



CALIFORNIA ISO

California Independent
System Operator

**Directions for Load Serving Entities Requested
to Provide Data to the California ISO in Support of the
Congestion Revenue Rights Study under Market Design 2002**

March 14, 2003

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1 Background

On May 1, 2002 the California Independent System Operator Corporation (CAISO) filed tariff language to implement Phase I of its Comprehensive Market Design Proposal¹ (MD02) with the Federal Energy Regulatory Commission. This filing, which addresses deficiencies in the CAISO market, was followed by a second tariff filing on June 17, 2002 necessary to implement Phases II and Phase III² of MD02.

Phase III of the MD02 proposal includes new forward congestion management design elements with a locational marginal pricing (LMP) scheme and a full network model. Also included in Phase III is a Congestion Revenue Right (CRR) element featuring Point-to-Point CRRs (both Obligations³ and Options⁴) and Network Service Rights (Obligations only) which offer market participants the opportunity to hedge against congestion charges in the forward market.

CRRs will be released to Market Participants (MPs) through direct allocations and through periodic (yearly and monthly) auctions beginning in 2004. While Existing Contracts (i.e., Existing Transmission Contracts or “ETCs”) will be honored under the new CRR market redesign proposal to the extent possible, those Existing Contract holders wishing to convert will receive CRRs Options (or Obligations, if desired).

2 Purpose of Data Request

The purpose of this data request is to gather important information from certain Load Serving Entities, referred to herein as “Allocation Eligible Entities” (AEEs), who may be entitled to receive CRR allocations under MD02. This information, which will be kept confidential by the ISO, will be used in a CRR Study being conducted by the CAISO. Results of this Study will provide the CAISO and Market Participants with valuable information about the extent to which AEEs may be hedged against congestion charges in the forward market under the new LMP environment.

For purposes of the CRR Scoping Study, AEEs are defined as follows:

“Any Market Participant (or duly designated agent of such an entity, including, e.g., a Scheduling Coordinator), including a load aggregator or power marketer, (1) serving End Users within the ISO Control Area or (2) that has been granted the authority or has an obligation pursuant to California State or local law,

¹ This filing is located on the CAISO website at <http://www.caiso.com/docs/2001/12/21/2001122108490719681.html>

² This filing is located on the CAISO website at <http://www.caiso.com/docs/2002/05/29/200205290858531076.html>

³ A CRR Obligation owner receives a payment from the CAISO when the difference in the congestion component of the locational marginal price in the day ahead market is positive and the CRR Obligation owner pays when it is negative. The congestion component for a Point-to-Point Right is calculated by multiplying the scheduled megawatt quantity by the difference between the locational marginal price at the takeout point (point of ejection) and the locational marginal price at the point of injection. The congestion component for a Network Service Right Obligation is the difference of the product of the scheduled megawatt quantities at each takeout point by the corresponding locational marginal prices and the scheduled megawatt quantities at each point of injection by the corresponding locational marginal prices.

⁴ A CRR Option owner receives a payment from the CAISO when the difference in the congestion component of the locational marginal price in the day ahead market is positive and pays nothing when it is negative.

regulation or franchise to sell electric energy to End Users located within the ISO Control Area.”

3 Proposed Changes to Tariff Filing

The ISO participated in a series of meetings with Market Participants, at the end of last year, to discuss implementation of LMPs and CRRs. During these working group meetings, Market Participants made several recommended changes to the ISO’s June 17, 2002 Tariff filing on CRR implementation. One of the recommendations was to implement annual CRR terms with a rolling three-year allocation period. Another recommendation was to offer peak and off-peak CRRs. A third was to allocate CRR Obligations to AEEs based upon the 0.5% exceedance level of the load duration curve (i.e., on the peak load side of the load duration curve) rather than at the 99.5% exceedance level. The ISO believes these recommendations have merit. For this reason, data requested for purposes of the CRR Study reflect these anticipated changes to the current Tariff filing.

