Indirect costs allocated by various methods to service categories

#### **California ISO Rates**

\$94.70 – MWh of peak load in month  
 \$62.51 – MWh of off peak load in month  
 \$1.83 – MWh of exports  
 \$0.35 – MWh of load and exports  
 \$1.98 – MWh of uninstructed imbalance energy  
 \$0.23 – MWh of TOR load  
 \$2.53 – per schedule  
 \$0.23 – market usage per MWh of AS, IE, or UIE  
 \$0.06 – max of supply or demand in forward market  
 \$0.005 – per bid segment of convergence bidding  
 \$0.0629 – MWh of convergence bidding  
 \$1.3889 – MWh of PIRP UIE in month  
 \$1000 – per SCID fee

As shown above, the ISO has the most complex structure with the most charges of any ISO/RTOs with a nodal market. The other ISO/RTOs organize their rate structures around a few large groupings such as:

- Market or energy services and injections – all ISO/RTOs
- System operations - Control area or reliability service, cost adder or withdrawals - all ISO/RTOs

- FTRs or transmission congestion – PJM, MISO & NYISO
- Scheduling - ISO-NE
- Other
  - Virtual bids – NYISO
  - Regulation & capacity – PJM

These cost categories are similar to those proposed by the ISO:

- Market services,
- System operations and
- Congestion (CRR) services.

Scheduling in the ISO market is a function where bids are submitted to the integrated forward market. The software processes the bids and awards resulting in schedules. Virtual bidding in the ISO market will be an added functionality. These three categories are also the three categories that arose from the ABC analysis discussed earlier.

## **Evaluation of Potential Billing Determinants**

The next step in completing the GMC redesign is to establish the billing determinants for the three cost categories: Market Services, System Operations and CRR Services. This step is only introduced here and will be scheduled for in-depth discussion later in this initiative. In developing the billing determinants, the ISO seeks to incorporate the guiding principles discussed at the beginning of this paper. There are two elements of a billing determinant: (1) the metric, such as MWh, and (2) the establishment of the denominator, i.e., the specification of the transactions to be included. An ISO straw proposal for billing determinants and the billing impacts will be reviewed with stakeholders in November 2010.



Based upon benchmarking of the billing determinants used by the other ISOs and RTOs, there are potential approaches to developing billing determinants.

- Allocation to Demand: Establishing a metric and calculating the denominator by summing the energy withdrawals by load and exports.
- Allocation to Supply and Demand: Establishing a metric and calculating the denominator by summing the injections by generation and imports and the withdrawals by load and exports.
- Transaction Fees to Offset Total Cost: Transaction fees, such as bid segment fees, are set at an appropriate level to allow a market participant to make an economic decision whether to incur the added expense. The transaction fee creates a marginal cost that serves two purposes: (1) limits excessive usage by market participants, and (2) recovers costs of transactions that participate but do not result in a successful outcome (e.g., energy bids that do not clear the market). The costs recovered by transaction fees are used to offset the revenue requirement of the associated cost category. For example, a bid segment fee would offset the revenue requirement of the Market Services Cost Category.
- Administrative Fees: Administrative fees are used to establish an appropriate cost to allow a market participant to make an economic decision whether to incur the added expense. For example, a SCID monthly fee can be used to manage the number of active/inactive SCIDs maintained in the system. The costs recovered in this manner are typically used to offset the revenue requirements of the other cost categories.

The ISO seeks input from stakeholders on potential billing determinant design in written comments to this paper.

## **Next Steps**

The stakeholder process for the 2012 GMC Cost of Service Study will continue with the following timeline:

- October 14, 2010 – in person meeting at ISO
- October 21, 2010 – comments due on discussion paper
- November 11, 2010 – Publish Straw Proposal
- November 18, 2010 – in person meeting at ISO
- November 29, 2010 – Comments due on Straw Proposal
- December 13, 2010 – in person meeting at ISO
- January 21, 2011 – in person meeting at ISO (new headquarters building)

## Template for comments

Please use the template below to submit comments to the CAISO. Comments are due by close of business Thursday, October 21, 2010 to [gmc@caiso.com](mailto:gmc@caiso.com).

### **Stakeholder Comments Template** **Subject: 2012 GMC Cost of Service Study Discussion Paper**

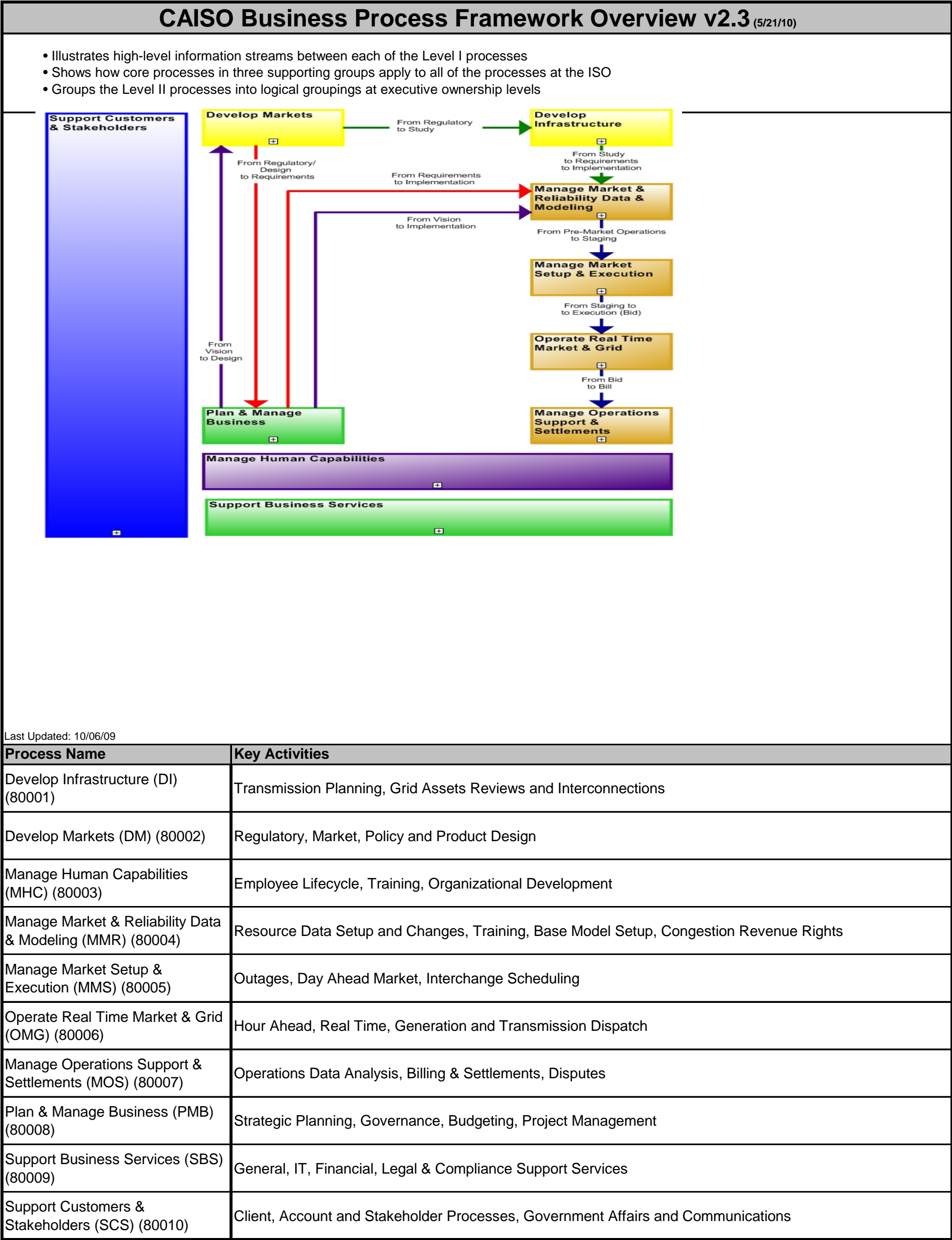
Submitted by (Name and phone number)	Company or Entity	Date Submitted

ISO seeks written stakeholder comments on its 2012 GMC Cost of Service Study Discussion Paper located at: <http://www.caiso.com/281a/281ac7f165ad0.html>

Stakeholders should use this Template to submit written comments and or suggestions. Written comments should be submitted no later than Close of Business on Thursday, October 21, 2010 to: [gmc@caiso.com](mailto:gmc@caiso.com). Comments will be posted on the ISO website.

The subject areas upon which ISO seeks stakeholder input are:

1. Please comment on the design principles listed in the discussion paper, and suggest any others you believe should be considered.
2. Please comment on the use of ABC and the allocations into the 3 proposed GMC service categories.
3. Please comment on the options the ISO has described for the billing determinants for allocating charge codes to users. Please describe any other options you believe should be considered.



Develop Infrastructure (DI) (80001)	
<ul style="list-style-type: none"> <li>• Enables the ISO to take a proactive approach to transmission planning by facilitating the building of needed projects</li> <li>• Provides an important platform for success in addressing future challenges, though an enhanced planning process</li> <li>• Satisfies compliance requirements, meets other regulatory and policy goals, and participates in joint regional planning groups</li> </ul>	
Processes	Process Descriptions
<b>Develop &amp; Monitor Regulatory Contract Procedures</b>	Infrastructure Policy & Contracts is responsible for managing all regulatory contracting mechanisms for the CAISO. Contracts staff works with internal and external personnel to secure the necessary approvals, prepare the requested agreement, initiate and track the agreement execution process, notify internal staff as necessary for implementation, and maintains all official files.
<b>Manage LGIP Cluster Studies</b>	Depicts the ISO Grid Assets oversight and implementation of the Federal Energy Regulatory Commission (FERC) approved Large Generation Interconnection Procedures (LGIP) and any required coordination with affected adjacent systems.
<b>Manage Long Term Transmission Planning</b>	Depicts the process to develop the CAISO Transmission Plan, support CPUC Resource Adequacy (RA), support the Day Ahead and Real Time market simulations, develop Generator Interconnection Study obligations, assess long-term CRRs, perform annual congestion studies, conduct Deliverability and Locational Capacity Studies, develop Generation and transmission reliability assessments, and represent the ISO in technical groups and committees
<b>Manage New Transmission Resources &amp; Grid Changes</b>	Depicts the activities required to communicate the scope of new transmission and grid resource projects to ISO's business units, produce status reports and reminders of tasks, gather and document project information, maintain the accuracy and integrity of the network model, operator displays, and the transmission registry, document the operating procedure changes for Grid Ops, maintain a documentation library of information, and reduce the financial risk of introducing new projects by ensuring the accuracy and integrity of the network model.
<b>Manage SGIP Studies</b>	Depicts the ISO Grid Assets oversight and implementation of the Federal Energy Regulatory Commission (FERC) approved Small Generation Interconnection Procedures (SGIP) and any required coordination with affected adjacent systems.
<b>Manage Short Term Transmission Planning</b>	Depicts the coordinated effort between Regional Transmission Engineering and Operations Engineering to identify and analyze operational issues and short-term planning issues. Operational issues (0-1 year) will require OEs to develop a solution, and short-term issues (1-3 years) will require Planners to develop a solution. Both operational and short-term issues will then be written into a short-term plan, which is then incorporated into the long-term transmission plan.
<b>Manage Transmission Maintenance Standards</b>	Depicts the ISO Grid Assets oversight and review activities as coordinated with the participating transmission owners to manage the ISO Transmission Maintenance Standards (Transmission Control Agreement Appendix C), mandated by Public Utilities Code 348 and adopted by the ISO.
<b>NERC/ WECC Loads &amp; Resources Data Requests</b>	Depicts the process for developing templates and documentation, requesting demand response & energy efficiency data from LSEs, and compiling the actual, DR, EE, and forecasts using the WECC template.
<b>Regulatory contract negotiations</b>	This process is responsible for the negotiation, drafting, and administration of the CAISO pro-forma and special agreements with market participants and operators of other control areas. These contract negotiations accommodate the other party's request to the extent the negotiations/provisions of the contract are within the framework of the CAISO's Tariff, policies and procedures, and acceptable to FERC and other market participants.

Develop Markets (DM) (80002)	
<ul style="list-style-type: none"> <li>• Designs and implements value-added enhancements to the wholesale market design</li> <li>• Improves the ISO's abilities to review and analyze the efficiency and quality of market results</li> <li>• Creates a framework that will accommodate demand response participation in the ISO market</li> </ul>	
Processes	Process Descriptions
<b>BPM Change Management Process</b>	Depicts the required activities for managing modifications and additions to Business Practice Manuals (BPMs). BPMs were created to guide ISO operations post MRTU launch and document the consistent and transparent manner in which the ISO will adhere to Tariff provisions. Revision requests for the BPMs may be submitted by stakeholders or an internal ISO department.
<b>Develop State/ Federal Regulatory Policy</b>	This process is responsible for the development of corporate and regulatory policies related to the physical infrastructure of the electric power system. Staff engages with stakeholders and Federal or State regulatory agencies to produce new regulatory policy, necessary CAISO tariff provisions, and implementation of required business processes.
<b>Manage Regulatory Filings</b>	The Draft and Review Filing sub process collects all relevant information needed from the project team to prepare an initial draft which is then reviewed by the project team and legal for quality and accuracy, completion of the evidence, strength of the case as well as whether the order sought enables the business process.
<b>Manage Tariff Amendments</b>	Draft tariff language is published for review and comment prior to filing with FERC in a tariff amendment filing. Market participants have a minimum of one week to review and comment. Stakeholder meeting (usually conference call) is held to discuss written comments and to respond to questions raised on the call. If time permits, revised tariff language may be published prior to FERC filing.
<b>Market Design &amp; Regulatory Policy</b>	This process includes the design and specification of efficient and effective wholesale electricity spot markets including the identification and development of new products and services as well as the development of solutions to existing market performance issues. This process also covers the formulation of market policies and designs which encourage infrastructure investment.
<b>Manage Market Analysis &amp; Development</b>	Depicts the process of identifying and classifying market issues, and developing and prototyping potential solutions. Identifies market design, market tuning, modeling constraints or variances, and determines whether the ISO can solve the issues, or whether a vendor should provide the solution.
<b>Perform Market Analysis</b>	This process is concerned with the identification and analysis of a market design issue, as it progresses throughout the organization potentially leading up to a Conceptual Design specification and FERC tariff filing.

Manage Human Capabilities (MHC) (80003)	
<ul style="list-style-type: none"> <li>Comprises the objective of institutional sustainability (people, technology)</li> <li>Develops a talent pool to leverage expert technical knowledge and leadership skills</li> <li>Creates a work environment that supports and nurtures the ISO's goals</li> </ul>	
Processes	Process Descriptions
Benefit Design	Depicts the activities surrounding the development and review of programs including health & welfare benefits, employee benefits, retirement, leave of absence, and workers compensation.
Benefits Management (Under Development)	Depicts the activities surrounding the maintenance of employee benefits, which could include but are not limited to open enrollment, status changes, and life-event changes (marriage, birth of a child, etc).
Compensation Design	Depicts the activities surrounding the development and review of programs including compensation, executive compensation, job descriptions, and annual merit/equity and incentive programs.
Employee Relations	This process details ensuring the workplace environment to allow for maximum productivity and satisfaction. This is achieved by: Addressing employee and/manager concerns, coaching for employees/managers, conducting investigations and providing recommendations on remediations, ensuring ISO is compliant with employment-related laws, marketing the ISO internally/externally as a best place to work.
Human Resources Compliance (Under Development)	Depicts the activities surrounding the maintenance of HR's compliance program which ensures that HR's processes satisfy Department of Labor, Corporate Policy and other requirements
Human Resources Infrastructure Design	This hierarchy represents the functional decomposition of manage HR policies & systems sub-function which is part of managing human resources function. The key processes are: Manage leave of absence and workers compensation, Manage payroll, Manage executive compensation, Manage Systems, and Manage Policies
Human Resources Strategy	Human Resources delivers competitive Human Resources programs and policies to ensure the organization's ability to promote quality treatment of employees and management practices that enable the CAISO to attract, retain, develop, and engage a dedicated and inspired world-class team.
Manage Bi-Weekly Payroll	Depicts the key activities from the time a timecard is submitted through ESS until a paycheck is issued to an employee.
Manage Employee Health & Safety Compliance	Depicts the core functions and activities of the Safety Department as required by Federal, State and Local law as it pertains to employee health and safety. Reinforces and builds the safety culture within the ISO
Manage Immigration Processes	Permanent Resident: Represents the conversion process for existing employees to become permanent residents Existing Employees: Process applies to existing employees who have non-immigrant visas and require H1B or CPT/OPT extensions and conversions New Candidates: Manage Immigration Process for New Candidates that have been identified through the HR- Recruiting process and have existing H1B or TN or CPT or OPT visas or are relocating from a foreign country and need a new visa
Manage Personnel Screening	Depicts the process for screening employee and contractor resources prior to badge issuance as well as initiation of the 7-year background check process and background checks due to self-reports. Also includes activities required to perform personnel risk assessments and drug screenings.
Manage Recruitment	This process details the processes related to the sourcing, screening and hiring of employees at the ISO. Executes the strategy identified by division executives related to workforce planning and supports ancillary processes including managing relocation and immigration.
Organizational Development & Training	This processes depicts the required activities for fulfilling the corporate-wide Training and Development (T&D) requirements. The process involves the following: Consult with manager to identify T&D opportunity or Problem, perform environmental scans and initial analysis, design and develop T&D intervention, deploy T&D intervention, and track, evaluate and make necessary adjustments to (T&D) intervention
Resource Access & Asset Control (Under Development)	Onboarding: Depicts the process for on-boarding employee and contractor resources based on inputs from the Recruitment and Procurement and Vendor Management process. Includes key activities which ensure that each resource has appropriate building and systems access and assets- as required for their particular role. Status Changes: Depicts the process for managing employee and contractor resource status changes. Should includes key activities such as promotions, department changes, management changes, conversions, etc in order to ensure that each resource has appropriate building and systems access and assets- as required for their particular role. Terminations: Depicts the process for terminating employee and contractor resources and disabling their access to buildings and systems as well as the collection of assets.
Talent Management (Under Development)	Depicts the activities surrounding the maintenance of employee internal resumes/ competencies. May also include planning processes for competencies/ skills building and career path development.



