California ISO

Shaping a Renewed Future

Settlements & Billing

Configuration Guide:
RA Maintenance Outage Replacement Backstop
Capacity Settlement
(CC 7886)

Version 5.0

DRAFT

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1. Purpose of Document

The purpose of this document is to capture the requirements and design specification for a Charge Code in one document.

2. Introduction

2.1 Background

The California Public Utilities Commission ("CPUC") adopted the Resource Adequacy (RA) program in 2004 to help ensure that sufficient resources would be available to meet the expected peak demand. Its structure requires a unique cooperation between the ISO, CPUC, and other local regulatory authorities. Although specific elements of the program have changed since its inception, the basic construct has remained unchanged: it is a one-year forward and monthly demonstration that Load Serving Entities (LSEs) have sufficient capacity to meet their expected demand peak plus a planning reserve margin.

The RA program consists of an annual showing and monthly showings (as presented through annual and monthly RA plans). The annual showing is submitted by LSEs in October for the following year. LSEs are required to meet two main requirements. First, they are required to show they have procured 90% of their need for the 5 summer months of the following year. Additionally, if their load is located in any of the Local Capacity Areas which the ISO has defined, they must demonstrate 100% of their need for local capacity for the entire year. The local capacity showings can also count towards the system level. The annual showing is preliminary and the LSEs can change their resources when they submit their monthly showings.

In Decision 11-06-022 (June 23, 2011), the CPUC decided that, starting with the 2013 RA year, it would no longer apply a replacement rule requiring its jurisdictional LSEs to provide replacement RA capacity under certain circumstances when RA resources were on planned outages. On September 20, 2012, the ISO filed at FERC a tariff amendment to modify its outage management practices and establish a new replacement requirement under which RA capacity on a planned Maintenance Outage may be replaced in order to maintain the RA reliability margin.

As part of the new RA capacity replacement mechanism, the ISO is establishing a provision to allow the ISO to procure RA Maintenance Outage Backstop Capacity for circumstances in which RA levels for the month are less than the established requirements, and for which replacement RA capacity has not been otherwise arranged for the month. The cost of the RA Maintenance Outage Replacement Backstop Capacity is allocated to the LSE for which the backstop capacity was procured.

The capacity payment is made to scheduling coordinator for the resource providing the RA Maintenance Outage Backstop Capacity or the Scheduling Coordinator for the Load Serving Entity that offered the non-specified RA capacity that was procured as the backstop capacity. The payment is equal to the *pro rata* (daily) CPM payment (as already defined in the ISO Tariff) multiplied by the number of days the resource provides

replacement capacity, multiplied by the MW amount of backstop capacity provided net of any Maintenance Outages or Forced Outages. During the period the resource is providing replacement capacity it is subject to all RA rules and provisions, including the must-offer obligation and SCP Availability penalties.

Two new settlement charge codes have been defined to support the financial settlement of RA Maintenance Outage Backstop Capacity. For payment of RA Maintenance Outage Backstop Capacity, the ISO has defined charge code CC7886 – RA Maintenance Outage Backstop Capacity Settlement. LSEs for which the RA Maintenance Outage Backstop Capacity is procured would be allocated corresponding charges through settlement charge code CC 7887 – RA Maintenance Outage Backstop Capacity Allocation, where total CC 7887 charges would equal total CC 7886 payments in order for the ISO to remain revenue-neutral.

2.2   Description

The CC 7886 (RA Maintenance Outage Replacement Backstop Capacity Settlement) configuration provides for the settlement of RA Maintenance Outage Backstop Capacity that the ISO procures. When the ISO procures backstop capacity through one or more RA Maintenance Outage Backstop Capacity designations for a Trading Day, the CC 7886 calculation applies the CPM price and outputs for each Scheduling Coordinator the total dollar amount of the payment owed to the Scheduling Coordinator for the RA Maintenance Outage Backstop Capacity that the SC sold to the ISO net of any Maintenance Outages or Forced Outages for each Trading Day for which the capacity was procured within the Trading Month. The payment amount applies to all RA Maintenance Outage Backstop Capacity designations for that SC, all resources designated to supply the RA Maintenance Outage Backstop Capacity, and all LSEs to which the capacity applies for the Trading Day on which the capacity is supplied. Payment is made to the Scheduling Coordinator for the resource that received the designation to provide the backstop capacity or to the Scheduling Coordinator for the LSE that offered non-designated RA capacity that was procured as RA Maintenance Outage Backstop Capacity.