4 Summary of Requested Data

The CAISO requests that all AEEs provide a request⁵ of CRR needs for annual peak and off-peak periods and for monthly peak and off-peak periods over the requested time frame. The quantity of requested annual peak and off-peak CRRs should cover the period June 1, 2003 through May 31, 2004. The quantity of requested monthly peak and off-peak CRRs should cover the months of June 2003, August 2003, November 2003 and March 2004. All requests for annual and monthly CRRs should be supported by historical and forecasted load data, respectively. Requests and supporting data should be provided by AEEs to the CAISO in the specific format specified in the templates that accompany this data request. Note that the historical load and forecasted load should not account for any losses associated with the transmission of the power to the load. For purposes of the Study, data to support the annual CRR requests should be provided for the period of January 1 through December 31, 2002⁶. Data to support the requests for monthly peak and off-peak CRRs should be based upon those four months listed above.

5 Data Gathering and Validation

5.1 Overview

The data-gathering and validation process consists of the following steps.

Each AEE must submit to the CAISO its requested quantity of annual and monthly CRRs using the templates provided. Specific Sinks and Sources must be specified that indicate the transmission usage pattern for which the CRRs will provide a hedge. These CRRs must be

⁵ AEEs are not bound in the future by the requested quantity of CRRs provided to the CAISO as part of the CRR Study. AEEs will again be asked for the quantity of needed CRRs this summer prior to implementation of new LMP energy market under MD02.

⁶ The CAISO recognizes that some AEEs may wish to refine their request for CRRs using some other criteria or information. The ISO is willing to discuss with AEEs, at a later time, other possible means of supporting CRR requests in the future. However, for purposes of this Study, the supporting data should fall within the January 1 through December 31, 2003 time frame.

Point-to-Point (PTP)⁷ CRRs. The CAISO will provide the option for AEEs to request Network Service Rights (NSR)⁸ CRRs in the future and this includes the start of Phase III of MD02, but at the moment the CAISO does not have the software available to handle NSR CRR. Thus, for this study, only PTP CRRs can be requested.

As previously mentioned, each AEE must submit historical load data, in template format, to support its CRR requests. The CAISO will review the quantity of CRRs requested and the supporting data provided by each AEE. The CAISO will also review historical data on file and consider any non-converted and converted ETCs⁹ (i.e., FTRs) held by the AEE for the period of the CRR term requested. ETCs and FTRs held by AEEs will effectively reduce the quantity of CRRs that may be allocated to AEEs under the Study.

If the quantity of requested CRRs for the particular term cannot be supported by data that is provided by the AEE, the CAISO will notify the AEE and will request the AEE to resubmit a revised requested of CRRs.

CRR requests that pass the CAISO validation process will be utilized in the simultaneous feasibility analysis performed as part of the allocation process. Please note that CRRs found to be simultaneously feasible may be less than the quantity of CRRs requested by the AEE. (Refer to the CAISO white paper entitled “Congestion Revenue Rights Allocation and Auction” for additional information.)

5.2 Determination of Maximum Quantity of Allocated CRRs

The maximum quantity of annual CRRs that will be allocated to AEEs for purposes of the Study will be based upon the determined Load Metric¹⁰ for each AEE, plus the quantity of non-converted and converted ETCs.

Similarly, the maximum quantity of monthly CRRs that will be allocated to AEEs for the purpose of this study will be based upon the Load Metric, plus the quantity of non-converted and

⁷ PTP CRRs consist of a balanced power transfer from a Source to a Sink. The Source for PTP Rights, for purposes of this Study, must be a network node designated by a specific Resource ID or a Trading Hub. The Sink for PTP Rights must be a Load Aggregation Point. Load Aggregation Points are CAISO defined Load Aggregation Points (i.e., Standard Load Aggregation Points). Similar to the NSR, the SFT used in the allocation of PTP Rights will be on a priority level basis.