<b>Manage Market &amp; Reliability Data &amp; Modeling (MMR) (80004)</b>	
<ul style="list-style-type: none"> <li>• Checks and rechecks network modeling policies and protocols to reduce non-market energy dispatches</li> <li>• Assures that models reflect all grid constraints and produce timely and accurate prices results</li> <li>• Improves the visibility and transparency of the ISO's business while keeping monitoring and reporting duties secure</li> </ul>	
<b>Processes</b>	<b>Process Descriptions</b>
<b><i>ISO Meter Certification</i></b>	Depicts the process of certifying new metered entities to provide meter data in the ISO's markets.
<b><i>Facilitate SC Certification</i></b>	This Process defines the Scheduling Coordinator (SC) certification process and identifies all the requirements which are needed to complete SC certification. Customer Services oversees the SC certification process and ensures that all requirements are fulfilled prior to letting the SC submit schedules in the CAISO market.
<b><i>High-Level Manage FNM Maintenance</i></b>	Depicts the required activities to maintain and update the Full Network Model (FNM) -- the computer-based model that provides technical specifics of the ISO control area transmission network. The FNM includes a combination of physical network data and commercial data needed to support the reliability goals of the ISO and ensure that network constraints are enforced and feasible operational schedules identified.
<b><i>Manage &amp; Facilitate Procedure Maintenance</i></b>	Depicts the required activities for managing the development, review, and modification of ISO Operating Procedures. Operating Procedures were created to guide ISO grid operations and document the consistent and transparent manner in which the ISO will adhere to Tariff provisions. Revision requests for the Operating Procedures may be submitted by stakeholders or an internal ISO department.
<b><i>Manage Congestion Revenue Rights (CRR)</i></b>	Depicts the required activities for the allocation and auction of Congestion Revenue Rights (CRRs) to market participants as well as the trading of these rights in the secondary market. The allocation and auction processes occur both annually (prior to the start of a new calendar year) and monthly (prior to the start of a new month).
<b><i>Manage Credit &amp; Collateral</i></b>	<p>Manage Credit: Depicts the required activities to ensure that Market Participants comply with CAISO credit policy by ensuring that a Market Participant's Aggregate Credit Limit ("ACL"; i.e., unsecured credit plus posted financial security) exceeds their Estimated Aggregate Liability ("EAL").</p> <p>Manage Collateral: The process of setting a Market Participant's ACL by determining any unsecured credit that the Market Participant may be eligible for as well as receiving and posting other forms of financial security from the Market Participant.</p>
<b><i>Manage Network Applications</i></b>	The Network Applications department is responsible for the development and implementation of the Network Model and the Network Applications - a critical tool both for reliably operating the grid and for supporting production. This includes testing, validation, maintenance, user training and deployment of the model/ tool.
<b><i>Manage Operations Engineering Studies</i></b>	Depicts the study and training activities performed by Operations Engineers outside of Real Time support. These activities include ongoing and annual procedure studies, planning support for the Short Term Transmission plan, procedure training for operators, and WECC seasonal studies which are performed 3x per year.
<b><i>Execute &amp; Track Operations Training</i></b>	Depicts the process for conducting required training throughout the year, including planned and ad hoc training. Also includes activities related to reporting training completion to regulatory agencies.
<b><i>Plan &amp; Develop Operations Training</i></b>	Depicts the required activities for managing the design, development, and delivery of operations (Grid and Market) related training courses, simulator scenarios and training programs to real-time personnel, Operators-in-training (OITs), other ISO departments, and external entities in form of Grid Ops Training, Summer Workshops, and on-the-job training (OJT).
<b><i>Manage Reliability Requirements</i></b>	Depicts the required activities to support the Resource Adequacy program adopted by the California Public Utilities Commission (CPUC) and other local regulatory agencies in compliance with California mandates. The RA program ensures that sufficient resources are available to meet the expected peak demand and provides for reliable power delivery throughout the ISO Control Area.
<b><i>Master File Updates</i></b>	Depicts the required activities to maintain and update the Master File - a database that stores all of the operational data regarding generators, loads and other system resources that participant in the ISO markets. Requests for Master File additions and updates are received directly from market participants and also from various internal areas such as customer service, market operations and settlements. The process for clarifying, implementing and confirming requests requires at least 5 business days and may take up to 11 depending on the complexity of the request.
<b><i>EMAA Telemetry</i></b>	Depicts the process for configuring and testing telemetry for new or existing generators including PDR. The process describes how RIG engineers review documentation to develop point lists, finalize data point lists with generators, and submit the point lists to EMS for QAS testing. RIG engineers then verify the QAS output, perform point-to-point testing and work with MCI to setup A/S testing.
<b><i>Provide Stakeholder Training</i></b>	This process describes detailed steps for providing training to stakeholders.
<b><i>Station Power Implementation</i></b>	Station Power is the Energy used to operate auxiliary equipment and other Load that is directly related to the production of Energy by a Generating Unit (ex. Heating and lighting for offices located at the plant). FERC has established a policy that allows a single entity that owns one or more Generating Units to self-supply Station Power over a monthly netting period using Energy generated on-site or remotely. Through the ISO Station Power Service program, Generators can convert their Station Power from retail service to wholesale service.



Manage Market & Reliability Data & Modeling (MMR) (80004) (Continued)	
Processes	Process Descriptions
Market Services Implementation	Depicts the coordination activities required to prepare new resources to participate and provide services in the ISO markets and grid. This can also include managing changes to information regarding a resource’s participation and services provided in the ISO markets and grid. A resource’s eligibility to participate and/or provide market and grid services is defined by the ISO Tariff and associated regulatory agreements. The resources can include, but are not limited to, generation and load resources as well as portions of the scheduling coordinator, CRR, transmission rights allocation (TRTC) and Transmission Control Agreement (TCA) processes as needed for market participation. It does not include managing the interconnection of transmission resources. Although this process triggers and coordinates changes across multiple other ISO interconnection and implementation process areas (e.g. Resource Data Maintenance, Reliability Requirements, Metering and Telemetry, Regulatory Contracts, Full Network Model, Operations Procedure Maintenance, etc) the primary objective of the process is to align the implementation timelines and activities between a participating resource and the ISO in order to achieve the planned Commercial Operation Date (COD).

Manage Market Setup & Execution (MMS) (80005)	
<ul style="list-style-type: none"><li>• Manages transmission and generation outages to ensure continuous flow of power to all customers</li><li>• Includes dutiful execution of the Day Ahead Market and Interchange Scheduling</li><li>• Ensures all local capacity requirements are met and the power is delivered in the least cost possible by avoiding congested areas</li></ul>	
Processes	Process Descriptions
Manage D+2 Analysis	Depicts the analysis activities which occur after the Day Ahead Market (D+1) has been run. Currently the D+2 run is run "today" for 2 days out and utilizes the appropriate outages and load forecasts for that D+2 date, but utilizes the D+1 Master File and Bid data. The D+2 run includes MPM-RRD, IFM and RUC- results are reported but not published externally. The Day Ahead operators run the D+2 processes and are supported by Market Operations and Engineering to analyze the pricing, binding constraints and other outputs. The objective for the analysis is to discover any issues or inconsistencies in the outputs which can be resolved before reaching the D+1 run.
Manage Day Ahead Market	Depicts the required activities to run the Day Ahead Market from the time that bids can be submitted (T-7) through to when the results have published and are passed through to the Real Time Market.
Manage Day Ahead & Real Time Runs & Price Validations	Depicts the activities related to the validation and correction of market solution results from both the Day-Ahead and Real-Time Markets including market conditions and prices (Locational Marginal Prices or LMPs). The goal of this process is to minimize the occurrence and length of situations where invalid or problematic market solutions affect the dispatch of energy which thereby reduces the number of associated price corrections. Process outcomes and corrections are published on the ISO website in a weekly Market Validation Report.
Manage Generation Outages	Depicts the required activities to coordinate and manage planned and forced generation outages to best ensure system reliability while successfully meeting demand and managing system congestion.
Manage Interchange Scheduling	The Manage Interchange Scheduling process involves validating and approving requests for interchange schedules (RFIs), implementing approved schedules in Real Time and resolving Net Scheduled Interchange (NSI) and Net Actual Interchange (NAI) discrepancies both prior to schedule implementation in EMS as well as After the Fact (ATF). The Prescheduling process ensures that the inter-tie schedules submitted prior to the operating day have valid e-Tags, have Day Ahead Market awards, conform to all market and contractual obligations and are checked out with Adjacent Balancing Authorities
Manage Transmission Outages	Depicts the required activities to coordinate and manage planned and forced transmission outages to best ensure system reliability while successfully meeting demand and managing system congestion.

Operate Real Time Market & Grid (OMG) (80006)	
<ul style="list-style-type: none"><li>• Manages Real Time Scheduling to ensure that load is balanced to generation and that dispatch instructions are generated</li><li>• Operates the Day Ahead and Real Time energy markets</li><li>• Performs Generation and Transmission Dispatch</li></ul>	
Processes	Process Descriptions
Manage Critical Facility Systems	Depicts the process of monitoring, detecting, and assessing the severity of events that adversely affect critical systems. Also includes the notification of other ISO parties, procuring vendors as needed, and managing the event resolution activities to completion.
Manage Emergency Operations	<p>This process includes stages of emergency situations ranging from reserve shortages, to load shedding, to brown/black restoration, etc. As well as system restoration steps.</p> <p>* Trigger: Grid event, Reserve Deficiency, Generation / Transmission forced outage, External Control Area Emergency, Fires - Environmental Hazards</p> <p>* Performance measures: Emergency response and resolution</p> <p>* Frequency: As needed</p> <p>* Turnaround time / due time: ASAP</p>
Manage Operations Engineering Support	Depicts the activities surrounding engineering support of real time operations, which could include analysis as well as tool and procedure updates.
Manage Real Time Market- After Close of Market (RTPD)	<p>Depicts the required activities to run the Real-Time Market following its close and the receipt of all real-time bids. System Operations performs the following:</p> <p>(1) Run the Real-Time Market Power Mitigation (MPM) and Reliability Requirements Determination (RRD) processes</p> <p>(2) Manage the Hour-Ahead Scheduling Process (HASP) and</p> <p>(3) Run unit commitment processes - Short-Term Unit Commitment (STUC) runs hourly looking 5 hours ahead, Real-Time Unit Commitment (RTUC) runs every 15 minutes, and Real-Time Economic Dispatch (RTED) runs every five minutes for imbalance energy needs. The time horizon represented by the full process is Trade Hour minus 45 minutes to Trade Hour plus 60 minutes.</p>
Manage Real Time Market- Prior to Close of Market Bidding	<p>Depicts the required activities to prepare for running the Real-Time Market. System Operations performs the following:</p> <p>(1) Reviews and adjusts Day-Ahead schedules as needed</p> <p>(2) Manages the real-time bidding process and</p> <p>(3) Prepares for the Real-Time Market hourly intervals process. Time horizon represented by the full process is Trade Hour minus 30 minutes Trade Hour plus 240 minutes.</p>
Manage Real Time Operations- Generation Dispatch (Working Copy)	Depicts the required activities for executing the 5 minute dispatches as well for monitoring and mitigating ACE, AGC, reserves, contingencies, exceptional dispatch, etc
Manage Real Time Operations- Transmission Dispatch (Working Copy)	Depicts the required activities for managing, monitoring and mitigating flows throughout the ISO's grid from the transmission dispatch perspective.
Manage RT Interchange Scheduling	The Real Time/ Intra Hour Change process ensures that Real Time updates and adjustments to inter-tie schedules include validation of e-Tags, confirmation of CISO market awards, conform to all market and contractual obligations and are checked out with Adjacent Balancing Authorities (ABAs) and WECC Interchange (WIT) in accordance with NERC policies.

<b>Manage Operations Support &amp; Settlements (MOS) (80007)</b>	
<ul style="list-style-type: none"> <li>• Improves market efficiency by finding the most cost effective way of doing business</li> <li>• Lowers the financial risk of participating in the wholesale market that in turn lowers the cost of doing business with the ISO</li> <li>• Translates lower costs into less overhead for ISO customers who can pass the savings to ratepayers</li> </ul>	
<b>Processes</b>	<b>Process Descriptions</b>
<b>Manage Rules of Conduct</b>	Depicts the process to identify and review potential violations of the Rules of Conduct in CAISO Tariff, levy sanctions where violations are confirmed, allocate those funds as appropriate, and refer specific matters to DMM for further research and possible referral to FERC.
<b>Manage Regulation No Pay &amp; Deviation Penalty Calculations</b>	Depicts the process to manage regulation no pay and deviation penalty calculations for settlement statements.
<b>Manage Dispute Analysis &amp; Resolution</b>	Depicts the required activities to coordinate a timely, efficient and accurate dispute resolution process.
<b>Manage Energy Measurement Acquisition &amp; Analysis</b>	Depicts the required activities to collect, analyze and validate meter data submitted by scheduling coordinators, ISO-metered entities, metered subsystems and the Interties. Data must be confirmed as Settlement Quality Meter Data (SQMD) before being passed on to the Settlements team for use in the market clearing process.
<b>Manage Market Billing &amp; Settlements</b>	The process of Market Billing and Settlements depicts the required activities of collecting market data, processing pass through bill (PTB) data, calculating charges, and publishing Initial and Recalculation (Recalc) statement & invoices to market participants.
<b>Manage Market Clearing</b>	Depicts the process of reconciling Market and RMR invoices and receiving funds from market participants. Once funds are received, the ISO moves funds to investment and corporate accounts as necessary, and sends wire transfers to Market Participants to clear the market.
<b>Manage Market Performance</b>	Depicts the required activities to monitor and report on the daily, routine performance of the ISO markets to identify operations trends and anomalies and monitor ongoing issues. Market performance is summarized within daily internal reports and monthly reports to the Board of Governors and FERC.
<b>Manage Price Validation &amp; Corrections</b>	Depicts the process of receiving price issues from the Day Ahead or Real Time markets, researching the issues, and providing corrected pricing data.
<b>Manage the Market Quality System (MQS)</b>	Depicts the activities related to the completion of post-process corrections on data from the Day-Ahead and Real-Time Markets. This process reduces the need for manual validation, verification and correction of transactional data that could affect market settlements, thereby reducing invoice errors and disputes. The Market Quality System (MQS) calculates expected energy costs, dispatch operating point, trading hubs, settlement allocations and start up/minimum load costs and publishes them on the OASIS website.
<b>Manage Data Requests</b>	Depicts the required activities to coordinate a timely, efficient and accurate response to data requests from internal and external parties.
<b>WREGIS Application Process</b>	Depicts the process for parties to apply to receive WREGIS QRE services from the CAISO. WREGIS is a western interconnect-wide renewable energy registry and tracking system established to promote verified tracking of renewable energy production and procurement and facilitate the growth of renewable energy. Qualified Reporting Entities (QREs) report generation output data into the WREGIS tracking system on behalf of renewable generators.
<b>ISO Meter Engineering (Under Development)</b>	Depicts the process of working on service calls received by certified meter inspectors, CAISOME meter owners, utilities, municipalities, and all other meter and polling inquiries.
<b>ISO RIG Engineering (Under Development)</b>	Depicts the processes require to provide support services to existing RIG installations to provide reliable generation data to real time operations.
<b>Market Issues Steering Committee</b>	The CAISO Market Issue Management policy provides the framework by which a cross function team of Operations, Information Technology and Market and Infrastructure Development can successfully manage issues associated with market functionality, processes or policy.

<b>Plan &amp; Manage Business (PMB) (80008)</b>	
<ul style="list-style-type: none"> <li>Aligns the strategic planning process more closely with budget planning</li> <li>Defines, creates and nurtures a culture of cost-consciousness as well as enhancing services while not adding costs</li> <li>Allows stakeholders to participate in ISO governance where costs and reliability issues are balanced</li> </ul>	
<b>Processes</b>	<b>Process Descriptions</b>
<b>Compliance Committee</b> (Under Development)	Will depict the Compliance Committee activities which could include decisions as well as inputs to the Corporate Governance processes (ELT, Board of Governors, etc).
<b>Develop &amp; Implement Process, Risk, Strategy &amp; Business Continuity Programs</b> (Under Development)	Will depict Organizational Effectiveness activities as related to planning, organizing, monitoring and maintaining enterprise Process, Risk, Strategy and Business Continuity programs and projects
<b>Enterprise Corporate Governance</b> (Under Development)	<p>Board Process: Depicts the activities involved in the planning of regularly scheduled Board meetings, including agenda topic development, memo and presentation drafting, executive review of materials, delivery of materials to the Board, presentation dry run, and post-meeting activities.</p> <p>Board Selection Process: Depicts the process surrounding the selection of a new member or the reappointment of an existing member, to the ISO Board prior to the expiration of any Board member's term.</p> <p>CMC Project Approval: Depicts the process of formal review and approval for initial and continued funding for projects and assets</p>
<b>Project Demand Management</b>	Depicts Program Office driven activities from portfolio and release planning through to software development and funding activities.
<b>Financial Planning</b>	<p>Financial Planning, Budgeting &amp; Rates: Presents the milestones needed to complete the Operating &amp; Maintenance and Capital Projects. This would ensure development of a comprehensive, well thought-out budget to meet CAISO needs.</p> <p>Manage Financial Planning: Depicts the process for long-term financial planning beyond the yearly budget. Considers the long-term rate structure for the ISO, looks at out years to develop the 10-year budget forecast, and includes the process of issuing bonds.</p>
<b>Identify, Assess, Mitigate, and Monitor Enterprise Risk</b>	This process depicts activities engaged in across business functions to identify risks and opportunities in the ISO's internal and external environments that would impact its business objectives, evaluate them to determine residual risk exposure, and develop and monitor enterprise risk mitigation strategies to address them. It leverages information across all business functions, and is a key input into the strategic planning process.
<b>IT Application &amp; Technology Portfolio Management</b>	This process Identifies new or potential upgrade target technologies for implementation into the ISO's computing infrastructure (includes data architecture).
<b>IT Resource Planning</b> (Under Development)	Depicts the process of resource planning of human resources among various projects or operational activities, maximizing the utilization of available personnel resources to achieve business goals.
<b>Manage &amp; Monitor Enterprise Performance</b> (Under Development)	Will depict a process that covers the collecting, analysis and reporting of enterprise performance metrics, including those that measure the ISO's execution against corporate goals and initiatives as well as others that measure the overall health of the organization.
<b>Policy Review Committee</b>	This process ensures consistency of ISO policy positions and coordination of approaches across ISO activities in order to enhance organizational effectiveness. To accomplish this, the process performs timely triage when new issues are identified, and provides guidance as needed to in-progress policy and implementation activities.
<b>Project Demand Management</b>	Depicts Program Office driven activities from portfolio and release planning through to software development and funding activities.
<b>Strategic Planning</b>	The process by which the ISO gathers internal and external inputs, evaluates them against the existing five-year strategy, updates strategic objectives and corporate initiatives, defines annual corporate goals, and aligns internal business strategies and resources to successfully implement the corporate initiatives and achieve strategic objectives. Also included in this process is the manner by which the ISO monitors and reports on corporate performance, as well as maintaining the corporate dashboard.

