

California ISO

**2012 Grid Management Charge
Straw Proposal**

November 11, 2010

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Executive Summary

This straw proposal is the next step in the process of designing the 2012 Grid Management Charge. Building upon the cost of service study functionalization and cost allocation steps reported in the October 8, 2010 Cost of Service discussion paper, this proposal reviews the guiding principles and the framework for the new GMC cost buckets. The straw proposal goes on to describe the ISO's proposal for the classification (determination of billing determinants based on customer cost causation factors) of those costs, the rate design produced by applying the billing determinants and some hypothetical, aggregated bill impacts. The October 8 discussion paper detailed the process the ISO followed to utilize its activity based costing system to allocate the costs of its activities into three main GMC cost categories or buckets (market services, system operations, and CRR services), and three transaction fees (bid segment fee, inter SC trade fee, and SCID fee). This approach offers significant improvements to the current GMC structure by increasing the amount of direct allocations of costs to buckets, reducing forecasting errors through rate simplification, reducing the number of charge codes, and simplifying the calculations of these charge codes.

This document is the next step in the process and describes the ISO's straw proposal for classifying costs to users of the ISO's services. The ISO proposes that the three GMC charge categories be allocated based on gross MWh (capacity and CRR holdings) and MWh (energy). The market service category includes awards of ancillary services, and schedules and dispatch instructions of generation, imports, load, and exports. The system operations category includes all flow quantities for generation, load, imports, and exports. The CRR category includes the total MWh quantity awarded through both the allocation process and auction.

The ISO proposes to allocate the charges as follows to each user of the ISO's services: The market services charge will be applied to the scheduling coordinator's gross absolute value of awarded MWh of energy and MW of AS in the forward and real time markets. The system operations charge will be applied to the scheduling coordinators gross absolute value of actual MWh of real time energy flows. The CRR charge will be applied to each scheduling

coordinators total MW holdings of CRR that are applicable to each hour. The three administrative charges will be applied to each scheduling coordinator based on their use of the associated transactions.

The ISO will hold a conference call on November 18, 2010 to discuss this straw proposal with stakeholders.

Guiding Policy and Ratemaking Principles

The ISO is using the following guiding policy principles to conduct its cost of service study and develop the framework for a new GMC structure:

- 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. In addition, SCE's comments on the October 8, 2010 discussion paper highlighted a similar theme, "there should always be a final check on GMC rates, and a continuous monitoring, to ensure that GMC rates are not unduly negatively affecting market outcomes. The ISO agrees that a properly designed GMC should seek to do no harm (negatively affecting market outcomes) avoid imposing negative incentives (address negative market behavior such as deviations), and is simply a mechanism to recover ISO revenue requirements in a manner which minimizes market impacts.
- 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 disruption to the overall structure.
- 7) **Simplicity** – Simplify the current GMC structure to reduce the amount of varying bill determinants and the number of charge codes.

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 described the results (summarized in the section below) in the October 8, 2010 discussion paper. In this straw proposal the ISO: 1) proposes a classification methodology (customer billing determinants) that can be used to allocate the costs in each service category; 2) provides some rate design examples using hypothetical rates and historical data; and 3) presents aggregated bill impact information.

The 3 GMC Buckets

As described in the October 8, 2010 discussion paper, 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 and RTOs with nodal markets have implemented to recover their administrative charges.

Using these three categories, the ISO's 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.

Design of an Allocation Method

A method for classifying costs in any particular cost category requires two elements. The first is a metric or unit to be used as the "denominator" in the equation that converts the total cost in each category into a per unit charge. The second is a billing determinant for calculating each party's share of the total cost in the category. The next two subsections present the ISO's straw proposals for each of these elements.

a. Selection of Metrics

The selection of the metrics to be used as denominators for each category was based on the guiding principles and a comparison of other ISOs' service charges. The ISO proposes that the market services and system operations GMC categories be based on gross MW per hour (capacity) and MWh (energy). This follows the guiding principles because it reflects each scheduling coordinator's use of the ISO's services is flexible, transparent, easy to forecast, and simple. The ISO considered other options such as per schedule charges, energy imbalances, and peak and off peak rates. However, these alternatives are very difficult to forecast for both the ISO and market participants and it is difficult to expand the metrics to include additional market enhancements.