⁸ NSRs generalize the Point-to-Point Right by allowing multiple Sources and Sinks to be specified (i.e., a NSR is multipoint-to-multipoint right). A NSR specifies MW quantities at each of a group of Sources and Sinks, such that the total MW quantity over all Sources equals the total MW quantity over all Sinks. Market Participants that hold a NSR shall be entitled to the difference in the LMPs between the multiple Sources and Sinks, multiplied by the respective awarded quantities. From the CRR auction perspective, each Source and Sink has its own price and quantity for purposes of bidding into the CRR Auction. The optimization process will determine the actual percentages of the total MW cleared that corresponds to each Source and Sink Point. This price and quantity is generally the same for the allocation process, except that from the allocation perspective, the SFT will be performed on a priority level basis.

⁹ Some Market Participants who turned over operational control of their transmission systems to the CAISO were given FTRs of a certain term in exchange.

¹⁰ The Load Metric is the load level that is only expected to be equaled or exceeded 0.5 percent of the time based upon historical information. See Appendix for a sample load duration curve and determination of the 0.5 percent exceedence level.

converted ETCs. However, forecasted¹¹ load data will be submitted by the AEE, instead of historical load data, and will be the basis used to determine the Load Metric.

For the annual allocation, 75% of the Load Metric (first discounted by non-converted and previously converted ETCs) will be used as the maximum value for the annual allocation. For the monthly allocations, 100% of the Load Metric (first discounted by non-converted, previously converted ETCs and the CRRs allocated for the annual term) will be used as the maximum value for the monthly allocations. Please note that the data template contains macros that determine 75% of the Load Metric for yearly term CRRs and 100% of the Load Metric, less CRRs allocated to the AEE for the annual term, for the monthly term. AEEs that have non-converted or previously converted ETCs should provide this information to the ISO as a separate data submittal.

5.3 Source and Sink Data

For each CRR term (annual or monthly) that the AEE requests CRRs, the transmission usage pattern associated with these CRRs must be provided to the CAISO in order for the simultaneous feasibility test (SFT) to be performed. This transmission usage pattern is described by Sink and Source locations, as well as, the amount of MWs associated with each.

5.3.1 Sink and Source Specification

In the allocation of CRRs to AEEs, certain criteria must be met for the Sources and Sinks that the AEEs use in their request of CRRs. The list of Sources and Sinks that can be used by the AEE's is provided in the template.

5.3.1.1 Network Nodes, Standard Load Aggregation Points and Trading Hubs

For this Study, the CAISO will use an updated full network model. Based on this model, a list of network nodes, Standard Load Aggregation Points, and Trading Hubs comprising the model has been developed. This list includes Load Distribution Factors (LDFs)¹² for each Standard Load Aggregation Point and Trading Hub as well as a mapping from current CAISO Resource ID names and takeout points to network nodes.

5.3.1.2 Sinks

Sinks must be a CAISO defined Standard Load Aggregation Point. The Standard Load Aggregation Points that will be used for this Study are PGE3, PGE4, SCE1, SDG1, CWR4, CWR5, CWR6, and CWR7.

The definitions of these Points are given in Table 3 in the Appendix. This table presents the original definitions of Standard Load Aggregation Points that were filed in the May 1, 2002 filing¹³, as well as, an addition column that lists the Standard Load Aggregation Points that must be used for this CRR study. The use of the Standard Load Aggregation Points, CWR4, CWR5, CWR6 and CWR7, is restricted to the California Department of Water Resources (CDWR) for

¹¹ For the purpose of this Study, the standard that should be used by AEEs for the monthly load forecast is 1-in-2. That is, there is a 50% chance that the actual load will exceed the forecast and a 50% chance that the actual load will be less than the forecast.

¹² LDFs are the mechanism used to distribute aggregate load to the underlying load nodes.

¹³ See page 124 of the CAISO's May 1, 2002 Comprehensive Market Design Proposal

use as a Sink. The use of the remaining four Standard Load Aggregation Points, PGE3, PGE4, SCE1 and SDG1 is restricted to all other AEEs.