Support Business Services (SBS) (80009)	
<ul style="list-style-type: none"> <li>Comprises the objective of institutional sustainability (people, technology) along with the Manage Human Capabilities process</li> <li>Supports well-defined, measured &amp; controlled processes, disciplined business decision making, quality assurance &amp; efficient implementations</li> <li>Expands the ISO's enterprise risk management initiative, and supports the development of defined and measurable controls</li> </ul>	
Processes	Process Descriptions
<b>Compliance Evidence Review &amp; Audit</b> (New & Updates)	Depicts the process where the Compliance Team reviews new or revised standards from NERC and WECC, reviews findings or recommendations from Internal Audit, reviews updates from business units, and examines compliance events or opportunities to improve the quality of compliance evidence.
<b>Compliance Violations (NERC and WECC)</b>	Depicts the actions needed for reporting, investigating, and mitigating compliance incidents
<b>Compliance With New &amp; Revised Standards</b>	Depicts the actions needed for managing changes to standards and the development of new standards
<b>Corporate Compliance Risks Follow Through Accountability and Tracking</b>	Depicts the activities after information about a corporate policy risk or non-compliance incident is communicated, through evaluation and analysis processes, until appropriate actions have been determined. Possible outcomes may include but are not limited to- decision that the incident is not a violation, that a violation occurred and remedial and/or disciplinary actions are required.
<b>Identify Tariff Violations &amp; Ineffective Market Rules</b>	This process performs the following: 1) Identify and review potential violations of Rule of Conduct in CAISO Tariff or ineffective market rules 2) Refer potential violations of Rules of Conduct to FERC 3) Recommend potential rule changes to CAISO
<b>Invest Corporate Funds</b>	This process involves the short-term and intermediate term (up to 5 years) investing of ISO funds sourced from GMC collections. Investing is done within the parameters of the Board approved investment policy.
<b>IT Application &amp; System Maintenance</b> (Working Copy)	All application support and maintenance which is not directly related to a project, Incident Management or Problem Management.
<b>IT Asset Management</b> (Working Copy)	Business practices that join financial, contractual and inventory functions to support life cycle management and strategic decision making for the IT environment. Assets include all elements of software and hardware that are found in the business environment.
<b>IT Availability Management</b> (Working Copy)	Ensures the level of service availability delivered in all services is matched to or exceeds the current and future agreed needs of the business.
<b>IT Capacity Management</b> (Working Copy)	Ensures the cost-justifiable IT capacity in all areas of IT always exists and is matched to the current and future needs of the business in a timely manner. Also reports the current state and future forecast of IT Capacity.
<b>IT Configuration, Change &amp; Release Management- High Level Process Flow</b>	Depicts the process to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes to a controlled IT infrastructure, in order to minimize the number and impact of any related incidents upon implementation of changes.
<b>IT Environment Management</b> (Working Copy)	Provides the framework to manage IT system environment usage for projects, enhancements, maintenance and training.
<b>IT Event Management</b> (Working Copy)	Depicts the process to create new monitoring to detect and analyze events.
<b>IT Incident Management</b> (Working Copy)	Depicts the process to ensure restoration to a normal service operation as quickly as possible while minimizing the impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained
<b>IT Information Security Management</b> (Working Copy)	Ensure validation of critical cyber assets, quarterly. Align IT and business security to ensure information security is managed effectively in all services and service management activities
<b>IT Problem Management</b>	Depicts the process to resolve the root cause of IT problems. These may involve system tuning, changing operating system or device parameters, or even refactoring the application software to resolve poor performance due to poor design or bad coding practices.
<b>IT Service Desk</b> (Working Copy)	The objectives of the Service Desk are: 1) Providing a single (informed) point of contact for customers and 2) Facilitating the restoration of normal operational service with minimal business impact on the customer within agreed SLA levels and business priorities.
<b>IT Service Level Management</b> (Working Copy)	Ensures an agreed to level of IT service is provided for all current IT services and the future services are delivered to agreed achievable targets. This includes the development and maintenance of SLA's and OLA's with the business and within IT.
<b>IT Service Validation &amp; Testing (QA)</b> (Not Project Related) (Under Development)	For an enhancement: 1. Request for a software modification comes in from the Business Unit or possibly a MP. For a defect fix/CMR: 1. Issue is identified by QA, Business SME or MP, a defect is written against the software.
<b>Maintain Work Environment</b>	Depicts the process to provide and manage a highly reliable building infrastructure that supports a safe, efficient and comfortable work environment and contributes to enterprise-wide teamwork and collaboration.
<b>Manage Corporate Incident Response</b>	Depicts how the ISO will implement the Incident Command System (ICS) to manage an incident that affects business across the organization. Once implemented, the Incident Management Team uses this process to stabilize, mitigate, and terminate an incident.
<b>Manage Dispute Resolution &amp; Litigation</b>	This process deals with Managing Litigation after it is received by the Legal Department at the ISO.
<b>Manage Enterprise Independent Assessments</b>	Manage Annual Operational Assessment: Depicts the process of selecting topics, performing dry-runs and actual audits, and reporting the results for the Operational Assessment. Corporate Internal Financial Controls: Details the periodic review of Internal controls on the processes that directly impact the presentation and review of the financial statements of the company.
<b>Manage Financial Reporting</b>	Depicts the monthly, quarterly, and annual sub-processes needed to complete the financial reporting cycle.
<b>Manage Internal Audit</b>	Depicts the approval and performance activities required for the scheduling, planning, conducting, documenting, and follow-up for deficiencies identified during internal audits.



Support Business Services (SBS) (80009) (continued)	
Processes	Process Descriptions
Manage Monthly Financial Cycle	Collections: Details the Corporate Accounts Receivables activities which include invoicing, processing payments and bank deposits. Accounts Payable (Invoices): Validates invoice/PO, approval of payments, disbursements to vendors. Accounts Payable (Expense Reports): Validates Expense Reports, approval of payments, disbursements employees. Financial Cycle: Details the collection, analysis and reporting of monthly financial data in an organized and timely manner for management and business units.
Manage Procurement	This process starts with identification of Business requirements or changes to an approved project and details various activities from project package preparation & approval, commercial contract finalization, vendor selection to delivery of goods/services to business units as a part of corporate procurement activity.
Monitor Market	This process flow describes the market monitoring procedures followed for reviewing market behavior and market results.
Physical Security Access Control	Depicts the process of identifying visitors to ISO facilities and determining their access requirements for badge issuance. Includes the monitoring of active badges and ensuring that badges have been deactivated for visitors and contractors who no longer require access.
Provide Legal Advice & Counsel (Under Development)	Depicts the process of providing legal advice and counsel to other business units in the ISO.

Support Customers & Stakeholders (SCS) (80010)	
<ul style="list-style-type: none"> <li>• Provides the highest quality of service to its customers, market participants and stakeholders</li> <li>• Includes timely resolution of customer issues, corporate-wide customer relationship management and streamlined access to market information</li> <li>• Provides a market design to accommodate renewables and demand response, while keeping costs reasonable and maintaining grid reliability</li> </ul>	
Processes	Process Descriptions
<b>Communications &amp; Public Relations</b>	<p>The Communications and Public Relations Department presents a single, consistent and timely ISO voice and provides a broad range of clear, correct, and useful information to employees, stakeholders, media and the public-at-large.</p> <p>Corporate communication materials are developed and distributed by the department. These include brochures, information kits, annual reports, articles, news releases, market notices and broadcast productions. The team manages three websites: Internet, Market Participant Portal and Intranet sites. The department also develops new products and services, conducting stakeholder focus groups to identify and meet the business needs of market participants.</p> <p>Media relations provided by the department extends to newspaper, radio and TV as well as trade media and international news outlets. CommPR spokespersons provide 24/7 support to media and promote electricity conservation during peak periods of stress on the grid. The department trains in emergency preparedness and performs crisis communication management. All corporate events are coordinated by the department and the team also facilitates tours and speaking engagements.</p>
<b>Government Affairs Process</b>	<p>Depicts the activities required to perform the following:</p> <ol style="list-style-type: none"> <li>1) Respond to inquiries from government and regulatory entities</li> <li>2) Develop strategy jointly with ISO divisions</li> <li>3) Maintain relationships with government and regulatory entities</li> <li>4) Address concerns</li> <li>5) Communicate the ISO's position to government and regulatory entities</li> <li>6) Communicate government and regulatory entity positions internally at the ISO</li> <li>7) Monitor the governmental environment</li> <li>8) Develop work plans to implement ISO initiatives and strategies</li> </ol>
<b>Manage Stakeholder Process</b>	<p>Administer the stakeholder process in compliance with a set of quality control guidelines for the consistent management of meetings, documents, stakeholder comments and general process structure. Working with other depts, CSIA staff plans each engagement, from conception through the final Board meeting. A master engagement plan is created to guide the stakeholder process for each major initiative. A team is formed between CSIA and the functional organization leading the stakeholder process. Customer engagements, whether they be meetings, papers or conference calls, are planned and executed by these teams. A feedback loop at the end of each meeting helps to validate success, and sets the stage for ongoing improvements.</p>
<b>Resolve Client Issues</b>	<p>This process aims to improve Customer Service and ensure that CAISO's Scheduling Coordinators' (SC's) issues and inquiries get resolved in a timely manner.</p> <ol style="list-style-type: none"> <li>1. Each SCs is assigned a Client Representative (CR). SC either calls Client Representative to raise inquiry or issue or directly logs the query in TRAIN through external web interface.</li> <li>2. CAISO uses TRAIN to route the inquiry along the company.</li> <li>3. Customer Services will either resolve the inquiry internally or will route it to a business unit using ownership matrix.</li> <li>4. Assigned Business Unit plans and provides resolution back to Customer Services</li> <li>5. Customer Services communicated the resolution to SC and closes the ticket in TRAIN</li> </ol> <p>Issues that fall outside the bid to bill processes, example CAISO policy issues, are handled by Accounts Managers (AM).</p>
<b>Strategic Client Account Management</b>	<p>ISO Account Managers develop high-level relationships with clients, with the goal of supporting quality dialogue between the ISO and key customers. Tasks include: fast response to customer inquiries on major projects and policy matters, working in in concert with customer staff to arrange senior level meetings and their agendas, coordinating the interaction with senior stakeholders and their ISO management peers, overseeing the response by the ISO to stakeholder questions, contributing to individual client interactions within the stakeholder process, and reporting to management on key customer issues, particularly on policy matters that will be addressed by the Board.</p>



Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities		Develop Infrastructure (80001)									
ABC Level 2 Activities		Develop & monitor regulatory contract procedures	Manage LGIP cluster studies	Manage long term trans-mission planning	Manage new trans-mission resources & grid changes	Manage SGIP studies	Manage short term trans-mission planning	Manage trans-mission inter-connect-ions	Manage trans-mission maint-enance standards	NERC / WECC loads & resources data requests	Regulatory contract negotiat-ions
Customer Categories											
CRR		No	Y	Y	Y	Y	Y	No	No	No	Y
PTO		Y	Y	Y	Y	Y	Y	Y	Y	No	Y
MSS	LOAD FOLLOWING	Y	Y	Y	Y	Y	Y	No	No	Y	Y
MSS	NET vs GROSS	Y	Y	Y	Y	Y	Y	No	No	Y	Y
IL	UDC	No	Y	Y	Y	Y	Y	No	No	Y	Y
IL	ESP	No	Y	Y	Y	Y	Y	No	No	Y	Y
IL	PARTICIPATING LOAD	No	Y	Y	Y	Y	Y	No	No	Y	Y
IL	PUMP LOAD	No	Y	Y	Y	Y	Y	No	No	Y	Y
IG	RENEWABLES	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IG	subject to RA	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IG	QF	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IG	MERCHANT (BID vs SELF-SCHED)	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IG	PDR	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IG	RMR										
IG	PUMP GEN	Y	Y	Y	Y	Y	Y	Y	No	Y	Y
IMPORT	SELF SCHED	No	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	BID	No	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	WHEELS	No	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y	No	No	Y
IMPORT	subject to RA										
IMPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y	No	No	Y
EXPORT	SELF SCHED	No	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	BID	No	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	WHEELS	No	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y	No	No	Y
EXPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y	No	No	Y
FINANCIAL	CONVERGENCE BIDDING	No	No	No	No	No	No	No	No	No	No
FINANCIAL	ISC TRADE	No	No	No	No	No	No	No	No	No	No
ETC		No	Y	Y	No	Y	Y	No	Y	No	No
TOR	EXISTING	No	Y	Y	No	Y	Y	No	Y	No	No
TOR	NEW	Y	Y	Y	Y	Y	Y	No	Y	No	Y

Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities		Develop Markets (80002)						
ABC Level 2 Activities		BPM change manage- ment process	Develop State / Federal regulatory policy	Manage regulatory filings	Manage tariff amend- ments	Market design & regulatory policy	Manage market analysis & develop- ment	Perform market analysis
Customer Categories								
CRR		Y	Y	Y	Y	Y	Y	Y
PTO		Y	Y	Y	Y	No	No	No
MSS	LOAD FOLLOWING	Y	Y	Y	Y	Y	Y	Y
MSS	NET vs GROSS	Y	Y	Y	Y	Y	Y	Y
IL	UDC	Y	Y	Y	Y	Y	Y	Y
IL	ESP	Y	Y	Y	Y	Y	Y	Y
IL	PARTICIPATING LOAD	Y	Y	Y	Y	Y	Y	Y
IL	PUMP LOAD	Y	Y	Y	Y	Y	Y	Y
IG	RENEWABLES	Y	Y	Y	Y	Y	Y	Y
IG	subject to RA	Y	Y	Y	Y	Y	Y	Y
IG	QF	Y	Y	Y	Y	Y	Y	Y
IG	MERCHANT (BID vs SELF-SCHED)	Y	Y	Y	Y	Y	Y	Y
IG	PDR	Y	Y	Y	Y	Y	Y	Y
IG	RMR							
IG	PUMP GEN	Y	Y	Y	Y	Y	Y	Y
IMPORT	SELF SCHED	Y	Y	Y	Y	Y	Y	Y
IMPORT	BID	Y	Y	Y	Y	Y	Y	Y
IMPORT	WHEELS	Y	Y	Y	Y	Y	Y	Y
IMPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y
IMPORT	subject to RA							
IMPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y
EXPORT	SELF SCHED	Y	Y	Y	Y	Y	Y	Y
EXPORT	BID	Y	Y	Y	Y	Y	Y	Y
EXPORT	WHEELS	Y	Y	Y	Y	Y	Y	Y
EXPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y
EXPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y
FINANCIAL	CONVERGENCE BIDDING	Y	Y	Y	Y	Y	Y	Y
FINANCIAL	ISC TRADE	Y	Y	Y	Y	No	No	No
ETC		Y	Y	Y	Y	Y	No	No
TOR	EXISTING	Y	Y	Y	Y	Y	No	No
TOR	NEW	Y	Y	Y	Y	Y	No	No

Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities		Manage Market & Reliability Data & Modeling (MMR) (80004)															
ABC Level 2 Activities		ISO meter certification	Facilitate SC certification	High level manage FNM maintenance	Manage & facilitate procedure maintenance	Manage CRRs	Manage credit & collateral	Manage network applications	Manage operations engineering studies	Execute & track operations training	Plan & develop Manage operations training	Manage reliability require- ments	Master file updates	EMAA telem-etry	Provide stake- holder training	Station power inple- mentation	Market services imple- mentation
Customer Categories																	
CRR		No	No	Y	No	Y	Y	Y	No	No	No	No	Y	No	Y	Y	No
PTO		No	No	Y	Y	No	Y	Y	Y	Y	Y	No	Y	No	No	Y	Y
MSS	LOAD FOLLOWING	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
MSS	NET vs GROSS	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IL	UDC	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IL	ESP	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IL	PARTICIPATING LOAD	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IL	PUMP LOAD	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IG	RENEWABLES	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IG	subject to RA	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No
IG	QF	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IG	MERCHANT (BID vs SELF-SCHED)	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IG	PDR	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IG	RMR																Y
IG	PUMP GEN	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IMPORT	SELF SCHED	No	Y	Y	No	No	Y	Y	Y	Y	Y	No	Y	No	Y	Y	No
IMPORT	BID	No	Y	Y	No	No	Y	Y	Y	Y	Y	No	Y	No	Y	Y	No
IMPORT	WHEELS	No	Y	Y	No	No	Y	Y	Y	Y	Y	No	Y	No	Y	Y	No
IMPORT	PSEUDO'S	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
IMPORT	subject to RA																
IMPORT	DYNAMICS	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	No	Y	Y	Y	Y	No
EXPORT	SELF SCHED	No	Y	Y	No	No	Y	Y	No	No	No	No	Y	No	Y	Y	No
EXPORT	BID	No	Y	Y	No	No	Y	Y	No	No	No	No	Y	No	Y	Y	No
EXPORT	WHEELS	No	Y	Y	No	No	Y	Y	No	No	No	No	Y	No	Y	Y	No
EXPORT	PSEUDO'S	Y	Y	Y	Y	No	Y	Y	No	No	No	No	Y	Y	Y	Y	No
EXPORT	DYNAMICS	Y	Y	Y	Y	No	Y	Y	No	No	No	No	Y	Y	Y	Y	No
FINANCIAL	CONVERGENCE BIDDING	No	Y	Y	No	No	Y	Y	No	No	No	No	Y	No	Y	Y	No
FINANCIAL	ISC TRADE	No	Y	No	No	No	Y	No	No	No	No	No	Y	No	Y	Y	No
ETC		No	No	Y	Y	No	No	Y	Y	Y	Y	No	Y	No	No	Y	No
TOR	EXISTING	No	No	Y	Y	No	No	Y	Y	Y	Y	No	Y	No	No	Y	No
TOR	NEW	No	No	Y	Y	No	No	Y	Y	Y	Y	No	Y	No	No	Y	No

Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities		Manage Market Setup & Execution (MMS)						Operate Real Time Market & Grid (OMG) (80006)							
ABC Level 2 Activities		Manage D+2 analysis	Manage DA market	Manage DA & RT runs & price validation	Manage generation outages	Manage inter-change scheduling	Manage trans-mission outages	Manage critical facility systems	Manage emergency opera- tions	Manage opera- tions engin- eering support	Manage RT market - after close of market	Manage RT market - prior to close of market bidding	Manage RT opera- tions - genera- tion dispatch	Manage RT opera- tions - trans- mission dispatch	Manage RT inter- change scheduling
Customer Categories															
CRR		No	No	No	No	No	No	Y	No	No	No	No	No	No	No
PTO		No	No	No	No	No	Y	Y	Y	Y	No	No	No	Y	No
MSS	LOAD FOLLOWING	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MSS	NET vs GROSS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	UDC	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	ESP	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	PARTICIPATING LOAD	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	PUMP LOAD	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	RENEWABLES	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	subject to RA	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	QF	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	MERCHANT (BID vs SELF-SCHED)	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	PDR	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	RMR														
IG	PUMP GEN	Y	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	SELF SCHED	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	BID	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	WHEELS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	subject to RA														
IMPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	SELF SCHED	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	BID	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	WHEELS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	PSEUDO'S	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	DYNAMICS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FINANCIAL	CONVERGENCE BIDDING	Y	Y	Y	No	No	No	Y	No	No	No	No	No	No	No
FINANCIAL	ISC TRADE	No	No	No	No	No	No	Y	No	No	No	No	No	No	No
ETC		No	No	No	No	No	Y	Y	Y	Y	No	No	No	Y	No
TOR	EXISTING	No	No	No	No	No	Y	Y	Y	Y	No	No	No	Y	No
TOR	NEW	No	No	No	No	No	Y	Y	Y	Y	No	No	No	Y	No

Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities		Manage Operations Support & Settlements (MOS) (80007)													
ABC Level 2 Activities		Manage rules of conduct	Manage regulation no pay & deviation penalty calculations	Manage dispute analysis & resolution	Manage energy measurement acquisition & analysis	Manage market billing & settlements	Manage market clearing	Manage market performance	Manage price validation & corrections	Manage the market quality sustem (MQS)	Manage data requests	WREGIS applica-tion process	ISO meter engin-eering	ISO RIG engin-eering	Market issues steering committee
Customer Categories															
CRR		No	No	Y	No	Y	Y	Y	Y	No	Y	Y	No	No	Y
PTO		No	No	No	No	Y	Y	No	No	No	Y	Y	No	No	Y
MSS	LOAD FOLLOWING	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MSS	NET vs GROSS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	UDC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	ESP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	PARTICIPATING LOAD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IL	PUMP LOAD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	RENEWABLES	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	subject to RA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	QF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	MERCHANT (BID vs SELF-SCHED)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	PDR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IG	RMR														
IG	PUMP GEN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	SELF SCHED	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	BID	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	WHEELS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
IMPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMPORT	subject to RA														
IMPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	SELF SCHED	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	BID	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	WHEELS	Y	Y	Y	No	Y	Y	Y	Y	Y	Y	Y	No	No	No
EXPORT	PSEUDO'S	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EXPORT	DYNAMICS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FINANCIAL	CONVERGENCE BIDDING	No	No	Y	No	Y	Y	Y	Y	No	Y	Y	No	No	No
FINANCIAL	ISC TRADE	No	No	No	No	Y	Y	No	Y	No	Y	Y	No	No	No
ETC		No	No	No	No	Y	Y	No	No	No	Y	Y	No	No	No
TOR	EXISTING	No	No	No	No	Y	Y	No	No	No	Y	Y	No	No	No
TOR	NEW	No	No	No	No	Y	Y	No	No	No	Y	Y	No	No	Y

Exhibit 2 - Level 2 Activities by customer classes

ABC Level 1 Activities	
ABC Level 2 Activities	
Customer Categories	
CRR	
PTO	
MSS	LOAD FOLLOWING
MSS	NET vs GROSS
IL	UDC
IL	ESP
IL	PARTICIPATING LOAD
IL	PUMP LOAD
IG	RENEWABLES
IG	subject to RA
IG	QF
IG	MERCHANT (BID vs SELF-SCHED)
IG	PDR
IG	RMR
IG	PUMP GEN
IMPORT	SELF SCHED
IMPORT	BID
IMPORT	WHEELS
IMPORT	PSEUDO'S
IMPORT	subject to RA
IMPORT	DYNAMICS
EXPORT	SELF SCHED
EXPORT	BID
EXPORT	WHEELS
EXPORT	PSEUDO'S
EXPORT	DYNAMICS
FINANCIAL	CONVERGENCE BIDDING
FINANCIAL	ISC TRADE
ETC	
TOR	EXISTING
TOR	NEW

Abbreviations	
BA	Balancing authority (CAISO control area)
CRR	Congestion revenue right
DA	Day ahead
ESP	Energy service provider (Direct access)
ETC	Existing transmission contract (phasing out)
FNM	Full network model
IG	Internal generation (generation in the BA)
IL	Internal load (load in the BA)
IST	Inter Scheduling Coordinator trades
MSS	Metered sub-system
PDR	Proxy demand response
PTO	Participating transmission owner
QF	Qualifying facility
RA	Resource adequacy
RT	Real time
SC	Scheduling coordinator
TOR	transmission ownership rights
UDC	Utility distribution company

Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Develop Infrastructure (DI) (80001)</b>					
Develop & monitor regulatory contract procedures		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage LGIP cluster studies		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage long-term transmission planning		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage new transmission resources & grid changes		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage SGIP studies		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage short-term transmission planning		100%			managing the building of the grid thus the costs are entirely to support system operations
Manage transmission maintenance standards		100%			managing the building of the grid thus the costs are entirely to support system operations
NERC / WECC loads & resources data requests		100%			managing the building of the grid thus the costs are entirely to support system operations
Regulatory contract negotiations		100%			managing the building of the grid thus the costs are entirely to support system operations
<b>Develop Markets (DM) (80002)</b>					
BPM change management process				100%	not distinguishable attribute to any specific category
Develop State / Federal regulatory policy				100%	not distinguishable attribute to any specific category
Manage regulatory filings				100%	not distinguishable attribute to any specific category
Manage tariff amendments				100%	not distinguishable attribute to any specific category
Market design & regulatory policy	100%				the costs are entirely to support the market results & function
Manage market analysis & development	100%				the costs are entirely to support the market results & function
Perform market analysis	100%				the costs are entirely to support the market results & function
<b>Manage Market &amp; Reliability Data &amp; Modeling (MMR) (80004)</b>					
ISO meter certification		100%			measuring flows on the grid thus the costs are entirely to support system operations
Facilitate SC certification				100%	not distinguishable attribute to any specific category
High level manage FNM maintenance	50%	50%			the costs support equally both market and system operations
Manage & facilitate procedure maintenance	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Manage CRRs			100%		the costs are entirely to support the CRR process
Manage credit & collateral	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage network applications		100%			involves EMS thus the costs are entirely to support system operations
Manage operations engineering studies		100%			studying flows on the grid thus the costs are entirely to support system operations
Execute & track operations training	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Plan & develop operations training	20%	80%			significantly more operational procedures, thus the costs are predominantly operational flow based but have some market relationship
Manage reliability requirements		100%			relates to actual system operations thus the costs are entirely to support system operations
Master file updates	50%	50%			resource attributes that support both thus the costs support equally both market and system operations
EMAA telemetry (RIGs)		100%			relates to actual system operations thus the costs are entirely to support system operations
Provide stakeholder training				100%	not distinguishable attribute to any specific category
Station power application procedure	80%	20%			based on procedures for station power
Market services implementation	50%	50%			resource attributes that support both thus the costs support equally both market and system operations



Mapping of ABC level 2 Direct Operating Activities to cost categories					
ABC Level 2 Activities	Market services	System Operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Manage Market Setup &amp; Execution (MMS) (80005)</b>					
Manage D+2 analysis	50%	50%			the costs support equally both market and system operations
Manage DA market	50%	50%			while managing market it results in system starting point for operational flows thus the costs support equally both market and system operations
Manage DA & RT runs & price validations	50%	50%			the costs support equally both market and system operations
Manage generation outages		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage interchange scheduling		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage transmission outages		100%			relates to actual system operations thus the costs are entirely to support system operations
<b>Operate Real Time Market &amp; Grid (OMG) (80006)</b>					
Manage critical facility systems				100%	not distinguishable attribute to any specific category
Manage emergency operations		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage operations engineering support	20%	80%			based on support of day-ahead and real time thus the costs are predominantly operational flow based but have some market relationship
Manage RT market - after close of market	50%	50%			the costs support equally both market and system operations
Manage RT market - prior to close of market bidding	50%	50%			the costs support equally both market and system operations
Manage RT operations - generation dispatch		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage RT operations - transmission dispatch		100%			relates to actual system operations thus the costs are entirely to support system operations
Manage RT interchange scheduling		100%			relates to actual system operations thus the costs are entirely to support system operations
<b>Manage Operations Support &amp; Settlements (MOS) (80007)</b>					
Manage rules of conduct				100%	not distinguishable attribute to any specific category
Manage regulation no pay & deviation penalty calculations		100%			measuring actual performance thus the costs are entirely to support system operations
Manage dispute analysis & resolution				100%	not distinguishable attribute to any specific category
Manage energy measurement acquisition & analysis		100%			measuring actual performance thus the costs are entirely to support system operations
Manage market billing & settlements	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage market clearing	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Manage market performance	50%	50%			the costs support equally both market and system operations
Manage price validation & corrections	50%	50%			related to proper outage allocation thus the costs support equally both market and system operations
Manage the market quality system (MQS)	50%	50%			portion of MQS relates to operational flows thus the costs support equally both market and system operations
Manage data requests				100%	not distinguishable attribute to any specific category
WREGIS application process		100%			measuring actual performance thus the costs are entirely to support system operations
ISO meter engineering		100%			measuring actual performance thus the costs are entirely to support system operations
ISO RIG engineering		100%			measuring actual performance thus the costs are entirely to support system operations
Market issues steering committee	50%	50%			portion related to operational practices & procedures thus the costs support equally both market and system operations



Allocation of Debt Service and Out of Pocket Capital to GMC cost categories					
System	Market services	System operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Operations Related Software</b>					
Automated Dispatch System (ADS)		100%			RT instructions from market to system operations thus the costs are entirely to support system operations
Automated Load Forecast System (ALFS)	50%	50%			market & operations both need forecasts thus the costs support equally both market and system operations
Automatic Mitigation Procedure (AMP)		100%			the costs are entirely to support system operations
Congestion Revenue Rights (CRR)			100%		the costs are entirely to support the CRR process
Credit Liabilities	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
Data Warehouse	20%	80%			5 min intervals in RT only hourly intervals in market thus the costs are predominantly operational flow based but have some market relationship
Energy Management System (EMS)		100%			the costs are entirely to support system operations
Existing Transmission Contracts Calculator (ETCC)	50%	50%			needed for market & system operations thus the costs support equally both market and system operations
Full Network Model / State estimator	50%	50%			needed for market & system operations thus the costs support equally both market and system operations
Grid operations Training Simulator (GOTS)	20%	80%			staff training where substantially more procedures in operations versus market thus the costs are predominantly operational flow based but have some market relationship
Integrated Forward Market (IFM)	50%	50%			results support both financially binding schedules and system operations thus the costs support equally both market and system operations
Market Quality System (MQS)	50%	50%			aligns with direct operating process thus the costs support equally both market and system operations
Master file	50%	50%			aligns with direct operating process thus the costs support equally both market and system operations
Meter Data Acquisition System (MDAS)		100%			data feed reflecting settling actual flow of systems operations performance thus the costs are entirely to support system operations
Multistage Generation (MSG)	50%	50%			the costs support equally both market and system operations
Network Applications	50%	50%			the costs support equally both market and system operations
New Resource Interconnection (RIMs)	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Open Access Same Time Information System (OASIS)	50%	50%			the costs support equally both market and system operations
Operational Meter Analysis & Reporting (OMAR)		100%			same as MDAS thus the costs are entirely to support system operations
Proxy Demand response (PDR)	50%	50%			the costs support equally both market and system operations
Participating Intermittent Resource Project (PIRP)	20%	80%			based on staff training for market services & system operations thus the costs are predominantly operational flow based but have some market relationship
Portal	50%	50%			the costs support equally both market and system operations
CAISO Market Results interface (CMRI)	50%	50%			the costs support equally both market and system operations
Process Information System (PI)		100%			the costs are entirely to support system operations
Real Time markets (RTMA)	20%	80%			support & provide actual dispatches to balance system thus the costs are predominantly operational flow based but have some market relationship
Hour Ahead Market (HASP)	50%	50%			includes market power mitigation thus the costs support equally both market and system operations
Resource Adequacy	50%	50%			the costs support equally both market and system operations

Allocation of Debt Service and Out of Pocket Capital to GMC cost categories					
System	Market services	System operations	CRRs	Indirect	Comments
	% of cost to allocate to category				
Definitions used in allocation	100%				the costs are entirely to support the market results & function resulting in a financially binding schedule or AS award
		100%			the costs are entirely to support system operations
			100%		the costs are entirely to support the CRR process
				100%	not distinguishable attribute to any specific category
	50%	50%			the costs support equally both market and system operations
	45%	45%	10%		this is a 50/50 split after a minimum allocation to CRRs
	80%	20%			the costs are predominantly market related but have some operational relationship
	20%	80%			the costs are predominantly operational flow based but have some market relationship
<b>Operations Related Software (continued)</b>					
RMR application Validation Engine (RAVE)	50%	50%			the costs support equally both market and system operations
Scheduling & Logging for ISO CA (SLIC)	50%	50%			the costs support equally both market and system operations
Control Area Scheduler (CAS)	50%	50%			the costs support equally both market and system operations
Scheduling Infrastructure Business Rules (SIBR)	50%	50%			this contains interface to operations thus the costs support equally both market and system operations
Settlements & Market Clearing (SaMC)	15%	75%	10%		based on DA & RT charge codes which settle 12 intervals operations hour for operations versus hourly for market thus after a minimum allocation to CRRs the costs are predominantly operational flow based but have some market relationship
<b>General Software</b>					
Client relations & engineering analysis tools				100%	not distinguishable attribute to any specific category
DMM & compliance Tools (SAS MARS)	50%	50%			the costs support equally both market and system operations
Local Area Network (LAN), WAN & monitoring (Tivoli)				100%	not distinguishable attribute to any specific category
Office automation desktop laptop (OA)				100%	not distinguishable attribute to any specific category
Oracle Corporate Financials				100%	not distinguishable attribute to any specific category
Security External Physical & ISS (CUDA)				100%	not distinguishable attribute to any specific category
Storage (EMC symmetrix)				100%	not distinguishable attribute to any specific category
<b>Fixed Assets</b>					
Land & feasibility studies				100%	not distinguishable attribute to any specific category
NT servers & WEB servers				100%	not distinguishable attribute to any specific category
New system equipment				100%	not distinguishable attribute to any specific category
Office equipment, physical facilities software, furniture & leasehold improvements				100%	not distinguishable attribute to any specific category

Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to direct operating activities						Allocation of direct operating costs \$ in thousands						
				Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct operating activities
Organization Name	Total	Activities	Other	80001	80002	80004	80005	80006	80007	80001	80002	80004	80005	80006	80007	Total
Chief Executive Officer	6,514	6,514	-	2%	2%	0%	0%	0%	0%	159	159	-	-	-	-	318
VP of Human Resources	6,104	6,104	-	0%	0%	0%	0%	0%	0%	-	-	-	-	-	-	-
VP of Market & Infrastructure Development	14,093	14,093	-	64%	36%	0%	0%	0%	0%	8,959	5,036	49	-	49	-	14,093
VP of Technology, Corporate Services & CFO	65,412	36,592	28,820	0%	0%	3%	0%	0%	1%	124	-	947	-	-	234	1,305
VP of Operations	48,994	48,994	-	2%	3%	21%	18%	38%	16%	1,050	1,507	10,431	8,762	18,642	7,943	48,335
VP, General Counsel & Corporate Secretary	12,671	8,471	4,200	1%	7%	0%	0%	0%	0%	88	561	-	-	-	-	649
VP of Policy & Client Services	8,907	8,907	-	1%	0%	0%	0%	0%	0%	125	-	-	-	-	-	125
<b>Total</b>	<b>162,695</b>	<b>129,675</b>	<b>33,020</b>	<b>8%</b>	<b>6%</b>	<b>9%</b>	<b>7%</b>	<b>14%</b>	<b>6%</b>	<b>10,505</b>	<b>7,263</b>	<b>11,427</b>	<b>8,762</b>	<b>18,691</b>	<b>8,177</b>	<b>64,825</b>

Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to support activities				Allocation of support costs \$ in thousands				
				Support customers & stakeholders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support customers & stakeholders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
Organization Name	Total	Activities	Other	80010	80003	80008	80009	80010	80003	80008	80009	Total
Chief Executive Officer	6,514	6,514	-	0%	0%	55%	40%	-	-	3,565	2,631	6,196
VP of Human Resources	6,104	6,104	-	0%	100%	0%	0%	-	6,104	-	-	6,104
VP of Market & Infrastructure Development	14,093	14,093	-	0%	0%	0%	0%	-	-	-	-	-
VP of Technology, Corporate Services & CFO	65,412	36,592	28,820	0%	0%	20%	76%	131	77	7,405	27,674	35,287
VP of Operations	48,994	48,994	-	0%	0%	0%	1%	40	-	-	619	659
VP, General Counsel & Corporate Secretary	12,671	8,471	4,200	0%	0%	12%	80%	-	-	1,018	6,804	7,822
VP of Policy & Client Services	8,907	8,907	-	88%	0%	11%	0%	7,813	-	969	-	8,782
<b>Total</b>	<b>162,695</b>	<b>129,675</b>	<b>33,020</b>	<b>6%</b>	<b>5%</b>	<b>10%</b>	<b>29%</b>	<b>7,984</b>	<b>6,181</b>	<b>12,957</b>	<b>37,728</b>	<b>64,850</b>

Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to direct operating activities						Allocation of direct operating costs \$ in thousands						
					Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct operating activities
					80001	80002	80004	80005	80006	80007	80001	80002	80004	80005	80006	80007	Total
	Organization Name	Total	Activities	Other													
2100	Chief Executive Officer																
2111	CEO - General	2,373	2,373	-							-	-	-	-	-	-	-
2131	Organizational Effectiveness	1,216	1,216	-							-	-	-	-	-	-	-
2120	Market Monitoring																
2121	Market Monitoring - General	634	634	-							-	-	-	-	-	-	-
2123	Monitoring & Reporting	1,059	1,059	-							-	-	-	-	-	-	-
2124	Analysis & Mitigation	914	914	-							-	-	-	-	-	-	-
2122	Market Surveillance Committee	318	318	-	50%	50%					159	159	-	-	-	-	318
	Total	6,514	6,514	-							159	159	-	-	-	-	318
2340	VP of Human Resources																
2341	Human Resources - General	3,930	3,930	-							-	-	-	-	-	-	-
2342	Learning & Organizational Development	430	430	-							-	-	-	-	-	-	-
2343	Compensation and Benefits	888	888	-							-	-	-	-	-	-	-
2344	HR Operations	856	856	-							-	-	-	-	-	-	-
	Total	6,104	6,104	-							-	-	-	-	-	-	-
2200	VP of Market & Infrastructure Development																
2211	Market & Infrastructure Development - General	1,063	1,063	-	83%	17%					882	181	-	-	-	-	1,063
2221	Regional Transmission - North	2,438	2,438	-	92%	6%	1%		1%		2,244	146	24	-	24	-	2,438
2231	Regional Transmission - South	2,500	2,500	-	92%	6%	1%		1%		2,300	150	25	-	25	-	2,500
2241	Grid Assets	2,222	2,222	-	100%						2,222	-	-	-	-	-	2,222
2720	Market & Infrastructure Policy																
2721	Market & Infrastructure Policy - General	1,354	1,354	-	33%	67%					447	907	-	-	-	-	1,354
2722	Market Design & Regulatory Policy	914	914	-		100%					-	914	-	-	-	-	914
2723	Infrastructure Policy & Contracts	1,290	1,290	-	67%	33%					864	426	-	-	-	-	1,290
2760	Market Analysis & Development																
2761	Market Analysis & Development - General	709	709	-		100%					-	709	-	-	-	-	709
2762	Market Analysis	932	932	-		100%					-	932	-	-	-	-	932
2751	Western Regional Initiatives	671	671	-		100%					-	671	-	-	-	-	671
	Total	14,093	14,093	-							8,959	5,036	49	-	49	-	14,093

Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to direct operating activities						Allocation of direct operating costs \$ in thousands						
					Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct operating activities
	Organization Name	Total	Activities	Other	80001	80002	80004	80005	80006	80007	80001	80002	80004	80005	80006	80007	Total
2400	VP of Technology, Corporate Services & CFO																
2411	Corporate Services - General	1,291	1,291	-							-	-	-	-	-	-	-
2311	Treasurer	2,937	732	2,205			72%				-	-	527	-	-	-	527
2321	Accounting	1,373	1,373	-	9%					4%	124	-	-	-	-	55	179
2331	Financial Planning	1,887	887	1,000						11%	-	-	-	-	-	98	98
2351	Facilities	7,793	1,184	6,609							-	-	-	-	-	-	-
2361	Procurement & Vendor Management	1,211	1,211	-							-	-	-	-	-	-	-
2374	Physical Security	1,920	1,920	-							-	-	-	-	-	-	-
2481	Power System Technology, Architecture & Development	321	321	-							-	-	-	-	-	-	-
2482	Advanced Power Network Technology	971	971	-							-	-	-	-	-	-	-
2483	Smart Grid Technologies and Strategy	-	-	-							-	-	-	-	-	-	-
2440	Business Solutions & Quality																
2463	Business Solutions & Quality - General	1,314	1,314	-							-	-	-	-	-	-	-
2441	Software Quality	2,469	2,469	-							-	-	-	-	-	-	-
2460	Operations Information Technology																
2461	IT Strategy & Support - General	1,281	1,281	-							-	-	-	-	-	-	-
2454	Architecture & Systems Engineering (inactive)	1,675	1,675	-							-	-	-	-	-	-	-
2456	System Administration	2,357	2,357	-							-	-	-	-	-	-	-
2462	EMS Information Technology	2,473	2,473	-			17%			1%	-	-	420	-	-	25	445
2464	Corporate Systems	2,950	2,950	-							-	-	-	-	-	-	-
2465	Critical Systems	1,866	1,866	-						3%	-	-	-	-	-	56	56
2450	IT Support & Operations																
2451	IT Support & Operations - General	6,366	416	5,950							-	-	-	-	-	-	-
2412	Asset management (HW & SW expense only)	13,607	801	12,806							-	-	-	-	-	-	-
2452	System & Database Administration	1,807	1,807	-							-	-	-	-	-	-	-
2453	Data Center & Operations (includes Info Security)	2,638	2,388	250							-	-	-	-	-	-	-
2455	Support Services	2,156	2,156	-							-	-	-	-	-	-	-
2730	Program Office																
2731	Program Office - General	2,104	2,104	-							-	-	-	-	-	-	-
2741	Program Life Cycle & Process	645	645	-							-	-	-	-	-	-	-
	Total	65,412	36,592	28,820							124	-	947	-	-	234	1,305

Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to direct operating activities						Allocation of direct operating costs \$ in thousands						
					Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct operating activities
	Organization Name	Total	Activities	Other	80001	80002	80004	80005	80006	80007	80001	80002	80004	80005	80006	80007	Total
<b>2500</b>	<b>VP of Operations</b>																
2511	Operations - General	1,182	1,182	-	29%	22%			49%		343	260	-	-	579	-	1,182
<b>2520</b>	<b>System Operations</b>																
2521	System Operations - General	1,891	1,891	-				55%	45%		-	-	-	1,040	851	-	1,891
2522	Real-Time Operations	15,759	15,759	-					100%		-	-	-	-	15,759	-	15,759
2523	Scheduling	1,949	1,949	-				54%	22%	24%	-	-	-	1,052	429	468	1,949
2524	Outage Management	2,152	2,152	-			2%	98%			-	-	43	2,109	-	-	2,152
2542	Market Operations	4,366	4,366	-		4%	8%	85%		3%	-	175	349	3,711	-	131	4,366
<b>2530</b>	<b>Reliability &amp; Market Modeling</b>																
2531	Reliability & Market Modeling - General	3,034	3,034	-			47%	28%	25%		-	-	1,425	850	759	-	3,034
2251	Network Applications	982	982	-			100%				-	-	982	-	-	-	982
2554	Model & Contract Implementation	1,688	1,688	-	1%		99%				17	-	1,671	-	-	-	1,688
<b>2540</b>	<b>Market Services</b>																
2541	Market Services - General	672	672	-			25%			75%	-	-	168	-	-	504	672
2543	Billing & Settlements	3,411	3,411	-		15%	40%			45%	-	512	1,364	-	-	1,535	3,411
2545	Market Information	1,999	1,999	-		8%	48%			44%	-	160	960	-	-	879	1,999
2552	Energy Measurement, Acquisition & Analysis	2,055	2,055	-		13%	32%			55%	-	267	658	-	-	1,130	2,055
2555	Market Services Analysis & Resolution	3,363	3,363	-			2%			98%	-	-	67	-	-	3,296	3,363
<b>2550</b>	<b>Operations Process, Quality &amp; Compliance</b>																
2551	Operations Process, Quality & Compliance - General	318	318	-			53%				-	-	169	-	-	-	169
2553	Operations Procedures & Training	2,118	2,118	-			100%				-	-	2,118	-	-	-	2,118
2581	Operations Compliance	212	212	-							-	-	-	-	-	-	-
2556	Operations Process & Performance	516	516	-			50%				-	-	258	-	-	-	258
<b>2571</b>	<b>Grid System Architecture &amp; Renewable Integration</b>	1,327	1,327	-	52%	10%	15%		20%		690	133	199	-	265	-	1,287
	<b>Total</b>	<b>48,994</b>	<b>48,994</b>	-							<b>1,050</b>	<b>1,507</b>	<b>10,431</b>	<b>8,762</b>	<b>18,642</b>	<b>7,943</b>	<b>48,335</b>
<b>2600</b>	<b>VP, General Counsel &amp; Corporate Secretary</b>																
2611	General Counsel - General	5,825	1,625	4,200							-	-	-	-	-	-	-
<b>2620</b>	<b>Assistant General Counsel</b>																
2621	Assistant General Counsel - Corporate	1,098	1,098	-							-	-	-	-	-	-	-
2631	Assistant General Counsel - Regulatory	1,460	1,460	-	6%	34%					88	496	-	-	-	-	584
2641	Assistant General Counsel - Tariff & Compliance	1,167	1,167	-							-	-	-	-	-	-	-
2681	Assistant General Counsel - Litigation & Compliance	-	-	-							-	-	-	-	-	-	-
2661	Paralegal & Office Administration	653	653	-		10%					-	65	-	-	-	-	65
2651	Assistant Corporate Secretary	731	731	-							-	-	-	-	-	-	-
2671	Mandatory Standards Compliance	1,127	1,127	-							-	-	-	-	-	-	-
2372	Internal Audit	610	610	-							-	-	-	-	-	-	-
	<b>Total</b>	<b>12,671</b>	<b>8,471</b>	<b>4,200</b>							<b>88</b>	<b>561</b>	-	-	-	-	<b>649</b>
<b>2800</b>	<b>VP of Policy &amp; Client Services</b>																
2811	Policy & Client Services - General	969	969	-							-	-	-	-	-	-	-
<b>2840</b>	<b>Customer Services &amp; Industry Affairs</b>																
2841	Customer Services & Industry Affairs - General	1,279	1,279	-							-	-	-	-	-	-	-
2842	Customer Service	1,931	1,931	-							-	-	-	-	-	-	-
2843	Stakeholders & Industry Affairs	1,044	1,044	-	12%						125	-	-	-	-	-	125
<b>2830</b>	<b>Regulatory Affairs</b>																
2831	State Affairs	604	604	-							-	-	-	-	-	-	-
2832	Regulatory Affairs	550	550	-							-	-	-	-	-	-	-
2833	Federal Affairs	376	376	-							-	-	-	-	-	-	-
<b>2820</b>	<b>Communications &amp; Public Relations</b>																
2821	Communications & Public Relations - General	1,301	1,301	-							-	-	-	-	-	-	-
2822	Information Products & Services	853	853	-							-	-	-	-	-	-	-
	<b>Total</b>	<b>8,907</b>	<b>8,907</b>	-							<b>125</b>	-	-	-	-	-	<b>125</b>
	<b>Total</b>	<b>162,695</b>	<b>129,675</b>	<b>33,020</b>							<b>10,505</b>	<b>7,263</b>	<b>11,427</b>	<b>8,762</b>	<b>18,691</b>	<b>8,177</b>	<b>64,825</b>

Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to support activities				Allocation of support costs \$ in thousands				
					Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
	Organization Name	Total	Activities	Other	80010	80003	80008	80009	80010	80003	80008	80009	Total
2100	Chief Executive Officer												
2111	CEO - General	2,373	2,373	-			100%		-	-	2,373	-	2,373
2131	Organizational Effectiveness	1,216	1,216	-			98%	2%	-	-	1,192	24	1,216
2120	Market Monitoring												
2121	Market Monitoring - General	634	634	-				100%	-	-	-	634	634
2123	Monitoring & Reporting	1,059	1,059	-				100%	-	-	-	1,059	1,059
2124	Analysis & Mitigation	914	914	-				100%	-	-	-	914	914
2122	Market Surveillance Committee	318	318	-					-	-	-	-	-
	Total	6,514	6,514	-					-	-	3,565	2,631	6,196
2340	VP of Human Resources												
2341	Human Resources - General	3,930	3,930	-		100%			-	3,930	-	-	3,930
2342	Learning & Organizational Development	430	430	-		100%			-	430	-	-	430
2343	Compensation and Benefits	888	888	-		100%			-	888	-	-	888
2344	HR Operations	856	856	-		100%			-	856	-	-	856
	Total	6,104	6,104	-		100%			-	6,104	-	-	6,104
2200	VP of Market & Infrastructure Development												
2211	Market & Infrastructure Development - General	1,063	1,063	-					-	-	-	-	-
2221	Regional Transmission - North	2,438	2,438	-					-	-	-	-	-
2231	Regional Transmission - South	2,500	2,500	-					-	-	-	-	-
2241	Grid Assets	2,222	2,222	-					-	-	-	-	-
2720	Market & Infrastructure Policy												
2721	Market & Infrastructure Policy - General	1,354	1,354	-					-	-	-	-	-
2722	Market Design & Regulatory Policy	914	914	-					-	-	-	-	-
2723	Infrastructure Policy & Contracts	1,290	1,290	-					-	-	-	-	-
2760	Market Analysis & Development												
2761	Market Analysis & Development - General	709	709	-					-	-	-	-	-
2762	Market Analysis	932	932	-					-	-	-	-	-
2751	Western Regional Initiatives	671	671	-					-	-	-	-	-
	Total	14,093	14,093	-					-	-	-	-	-



Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands			Percentage of time to support activities				Allocation of support costs \$ in thousands				
	Organization Name	Total	Activities	Other	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
					80010	80003	80008	80009	80010	80003	80008	80009	Total
2400	VP of Technology, Corporate Services & CFO												
2411	Corporate Services - General	1,291	1,291	-			50%	50%	-	-	646	645	1,291
2311	Treasurer	2,937	732	2,205			5%	23%	-	-	37	168	205
2321	Accounting	1,373	1,373	-				87%	-	-	-	1,194	1,194
2331	Financial Planning	1,887	887	1,000			69%	20%	-	-	612	177	789
2351	Facilities	7,793	1,184	6,609				100%	-	-	-	1,184	1,184
2361	Procurement & Vendor Management	1,211	1,211	-				100%	-	-	-	1,211	1,211
2374	Physical Security	1,920	1,920	-		4%		96%	-	77	-	1,843	1,920
2481	Power System Technology, Architecture & Development	321	321	-			67%	33%	-	-	215	106	321
2482	Advanced Power Network Technology	971	971	-			100%		-	-	971	-	971
2483	Smart Grid Technologies and Strategy	-	-	-			100%		-	-	-	-	-
2440	Business Solutions & Quality												
2463	Business Solutions & Quality - General	1,314	1,314	-			31%	69%	-	-	407	907	1,314
2441	Software Quality	2,469	2,469	-			3%	97%	-	-	74	2,395	2,469
2460	Operations Information Technology												
2461	IT Strategy & Support - General	1,281	1,281	-				100%	-	-	-	1,281	1,281
2454	Architecture & Systems Engineering (inactive)	1,675	1,675	-			100%		-	-	1,675	-	1,675
2456	System Administration	2,357	2,357	-				100%	-	-	-	2,357	2,357
2462	EMS Information Technology	2,473	2,473	-				82%	-	-	-	2,028	2,028
2464	Corporate Systems	2,950	2,950	-				100%	-	-	-	2,950	2,950
2465	Critical Systems	1,866	1,866	-	7%		1%	89%	131	-	19	1,660	1,810
2450	IT Support & Operations												
2451	IT Support & Operations - General	6,366	416	5,950				100%	-	-	-	416	416
2412	Asset management (HW & SW expense only)	13,607	801	12,806				100%	-	-	-	801	801
2452	System & Database Administration	1,807	1,807	-				100%	-	-	-	1,807	1,807
2453	Data Center & Operations (includes Info Security)	2,638	2,388	250				100%	-	-	-	2,388	2,388
2455	Support Services	2,156	2,156	-				100%	-	-	-	2,156	2,156
2730	Program Office												
2731	Program Office - General	2,104	2,104	-			100%		-	-	2,104	-	2,104
2741	Program Life Cycle & Process	645	645	-			100%		-	-	645	-	645
	Total	65,412	36,592	28,820					131	77	7,405	27,674	35,287

Cost Center	Mapping costs to direct and support activities & Other costs	2010 Budget \$ in thousands		
	Organization Name	Total	Activities	Other
2500	VP of Operations			
2511	Operations - General	1,182	1,182	-
2520	System Operations			
2521	System Operations - General	1,891	1,891	-
2522	Real-Time Operations	15,759	15,759	-
2523	Scheduling	1,949	1,949	-
2524	Outage Management	2,152	2,152	-
2542	Market Operations	4,366	4,366	-
2530	Reliability & Market Modeling			
2531	Reliability & Market Modeling - General	3,034	3,034	-
2251	Network Applications	982	982	-
2554	Model & Contract Implementation	1,688	1,688	-
2540	Market Services			
2541	Market Services - General	672	672	-
2543	Billing & Settlements	3,411	3,411	-
2545	Market Information	1,999	1,999	-
2552	Energy Measurement, Acquisition & Analysis	2,055	2,055	-
2555	Market Services Analysis & Resolution	3,363	3,363	-
2550	Operations Process, Quality & Compliance			
2551	Operations Process, Quality & Compliance - General	318	318	-
2553	Operations Procedures & Training	2,118	2,118	-
2581	Operations Compliance	212	212	-
2556	Operations Process & Performance	516	516	-
2571	Grid System Architecture & Renewable Integration	1,327	1,327	-
	Total	48,994	48,994	-
2600	VP, General Counsel & Corporate Secretary			
2611	General Counsel - General	5,825	1,625	4,200
2620	Assistant General Counsel			
2621	Assistant General Counsel - Corporate	1,098	1,098	-
2631	Assistant General Counsel - Regulatory	1,460	1,460	-
2641	Assistant General Counsel - Tariff & Compliance	1,167	1,167	-
2681	Assistant General Counsel - Litigation & Compliance	-	-	-
2661	Paralegal & Office Administration	653	653	-
2651	Assistant Corporate Secretary	731	731	-
2671	Mandatory Standards Compliance	1,127	1,127	-
2372	Internal Audit	610	610	-
	Total	12,671	8,471	4,200
2800	VP of Policy & Client Services			
2811	Policy & Client Services - General	969	969	-
2840	Customer Services & Industry Affairs			
2841	Customer Services & Industry Affairs - General	1,279	1,279	-
2842	Customer Service	1,931	1,931	-
2843	Stakeholders & Industry Affairs	1,044	1,044	-
2830	Regulatory Affairs			
2831	State Affairs	604	604	-
2832	Regulatory Affairs	550	550	-
2833	Federal Affairs	376	376	-
2820	Communications & Public Relations			
2821	Communications & Public Relations - General	1,301	1,301	-
2822	Information Products & Services	853	853	-
	Total	8,907	8,907	-
	Total	162,695	129,675	33,020