The market services category includes the awarded ancillary services MW, and schedules and dispatch instructions of generation, imports, load, and exports (additional detail below). As discussed during the Convergence Bidding stakeholder process, the market services system impact is not dependent upon whether the bid is virtual demand or virtual supply. Market services matches offers of supply with offers of demand to award a schedule or dispatch resources. The gross MWh approach applies equal GMC costs to both parties that engaged in the trade.

The system operations category includes all flow quantities for generation, load, imports and exports (additional detail below). The fundamental purpose of system operations is to reliably balance supply and demand. Since both components (load and generation) are necessary to achieve balance, the ISO believes gross MWh is also appropriate for system operations. In addition, as new technologies that shift or reduce load such as demand response, storage, electric vehicles, increase their participation in ISO markets, load will play an important role with the integration of renewable resources. Thus load may provide similar services as generation does in maintaining grid reliability. Since both load and generation will provide similar services, we recommend that the GMC be designed in a manner that provides symmetrical marginal costs regardless of the technology used to provide the service. The

marginal cost of the underlying technology should determine its competitiveness in the ISO market, not a difference attributed to GMC rate differential.

The market services and grid operations charges presented in this paper applies to Transmission Ownership Rights (TORs). The ISO acknowledges that the allocation of administrative fees to TORs is an issue for further discussion and will be addressed during the stakeholder process to finalize the GMC design.

The CRR category includes the total awarded MW per hour of CRRs. Using MW per hour for ancillary services and CRRs and MWh for energy creates simplicity in a common denominator as well as providing the flexibility to add additional MW per hour or MWh when new market enhancements and products are added. The principle of cost causation is fundamental in allocating costs to each of the administrative charges bucket. The ISO believes it is appropriate to consider the relative size of beneficiaries of a category which can be accomplished by using billing determinants that accurately reflect the volume of participation. Other ISOs also utilize MW per hour and MWh as their primary quantities for creating per unit charges and billing determinants.

b. Billing Determinants

Each of the three GMC buckets and respective billing determinants are discussed in further detail below.

1. Market Services

The market services charge code is designed to recover costs the ISO incurs for running the markets. As such, this charge code will be applied to each scheduling coordinator's gross absolute value of awarded MWh of energy and MW per hour of ancillary services in the forward and real time markets. Specifically, the charge code will apply to the following billing determinants:

Schedules and Awards (Absolute by Resource by Hour)

DA Generation Schedules (including MSS)

DA Import Schedules (including MSS)

DA Load Schedules (including MSS Gross Load)
 DA Export Schedules (including MSS)
 DA Ancillary Service Awards
 DA Ancillary Service Self Provision
 Convergence Bidding Schedules
 HASP Incremental and Decremental Energy (Non Dynamic)
 HASP Incremental and Decremental AncillaryService Awards
 HASP Incremental and Decremental Ancillary Service Self Provision
 Real Time Optimal Energy
 Real-Time Minimum Load Energy
 Derate Energy
 Real-Time Self Schedule
 MSS Load Following
 Real-Time Pumping Energy
 Real-Time Incremental and Decremental AncillaryService Awards
 Real-Time Incremental and Decremental Ancillary Service Self Provision

2. System Operations

The system operations charge code is designed to recover costs the ISO incurs for running the grid in real time. As such, this charge code will be applied to each scheduling coordinators gross absolute value of actual real-time MWh energy flow. Specifically, the charge code will apply to the following billing determinants:

Flow (Absolute by Resource by Settlement Interval)
 Non Dynamic System Resource Deemed Delivered Energy
 Dynamic System Resource Deemed Delivered Energy
 Metered Generation Quantities
 Metered Default LAP Load Quantities
 Metered Custom LAP Load Quantities (Including MSS Gross Load)
 Metered Pumping Energy

3. CRR's

The CRR charge code is designed to recover costs the ISO incurs for running the CRR markets. As such, this charge code will be applied to each scheduling coordinator's total MW holdings of CRRs that are applicable to each hour. Specifically, this charge code will apply to the following billing determinants:

CRR MWs (Absolute by Scheduling Coordinator by Financial Node)
 Daily Financial Node CRR Quantity

Many of the terms utilized above are defined in the appendix to the Market Operations business process manual at the following link:

<https://bpm.caiso.com/bpm/bpm/version/000000000000109>

c. Administrative and Transaction Fees

There are several administrative and transaction fees which will be used in the new market design. These fees will be structured in a way that allows market participants to determine if it is economic to incur the costs associated with using the service in question while taking in to consideration negative impacts to market participation if fees are too high.