For the purposes of this allocation process, the Sink may not be a Trading Hub (since load cannot be scheduled in the forward market at a Trading Hub). For the purposes of this study (and not necessarily for the actual CRR allocation), the Sink cannot be a Customer Load Aggregation Point¹⁴.

Besides the restriction on the available Standard Load Aggregation Points that the AEE is allowed to use in this study, the AEE is further restricted in that it can only use those Standard Load Aggregation Points that contain load for which the AEE is responsible (see definition of an AEE).

For example, if an AEE has load in PGE3 and SCE1, then it cannot use PGE4 or use SDG1 as Sink points.

5.3.1.3 Sources

Sources must be generation points or scheduling points for imports (defined by Resource IDs), or Trading Hubs.

If the AEE is requesting Sources, other than Trading Hubs, the CAISO requests that the AEE specify those Sources that most accurately define their typical transmission usage pattern. In other words, specify the Sources as those sources that the AEE owns and will operate to serve its load on a regular basis and those sources that are part of the AEE's energy contract portfolio. These sources will include generators and imports.

5.4 Multiple Requests for CRRs

The AEE can submit more than one request for CRRs for a particular term. However, the total quantity of CRRs requested must be less than or equal to the maximum quantity of CRRs allocated to AEEs.

5.5 Definition of Peak and Off-peak Periods

For purposes of the Study, the definition of the peak period is from Hour Ending 7 through Hour Ending 22 (i.e., 6 AM to 10 PM) Monday through Saturday. The definition of the off-peak period is from Hour Ending 23 through Hour Ending 6 (i.e., 10 PM to 6 AM) Monday through Saturday as well as HE 1 to HE 24 (i.e., all day) on Sundays. For the following holidays, all hours of the day are treated as off-peak: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

5.6 Templates for Requesting CRRs

Following is a description of the Excel spreadsheet templates provided by the CAISO along with this document. Tables 1 and 2 provide a description of data requested in the templates provided by the ISO. Table 1 shows information provided in the Source tab of the template and Table 2 shows information provided in the Sink tab of the template.

¹⁴ The use of Customer Load Aggregation Points at this time may slow down the request for data from the AEEs.

5.6.1 Standardized Sink Names

The “Standardized Sink Names” tab of the Excel spreadsheet provides information to be used by the AEE when indicating the specific Sink or Sinks for requested CRRs in the Sink data template.

5.6.2 Resource ID Source Names

The “Resource ID Source Names” tab of the Excel spreadsheet provides information to be used by the AEE when indicating the specific Source or Sources for the requested CRRs in the Source data template. Note that this list is comprised on generator resource names, tie-point resource names and trading hub names. The generator and tie-point resource names are taken from the” Take Out Points, Network Model, and Load Groups (effective date 1/1/2003, New PTO Implementation)” file that is posted on the CAISO website. The Trading Hub names are taken from Table 3 in the appendix.

5.6.3 Historical Load Data

The “Historical Load Data” tab of the Excel spreadsheet provided the location for AEEs to provide historical hourly load data from January 1, 2002 through December 31, 2002. This information should support the quantity of CRRs being requested by the AEE. At the top of this spreadsheet is a location for the AEE to indicate its company name. A macro is included that calculates 75% of the Load Metric. This represents the maximum annual term CRRs that may be requested by the AEE.

5.6.4 Forecasted Load Data

The “Forecasted Load Metric” tab of the Excel spreadsheet provides the location for AEEs to specify their forecasted hourly load data for the months of June 2003, August 2003, November 2003 and March 2004. These forecast data sets should be supported by the historical hourly load data provided in the Historical Load Data template for the same monthly time period. A macro is included in the template that calculates the monthly load metric, less the quantity of yearly term CRRs. This represents the maximum monthly term CRRs that may be requested by the AEE.

5.6.5 Source Data

The “Source Data” tab of the Excel spreadsheet provides the location for AEEs to fully describe the Sources that correspond to the requested on and off-peak yearly and monthly (includes all the requested four months) PTP CRRs. Definitions of the terms that apply to the Source template are described in Table 1 below.