3. Charge Code Requirements

3.1   Business Rules

Bus Req ID	Business Rule
1.0	This Charge Code shall provide an output on a daily basis.
2.0	Payment shall be made to the Scheduling Coordinator for the resource that received the designation to provide RA Maintenance Outage Backstop Capacity or to the Scheduling Coordinator for the LSE that offered the non-designated RA capacity procured as RA Maintenance Outage Backstop Capacity.

Bus Req ID	Business Rule
2.1	The payment shall equal the product of the number of days the resource provides RA Maintenance Outage Backstop Capacity multiplied by the MW amount of RA Maintenance Outage Backstop Capacity provided net of any Maintenance Outages or Forced Outages, multiplied by the fixed CPM Capacity price on a pro rata daily basis.
2.1.1	For each Trading Day for which the capacity is designated and supplied, the payment amount applies to all RA Maintenance Outage Backstop Capacity designations for that SC net of any Maintenance Outages or Forced Outages, all resources designated to supply the backstop capacity, and all LSEs to which the capacity applies.
2.1.1.1	The daily payment to an SC for designated RA Maintenance Outage Backstop Capacity is equal to the CPM Price multiplied by the minimum of the (a) designated RA Maintenance Outage Backstop Capacity MW, (b) daily Forced Outage remaining availability quantity apportioned to the designated RA Maintenance Outage Backstop Capacity MW, and (c) daily Maintenance Outage (planned outage) remaining availability quantity apportioned to the designated RA Maintenance Outage Backstop Capacity MW, for the resource supplying the designated capacity and the Trading Day.
2.1.1.1.1	The daily planned outage remaining availability quantity is defined as the minimum over all Trading Hours of the Trading Day of the remaining available capacity for the resource after planned outages, net of any co-existing RA capacity, substitute RA capacity, and RMR capacity for each Trading Hour.
2.1.1.1.2	The daily Forced Outage remaining availability quantity is defined as the minimum overall Trading Hours of the Trading Day of the remaining available capacity for the resource after Forced outages, net of any co-existing RA capacity, substitute RA capacity, and RMR capacity for each Trading Hour.
2.1.1.1.3	The daily planned outage remaining availability quantity for a given Trading Hour shall be apportioned to each CPM or RA Maintenance Outage Backstop Capacity designation on a pro-rata basis in proportion to the ratio of the designated quantity to the total of the designated CPM and RA Maintenance Outage Backstop Capacity quantity for the Trading Hour
2.1.1.1.4	The daily Forced Outage remaining availability quantity for a given Trading Hour shall be apportioned to each CPM or RA Maintenance Outage Backstop Capacity designation on a pro-rata basis in proportion to the ratio of the designated quantity to the total of the designated CPM and RA Maintenance Outage Backstop Capacity quantity for the Trading Hour
2.1.1.2	Accounting for outages, the capacity allocated to each LSE for each individual designation of RA Maintenance Outage Backstop Capacity from a resource supplying backstop capacity for a given Trading Day shall be the associated backstop capacity MW designated from the resource for the LSE on the Trading Day multiplied by the ratio of (a) the minimum of the total of

Bus Req ID	Business Rule
	the associated designated backstop capacity MW (over all LSEs), daily forced outage remaining availability quantity apportioned to the total associated designated RA Maintenance Outage Backstop Capacity MW, and daily planned outage remaining availability quantity apportioned to the total associated designated RA Maintenance Outage Backstop Capacity MW, for the resource and Trading Day, over (b) the total designated backstop capacity MW apportioned to the designated RA Maintenance Outage Backstop Capacity MW (over all LSEs) for the resource and Trading Day.
2.1.2	The CPM Price is the annual effective fixed CPM Capacity price per kW-year.
2.1.2.1	On February 16, 2012, the fixed CPM Capacity price of $67.50/kW-year became effective and shall remain in effect for two (2) years.
2.1.2.2	On February 16, 2014, the fixed CPM Capacity price shall increase by five (5) percent and the effective price shall be $70.88/kW-year, which shall remain in effect for two (2) years until February 16, 2016.
2.1.2.3	The CPM daily price (i.e., the price per KW-day) for daily RA Maintenance Outage Backstop Capacity payment shall equal the annual effective fixed CPM Capacity price divided by the number of days in the applicable trading year.
2.1.3	In determining available capacity remaining after an outage, the resource's capacity dedicated to service designations and reservations shall be considered.
2.1.3.1	Available capacity remaining after an outage shall be assigned to Resource Adequacy, and Substitute Resource Adequacy and RMR services, then to any RA Maintenance Outage Backstop Capacity and CPM Capacity.
2.2	The configuration shall calculate and output the total quantity and settlement amount for the RA Maintenance Outage Backstop Capacity procured from the SC on a Trading Day basis for each period over which a RA Maintenance Outage Backstop Capacity designation applies, and for each resource providing the RA Maintenance Outage Backstop Capacity over the period.
2.3	The configuration shall output on a Trading Day basis both the quantity and associated settlement amount for the RA Maintenance Outage Backstop Capacity procured from the SC, identifying the shortfall quantity and associated settlement amount for each LSE that has a RA shortfall for which the RA Maintenance Outage Backstop Capacity was designated.
3.0	For each Trading Day the configuration shall calculate and output the total settlement amount paid to a SC for RA Maintenance Outage Backstop Capacity as the sum of the payments for all designated RA Maintenance Outage Backstop Capacity procured from the SC for the Trading Day.
4.0	A settlement details file shall provide details for each daily settlement amount.

