



CALIFORNIA ISO

Charge Type 4522
Congestion Management

Updated
June 23, 2005

1.1.1. Version 0.2 CT 4522 GMC Congestion Management

1.1.2. Description

This charge is one of the grid management charges CAISO uses to recover costs from market participants. The costs of managing and modeling congestion within the ISO control area are recovered through this charge type. To reflect the cost of managing inter-zonal congestion each participant's net hour-ahead scheduled inter-zonal flow per branch group at each zonal crossing is assessed a per MW charge, excluding ETC schedules. The Congestion Management GMC is automatically calculated by the Settlements System on a monthly basis, using hourly data. Estimated charges are output daily for information of market participants.

1.1.3. Configuration History

The following table sets out changes in the configuration of this charge type from when it was first created until it is retired.

Version number is expressed as a sequentially increasing number for each configuration change. A new version is established for each production release after successful testing and is shown as an integer increase (0.1, 0.2, 0.3) Changes under development will be indicated by an incremental version number (that is, 1.1, 1.2, 1.3) until the production release. The Effective Start and End dates reflect the actual trades for which the configuration applies. Update Date is the actual calendar date of configuration guide edits.

Version #	Effective Start	Effective End	Author	Update Date	Description of Changes
0.1	Stage 1	Stage 2	M. McGuffin & E. Siegel	5/30/04	Original version
0.2	Stage 1	Stage 2	E. Siegel	1/30/05	Assigned a Charge Type. Add branch groups to the exemption table as a result of the B5 network model changes. MID4 received a BAID in 01/2005 and needed to be added to exemption table.

1.1.4. ISO Charge Type Formula

The ISO formula for GMC Congestion Management Settlement for each Scheduling Coordinator is as follows:

$$\text{GMC Congestion Management Settlement Amount}_{smd} = \sum_r \sum_h | \text{Net Hour Ahead}$$

$$\text{Scheduled Inter-zonal New Firm Use Quantity}_{sr\text{txmdh}} | * \text{GMC Congestion Management Rate}_m$$

Where

Market Type (x) = Hour Ahead

And

Location ID (r) = Location ID (for the Branch Group)

And

Location Type (t) = Branch Group

And

GMC Congestion Exception Flag <> True

NOTE

The upstream data source provides only Branch Group IDs in the Location ID (r) field. This can be validated through a cross-reference with the SS_BG_SN Master file snapshot.

GMC Congestion Management Rate m is the current FERC approved rate for the CAISO Control Area

And

s = Business Associate ID

r = Location ID

t = Location Type

m = Trade Month

d = Trade Date

h = Trade Hour

x = Market Type

Equation Name	Description
GMC Congestion Management Settlement Amount	Net Hour Ahead Interzonal Flow per Path (Excluding ETCs) Multiplied by the Congestion management GMC Rate
GMC Congestion Management Rate	The current FERC approved rate for the CAISO Control Area
Net Hour Ahead Scheduled Inter-zonal New Firm Use Quantity	Hour Ahead Scheduled flow by branch group for every BA_ID excluding Transmission Contracts.

1.1.5. Calculation Exceptions

BA ID #	Scheduling Coordinator Name (Short Name)	Location ID	Interchange ID (if applicable)	Exception / Treatment	Quantity	Variable Name	Effective Start Date	Effective End Date	Comments
3933	PGAE & COTB	All	All	Exempt from Congestion Mgmt. Charges	Net Hour Ahead Scheduled Inter-zonal New Firm Use Quantity	Configuration Specialist?	1/1/2000	Open	
2970	Internal ISO ID used in Energy Exchange Transactions	All	All	Exclude ISO SC from All GMC charges	All	Configuration Specialist?	4/6/2001	Open	
5819	MID4	All	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2004		Charge for MID4 handled in a separate Charge
		Branch Group: WSTWGMEAD_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: MKTPCADLN_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: IPPDCADLN_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: MONAIPPDC_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	

BA ID #	Scheduling Coordinator Name (Short Name)	Location ID	Interchange ID (if applicable)	Exception / Treatment	Quantity	Variable Name	Effective Start Date	Effective End Date	Comments
		Branch Group: GONDIPPDC_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: MEADMKTPC_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: MEADTMEAD_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
		Branch Group: MCCLMKTPC_BG	All	Exempt from Congestion Mgmt. Charges	All	Configuration Specialist?	1/1/2005	Open	
1268	SCE2	NA	NA	Exempt from charge	All		1/1/2004	Open	

1.1.6. Charge Type Bill Determinants

The following table sets out the bill determinants used by a sample charge type including details of source system, and required attributes.