Table 1

Company name of the Allocation Eligible Entity (AEE):	The name of the Allocation Eligible Entity.
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Resource ID Source Name:	Each source name used must be one of the Resource ID (Source) Names found in the “Resource ID (Source) Name” tab in the accompanying template.
CRR ID:	This ID serves two purposes. The first is to establish a link between the Source data and the corresponding Sink data if more than one set of CRR requests are made by the AEE for the particular term and time-of-use period. The second is to indicate the quantity of requested PTP CRRs. If the AEE has n different PTP CRR requests, then the AEE must number each set of Sink/Source requests with the CRR Id as 1, 2, ..., n .
SourceMW:	This MW value should match the corresponding Sink MW value for this PTP CRR request.

5.6.6 Sink data

The “Sink Data” tab of the Excel spreadsheet provides the location for AEEs to fully describe the Sinks that correspond to the on and off-peak yearly and monthly¹⁵ requested PTP CRRs. Definitions of the terms that apply to the Sinks template are described in Table 2 below.

Table 2

Company name of the Allocation Eligible Entity (AEE)	The name of the Allocation Eligible Entity.
Sink Name:	This must be the name of a CAISO defined Load Aggregation Point name. Consult the “Standardized Sink Names” tab in the template.
CRR ID	See Table 1 description.
SinkMW:	This MW value is the CRR requested MW for this PTP CRR.

5.7 Sample Data Submittal

The Excel data template provided by the CAISO with these instructions provides sample data submittal information.

¹⁵ Includes requests for all four months as previously described.

6 Appendix

6.1 Example of Determining the 0.5% Load Level (Load Metric)

The following is an example of a gross load duration curve that points out the 0.5% load level.

Assume that the gross load duration curve in Figure 1 is for a particular month in the one-year historical reference period and shows the gross load levels for AEE1's entire load during that monthly period. Assume that this gross load is based on hourly-metered data. For this month, the maximum load is 1981 MW and the minimum load is 893 MW.