1. Bid Segment Transaction Fee

The per bid segment transaction fee is designed to deter the submission of high volumes of “phishing” bids. The charge is proposed to be set at \$.005 per bid segment and will be applied to all bid segments submitted. The rate of \$.005 is based on a nominal charge that does not represent a significant expense to market participants under typical scheduling practices, but is enough to deter the submission of excessive bid volumes. The amount is similar to the rate used at the NYISO. The concept of a bid segment charge was raised during the Convergence Bidding stakeholder process to address concerns about bid proliferation if there was no marginal cost to place incremental bids. In addition, transaction fees collect revenue from participants who are unsuccessful in clearing the market, but who impact ISO costs. The revenue from this transaction fee will offset costs recovered through market services. Thus, if the number of unsuccessful bids increases, the market services rate for those participants who cleared the market will be reduced.

2. CRR Bid Transaction Fee

The CRR bid transaction fee is designed to recover a portion of the CRR costs on a transactional basis. The fee will apply to the CRR nominations and the CRR allocations processes. The rate of \$1.00 will be used for this fee. The revenue from this transaction fee will

offset costs recovered through CRR services. Thus if the number of unsuccessful bids increases, the CRR services rate for those participants who cleared the market will be reduced.

3. Inter-SC Trade Transaction Fee

The inter-SC trade transaction fee is designed to recover costs directly related to the scheduling and settling of inter-SC trades. The revenue from this transaction fee will offset costs recovered through market services. The ISO determined a rate (slightly less than the current rate) at an appropriate level so as not to deter existing activity, but also to recognize that if this was unlimited (i.e., no transaction cost) this could increase the demand and drive costs higher. A proposed fee of \$1.00 per inter-SC trade (each side of trade) will apply to the following billing determinants:

INTER-SC Trade (Absolute by Trade)

- DAM TO-SC Inter-SC Trade Energy (Physical and Converted)
- DAM FROM-SC Inter-SC Trade Energy (Physical and Converted)
- DAM TO-SC Inter-SC Trade Energy (Financial)
- DAM FROM-SC Inter-SC Trade Energy (Financial)
- HASP TO-SC Inter-SC Trade Energy (Physical and Converted)
- HASP FROM-SC Inter-SC Trade Energy (Physical and Converted)
- HASP TO-SC Inter-SC Trade Energy (Financial)
- HASP FROM-SC Inter-SC Trade Energy (Financial)
- Ancillary Services TO-SC Inter-SC Trade Energy
- Ancillary Services FROM-SC Inter-SC Trade Energy
- RUC Obligation TO-SC Inter-SC Trade Energy

The revenue from this transaction fee will offset costs recovered through market services.

4. SCID Administrative Fee

The SCID administrative fee is designed to limit the number of SCIDs to those needed for legitimate business purposes in order to reduce the additional burden on the ISO systems and resources that an unlimited number of SCIDs could create. The ISO proposes to keep the charge at the current \$1,000 per month per SCID. However, rather than applying the rate only to SCIDs with a positive or negative settlement, we propose to apply it to all active SCIDs. The revenue from this transaction fee will offset costs recovered through market services.

Examples of GMC Charges by Activity

The following are examples of the GMC charges that would be incurred for various activities, using hypothetical estimated rates based on historical data. Please note that the SCID fee of \$1,000 per month would apply to all activities listed below in addition to the individual transaction charges. Also note that the market services rate does not take into account the expected volume for convergence bidding. The ISO estimates that the additional volume of convergence bids would reduce the market services rate to \$.082. The GMC rates used in the calculations are based on the rates proposed in the discussion paper:

Market Services Rate: \$0.09

System Operations Rate: \$0.2841

CRR Services Rate: \$0.0126

Bid Segment Rate: \$0.005

Inter SC Trade fee: \$1.00

CRR Bid Segment Transaction fee: \$1.00

1. Generation

Scenario: A generator submits a 4-segment energy bid to the day-ahead market and is scheduled for 100 MWh. The generator then submits a 4-segment energy bid to the real-time market and is dec'd 10 MWh. Its real-time metered flow is measured at 90 MWh.