Percentage of time to support activities				Allocation of support costs \$ in thousands				
Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support customers & stake-holders (SCS)	Manage human capabilities (MHC)	Plan & manage business (PMB)	Support business services (SBS)	Support activities
80010	80003	80008	80009	80010	80003	80008	80009	Total
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
				-	-	-	-	-
			47%	-	-	-	149	149
				-	-	-	-	-
			100%	-	-	-	212	212
			50%	-	-	-	258	258
3%				40	-	-	-	40
				40	-	-	619	659
		17%	83%	-	-	276	1,349	1,625
		1%	99%	-	-	11	1,087	1,098
			60%	-	-	-	876	876
			100%	-	-	-	1,167	1,167
			100%	-	-	-	-	-
			90%	-	-	-	588	588
		100%		-	-	731	-	731
			100%	-	-	-	1,127	1,127
			100%	-	-	-	610	610
				-	-	1,018	6,804	7,822
		100%		-	-	969	-	969
100%				1,279	-	-	-	1,279
100%				1,931	-	-	-	1,931
88%				919	-	-	-	919
100%				604	-	-	-	604
100%				550	-	-	-	550
100%				376	-	-	-	376
100%				1,301	-	-	-	1,301
100%				853	-	-	-	853
				7,813	-	969	-	8,782
				7,984	6,181	12,957	37,728	64,850

Cost Center	Mapping costs to direct operating activities	Allocation of direct operating costs \$ in thousands						
		Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct Activity Budget
	Organization Name	80001	80002	80004	80005	80006	80007	Total
2100	Chief Executive Officer							
2120	Market Monitoring							
2122	Market Surveillance Committee (non labor)	-	159	159	-	-	-	318
	Total	-	159	159	-	-	-	318
2200	VP of Market & Infrastructure Development							
2211	Market & Infrastructure Development - General	882	181	-	-	-	-	1,063
2221	Regional Transmission - North	2,244	146	24	-	24	-	2,438
2231	Regional Transmission - South	2,300	150	25	-	25	-	2,500
2241	Grid Assets	2,222	-	-	-	-	-	2,222
	Market & Infrastructure Policy							
2721	Market & Infrastructure Policy - General	447	907	-	-	-	-	1,354
2722	Market Design & Regulatory Policy	-	914	-	-	-	-	914
2723	Infrastructure Policy & Contracts	864	426	-	-	-	-	1,290
	Market Analysis & Development							
2761	Market Analysis & Development - General	-	709	-	-	-	-	709
2762	Market Analysis	-	932	-	-	-	-	932
2751	Western Regional Initiatives	-	671	-	-	-	-	671
	Total	8,959	5,036	49	-	49	-	14,093
2400	VP of Technology, Corporate Services & CFO							
2311	Treasurer	-	-	527	-	-	-	527
2321	Accounting	124	-	-	-	-	55	179
2331	Financial Planning	-	-	-	-	-	98	98
2462	EMS Information Technology	-	-	420	-	-	25	445
2465	Critical Systems	-	-	-	-	-	56	56
	Total	124	-	947	-	-	234	1,305
2500	VP of Operations							
2511	Operations - General	343	260	-	-	579	-	1,182
	System Operations							
2521	System Operations - General	-	-	-	1,040	851	-	1,891
2522	Real-Time Operations	-	-	-	-	15,759	-	15,759
2523	Scheduling	-	-	-	1,052	429	468	1,949
2524	Outage Management	-	-	43	2,109	-	-	2,152
2542	Market Operations	-	175	349	3,711	-	131	4,366
	Reliability & Market Modeling							
2531	Reliability & Market Modeling - General	-	-	1,425	850	759	-	3,034
2251	Network Applications	-	-	982	-	-	-	982
2554	Model & Contract Implementation	17	-	1,671	-	-	-	1,688
	Market Services							
2541	Market Services - General	-	-	168	-	-	504	672
2543	Billing & Settlements	-	512	1,364	-	-	1,535	3,411
2545	Market Information	-	160	960	-	-	879	1,999
2552	Energy Measurement, Acquisition & Analysis	-	267	658	-	-	1,130	2,055
2555	Market Services Analysis & Resolution	-	-	67	-	-	3,296	3,363
	Operations Process, Quality & Compliance							
2551	Operations Process, Quality & Compliance - General	-	-	169	-	-	-	169
2553	Operations Procedures & Training	-	-	2,118	-	-	-	2,118
2556	Operations Process & Performance	-	-	258	-	-	-	258
2571	Grid System Architecture & Renewable Integration	690	133	199	-	265	-	1,287
	Total	1,050	1,507	10,431	8,762	18,642	7,943	48,335
2600	VP, General Counsel & Corporate Secretary							
2631	Assistant General Counsel - Regulatory	88	496	-	-	-	-	584
2661	Paralegal & Office Administration	-	65	-	-	-	-	65
	Total	88	561	-	-	-	-	649
2800	VP of Policy & Client Services							
2843	Stakeholders & Industry Affairs	125	-	-	-	-	-	125
	Total	125	-	-	-	-	-	125

Cost Center	Mapping costs to direct operating activities	Allocation of direct operating costs \$ in thousands						
		Develop infra-structure (DI)	Develop markets (DM)	Manage market reliability & data modeling (MMR)	Manage market setup & execution (MMS)	Operate real time market & grid (OMG)	Manage operations support & settlements (MOS)	Direct Activity Budget
	Organization Name	80001	80002	80004	80005	80006	80007	Total
	Total	10,346	7,263	11,586	8,762	18,691	8,177	64,825

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity								Allocation of costs to activity \$ in thousands										
		Develop & monitor regulatory contract proce- dures	Manage LGIP cluster studies	Manage long term trans- mission planning	Manage new trans- mission resources & grid changes	Manage SGIP studies	Manage short term trans- mission planning	Manage trans- mission mainten- ance standards	NERC / WECC loads & resources data requests	Regula- tory contract negotia- tions	Develop & monitor regulatory contract proce- dures	Manage LGIP cluster studies	Manage long term trans- mission planning	Manage new trans- mission resources & grid changes	Manage SGIP studies	Manage short term trans- mission planning	Manage trans- mission mainten- ance standards	NERC / WECC loads & resources data requests	Regula- tory contract negotia- tions	Total
		Develop Infrastructure (DI) (80001)								Develop Infrastructure (DI) (80001)										
2100	Chief Executive Officer																			
2120	Market Monitoring																			
2122	Market Surveillance Committee (non labor)									-	-	-	-	-	-	-	-	-	-	-
	Total									-	-	-	-	-	-	-	-	-	-	-
2200	VP of Market & Infrastructure Development																			
2211	Market & Infrastructure Development - General			50%	25%		25%			-	-	440	221	-	221	-	-	-	-	882
2221	Regional Transmission - North	2.2%	10.9%	43.5%	10.9%	10.9%	21.7%			49	245	973	245	245	487	-	-	-	-	2,244
2231	Regional Transmission - South	2.2%	10.9%	43.5%	10.9%	10.9%	21.7%			51	251	997	251	251	499	-	-	-	-	2,300
2241	Grid Assets	5%	35%		10%	10%		20%	20%	111	779	-	222	222	-	444	444	-	-	2,222
	Market & Infrastructure Policy																			
2721	Market & Infrastructure Policy - General	100%								447	-	-	-	-	-	-	-	-	-	447
2722	Market Design & Regulatory Policy									-	-	-	-	-	-	-	-	-	-	-
2723	Infrastructure Policy & Contracts	21.1%	4.2%	7.0%		7.0%				60.6%	182	36	60	-	60	-	-	-	526	864
	Market Analysis & Development																			
2761	Market Analysis & Development - General									-	-	-	-	-	-	-	-	-	-	-
2762	Market Analysis									-	-	-	-	-	-	-	-	-	-	-
2751	Western Regional Initiatives		100%							-	-	-	-	-	-	-	-	-	-	-
	Total									840	1,311	2,470	939	778	1,207	444	444	526	8,959	
2400	VP of Technology, Corporate Services & CFO																			
2311	Treasurer									-	-	-	-	-	-	-	-	-	-	-
2321	Accounting		100%							-	124	-	-	-	-	-	-	-	-	124
2331	Financial Planning									-	-	-	-	-	-	-	-	-	-	-
2462	EMS Information Technology									-	-	-	-	-	-	-	-	-	-	-
2465	Critical Systems									-	-	-	-	-	-	-	-	-	-	-
	Total									-	124	-	-	-	-	-	-	-	-	124
2500	VP of Operations																			
2511	Operations - General			50%	50%					-	-	172	171	-	-	-	-	-	-	343
	System Operations																			
2521	System Operations - General									-	-	-	-	-	-	-	-	-	-	-
2522	Real-Time Operations									-	-	-	-	-	-	-	-	-	-	-
2523	Scheduling									-	-	-	-	-	-	-	-	-	-	-
2524	Outage Management									-	-	-	-	-	-	-	-	-	-	-
2542	Market Operations									-	-	-	-	-	-	-	-	-	-	-
	Reliability & Market Modeling																			
2531	Reliability & Market Modeling - General									-	-	-	-	-	-	-	-	-	-	-
2251	Network Applications									-	-	-	-	-	-	-	-	-	-	-
2554	Model & Contract Implementation			100%						-	-	17	-	-	-	-	-	-	-	17
	Market Services																			
2541	Market Services - General									-	-	-	-	-	-	-	-	-	-	-
2543	Billing & Settlements									-	-	-	-	-	-	-	-	-	-	-
2545	Market Information									-	-	-	-	-	-	-	-	-	-	-
2552	Energy Measurement, Acquisition & Analysis									-	-	-	-	-	-	-	-	-	-	-
2555	Market Services Analysis & Resolution									-	-	-	-	-	-	-	-	-	-	-
	Operations Process, Quality & Compliance																			
2551	Operations Process, Quality & Compliance - General									-	-	-	-	-	-	-	-	-	-	-
2553	Operations Procedures & Training									-	-	-	-	-	-	-	-	-	-	-
2556	Operations Process & Performance									-	-	-	-	-	-	-	-	-	-	-
2571	Grid System Architecture & Renewable Integration	34.6%		32.7%	32.7%					238	-	226	226	-	-	-	-	-	-	690
	Total									238	-	415	397	-	-	-	-	-	-	1,050
2600	VP, General Counsel & Corporate Secretary																			
2631	Assistant General Counsel - Regulatory								100%	-	-	-	-	-	-	-	-	-	88	88
2661	Paralegal & Office Administration									-	-	-	-	-	-	-	-	-	-	-
	Total									-	-	-	-	-	-	-	-	-	88	88
2800	VP of Policy & Client Services																			
2843	Stakeholders & Industry Affairs		20%	20%	20%	20%	20%			-	25	25	25	25	25	-	-	-	-	125
	Total									-	25	25	25	25	25	-	-	-	-	125

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity								Allocation of costs to activity \$ in thousands										
		Develop & monitor regulatory contract proce- dures	Manage LGIP cluster studies	Manage long term trans- mission planning	Manage new trans- mission resources & grid changes	Manage SGIP studies	Manage short term trans- mission planning	Manage trans- mission mainten- ance standards	NERC / WECC loads & resources data requests	Regula- tory contract negotia- tions	Develop & monitor regulatory contract proce- dures	Manage LGIP cluster studies	Manage long term trans- mission planning	Manage new trans- mission resources & grid changes	Manage SGIP studies	Manage short term trans- mission planning	Manage trans- mission mainten- ance standards	NERC / WECC loads & resources data requests	Regula- tory contract negotia- tions	Total
		Develop Infrastructure (DI) (80001)								Develop Infrastructure (DI) (80001)										
											1,078	1,460	2,910	1,361	803	1,232	444	444	614	10,346
	Total																			

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity							Allocation of costs to activity \$ in thousands							
		BPM change management process	Develop State / Federal regulatory policy	Manage regulatory filings	Manage tariff amendments	Market design & regulatory policy	Manage market analysis & development	Perform market analysis	BPM change management process	Develop State / Federal regulatory policy	Manage regulatory filings	Manage tariff amendments	Market design & regulatory policy	Manage market analysis & development	Perform market analysis	Total
		Develop Markets (DM) (80002)							Develop Markets (DM) (80002)							
2100	Chief Executive Officer															
2120	Market Monitoring															
2122	Market Surveillance Committee (non labor)					100%			-	-	-	-	159	-	-	159
	Total								-	-	-	-	159	-	-	159
2200	VP of Market & Infrastructure Development															
2211	Market & Infrastructure Development - General		25%	25%		50%			-	45	45	-	91	-	-	181
2221	Regional Transmission - North	33.3%	16.7%	16.7%	16.7%		16.7%		50	24	24	24	-	24	-	146
2231	Regional Transmission - South	33.3%	16.7%	16.7%	16.7%		16.7%		50	25	25	25	-	25	-	150
2241	Grid Assets								-	-	-	-	-	-	-	-
	Market & Infrastructure Policy															
2721	Market & Infrastructure Policy - General		16.7%	11.1%	11.1%	61.1%			-	151	101	101	554	-	-	907
2722	Market Design & Regulatory Policy	5%	5%	20%	10%	50%		10%	46	46	183	91	457	-	91	914
2723	Infrastructure Policy & Contracts		31.0%	17.2%	17.2%	34.5%			-	132	73	73	148	-	-	426
	Market Analysis & Development															
2761	Market Analysis & Development - General	5%	10%	5%	5%	10%	60%	5%	35	71	35	35	71	427	35	709
2762	Market Analysis	5%	10%	5%	5%	10%	60%	5%	47	93	47	47	93	558	47	932
2751	Western Regional Initiatives		76.9%			23.1%			-	516	-	-	155	-	-	671
	Total								228	1,103	533	396	1,569	1,034	173	5,036
2400	VP of Technology, Corporate Services & CFO															
2311	Treasurer								-	-	-	-	-	-	-	-
2321	Accounting								-	-	-	-	-	-	-	-
2331	Financial Planning								-	-	-	-	-	-	-	-
2462	EMS Information Technology								-	-	-	-	-	-	-	-
2465	Critical Systems								-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-
2500	VP of Operations															
2511	Operations - General					100%			-	-	-	-	260	-	-	260
	System Operations															
2521	System Operations - General	33.3%			33.4%	33.3%			-	-	-	-	-	-	-	-
2522	Real-Time Operations								-	-	-	-	-	-	-	-
2523	Scheduling								-	-	-	-	-	-	-	-
2524	Outage Management	100%							-	-	-	-	-	-	-	-
2542	Market Operations	25%				75%			44	-	-	-	131	-	-	175
	Reliability & Market Modeling															
2531	Reliability & Market Modeling - General								-	-	-	-	-	-	-	-
2251	Network Applications								-	-	-	-	-	-	-	-
2554	Model & Contract Implementation								-	-	-	-	-	-	-	-
	Market Services															
2541	Market Services - General								-	-	-	-	-	-	-	-
2543	Billing & Settlements	66.7%					33.3%		342	-	-	-	-	170	-	512
2545	Market Information	37.5%				62.5%			60	-	-	-	100	-	-	160
2552	Energy Measurement, Acquisition & Analysis	7.7%		15.3%		38.5%	38.5%		21	-	41	-	103	103	-	267
2555	Market Services Analysis & Resolution								-	-	-	-	-	-	-	-
	Operations Process, Quality & Compliance															
2551	Operations Process, Quality & Compliance - General								-	-	-	-	-	-	-	-
2553	Operations Procedures & Training								-	-	-	-	-	-	-	-
2556	Operations Process & Performance								-	-	-	-	-	-	-	-
2571	Grid System Architecture & Renewable Integration		100%						-	133	-	-	-	-	-	133
	Total								467	133	41	-	594	273	-	1,507
2600	VP, General Counsel & Corporate Secretary															
2631	Assistant General Counsel - Regulatory	5.9%	5.9%	35.3%	35.3%	17.6%			29	29	175	176	87	-	-	496
2661	Paralegal & Office Administration	10%		50%	40%				7	-	32	26	-	-	-	65
	Total								36	29	207	202	87	-	-	561
2800	VP of Policy & Client Services															
2843	Stakeholders & Industry Affairs								-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity							Allocation of costs to activity \$ in thousands							
		BPM change management process	Develop State / Federal regulatory policy	Manage regulatory filings	Manage tariff amendments	Market design & regulatory policy	Manage market analysis & development	Perform market analysis	BPM change management process	Develop State / Federal regulatory policy	Manage regulatory filings	Manage tariff amendments	Market design & regulatory policy	Manage market analysis & development	Perform market analysis	Total
		Develop Markets (DM) (80002)							Develop Markets (DM) (80002)							
									731	1,265	781	598	2,409	1,307	173	7,263
	Total															



Cost Center	Mapping costs to direct operating activities	% of time devoted to activity															
		ISO meter certification	Facilitate SC certifications	High level manage FNM maintenance	Manage & facilitate procedure maintenance	Manage CRRs	Manage credit & collateral	Manage network applications	Manage operations engineering studies	Execute & track operations training	Plan & develop operations training	Manage reliability requirements	Master file updates	EMAA telemetry	Provide stakeholder training	Station power application procedure	Market services implementation
		Manage Market & Reliability Data & Modeling (MMR) (80004)															
2100	Chief Executive Officer																
2120	Market Monitoring																
2122	Market Surveillance Committee (non labor)			50%		25%					25%						
	Total																
2200	VP of Market & Infrastructure Development																
2211	Market & Infrastructure Development - General																
2221	Regional Transmission - North					100%											
2231	Regional Transmission - South					100%											
2241	Grid Assets																
	Market & Infrastructure Policy																
2721	Market & Infrastructure Policy - General																
2722	Market Design & Regulatory Policy																
2723	Infrastructure Policy & Contracts																
	Market Analysis & Development																
2761	Market Analysis & Development - General																
2762	Market Analysis																
2751	Western Regional Initiatives																
	Total																
2400	VP of Technology, Corporate Services & CFO																
2311	Treasurer					10%	90%										
2321	Accounting																
2331	Financial Planning																
2462	EMS Information Technology							100%									
2465	Critical Systems																
	Total																
2500	VP of Operations																
2511	Operations - General																
	System Operations																
2521	System Operations - General																
2522	Real-Time Operations																
2523	Scheduling																
2524	Outage Management			100%													
2542	Market Operations			50%									25%		25%		
	Reliability & Market Modeling																
2531	Reliability & Market Modeling - General				23.4%			66.0%		10.6%							
2251	Network Applications			25%				75%									
2554	Model & Contract Implementation			30.3%							20.2%	8.1%			1.0%	40.4%	
	Market Services																
2541	Market Services - General	20%				40%											40%
2543	Billing & Settlements					12.5%	12.5%				25%	12.5%		12.5%	12.5%	12.5%	
2545	Market Information					95.8%								4.2%			
2552	Energy Measurement, Acquisition & Analysis	31.3%		12.5%									15.6%	3.1%	6.3%	31.2%	
2555	Market Services Analysis & Resolution										100%						
	Operations Process, Quality & Compliance																
2551	Operations Process, Quality & Compliance - General								40%	60%							
2553	Operations Procedures & Training								40%	60%							
2556	Operations Process & Performance				100%												
2571	Grid System Architecture & Renewable Integration							46.7%	53.3%								
	Total																
2600	VP, General Counsel & Corporate Secretary																
2631	Assistant General Counsel - Regulatory																
2661	Paralegal & Office Administration																
	Total																
2800	VP of Policy & Client Services																
2843	Stakeholders & Industry Affairs																
	Total																