Bus Req ID	Business Rule
5.0	At the end of each resource adequacy month, the CAISO will provide to each Load Serving Entity that is allocated payment costs under Tariff Section 43.10.7 notice of the identity of the RA Resource that required backstop procurement and the identity of the RA Resource that provided the RA Maintenance Outage Backstop Capacity. (*Fact*)
6.0	Actual SCs are referenced by Business Associate ID (BA ID), and CAISO shall settle with SCs as Business Associates (BA) through their BA ID.
7.0	For adjustments to the Charge Code that cannot be accomplished by correction of upstream data inputs, recalculation or operator override, Pass Through Bill Charge adjustment shall be applied.

3.2   Predecessor Charge Codes

Charge Code/ Pre-Calc Name
< None >

3.3   Successor Charge Codes

Charge Code/ Pre-calc Name
CC 4989 – Daily Rounding Adjustment Allocation
CC 7887 – RA Maintenance Outage Backstop Capacity Allocation
Pre-calculation Metered Demand Over TAC Area And CPM

3.4   Inputs - External Systems

Row #	Variable Name	Description
1.0	CPMDailyPrice $_{md}$	CPM Price (in $ per KW-Year) times the ratio of 1 day to the number of days in the Trading Year.
		The input, based on standing reference data, shall be specific to Trading Day **d** of Trading Month **m** for daily settlement runs,, as the input shall be defined in multiple Trading Day range segments over the period from 01/01/2013 through 02/15/2016 inclusively as follows:

Row #	Variable Name	Description		
		Effective Start Date	**Effective End Date**	**Value ($/kW-day)**
		01/01/2013	02/15/2014	0.184932
		02/16/2014	12/31/2015	0.194192
		01/01/2016	02/15/2016	0.193661
2.0	BAHourlyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQty $_{BrtKOuu'UU'gmdh}$	Hourly designated RA Maintenance Outage Replacement Backstop Capacity (in MW) from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K** (for a RA-supplying LSE), Exceptional Dispatch Type **O**, UDC ID **u** (for a RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**. The input shall equal 0 for all Trading Days outside the designated period specified by attributes **U** and **U'**.		
3.0	BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$	Hourly designated CPM Capacity (in MW) from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Exceptional Dispatch Type **O**, Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**. The input shall equal 0 for all Trading Days outside the designated period specified by attributes **U** and **U'**.		
4.0	BAHourlyResourceCPMForcedOutageCapacityQty $_{Brtmdh}$	Hourly Forced Outage Capacity (in MW) applicable to CPM and RA Maintenance Outage Replacement Backstop Capacity associated with Business Associate **B,** Resource ID **r**, Resource Type **t** for Trading Month **m**, Trading Day **d,** and Trading Hour **h**.		

Row #	Variable Name	Description
5.0	BAHourlyResourceTotalPeriodHigherPriorityLevelDesignatedQty B_{rtgmdh}	Total of hourly designated CPM Capacity or RA Maintenance Outage Replacement Backstop Capacity (in MW) from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Exceptional Dispatch Type **O**, Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Hour **h** of Trading Day **d** and Trading Month **m** for all capacity priority levels that are less than the value of Priority Level **g** (i.e., that represent RA Maintenance Outage Replacement Backstop Capacity or CPM Capacity having a higher priority than capacity associated with **g**). Priority Level **g** represents capacity priority as an integer value greater than or equal to 0, where the priority is ranked in reverse numerical order starting with priority level 0 having the highest priority. In the event a resource encounters a forced or planned outage, the resource's CPM Capacity and RA Maintenance Outage Replacement Backstop Capacity designations are reduced in reverse order of their priority (i.e, designated capacity at a particular priority level is reduced ahead of all higher priority designated capacity), if and to the extent necessary, to account for the reduction in overall capacity available from the resource.
6.0	BAHourlyResourceCPMPlannedOutageCapacityQty $_{Brtmdh}$	Hourly CPM Planned Maintenance Outage Capacity (in MW) associated with Business Associate **B,** Resource ID **r**, Resource Type **t**, for Trading Month **m,** Trading Day **d,** and Trading Hour **h**.
7.0	PTBBARAMaintenanceOutageBackstopCapacitySettlementAdjustmentAmt $_{BJmd}$	PTB adjustment variable for the currently configured Charge Code, as an amount ($) associated with Business Associate **B** and PTB ID **J**, for Trading Day **d** of Trading Month **m**.