Input Name	Type	Interval	Sign	Description	Source	Variable Name	Alias	Rounding	Actual Attributes	Derived Attributes
Net Hour Ahead Scheduled Inter-zonal	S	Hourly	+/-	Hour Ahead Scheduled Net Inter-zonal Flows per path excluding ETCs	SS_SC_PATH_UTIL	Configuration Specialists			BA_ID, Location ID, Trade Interval, Trade Hour, Market Type,	

Input Name	Type	Interval	Sign	Description	Source	Variable Name	Alias	Rounding	Actual Attributes	Derived Attributes
New Firm Use Qty.									Location Type	

In reviewing this table:

- Type indicates whether the Bill determinant is provided by an external system (S) or calculated as an intermediate value by another process (I).
- Interval is the interval of the incoming record
- Source for the moment is the expected supplying system. This will be replaced with actual system names in the “as built” version of the configuration guide.
- Actual attributes are parameters used in the calculation that are expected to be supplied with the source data.

Specific Master File data used by this charge type is as follows:

Master file Data	Description	Type	Variable Name	Detail	Actual Attributes	Derived Attributes
BA_ID	Valid Business Associate	Primary record	<i>Configuration Specialists</i>		BA_ID	
Branch Group	Valid Branch Group (Inter-zonal Crossing) from SS_BG_SN	Primary record	<i>Configuration Specialists</i>		Location ID, Start Date, End Date	

In reviewing this table:

- Type indicates whether the Master file is one of the following:
 1. A primary record (such as SC, or resource)
 2. An association (which is a connection between any two primary records, such as ownership)
 3. An attribute (such as a flag or equivalent specific to a primary record that can be used for billing, for example resource type)
 4. A roll up group where a primary record is within a further hierarchy (such as region, zone etc, noting that locations, etc are primary records in their own right)
- Details are the actual flag or association.

These are summarized in total for settlements in Volume 3, Interface Configuration
Specific Standing data used by this calculation are as follows:

Input Name	Type	Interval	Unit of Measure	Description	Source	Variable Name	Alias	Rounding	Actual Attributes	Derived Attributes
GMC Congestion Management Rate	T	Annual	\$/MWh	Monthly rate Congestion Management based on Hourly MW values	STLMTS			9	Rate, Effective Start Date, Effective End Date	
GMC Congestion Exception Flag	EF	Same as Input Data		GMC Congestion exception for a Business Associate (True or False)	STLMTS – Standing Data			9	BA_ID, Effective Start Date, Effective End Date	Exclude Quantities <> True

In reviewing this table:

- Type indicates whether the Bill determinant is standing data for a Tariff Rate (T) or a rate calculated as an intermediate value by another process (CR).
- Interval indicates the frequency with which the input is updated.
- Source for the moment is the expected supplying system. This will be replaced with actual system names in the “as built” version of the configuration guide.

1.1.7. Calculation Attributes

Billable quantity and charge type indices and summary levels must be indicated as attributes. All quantity and pricing inputs must satisfy these attributes for charges to be calculated. Attributes must be common to the Charge Group that the Charge type belongs to. An attribute table must be completed for each calculation.

Attribute Name	Order	USE	Sum	Key Value	Notes
Market Type		Y			Standard attribute, use TBD
Major group		Y			Standard attribute, use TBD
Charge Group		Y			Standard attribute, use TBD
Trade Date		Y			Sum to Monthly
Trade Hour		Y	Y		
BA ID		Y	Y		Used to sum by customer
Location ID		Y			
Market Type		Y			= Hour Ahead
Location type		Y			= Branch Group