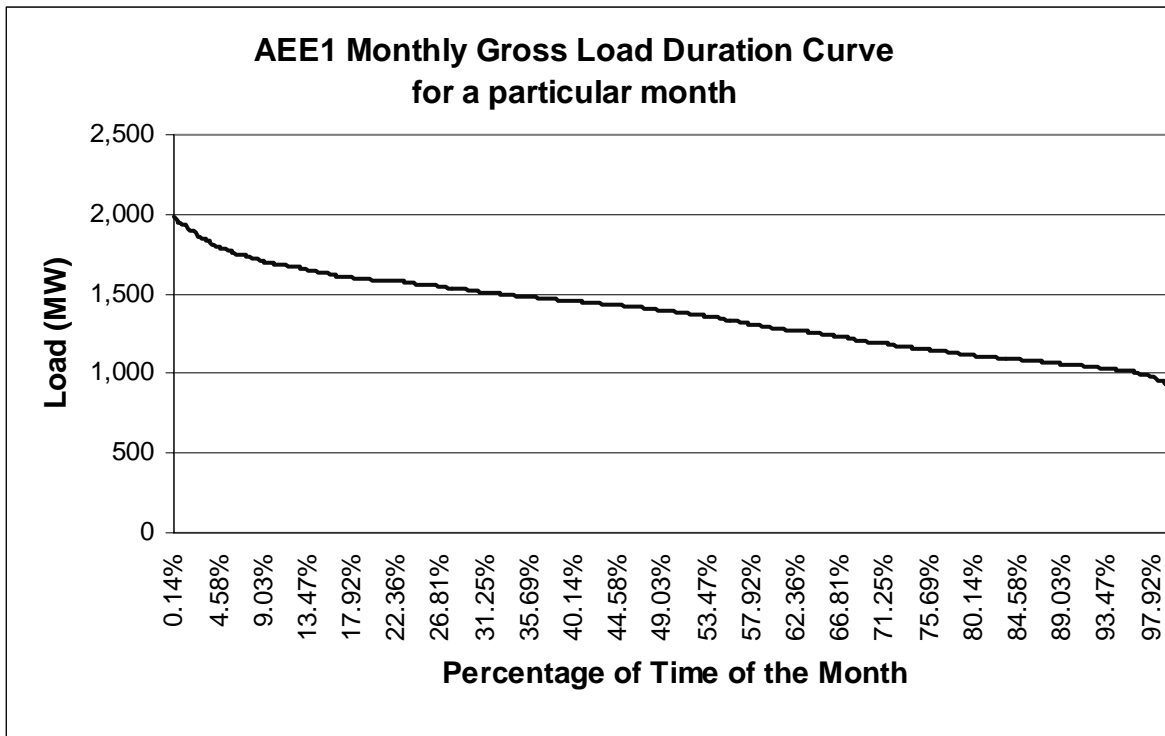


Figure 1 Gross load duration curve for AEE1

To see the 0.5% point, the upper right portion of this graph is expanded in Figure 2.

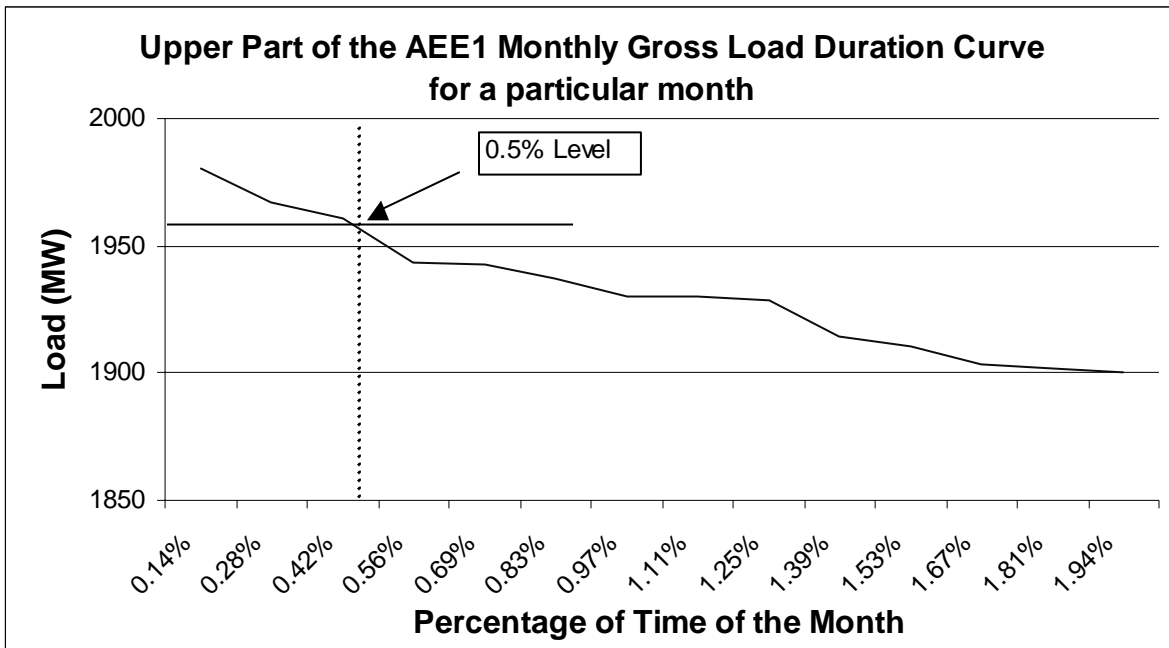


Figure 2 Gross load duration curve for AEE1 with 0.5% point shown

The load at the 0.5% level is 1955 MW (which is 98.7% of the peak load, i.e., 1955/1981). This value of 1955 will be compared against all other similar 0.5% values from the other months in the historical reference period and the minimum value will be used as the Load Metric in determining the maximum quantity of requested CRRs permissible. This quantity will then be used in the Simultaneous Feasibility Test to determine the final allocated CRR quantity for use by the AEE.

