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Appendix to 2012 Grid Management Charge
Straw Proposal
Billing Determinant Definitions

December 16, 2010

Definitions of Billing Determinants

This appendix contains definitions of billing determinants used in the 2012 Grid Management Straw Proposal issued November 11, 2012.

Bill Determinant Variable Name	Bill Determinant Definition	Source Document
DA Generation Schedules (including ETC TOR)	Hourly Energy that corresponds to the flat hourly Day-Ahead Generation Schedule (DAS). It is composed of Day-Ahead Minimum Load Energy, Day-Ahead Self-Scheduled Energy, and Day-Ahead Bid Awarded Energy. It does not include the DA Energy that corresponds to the flat schedule when resource is committed in DA pumping mode. Expected energy in DA pumping mode is accounted for as DA pumping energy. Day-Ahead Scheduled Energy is settled at the IFM LMP as specified in Section 11.2.1.1. of the CAISO Tariff.	BPM for Market Operations
DA Import Schedules (including ETC TOR)	Hourly Energy that corresponds to the flat hourly Day-Ahead Import Schedule (DAS). It is composed of Day-Ahead Minimum Load Energy, Day-Ahead Self-Scheduled Energy, and Day-Ahead Bid Awarded Energy. It does not include the DA Energy that corresponds to the flat schedule when resource is committed in DA pumping mode. Expected energy in DA pumping mode is accounted for as DA pumping energy. Day-Ahead Scheduled Energy is settled at the IFM LMP as specified in Section 11.2.1.1. of the CAISO Tariff.	BPM for Market Operations
DA Export Schedules (including ETC TOR)	Hourly Energy that corresponds to the flat hourly Day-Ahead Export Schedule (DAS). It is composed of Day-Ahead Minimum Load Energy, Day-Ahead Self-Scheduled Energy, and Day-Ahead Bid Awarded Energy. It does not include the DA Energy that corresponds to the flat schedule when resource is committed in DA pumping mode. Expected energy in DA pumping mode is accounted for as DA pumping energy. Day-Ahead Scheduled Energy is settled at the IFM LMP as specified in Section 11.2.1.1. of the CAISO Tariff.	BPM for Market Operations
HASP Incremental and Decremental Energy (Non Dynamic)	IIE from Non-Dynamic System Resource, exclusive of RTPE, and RTMLE, produced or consumed due to hourly scheduling in the HASP. HASE is produced above the higher of the DAS or the Minimum Load, and below the HASP Intertie Schedule, or consumed below the DAS and above the HASP Intertie Schedule. In the latter case, HASE overlaps with DASE; HASE does not overlap with RTPE or RTMLE, but it may overlap with other IIE subtypes. HASE is indexed against the relevant Energy Bid and sliced by service type, depending on the AS capacity allocation on the Energy Bid, and by Energy Bid price. HASE slices are paid/charged the HASP Intertie LMP as reflected in Section 11.4 of the CAISO Tariff and they are included in BCR at the cost of the relevant Energy Bid prices as reflected in Section 11.8.4 of the CAISO Tariff. Any HASE slice below or above the Energy Bid has no associated Energy Bid price and it is not included in BCR. For Non-Dynamic System Resources that are designated as MSS Load Following Resources, HASE should be considered as MSS LFE in Load Following performance assessment.	BPM for Market Operations