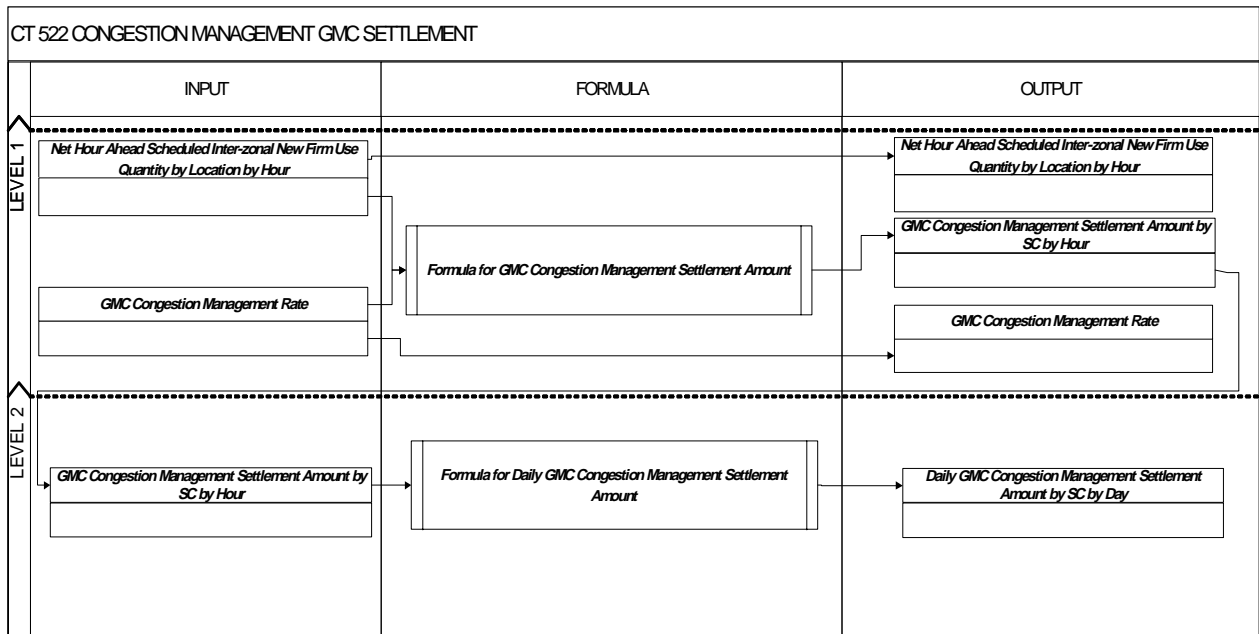
Attribute Name	Value	Notes
Calculation Frequency	Daily	Daily for estimate purposes on statement
Number of Intervals	25	
Prerequisite CT / BQ	N/A	
Successor CT	N/A	

1.1.8. Calculation Flowcharts

The high-level Congestion Management GMC is set out below. The flow chart will have 2 levels:

Level 1 - Calculate GMC Congestion Management Settlement Amount by SC by Hour

Level 2 – Calculate Daily GMC Congestion Management Settlement Amount by SC.



1.1.9. Output Requirements and Definitions

Output requirements include details of which charge type outputs are to be reported to participants in the detailed Quantity, Price, and Charge detail format. The specific participant outputs are defined, together with any intermediate outputs needed to validate charges prior to publishing results, or used as inputs in other charge calculations

Output type	Level	Expected quantities	Unique Output	Rounding	Output	Variable Name
Detailed BQ output	GMC Congestion Management Rate	1	Yes	9		
Detailed BQ output	Net HA Inter-Zonal Flow Quantity by Location by Hour	Branch Groups * 25	Yes	9		
Detailed BQ output	Daily GMC Congestion Management Settlement Amount by SC by Day	# of SCs	Yes	9		
Daily settlement statement	GMC Congestion Management Settlement Amount by SC by Hour	# of SCs * 25	Yes	9		
Invoice	SC by bill period	# of SCs	Yes	9		

1.1.10. Adjustments and Rounding

1.1.10.1. Adjustments

Automatic recalculation adjustments to this charge type will occur in the event of revised data input from source systems or a revised GMC Congestion Management rate, by performing a recalculation against the prior run.

1.1.10.2. Rounding Adjustments

As this product type is a charge calculation only, no rounding adjustment is required.

1.1.11. Validation and Testing

1.1.11.1. Validation

The table below sets out the validation checks that must occur:

Validation	Timing	Description	Applicable to
Net Inter-zonal flow Quantity > 0	After	The billable quantity should never be negative	Initial and recalculation Runs
Location Ids = Branch Group	During	Error produced if condition is not met. Location Ids should exist in SS_BG_SN	Initial and recalculation Runs

1.1.11.2. Testing

The following conditions must be tested prior to release of any configuration to production:

Standard Testing

Detail standard tests that need to be conducted for this charge type.

Test Condition	Description	Applicable to
Charge calculation correct at hourly level	Correct base calculation	Initial and recalculation run types
Charge sum correct at SC level	Correct SC sum	Initial and recalculation run types
Recalculation for altered inputs	Correct quantity true up	Recalculation run types

Charge Type Specific Testing

Detailed tests that need to be conducted for this charge type, that are specific to the charge type.

Test Condition	Description	Applicable to
Exceptions	Ensure that specified quantities are excluded from the Calculation	Initial and recalculation run types
Rate Changes	Ensure rate changes have correct effective dates. Charge types will not change as rates change	Initial and recalculation run types

Successor Charge Type Specific Tests

Detail specific tests that need to be conducted on successor charges to reflect possible updates and adjustments to this charge type:

Test Condition	Description	Applicable to
None		

Revision Table

Date	Description
March 18, 2005	Original
June 23, 2005	Added BAID 1268 to Exceptions