



**California ISO**

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**2015 GMC Update  
Cost of Service Study**

**April 2, 2014**

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## Executive Summary

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

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

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

## Summary of Cost Category Percentages

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

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

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

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

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

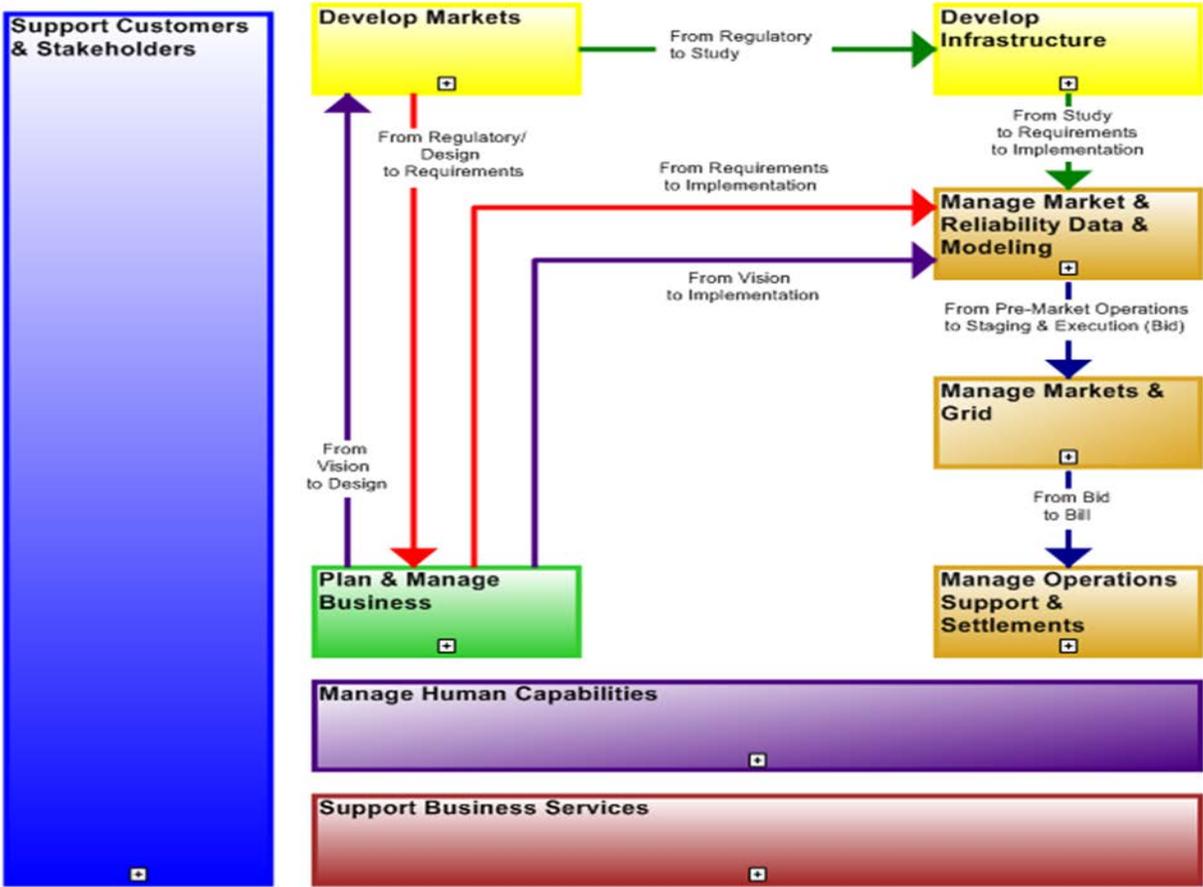
<sup>2</sup> The 2012 cost of service study can be found at: <http://www.caiso.com/Documents/2012Cost-ServiceStudyDiscussionPaperwithExhibits.pdf>

# Application of ABC to GMC Structure

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

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

**Mapping of ISO Core Business Processes**



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

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

**Table 1 — Level 1 ABC Activities**

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

**Mapping of ABC Direct Operating Activities**

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

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

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

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

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

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

### Allocation of Debt Service and Capital

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

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

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

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

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

### **Allocation of Non-Payroll Support Costs**

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

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

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

**Allocation of ABC Support activities**

The ABC support activities were allocated to indirect.

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

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

**Allocation of Other Income and Operating Reserve Credit**

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

**Table 6 — Allocation of Other Income to GMC Cost Categories**

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

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

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

**Indirect Costs**

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

**Costing the 2013 Revenue Requirement**

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

**Table 8 — Components of the 2013 revenue requirement:**

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

Completing the analysis required the following steps:

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

## **Step 1: Breaking Out Non-ABC Support Costs**

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

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

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

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

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

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

## **Step 2: Allocation of O&M Costs**

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

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

### **ABC Direct Operating Activities**

**Table 11 — Mapping Division Hours to Direct Operating Activities**

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

The hours were aggregated by level 2 activity.

**Table 12 — Mapping Division hours to level 2 activities**

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

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

## Cost of Direct Operating Activities

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

**Table 13 — Allocation of Division Costs to Direct Operating Activities**

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

The costs were aggregated by level 2 activity.

**Table 14 — Allocation of Division Costs to Level 2 activity**

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

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

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

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

**Table 15 — Mapping ABC Direct Operating Activities to Cost Categories**

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

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

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

## ABC Support Activities

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

**Table 16 — Mapping Division Hours to Support Activities**

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

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

**Table 17 — Mapping Division Costs to Support Activities**

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

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

**Table 18 — Mapping ABC Support Activities to Cost Categories**

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

**Step 3 — Allocating Remaining Revenue Requirements to Cost Categories**

**Debt Service and Cash Funded Capital**

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

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

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

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

## Miscellaneous Revenue

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

**Table 20 — Mapping Miscellaneous Revenue to Cost Categories**

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

## Operating Reserve Credit

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

**Table 21 — Mapping Reserve Credit to Cost Categories**

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

**Step 4 — Aggregating Revenue Requirement into Cost Categories**

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

**Table 22 — Mapping Revenue Requirement to Cost Categories**

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

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

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

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

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

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

**Table 24 — 2013 GMC Rates Using Revised Cost Category Percentages**

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

## **Summary of Cost Category Percentages**

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

### **Summary of Cost Category Percentages for 2015**

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