Bill Determinant Variable Name	Bill Determinant Definition	Source Document
Real Time Optimal Energy	Any remaining IIE after accounting for all other IIE subtypes constitutes OE. OE does not overlap with SRE, RED, RIE, RTMLE, DRE, and EDE, but it may overlap with DASE, HASE, and LFE. OE is indexed against the relevant Energy Bid and sliced by service type, depending on the AS capacity allocation on the Energy Bid. OE is also divided into two parts: a) the part of OE that overlaps with MSS LFE ("Overlapping OE"), which is paid/charged the Real-Time LMP as reflected in Section 11.5.1, and it is not included in BCR since it is effectively cancelled by MSS LFE as reflected in Section 11.8.4 of the CAISO Tariff; and b) the remaining part ("Non-overlapping OE"), which is indexed against the relevant Energy Bid and sliced by Energy Bid price. The Non-overlapping OE slices are paid/charged the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and they are included in BCR at the cost of the relevant Energy Bid prices as reflected in Section 11.8.4 of the CAISO Tariff. Any OE slice below or above the Energy Bid has no associated Energy Bid price and is settled as reflected in Section 11 of the CAISO Tariff and it is not included in BCR as reflected in Section 11of the CAISO Tariff.	BPM for Market Operations
Residual Imbalance Energy	Extra-marginal IIE produced or consumed at the start or end of a Trading Hour outside the hourly schedule-change band and not attributed to Exceptional Dispatch. RIE is due to a Dispatch Instruction in the previous Trading Hour or a Dispatch Instruction in the next Trading Hour. RIE may overlap only with DASE. RIE does not apply to Non-Dynamic System Resources (including Resource-Specific System Resources. RIE is settled as bid, based on the RT Energy Bid of the *reference hour*, or at the Real-Time LMP if there is no Bid as reflected in Section 11.5.1 of the CAISO Tariff, and it is not included in BCR as reflected in Section 11.8.4 of the CAISO Tariff. The *reference hour* is the previous Trading Hour, if RIE occurs at the start of a Trading Hour, or the next Trading Hour, if RIE occurs at the end of a Trading Hour.	BPM for Market Operations
Real-Time Minimum Load Energy	IIE, exclusive of SRE, RED, and RIE, produced due to the Minimum Load of a Generating Unit that is committed in the RUC or the RTM (i.e., without a Day-Ahead Schedule) or a Constrained Output Generator (COG) that is committed in the IFM with a DAS below the registered Minimum Load (because COGs are modeled as flexible in the IFM). If the resource is committed in RTM for Load Following, RTMLE is accounted as MSSLFE instead. RTMLE is IIE above the Day-Ahead Schedule (or zero if there is no DAS) and below the registered Minimum Load. RTMLE does not overlap with any other Expected Energy type. RTMLE is paid the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and it is included in BCR at the relevant minimum load cost as reflected in Section 11.8.4.1.2 of the CAISO Tariff. IIE that is consumed when a resource that is scheduled in the DAM is shut down in the RTM is accounted as HASP Scheduled Energy or Optimal Energy and not as RTMLE.	BPM for Market Operations
Exceptional Dispatch Energy	Extra-marginal IIE, exclusive of SRE, RED, RIE, LFE, RTMLE, and DRE, produced or consumed due to manual (non-economic) Exceptional Dispatch Instructions that are binding in the relevant Dispatch Interval. Without MSS Load Following, EDE is produced above the *LMP index* and below the lower of the DOP or the Exceptional Dispatch instruction, or consumed below the *LMP index* and above the higher of the DOP or the Exceptional Dispatch Instruction. The LMP index is the capacity in the relevant Energy Bid that corresponds to a bid price equal to the relevant LMP. EDE does not overlap with SRE, RED, RIE, RTMLE, DRE, or Optimal Energy, but it may overlap with DASE, HASE, and LFE. Exceptional Dispatch Energy is paid/charged at a price that is specific to its type, either as-Bid or at the Real-Time LMP if there is no Bid as reflected in Section 11.5.6 of the CAISO Tariff, and it is not included in BCR as reflected in Section 11.8.4 of the CAISO Tariff.	BPM for Market Operations