Table 3

Transmission Area	Trading Hub	Load Aggregation Points to be Used as Sinks in the CRR Study	May 1, 2002 Filed Load Aggregation Points (Initial Definition)		Name and Correspondence to Existing Load Groups	
PGAE	NP15	PGE3	PGE3	PGHB	Humboldt (PG&E Humboldt/ PGHB) (current PGE1 demand zone)	
				PGSF	San Francisco (PG&E San Francisco/ PGSF and PG&E Peninsula North/ PGP1) (current PGE2 demand zone)	
				PGDI	Diablo (PG&E Diablo/ PGDI)	
				PGEB	East Bay (PG&E East Bay/ PGEB)	
				PGMS	Mission (PG&E Mission/ PGMS)	
				PGSJ	San Jose/ Peninsula (PG&E De Anza/ PGDA, PG&E Peninsula South/ PGP2, and PG&E San Jose/ PGSJ)	
				PGF1	Fresno (PG&E Fresno North/ PGF1, and part of PG&E Yosemite/ PGYO)	
				PGNC	North Coast (North Bay LPA portion of PG&E North Coast/ PGNC)	
				PGFG	Fulton Geysers (Fulton Geysers LPA portion of PG&E North Coast/ PGNC)	
				PGBC	Battle Creek LRA (RMR area in PG&E North Valley/ PGNV)	
				PGSI	Sierra LRA (RMR area in PG&E Sierra/ PGSI and parts of PG&E Sacramento/ PGSA)	
				PGST	Stockton LRA (RMR area in PG&E Stockton/ PGST and Stanislaus/ PGSN)	
				PGNB	North Bay (PG&E North Bay/ PGNB, and remaining portion of PG&E North Coast/ PGNC)	
				PGNV	North Valley (remaining portion of PG&E North Valley/ PGNV)	
				PGSA	Sacramento Valley (remaining portions of PG&E Sacramento/ PGSA and Sierra/ PGSI)	
				PGSN	San Joaquin (remaining portions of PG&E Stockton/ PGST, PG&E Stanislaus/ PGST, and PG&E Yosemite/ PGYO)	
				PGCC	Central Coast (PG&E Central Coast/ PGCC)	
				CT1	California Oregon Transmission Project	
				CSF1	City of San Francisco	
				LMD1	LMD1	Lassen Municipal Utility District
				MID1	MID1	Modesto Irrigation District
				NCP1	NCP1	Northern California Power Agency (includes City of Santa Clara)
				RED1	RED1	City of Redding
				SMD1	SMD1	Sacramento Municipal Utility District
				TID1	TID1	Turlock Irrigation District
				WAP1	WAP1	Western Area Power Administration
				CWR4	CWR1	California Dept. Of Water Resources
CWR4	California Dept. Of Water Resources					
ZP26	PGE4	PGE4	PGLP	Los Padres (PG&E Fresno South/ PGF2, PG&E Kern/ PGKE, and PG&E Los Padres/ PGLP)		
			NCP2	Northern California Power Agency		
			CWR5	CWR2	California Dept. of Water Resources	
				CWR5	California Dept. of Water Resources	
SCE	SP15	SCE1	SCE1	SCSO	LA/ Orange County (SCE South/ SCSO)	
				SCEA	Other SCE (SCE East/ SCEA, SCE High Desert/ SCHD, SCE North/ SCNO, SCE Sylmar/ SCDC, and SCE West/ SCWE)	
			ANA1	ANA1	City of Anaheim	
			PAS1	PAS1	City of Pasadena	
			RVD1	RVD1	City of Riverside	
			VRN1	VRN1	City of Vernon	
			Other ...	Other ...	Load Groups for other municipal utilities?	
			CWR6	CWR3	CWR3	California Dept. of Water Resources
				CWR6	CWR6	California Dept. of Water Resources
			CWR7	CWR7	CWR7	California Dept. of Water Resources
			SDGE		SDG1	SDG1