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity															
		ISO meter certification	Facilitate SC certifications	High level manage FNM maintenance	Manage & facilitate procedure maintenance	Manage CRRs	Manage credit & collateral	Manage network applications	Manage operations engineering studies	Execute & track operations training	Plan & develop operations training	Manage reliability requirements	Master file updates	EMAA telemetry	Provide stakeholder training	Station power application procedure	Market services implementation
		Manage Market & Reliability Data & Modeling (MMR) (80004)															
	Total																

Cost Center	Mapping costs to direct operating activities	Allocation of costs to activity \$ in thousands																
		ISO meter certification	Facilitate SC certifications	High level manage FNM maintenance	Manage & facilitate procedure maintenance	Manage CRRs	Manage credit & collateral	Manage network applications	Manage operations engineering studies	Execute & track operations training	Plan & develop operations training	Manage reliability requirements	Master file updates	EMAA telemetry	Provide stakeholder training	Station power application procedure	Market services implementation	Total
		Manage Market & Reliability Data & Modeling (MMR) (80004)																
2100	Chief Executive Officer																	
2120	Market Monitoring																	
2122	Market Surveillance Committee (non labor)	-	-	79	-	40	-	-	-	-	-	40	-	-	-	-	-	159
	Total	-	-	79	-	40	-	-	-	-	-	40	-	-	-	-	-	159
2200	VP of Market & Infrastructure Development																	
2211	Market & Infrastructure Development - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2221	Regional Transmission - North	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	24
2231	Regional Transmission - South	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	25
2241	Grid Assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Market & Infrastructure Policy																	
2721	Market & Infrastructure Policy - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2722	Market Design & Regulatory Policy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2723	Infrastructure Policy & Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Market Analysis & Development																	
2761	Market Analysis & Development - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2762	Market Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2751	Western Regional Initiatives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	49	-	-	-	-	-	-	-	-	-	-	-	49
2400	VP of Technology, Corporate Services & CFO																	
2311	Treasurer	-	-	-	-	53	474	-	-	-	-	-	-	-	-	-	-	527
2321	Accounting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2331	Financial Planning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2462	EMS Information Technology	-	-	-	-	-	-	420	-	-	-	-	-	-	-	-	-	420
2465	Critical Systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	53	474	420	-	-	-	-	-	-	-	-	-	947
2500	VP of Operations																	
2511	Operations - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	System Operations																	
2521	System Operations - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2522	Real-Time Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2523	Scheduling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2524	Outage Management	-	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	43
2542	Market Operations	-	-	175	-	-	-	-	-	-	-	-	-	87	-	87	-	349
	Reliability & Market Modeling																	
2531	Reliability & Market Modeling - General	-	-	-	333	-	-	-	941	-	151	-	-	-	-	-	-	1,425
2251	Network Applications	-	-	246	-	-	-	736	-	-	-	-	-	-	-	-	-	982
2554	Model & Contract Implementation	-	-	506	-	-	-	-	-	-	-	338	135	-	-	17	675	1,671
	Market Services																	
2541	Market Services - General	34	-	-	-	67	-	-	-	-	-	-	-	-	-	-	67	168
2543	Billing & Settlements	-	-	-	-	171	171	-	-	-	-	338	171	-	171	171	171	1,364
2545	Market Information	-	-	-	-	920	-	-	-	-	-	-	-	-	40	-	-	960
2552	Energy Measurement, Acquisition & Analysis	207	-	82	-	-	-	-	-	-	-	-	-	103	20	41	205	658
2555	Market Services Analysis & Resolution	-	-	-	-	-	-	-	-	-	-	67	-	-	-	-	-	67
	Operations Process, Quality & Compliance																	
2551	Operations Process, Quality & Compliance - General	-	-	-	-	-	-	-	68	101	-	-	-	-	-	-	-	169
2553	Operations Procedures & Training	-	-	-	-	-	-	-	847	1,271	-	-	-	-	-	-	-	2,118
2556	Operations Process & Performance	-	-	-	258	-	-	-	-	-	-	-	-	-	-	-	-	258
2571	Grid System Architecture & Renewable Integration	-	-	-	-	-	-	93	106	-	-	-	-	-	-	-	-	199
	Total	241	-	1,052	591	1,158	171	829	1,047	915	1,523	743	306	190	231	316	1,118	10,431
2600	VP, General Counsel & Corporate Secretary																	
2631	Assistant General Counsel - Regulatory	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2661	Paralegal & Office Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2800	VP of Policy & Client Services																	
2843	Stakeholders & Industry Affairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Cost Center	Mapping costs to direct operating activities	Allocation of costs to activity \$ in thousands																
		ISO meter certification	Facilitate SC certifications	High level manage FNM maintenance	Manage & facilitate procedure maintenance	Manage CRRs	Manage credit & collateral	Manage network applications	Manage operations engineering studies	Execute & track operations training	Plan & develop operations training	Manage reliability requirements	Master file updates	EMAA telemetry	Provide stakeholder training	Station power application procedure	Market services implementation	Total
		Manage Market & Reliability Data & Modeling (MMR) (80004)																
	Organization Name																	
	Total	241	-	1,131	591	1,300	645	1,249	1,047	915	1,523	783	306	190	231	316	1,118	11,586

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity						Allocation of costs to activity \$ in thousands						
		Manage D+2 analysis	Manage DA market	Manage DA & RT runs & price validations	Manage generation outages	Manage inter-change scheduling	Manage transmission outages	Manage D+2 analysis	Manage DA market	Manage DA & RT runs & price validations	Manage generation outages	Manage inter-change scheduling	Manage transmission outages	Total
		Manage Market Setup & Execution (MMS) (80005)						Manage Market Setup & Execution (MMS) (80005)						
2100	Chief Executive Officer													
2120	Market Monitoring													
2122	Market Surveillance Committee (non labor)							-	-	-	-	-	-	-
	Total							-	-	-	-	-	-	-
2200	VP of Market & Infrastructure Development													
2211	Market & Infrastructure Development - General							-	-	-	-	-	-	-
2221	Regional Transmission - North							-	-	-	-	-	-	-
2231	Regional Transmission - South							-	-	-	-	-	-	-
2241	Grid Assets							-	-	-	-	-	-	-
	Market & Infrastructure Policy													
2721	Market & Infrastructure Policy - General							-	-	-	-	-	-	-
2722	Market Design & Regulatory Policy							-	-	-	-	-	-	-
2723	Infrastructure Policy & Contracts							-	-	-	-	-	-	-
	Market Analysis & Development													
2761	Market Analysis & Development - General							-	-	-	-	-	-	-
2762	Market Analysis							-	-	-	-	-	-	-
2751	Western Regional Initiatives							-	-	-	-	-	-	-
	Total							-	-	-	-	-	-	-
2400	VP of Technology, Corporate Services & CFO													
2311	Treasurer							-	-	-	-	-	-	-
2321	Accounting							-	-	-	-	-	-	-
2331	Financial Planning							-	-	-	-	-	-	-
2462	EMS Information Technology							-	-	-	-	-	-	-
2465	Critical Systems							-	-	-	-	-	-	-
	Total							-	-	-	-	-	-	-
2500	VP of Operations													
2511	Operations - General							-	-	-	-	-	-	-
	System Operations													
2521	System Operations - General			100%				-	-	1,040	-	-	-	1,040
2522	Real-Time Operations							-	-	-	-	-	-	-
2523	Scheduling					100%		-	-	-	-	1,052	-	1,052
2524	Outage Management				46.4%		53.6%	-	-	-	979	-	1,130	2,109
2542	Market Operations	17.6%	23.5%	58.9%				654	872	2,185	-	-	-	3,711
	Reliability & Market Modeling													
2531	Reliability & Market Modeling - General	7.1%	14.3%		7.1%		71.5%	60	122	-	60	-	608	850
2251	Network Applications							-	-	-	-	-	-	-
2554	Model & Contract Implementation							-	-	-	-	-	-	-
	Market Services													
2541	Market Services - General							-	-	-	-	-	-	-
2543	Billing & Settlements							-	-	-	-	-	-	-
2545	Market Information							-	-	-	-	-	-	-
2552	Energy Measurement, Acquisition & Analysis							-	-	-	-	-	-	-
2555	Market Services Analysis & Resolution							-	-	-	-	-	-	-
	Operations Process, Quality & Compliance													
2551	Operations Process, Quality & Compliance - General							-	-	-	-	-	-	-
2553	Operations Procedures & Training							-	-	-	-	-	-	-
2556	Operations Process & Performance							-	-	-	-	-	-	-
2571	Grid System Architecture & Renewable Integration							-	-	-	-	-	-	-
	Total							714	994	3,225	1,039	1,052	1,738	8,762
2600	VP, General Counsel & Corporate Secretary													
2631	Assistant General Counsel - Regulatory							-	-	-	-	-	-	-
2661	Paralegal & Office Administration							-	-	-	-	-	-	-
	Total							-	-	-	-	-	-	-
2800	VP of Policy & Client Services													
2843	Stakeholders & Industry Affairs							-	-	-	-	-	-	-
	Total							-	-	-	-	-	-	-

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity						Allocation of costs to activity \$ in thousands						
		Manage D+2 analysis	Manage DA market	Manage DA & RT runs & price validations	Manage generation outages	Manage inter-change scheduling	Manage trans-mission outages	Manage D+2 analysis	Manage DA market	Manage DA & RT runs & price validations	Manage generation outages	Manage inter-change scheduling	Manage trans-mission outages	Total
		Manage Market Setup & Execution (MMS) (80005)						Manage Market Setup & Execution (MMS) (80005)						
								714	994	3,225	1,039	1,052	1,738	8,762
	Total													

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity							Allocation of costs to activity \$ in thousands									
		Manage critical facility systems	Manage emergency operations	Manage operations - engineering support	Manage RT market - after close of market	Manage RT market - prior to close of market bidding	Manage RT operations - generation dispatch	Manage RT operations - transmission dispatch	Manage RT inter-change scheduling	Manage critical facility systems	Manage emergency operations	Manage operations - engineering support	Manage RT market - after close of market	Manage RT market - prior to close of market bidding	Manage RT operations - generation dispatch	Manage RT operations - transmission dispatch	Manage RT inter-change scheduling	Total
		Operate Real Time Market & Grid (OMG) (80006)							Operate Real Time Market & Grid (OMG) (80006)									
2100	Chief Executive Officer																	
2120	Market Monitoring																	
2122	Market Surveillance Committee (non labor)								-	-	-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-	-	-
2200	VP of Market & Infrastructure Development																	
2211	Market & Infrastructure Development - General								-	-	-	-	-	-	-	-	-	-
2221	Regional Transmission - North			100%					-	-	24	-	-	-	-	-	-	24
2231	Regional Transmission - South			100%					-	-	25	-	-	-	-	-	-	25
2241	Grid Assets								-	-	-	-	-	-	-	-	-	-
	Market & Infrastructure Policy																	
2721	Market & Infrastructure Policy - General								-	-	-	-	-	-	-	-	-	-
2722	Market Design & Regulatory Policy								-	-	-	-	-	-	-	-	-	-
2723	Infrastructure Policy & Contracts								-	-	-	-	-	-	-	-	-	-
	Market Analysis & Development																	
2761	Market Analysis & Development - General								-	-	-	-	-	-	-	-	-	-
2762	Market Analysis								-	-	-	-	-	-	-	-	-	-
2751	Western Regional Initiatives								-	-	-	-	-	-	-	-	-	-
	Total								-	-	49	-	-	-	-	-	-	49
2400	VP of Technology, Corporate Services & CFO																	
2311	Treasurer								-	-	-	-	-	-	-	-	-	-
2321	Accounting								-	-	-	-	-	-	-	-	-	-
2331	Financial Planning								-	-	-	-	-	-	-	-	-	-
2462	EMS Information Technology								-	-	-	-	-	-	-	-	-	-
2465	Critical Systems								-	-	-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-	-	-
2500	VP of Operations																	
2511	Operations - General	50%	50%						290	289	-	-	-	-	-	-	-	579
	System Operations																	
2521	System Operations - General		4.3%		4.4%	4.3%	87.0%		-	37	-	37	37	740	-	-	-	851
2522	Real-Time Operations						33.3%	33.4%	33.3%	-	-	-	-	5,248	5,264	5,247	15,759	
2523	Scheduling				50%	50%			-	-	-	215	214	-	-	-	-	429
2524	Outage Management								-	-	-	-	-	-	-	-	-	-
2542	Market Operations								-	-	-	-	-	-	-	-	-	-
	Reliability & Market Modeling																	
2531	Reliability & Market Modeling - General			100%					-	-	759	-	-	-	-	-	-	759
2251	Network Applications								-	-	-	-	-	-	-	-	-	-
2554	Model & Contract Implementation								-	-	-	-	-	-	-	-	-	-
	Market Services																	
2541	Market Services - General								-	-	-	-	-	-	-	-	-	-
2543	Billing & Settlements								-	-	-	-	-	-	-	-	-	-
2545	Market Information								-	-	-	-	-	-	-	-	-	-
2552	Energy Measurement, Acquisition & Analysis								-	-	-	-	-	-	-	-	-	-
2555	Market Services Analysis & Resolution								-	-	-	-	-	-	-	-	-	-
	Operations Process, Quality & Compliance																	
2551	Operations Process, Quality & Compliance - General								-	-	-	-	-	-	-	-	-	-
2553	Operations Procedures & Training								-	-	-	-	-	-	-	-	-	-
2556	Operations Process & Performance								-	-	-	-	-	-	-	-	-	-
2571	Grid System Architecture & Renewable Integration	100%							265	-	-	-	-	-	-	-	-	265
	Total								555	326	759	252	251	5,988	5,264	5,247	18,642	
2600	VP, General Counsel & Corporate Secretary																	
2631	Assistant General Counsel - Regulatory								-	-	-	-	-	-	-	-	-	-
2661	Paralegal & Office Administration								-	-	-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-	-	-
2800	VP of Policy & Client Services																	
2843	Stakeholders & Industry Affairs								-	-	-	-	-	-	-	-	-	-
	Total								-	-	-	-	-	-	-	-	-	-

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity								Allocation of costs to activity \$ in thousands								
		Manage critical facility systems	Manage emergency opera- tions	Manage opera- tions engineer- ing support	Manage RT market - after close of market	Manage RT market - prior to close of market bidding	Manage RT opera- tions - genera- tion dispatch	Manage RT opera- tions - trans- mission dispatch	Manage RT inter- change scheduling	Manage critical facility systems	Manage emergency opera- tions	Manage opera- tions engineer- ing support	Manage RT market - after close of market	Manage RT market - prior to close of market bidding	Manage RT opera- tions - genera- tion dispatch	Manage RT opera- tions - trans- mission dispatch	Manage RT inter- change scheduling	Total
		Operate Real Time Market & Grid (OMG) (80006)								Operate Real Time Market & Grid (OMG) (80006)								
										555	326	808	252	251	5,988	5,264	5,247	18,691
	Total																	



Cost Center	Mapping costs to direct operating activities	% of time devoted to activity													
		Manage rules of conduct	Manage regulation, no-pay & deviation penalty calculations	Manage dispute analysis & resolution	Manage energy measurement acquisition & analysis	Manage market billing & settlements	Manage market clearing	Manage market performance	Manage price validation & corrections	Manage the market quality sustem (MQS)	Manage data requests	WREGIS application process	ISO meter engineering	ISO RIG engineering	Market issues steering committee
		Manage Operations Support & Settlements (MOS) (80007)													
2100	Chief Executive Officer														
2120	Market Monitoring														
2122	Market Surveillance Committee (non labor)														
	Total														
2200	VP of Market & Infrastructure Development														
2211	Market & Infrastructure Development - General														
2221	Regional Transmission - North														
2231	Regional Transmission - South														
2241	Grid Assets														
	Market & Infrastructure Policy														
2721	Market & Infrastructure Policy - General														
2722	Market Design & Regulatory Policy														
2723	Infrastructure Policy & Contracts														
	Market Analysis & Development														
2761	Market Analysis & Development - General														
2762	Market Analysis														
2751	Western Regional Initiatives														
	Total														
2400	VP of Technology, Corporate Services & CFO														
2311	Treasurer														
2321	Accounting						100%								
2331	Financial Planning					25%	75%								
2462	EMS Information Technology				100%										
2465	Critical Systems				100%										
	Total														
2500	VP of Operations														
2511	Operations - General														
	System Operations														
2521	System Operations - General														
2522	Real-Time Operations														
2523	Scheduling			50%	50%										
2524	Outage Management														
2542	Market Operations														100%
	Reliability & Market Modeling														
2531	Reliability & Market Modeling - General														
2251	Network Applications														
2554	Model & Contract Implementation														
	Market Services														
2541	Market Services - General	1.3%	6.7%	13.3%	13.4%	13.3%	5.3%	6.7%	13.3%	13.3%	6.7%				6.7%
2543	Billing & Settlements		11.1%	11.1%		55.6%	11.1%				11.1%				
2545	Market Information							90.9%							9.1%
2552	Energy Measurement, Acquisition & Analysis			1.8%	36.4%	1.8%					1.8%	3.6%	18.2%	36.4%	
2555	Market Services Analysis & Resolution	3.1%	7.1%	26.5%		2.0%			30.7%	25.5%	2.0%				3.1%
	Operations Process, Quality & Compliance														
2551	Operations Process, Quality & Compliance - General														
2553	Operations Procedures & Training														
2556	Operations Process & Performance														
2571	Grid System Architecture & Renewable Integration														
	Total														
2600	VP, General Counsel & Corporate Secretary														
2631	Assistant General Counsel - Regulatory														
2661	Paralegal & Office Administration														
	Total														
2800	VP of Policy & Client Services														
2843	Stakeholders & Industry Affairs														
	Total														