Bill Determinant Variable Name	Bill Determinant Definition	Source Document
Standard Ramping Energy	IIE produced or consumed in the first two and the last two Dispatch Intervals due to hourly schedule changes. SRE is a schedule deviation along a linear symmetric 20-min ramp ("standard ramp") across hourly boundaries. SRE is always present when there is an hourly schedule change, including resource Start-Ups and Shut-Downs. SRE does not apply to Non-Dynamic System Resources (including Resource-Specific System Resources. SRE is not subject to settlement as shown in Section 11.5.1 of the CAISO Tariff.	BPM for Market Operations
Ramping Energy Deviation	IIE produced or consumed due to deviation from the standard ramp because of ramp constraints, Start-Up, or Shut-Down. RED may overlap with SRE, and both SRE and RED may overlap with DASE, but with no other IIE subtype. RED may be composed of two parts: a) the part that overlaps with SRE whenever the DOP crosses the SRE region; and b) the part that does not overlap with SRE. The latter part of RED consists only of *extra-marginal* IIE contained within the hourly schedule change band and not attributed to Exceptional Dispatch or derates. RED does not apply to Non-Dynamic System Resources (including Resource-Specific System Resources). RED is paid/charged the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and it is included in BCR only for market revenue calculations as reflected in Section 11.8.1.4.5 of the CAISO Tariff.	BPM for Market Operations
Derate Energy	Extra-marginal IIE, exclusive of SRE, RED, RIE, LFE, and RTMLE, produced or consumed due to Minimum Load overrates or Maximum Capacity derates. DRE is produced above the higher of the DAS, the registered Minimum Load, or the HAS, and below the lower of the overrated Minimum Load and the DOP, or consumed below the lower of the DAS or the HAS, and above the higher of the derated Maximum Capacity or the DOP. There could be two DRE slices, one for the Minimum Load overrate, and one for the Maximum Capacity derate. DRE does not overlap with SRE, RED, RIE, RTMLE, Exceptional Dispatch Energy, or Optimal Energy, but it may overlap with DASE, HASE, and LFE. DRE is paid/charged the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and it is not included in BCR as reflected in Section 11.8.4 of the CAISO Tariff.	BPM for Market Operations
Real-Time Self Schedule	The slice of Non-overlapping OE that corresponds to the Real-Time Total Self-Schedule (RTTSS). The RTTSS is the sum of all Real-Time Self-Schedules (except Pumping Self-Schedules).	BPM for Market Operations
MSS Load Following	IIE, exclusive of SRE, RED, and RIE, produced or consumed due to Load Following by an MSS. LFE is the IIE that corresponds to the algebraic Qualified Load Following Instruction (QLFI) relative to the DAS. LFE does not coexist with HASE, and it does not overlap with SRE, RED, or RIE, but it may overlap with DASE, Derate Energy, Exceptional Dispatch Energy, Real-Time Self-Scheduled Energy, and Optimal Energy. MSS LFE is paid/charged the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and it is not included in BCR as reflected in Section 11.8.4 of the CAISO Tariff.	BPM for Market Operations
Real Time Pumping Energy	IIE from PSH or Pump Resources, exclusive of SRE, RED, consumed below the DAS when Dispatched in pumping mode, or produced from pumping operation due to Pumping Level reduction in real time, including pump shut-down. RTPE does not overlap with any other Expected Energy type. RTPE is charged or paid the Real-Time LMP as reflected in Section 11.5.1 of the CAISO Tariff and it is included in BCR at the relevant pumping Cost as reflected in Section 11.8.4.1.4 of the CAISO Tariff.	BPM for Market Operations
DA Ancillary Service Awards	Day Ahead Awarded Bid capacity for Business Associate B resource r for Trading Day d and Trading Hour h **(MW)**	BPM for Ancillary Services Pre-Calc
DA Ancillary Service Self Provision	Day Ahead Qualified Self-Provision capacity for Business Associate B, resource r, resource type t, Entity Component Type F', Entity_Component_Subtype S', Contract Reference Number N, Contract Type z', Intertie_Constraint_ID a' for Trading Day d and Trading Hour h **(MW)**	BPM for Ancillary Services Pre-Calc
HASP Incremental and Decremental Ancillary Service Awards	HASP Awarded Bid capacity for Business Associate B resource r for Trading Day d and Trading Hour h **(MW)**	BPM for Ancillary Services Pre-Calc

Bill Determinant Variable Name	Bill Determinant Definition	Source Document
HASP Incremental and Decremental Ancillary Service Self Provision	HASP Qualified Self-Provision capacity for Business Associate B resource r, resource type t, Entity Component Type F', Entity_Component_Subtype S', Contract Reference Number N, Contract Type z', Intertie_Constraint_ID a' for Trading Day d and Trading Hour h **(MW).** **Values are incremental with respect to IFM**	BPM for Ancillary Services Pre-Calc
Real Time Incremental and Decremental Ancillary Service Awards	Real-Time Awarded Bid capacity for Business Associate B resource r for Trading Day d and Trading Hour h and Ancillary Service interval c for the relevant Real-Time hour **(MW).** **Values are incremental with respect to IFM values.**	BPM for Ancillary Services Pre-Calc
Real Time Incremental and Decremental Ancillary Service Self Provision	Real-Time Qualified Self-Provision capacity for Business Associate B resource r , resource type t, Entity Component Type F', Entity_Component_Subtype S', Contract Reference Number N, Contract Type z', Intertie_Constraint_ID a' for Trading Day d and Trading Hour h and Ancillary Service Commitment interval c for the relevant Real-Time hour **(MW)**. **Values are incremental with respect to IFM values.**	BPM for Ancillary Services Pre-Calc
DA Load Schedules (including ETC TOR)	DA Load Schedule for Business Associate B, Resource r, Resource type t, and Trading Hour h as provided by MQS where UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M' are mapped to the Master File (Load Schedule quantity is a negative value).	BPM for RT Energy Pre-Calc
HASP Operational Adjustment	Settlement Interval Operational Adjustment from HASP Energy for Business Associate B, System Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i Resource type t, Trading Hour h, Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Regulation Energy	Regulation energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Real Time Operational Adjustments	Settlement Interval Operational Adjustment from Day Ahead or Real Time Energy for Business Associate B, System Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Non Dynamic System Resource Deemed Deliver Energy (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Dynamic System Resource Deemed Deliver Energy (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Metered Generation Quantities (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Metered Default Lap Quantities (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Metered Custom Lap Quantities (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
Metered Pumping Energy (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc

Bill Determinant Variable Name	Bill Determinant Definition	Source Document
MSS Gross Metered Quantities (include ETC/TOR)	Variable Name: SettlementIntervalMeteredEnergy Settlement Interval metered energy for Business Associate B, Resource r, Resource Type t, UDC Index u, Entity Type T', MSS Gross/Net Energy Settlement Type I', and MSS Subgroup M', Trading Hour h and Settlement Interval i. (MWh)	BPM for RT Energy Pre-Calc
DAM TO-SC Inter-SC Trade Energy (Financial, Physical and Converted)	BA Hrly Trade Place Day Ahead To Inter-SC Trade Qty attributable to BA B during Trading Hour h at Trade Place Z and IST Type w The portion of the converted Physical Trades at Trade Place Z shall have IST Type of CPT and the portion of the valid Physical Trade at Trade Place Z shall have IST Type of PHY.	BPM for GMC - Forward Scheduling Inter-SC Trades
DAM FROM-SC Inter-SC Trade Energy (Financial, Physical and Converted)	BA Hrly Trade Place Day Ahead From Inter-Sc Trade Qty attributable to BA B during Trading Hour h at Trade Place Z and IST Type w The portion of the converted Physical Trades at Trade Place Z shall have IST Type of CPT and the portion of the valid Physical Trade at Trade Place Z shall have IST Type of PHY.	BPM for GMC - Forward Scheduling Inter-SC Trades
HASP TO-SC Inter-SC Trade Energy (Financial, Physical and Converted)	BA Hrly Trade Place HASP To Inter-SC Trade Qty attributable to Business Associate ID B, in Trading Hour h, at Trade Place Z and IST Type w The portion of the converted Physical Trades at Trade Place Z shall have IST Type of CPT and the portion of the valid Physical Trade at Trade Place Z shall have IST Type of PHY.	BPM for GMC - Forward Scheduling Inter-SC Trades
HASP FROM-SC Inter-SC Trade Energy (Financial, Physical and Converted)	BA Hrly Trade Place HASP From Inter-SC Trade Qty attributable to Business Associate ID B, in Trading Hour h, at Trade Place Z and IST Type w The portion of the converted Physical Trades at Trade Place Z shall have IST Type of CPT and the portion of the valid Physical Trade at Trade Place Z shall have IST Type of PHY.	BPM for GMC - Forward Scheduling Inter-SC Trades
Ancillary Services TO-SC Inter-SC Trade Energy	Inter-SC Trade MW Quantity bought by Business Associate B, Inter-SC Trade s, for Trading Day d and Trading Hour h (MW)	BPM for GMC - Forward Scheduling Inter-SC Trades
Ancillary Services FROM-SC Inter-SC Trade Energy	Inter-SC Trade MW Quantity sold by Business Associate B, Inter-SC Trade s, for Trading Day d and Trading Hour h. (MW)	BPM for GMC - Forward Scheduling Inter-SC Trades
RUC Obligation TO-SC Inter-SC Trade Energy	IFM Load Uplift Obligation IST (sell) of Business Associate B for Trading hour h.	BPM for GMC - Forward Scheduling Inter-SC Trades
RUC Obligation FROM-SC Inter-SC Trade Energy	IFM Load Uplift Obligation IST (bought) of Business Associate B for Trading hour h	BPM for GMC - Forward Scheduling Inter-SC Trades