GMC charges would be:

Market Services Charge (day-ahead schedule and real-time instructions): $110 \text{ MW h} * \$0.09 = \9.90

System Operations Charge (real-time metered flow): $90 \text{ MWh} * \$0.2841 = \25.57

Bid Segment Fee: $8 * \$0.005 = \0.04

Total: \$35.51

2. Ancillary Services (1)

Scenario 1: A generator submits a 2-segment AS bid and is awarded 50 MW operating reserves in the day-ahead market for hour ending 9. No contingency event occurs in hour ending 9.

GMC charges would be:

Market Services Charge (day-ahead and real-time schedules): $50 \text{ MW h} * \$0.09 = \4.50

Bid Segment Fee: $2 * \$0.005 = \0.01

Total: \$4.51

3. Ancillary Services (2)

Scenario 2: A generator submits a 2-segment AS bid and is awarded 50 MW operating reserve in the day ahead market for hour ending 9. The generator then submits a 4-segment energy bid in the real-time market and a contingency event occurs in hour ending 9 resulting in 50 MWh energy dispatch for 15 minutes.

GMC charges would be:

Market Services Charge: $50 \text{ MW h} * \$0.09 = \4.50

System Operations Charge: $(50 \text{ MWh} / 4) * \$0.2841 = \3.55

Bid Segment Fee: $6 * \$0.005 = \0.03

Total: \$8.08

4. Load

Scenario: Load self schedules 100 MWh in the day ahead market its real time meter data shows that it consumed 100 MWh in real time.

GMC charges would be:

Market Services Charge: $100 \text{ MW h} * \$0.09 = \9.00

System Operations Charge: $100 \text{ MWh} * \$0.2841 = \28.41

Bid Segment Fee: $1 * \$0.005 = \0.005

Total: \$37.415

5. Imports

Scenario: An importer submits a 4-segment energy bid to the day-ahead market and is scheduled for 100 MWh. The importer then submits a 2-segment energy bid to the real-time market and is inc'd 10 MWh in HASP. The 110 MWh import schedule is then deemed delivered in real-time based on the final e-tag for the transaction.

GMC charges would be:

Market Services Charge: $110 \text{ MW h} * \$0.09 = \9.90

System Operations Charge: $110 \text{ MWh} * \$0.2841 = \31.25

Bid Segment Fee: $6 * \$0.005 = \0.03

Total: \$41.18

6. Exports

Scenario: An exporter submits a 4-segment energy bid to the day-ahead market and is scheduled for 100 MWh. The exporter then submits a 6-segment energy bid to the real-time market and is dec'd 10 MWh in HASP. The 90 MWh export schedule is then deemed delivered in real-time based on the final e-tag for the transaction.

GMC charges would be:

Market Services Charge: $110 \text{ MW h} * \$0.09 = \9.90

System Operations Charge: $90 \text{ MWh} * \$0.2841 = \25.57

Bid Segment Fee: $10 * \$0.005 = \0.05

Total: \$35.52

7. Convergence Bidder

Scenario: A convergence bidder submits a 10-bid segment virtual demand bid in the day-ahead market for 100 MWh.

GMC charges would be:

Market Services Charge: $100 \text{ MW h} * \$0.09 = \9.00

System Operations Charge: \$0.00 (there is no real-time energy flow associated with virtual bids)

Bid Segment Fee: $10 * \$0.005 = \0.05

Total: \$9.05

8. Inter-SC Trade

Scenario: Scheduling Coordinator A schedules an inter-SC trade with Scheduling Coordinator B for 100 MWh.

GMC charges would be (for both Scheduling Coordinators A and B):

Inter SC Trade Fee: $1 * \$1.00 = \1.00

Total: \$1.00 (each)

9. CRR's

Scenario 1: A Scheduling Coordinator bids and is awarded 100 MW CRR on peak or a LSE nominates and is allocated 100 MW CRR on peak during the October 2010 monthly process.

GMC charges would be:

CRR Bid Fee = $1 * \$1.00 = \1.00

CRR Charge: $(100 \text{ MW} * 416 \text{ hours}) * \$0.0126 = \$524.16$

Total: \$525.16

Scenario 2: A Scheduling Coordinator bids and is awarded 100 MW CRR on peak or a LSE nominates and is allocated 100 MW CRR on peak through the annual process and holds the CRR for all months of the year. Note that the number of hours in a month will be dependent upon the NERC calendar. The GMC costs will be accrued monthly over the year. We utilized October 2010 as a proxy to simplify the example:

GMC charges would be:

CRR Bid Fee = $1 * \$1.00 = \1.00

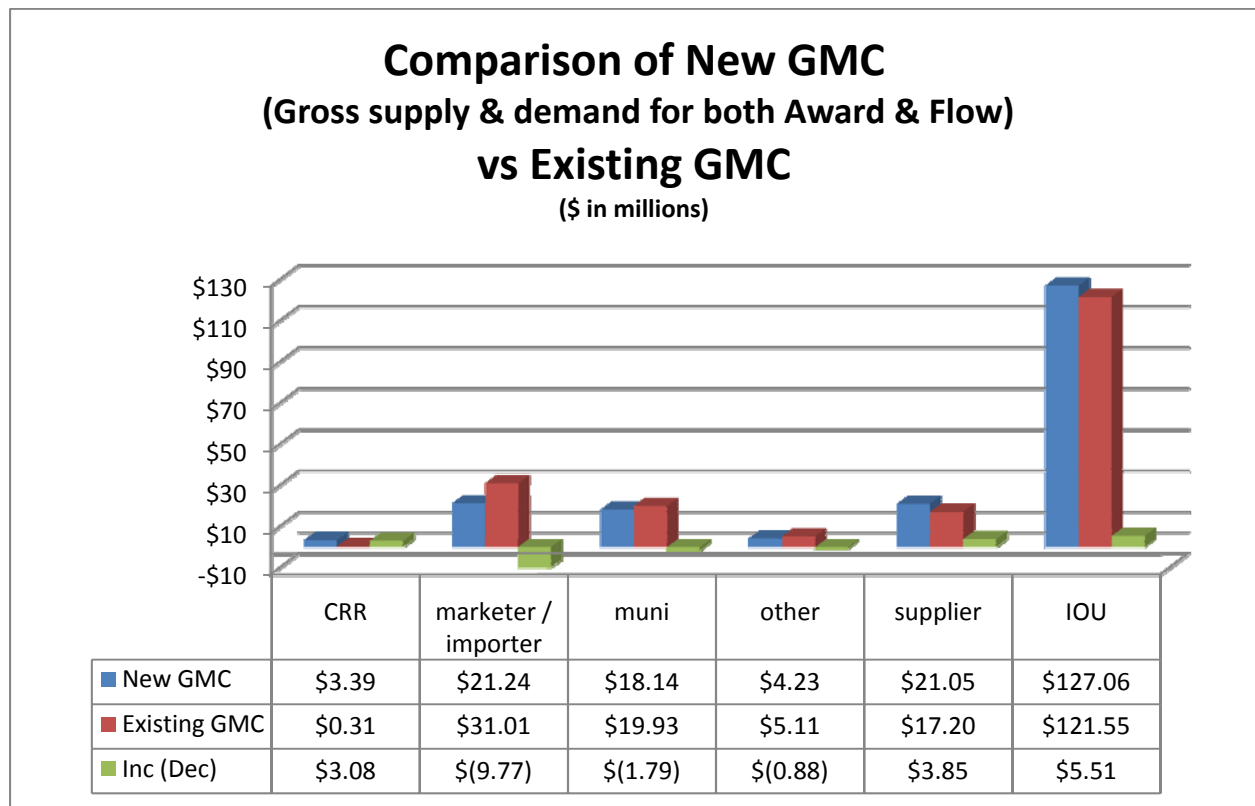
CRR Charge: $(100 \text{ MW} * 416 \text{ hours}) * \$0.0126 = \$524.16$ per month

Total: \$6,290.92

Bill Impact Process

The ISO will provide bill impact studies by SCID of the proposed GMC rate design. To provide estimates of the impacts of the new structure, the ISO developed hypothetical billing rates using the 2010 budget amount and allocated those dollars to charge categories based on the process described in the discussion paper. The billing determinants used to calculate the rates came from market data from the period of June 1, 2009 to May 31, 2010. The ISO will apply the rates for each charge code to each SCID's volumes using the billing determinants listed above to determine the costs they would have been charged if the new GMC structure had been in place.

The ISO will communicate individual SCID information in the coming weeks. The graph below illustrates the overall impact analysis by customer type:



Next Steps

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

- November 18, 2010 – conference call to discuss straw proposal
- Early December – distribute historical GMC data and what if scenario costs to individual SC's. Please provide a primary point of contact email to CAISO at gmc@caiso.com
- December 13, 2010 – in person meeting at CAISO
- January 20, 2010 (*changed from previously posted date of 1/21/11*) – in person meeting at CAISO (new headquarters building)