Cost Center	Mapping costs to direct operating activities	% of time devoted to activity													
		Manage rules of conduct	Manage regulation, no-pay & deviation penalty calculations	Manage dispute analysis & resolution	Manage energy measurement acquisition & analysis	Manage market billing & settlements	Manage market clearing	Manage market performance	Manage price validation & corrections	Manage the market quality sustem (MQS)	Manage data requests	WREGIS application process	ISO meter engineering	ISO RIG engineering	Market issues steering committee
		Manage Operations Support & Settlements (MOS) (80007)													
	Total														

Cost Center	Mapping costs to direct operating activities	Allocation of costs to activity \$ in thousands														
		Manage rules of conduct	Manage regulation, no-pay & deviation penalty calculations	Manage dispute analysis & resolution	Manage energy measurement acquisition & analysis	Manage market billing & settlements	Manage market clearing	Manage market performance	Manage price validation & corrections	Manage the market quality sustem (MQS)	Manage data requests	WREGIS applica-tion process	ISO meter engin-eering	ISO RIG engin-eering	Market issues steering committee	Total
	Organization Name	Manage Operations Support & Settlements (MOS) (80007)														
2100	Chief Executive Officer															
2120	Market Monitoring															
2122	Market Surveillance Committee (non labor)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2200	VP of Market & Infrastructure Development															
2211	Market & Infrastructure Development - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2221	Regional Transmission - North	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2231	Regional Transmission - South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2241	Grid Assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Market & Infrastructure Policy															
2721	Market & Infrastructure Policy - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2722	Market Design & Regulatory Policy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2723	Infrastructure Policy & Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Market Analysis & Development															
2761	Market Analysis & Development - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2762	Market Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2751	Western Regional Initiatives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2400	VP of Technology, Corporate Services & CFO															
2311	Treasurer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2321	Accounting	-	-	-	-	-	55	-	-	-	-	-	-	-	-	55
2331	Financial Planning	-	-	-	-	25	73	-	-	-	-	-	-	-	-	98
2462	EMS Information Technology	-	-	-	25	-	-	-	-	-	-	-	-	-	-	25
2465	Critical Systems	-	-	-	56	-	-	-	-	-	-	-	-	-	-	56
	Total	-	-	-	81	25	128	-	-	-	-	-	-	-	-	234
2500	VP of Operations															
2511	Operations - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	System Operations															
2521	System Operations - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2522	Real-Time Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2523	Scheduling	-	-	234	234	-	-	-	-	-	-	-	-	-	-	468
2524	Outage Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2542	Market Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	131	131
	Reliability & Market Modeling															
2531	Reliability & Market Modeling - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2251	Network Applications	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2554	Model & Contract Implementation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Market Services															
2541	Market Services - General	7	34	67	68	66	27	34	67	66	34	-	-	-	34	504
2543	Billing & Settlements	-	170	170	-	855	170	-	-	-	170	-	-	-	-	1,535
2545	Market Information	-	-	-	-	-	-	799	-	-	-	-	-	-	80	879
2552	Energy Measurement, Acquisition & Analysis	-	-	20	411	20	-	-	-	-	20	41	206	412	-	1,130
2555	Market Services Analysis & Resolution	102	234	873	-	66	-	-	1,012	840	66	-	-	-	103	3,296
	Operations Process, Quality & Compliance															
2551	Operations Process, Quality & Compliance - General	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2553	Operations Procedures & Training	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2556	Operations Process & Performance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2571	Grid System Architecture & Renewable Integration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	109	438	1,364	713	1,007	197	833	1,079	906	290	41	206	412	348	7,943
2600	VP, General Counsel & Corporate Secretary															
2631	Assistant General Counsel - Regulatory	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2661	Paralegal & Office Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total															
2800	VP of Policy & Client Services															
2843	Stakeholders & Industry Affairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Cost Center	Mapping costs to direct operating activities	Allocation of costs to activity \$ in thousands														
		Manage rules of conduct	Manage regulation, no-pay & deviation penalty calculations	Manage dispute analysis & resolution	Manage energy measurement acquisition & analysis	Manage market billing & settlements	Manage market clearing	Manage market performance	Manage price validation & corrections	Manage the market quality sustem (MQS)	Manage data requests	WREGIS applica-tion process	ISO meter engin-eering	ISO RIG engin-eering	Market issues steering committee	Total
		Manage Operations Support & Settlements (MOS) (80007)														
	Organization Name															
	Total	109	438	1,364	794	1,032	325	833	1,079	906	290	41	206	412	348	8,177

Other costs by cost center			Detail of non-ABC costs \$ in thousands					
Cost Center	Organization Name	2010 Budget \$ in thousands	Occu-pancy	HW & SW maint-enance	Communi-cations	Insur-ance	Eqyip-ment & soft-ware	Profess-ional fees - legal and audit
<b>2400</b>	<b>VP of Technology, Corporate Services &amp; CFO</b>							
2311	Treasurer	2,205	-	-	-	2,205	-	-
2331	Financial Planning	1,000	-	-	-	-	-	1,000
2351	Facilities	6,609	6,609	-	-	-	-	-
<b>2450</b>	<b>IT Support &amp; Operations</b>							
2451	IT Support & Operations - General	5,950	-	-	5,950	-	-	-
2412	Asset management	12,806	-	10,900	-	-	1,906	-
2453	Data Center & Operations	250	150	-	100	-	-	-
	<b>Total</b>	<b>28,820</b>	<b>6,759</b>	<b>10,900</b>	<b>6,050</b>	<b>2,205</b>	<b>1,906</b>	<b>1,000</b>
<b>2600</b>	<b>VP, General Counsel &amp; Corporate Secretary</b>							
2611	General Counsel - General	4,200	-	-	-	-	-	4,200
	<b>Total</b>	<b>4,200</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,200</b>
	<b>Total</b>	<b>33,020</b>	<b>6,759</b>	<b>10,900</b>	<b>6,050</b>	<b>2,205</b>	<b>1,906</b>	<b>5,200</b>

Allocation of 2010 revenue requirement to cost categories						
Revenue Requirement	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Cost of category - \$ in thousands					
Direct O&M \$	\$ 64,825	\$ 11,474	\$ 45,923	\$ 1,500	\$ 5,928	6 core ABC activities
Support O&M \$	64,850	-	-	-	64,850	remaining 4 ABC activities that are support
Non-ABC support O&M \$	33,020	450	450	100	32,020	
Total O&M	162,695	11,924	46,373	1,600	102,798	
O&M Direct %		20%	77%	3%		
Debt Service	76,000	21,300	36,031	2,962	15,707	includes out of pocket capital as well
Debt service Direct %		35%	60%	5%		
Other income	(8,100)	-	-	-	(8,100)	
Operating reserve	(35,500)	(3,295)	(5,856)	(488)	(25,861)	
Total before allocation of indirect	195,095	29,929	76,548	4,074	84,544	
Direct Costs %		27%	69%	4%		
Allocate indirect	-	22,827	58,335	3,382	(84,544)	allocate indirect costs based on direct cost %s
Total Revenue Requirement \$	\$ 195,095	\$ 52,756	\$ 134,883	\$ 7,456		
Total Revenue Requirement %	100%	27%	69%	4%		

Allocation of ABC Direct Operating Activities to cost categories										
ABC Level 2 Activities	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
Develop Infrastructure (DI) (80001)										
Various level 2 activities		100%			\$ 10,324	\$ -	\$ 10,324	\$ -	\$ -	
Develop Markets (DM) (80002)										
BPM change management process				100%	790	-	-	-	790	
Develop State / Federal regulatory policy				100%	1,121	-	-	-	1,121	
Manage regulatory filings				100%	806	-	-	-	806	
Manage tariff amendments				100%	661	-	-	-	661	
Market design & regulatory policy	100%				2,563	2,563	-	-	-	
Manage market analysis & development	100%				1,307	1,307	-	-	-	
Perform market analysis	100%				173	173	-	-	-	
Total					7,421	4,043	-	-	3,378	
Manage Market & Reliability Data & Modeling (MMR) (80004)										
ISO meter certification		100%			240	-	240	-	-	
Facilitate SC certification				100%	-	-	-	-	-	
High level manage FNM maintenance	50%	50%			1,131	565	566	-	-	
Manage & facilitate procedure maintenance	20%	80%			591	118	473	-	-	
Manage CRRs			100%		1,299	-		1,299	-	
Manage credit & collateral	45%	45%	10%		645	290	290	65		
Manage network applications		100%			1,249	-	1,249	-	-	
Manage operations engineering studies		100%			1,047	-	1,047	-	-	
Execute & track operations training	20%	80%			915	183	732	-	-	
Plan & develop operations training	20%	80%			1,523	305	1,218	-	-	
Manage reliability requirements		100%			786	-	786	-	-	
Master file updates	50%	50%			306	153	153	-	-	
EMAA telemetry		100%			190	-	190	-	-	
Provide stakeholder training				100%	231	-	-	-	231	
Station power implementation	80%	20%			316	253	63	-	-	
Market services implementation	50%	50%			1,118	559	559	-	-	
Total					11,587	2,426	7,566	1,364	231	
Manage Market Setup & Execution (MMS) (80005)										
Manage D+2 analysis	50%	50%			714	357	357	-	-	
Manage DA market	50%	50%			994	497	497	-	-	
Manage DA & RT runs & price validations	50%	50%			3,093	1,546	1,547	-	-	
Manage generation outages		100%			1,028	-	1,028	-	-	
Manage interchange scheduling		100%			1,051	-	1,051	-	-	
Manage transmission outages		100%			1,727	-	1,727	-	-	
Total					8,607	2,400	6,207	-	-	

Allocation of ABC Direct Operating Activities to cost categories										
ABC Level 2 Activities	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
Operate Real Time Market & Grid (OMG) (80006)										
Manage critical facility systems				100%	555	-	-	-	555	
Manage emergency operations		100%			327	-	327	-	-	
Manage operations engineering support	20%	80%			808	162	646	-	-	
Manage RT market - after close of market	50%	50%			253	126	127	-	-	
Manage RT market - prior to close of market bidding	50%	50%			252	126	126	-	-	
Manage RT operations - generation dispatch		100%			6,005	-	6,005	-	-	
Manage RT operations - transmission dispatch		100%			5,264	-	5,264	-	-	
Manage RT interchange scheduling		100%			5,247	-	5,247	-	-	
Total					18,711	414	17,742	-	555	
Manage Operations Support & Settlements (MOS) (80007)										
Manage rules of conduct				100%	109	-	-	-	109	
Manage regulation no pay & deviation penalty calculations		100%			438	-	438	-	-	
Manage dispute analysis & resolution				100%	1,364	-	-	-	1,364	
Manage energy measurement acquisition & analysis		100%			794	-	794	-	-	
Manage market billing & settlements	45%	45%	10%		1,028	462	463	103	-	
Manage market clearing	45%	45%	10%		325	146	146	33	-	
Manage market performance	50%	50%			834	417	417	-	-	
Manage price validation & corrections	50%	50%			1,079	539	540	-	-	
Manage the market quality system (MQS)	50%	50%			906	453	453	-	-	
Manage data requests				100%	291	-	-	-	291	
WREGIS application process		100%			41	-	41	-	-	
ISO meter engineering		100%			206	-	206	-	-	
ISO RIG engineering		100%			412	-	412	-	-	
Market issue steering committee	50%	50%			348	174	174	-	-	
Total					8,175	2,191	4,084	136	1,764	
Total					\$ 64,825	\$ 11,474	\$ 45,923	\$ 1,500	\$ 5,928	
Direct O&M %					100%	19%	78%	3%		



Allocation of ABC Support Activities to cost categories										
ABC Level 1 Activities	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
Manage Human Capabilities (MHC) (80003)				100%	\$ 6,181	\$ -	\$ -		\$ 6,181	
Plan & Manage Business (PMB) (80008)				100%	12,957	-	-		12,957	
Support Business Services (SBS) (80009)				100%	37,728	-	-	-	37,728	
Support Customers & Stakeholders (SCS) (80010)				100%	7,984	-	-	-	7,984	
Total Support Activities					\$ 64,850	\$ -	\$ -	\$ -	\$ 64,850	

Allocation of non-ABC Support costs to cost categories										
non-ABC support costs	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
Corporate Services										
occupancy				100%	\$ 6,759	\$ -	\$ -	\$ -	\$ 6,759	
hardware and software maintenance				100%	10,900	-	-	-	10,900	
communications (AT&T)				100%	6,050	-	-		6,050	
insurance				100%	2,205	-	-		2,205	
software & equipment leases				100%	1,906	-	-		1,906	
professional fees - SAS 70 audit	45%	45%	10%		1,000	450	450	100	-	same as level 2 settlements
Total corporate services					28,820	450	450	100	27,820	
General Counsel										
professional fees - legal				100%	4,200				4,200	
Total legal					4,200	-	-		4,200	
Total non-ABC support costs					\$ 33,020	\$ 450	\$ 450	\$ 100	\$ 32,020	

Allocation of Debt Service and Out of Pocket Capital to cost categories										
System	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
Percentage allocation to cost category					Cost of category - \$ in thousands					
Operations Related Software										
Automated Dispatch System (ADS)		100%			\$ 74	\$ -	\$ 74	\$ -	\$ -	
Automated Load Forecast System (ALFS)	50%	50%			1,446	723	723	-	-	
Automatic Mitigation Procedure (AMP)		100%			308	-	308	-	-	
CAISO Market Results interface (CMRI)	50%	50%			1,016	508	508	-	-	
Congestion Revenue Rights (CRR)			100%		2,114	-	-	2,114	-	
Control Area Scheduler (CAS)	50%	50%			116	58	58	-	-	
Credit Liabilities	45%	45%	10%		70	32	32	6	-	
Data Warehouse	20%	80%			1,500	300	1,200	-	-	based on 5 min intervals in RT
Energy Management System (EMS)		100%			3,279	-	3,279	-	-	
Existing Transmission Contracts Calculator (ETCC)	50%	50%			13	6	7	-	-	
Full Network Model / State estimator	50%	50%			451	225	226	-	-	
Grid operations Training Simulator (GOTS)	20%	80%			262	52	210	-	-	
Hour Ahead Market (HASP)	50%	50%			3,173	1,586	1,587	-	-	
Integrated Forward Market (IFM) RTN	50%	50%			15,432	7,716	7,716	-	-	
Market Quality System (MQS)	50%	50%			2,506	1,253	1,253	-	-	
Master file	50%	50%			1,012	506	506	-	-	
Meter Data Acquisition System (MDAS)		100%			38	-	38	-	-	
Multistage Generation (MSG)	50%	50%			214	107	107	-	-	
Network Applications	50%	50%			1,668	834	834	-	-	
New Resource Interconnection (Rims) or (NRI)	20%	80%			542	108	434	-	-	
Open Access Same Time Information System (OASIS)	50%	50%			163	81	82	-	-	
Operational Meter Analysis & Reporting (OMAR)		100%			239	-	239	-	-	
Participating Intermittant Resource Project (PIRP)	20%	80%			3,511	702	2,809	-	-	
Proxy Demand response (PDR)	50%	50%			212	106	106	-	-	
Portal	50%	50%			2,520	1,260	1,260	-	-	
Process Information System (PI)		100%			338	-	338	-	-	
Real Time markets (RTMA)	20%	80%			3,173	635	2,538	-	-	
Resource Adequacy	50%	50%			107	53	54	-	-	
RMR application Validation Engine (RAVE)	50%	50%			12	6	6	-	-	
Scheduling & Logging for ISO CA (SLIC)	50%	50%			729	364	365	-	-	
Scheduling Infrastructure Business Rules (SIBR)	50%	50%			4,453	2,226	2,227	-	-	
Settlements & Market Clearing (SaMC)	15%	75%	10%		8,422	1,263	6,317	842	-	based on DA & RT charge codes
Total Operations related software	35%	60%	5%	0%	59,113	20,710	35,441	2,962	-	

Allocation of Debt Service and Out of Pocket Capital to cost categories										
System	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
Percentage allocation to cost category					Cost of category - \$ in thousands					
General Software										
Client relations & engineering analysis tools				100%	761	-	-	-	761	
DMM & compliance Tools (SAS MARS)	50%	50%			1,180	590	590	-	-	
Local Area Network (LAN), WAN & monitoring (Tivoli)				100%	1,598	-	-	-	1,598	
Office automation desktop laptop (OA)				100%	209	-	-	-	209	
Oracle Corporate Financials				100%	1,713	-	-	-	1,713	
Security External Physical & ISS (CUDA)				100%	406	-	-	-	406	
Storage (EMC symmetrix)				100%	4,297	-	-	-	4,297	
Total general related software	6%	6%	0%	88%	10,164	590	590	-	8,984	
Fixed Assets										
Land & feasibility studies				100%	700	-	-	-	700	
NT servers & WEB servers				100%	573	-	-	-	573	
New system equipment				100%	4,411	-	-	-	4,411	
Office equipment, physical facilities software, furniture & leasehold improvements				100%	1,039	-	-	-	1,039	
Total fixed assets	0%	0%	0%	100%	6,723	-	-	-	6,723	
Total debt service	27%	48%	4%	21%	\$ 76,000	\$ 21,300	\$ 36,031	\$ 2,962	\$ 15,707	
Direct software %	35%	60%	5%		\$ 60,293	\$ 21,300	\$ 36,031	\$ 2,962	\$ -	

Allocation of Other revenue to cost categories										
Type	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
SC application fee				100%	\$ 50	\$ -	\$ -	\$ -	\$ 50	
MSS penalties				100%	100	-	-	-	100	
wind forecasting fee				100%	250	-	-	-	250	
station power				100%	50	-	-	-	50	
SC trainiong fees				100%	50	-	-	-	50	
LGIP study fees				100%	1,800	-	-	-	1,800	
Interest				100%	3,800	-	-	-	3,800	
COI path operator fees				100%	2,000	-	-	-	2,000	
Total other revenue					\$ 8,100	\$ -	\$ -	\$ -	\$ 8,100	

Allocation of Operating reserve credit to cost categories										
Type	Market services	System Operations	CRR services	Indirect	2010 Budget	Market services	System Operations	CRR services	Indirect	Comments
	Percentage allocation to cost category				Cost of category - \$ in thousands					
Increase in 15% reserve for O&M				100%	\$ (900)	\$ -	\$ -	\$ -	\$ (900)	
25% debt service reserve	27%	48%	4%	21%	12,200	3,295	5,856	488	2,561	used capital allocation
Collection of additional months GMC				100%	15,400	-	-	-	15,400	
Reduction of interest on Generator fines				100%	8,800	-	-	-	8,800	
Total operating reserve credit					\$ 35,500	\$ 3,295	\$ 5,856	\$ 488	\$ 25,861	