3.5 Inputs - Predecessor Charge Codes or Pre-calculations

Row #	Variable Name	Predecessor Charge Code/ Pre-calc Configuration / Description
	< None >	

3.6 CAISO Formula

The daily settlement of RA Maintenance Outage Replacement Backstop Capacity for each Business Associate, each Trading Day and each applicable capacity designation period of the Trading Month is derived according to the formulation of the following subsections.

3.6.1 BADailyRAMaintenanceOutageReplacementBackstopCapacitySettlementAmount $_{Bmd}$ =

$$\sum_{U} \sum_{U'} \text{BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacit}$$

yPayment $_{BUU'md}$

3.6.2 BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacityPayment $_{BUU'md}$ =

$$\sum_{u} \sum_{u'} \text{BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackst}$$

opCapacityPayment $_{Buu'UU'md}$

3.6.3 BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Buu'UU'md}$ =

$$\sum_{r} \text{BADailyResourceDesignatedPeriodShortLSERAMaintenanceOutageReplacementB}$$

ackstopCapacityPayment $_{Bruu'UU'md}$

3.6.4 BADailyResourceDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Bruu'UU'md}$ =

BADailyResourceDesignatedNonLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Bruu'UU'md}$ +
BADailyResourceDesignatedLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Bruu'UU'md}$

3.6.5 BADailyResourceDesignatedNonLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Bruu'UU'md}$ =

$$\sum_{t} \sum_{K} \sum_{O} \text{BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityPayment}_{BrtKOuu'UU'md}$$

Where
    O = 'NONLSERA'

3.6.6 $\text{BADailyResourceDesignatedLSERAMaintenanceOutageReplacementBackstopCapacity Payment}_{Bruu'UU'md} =$

$$\sum_{t} \sum_{K} \sum_{O} \text{ATTRIBUTE SWAP (B, K) On}$$

$\text{BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityPayment}_{BrtKOuu'UU'md}$

Where
    O = 'LSERA'

3.6.7 $\text{BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityPayment}_{BrtKOuu'UU'md} =$

$(-1) * \text{BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityQuantity}_{BrtKOuu'UU'md} * \text{CPMDailyPrice}_{md}$

3.6.8 $\text{BADailyRAMaintenanceOutageReplacementBackstopCapacitySettlementQuantity}_{Bmd} =$

$$\sum_{U} \sum_{U'} \text{BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacityQuantity}_{BUU'md}$$

3.6.9 $\text{BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacityQuantity}_{BUU'md} =$

$$\sum_{u} \sum_{u'} \text{BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity}_{Buu'UU'md}$$

3.6.10 $\text{BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity}_{Buu'UU'md} =$

$$\sum_{r} \text{BADailyResourceDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity}_{Bruu'UU'md}$$

3.6.11 BADailyResourceDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$ =

BADailyResourceDesignatedNonLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$ +
BADailyResourceDesignatedLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$

3.6.12 BADailyResourceDesignatedNonLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$ =

$$\sum_t \sum_K \sum_O$$ BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'md}$

Where
　　　O = 'NONLSERA'

3.6.13 BADailyResourceDesignatedLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$ =

$$\sum_t \sum_K \sum_O$$ ATTRIBUTE SWAP (B, K) On
BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityQuantity
$_{BrtKOuu'UU'md}$

Where
　　　O = 'LSERA'

3.6.14 BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityQuantity
$_{BrtKOuu'UU'md}$ =
Minimum over h
{$\sum_h$ BAHourlyResourceTotalRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'mdh}$ }

3.6.15 BAHourlyResourceTotalRAMaintenanceOutageReplacementBackstopCapacityQuantity
$_{BrtKOuu'UU'mdh}$ =

$$\sum_g ($$

BAHourlyResourcePriorityLevelRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'gmdh}$)

3.6.16 BAHourlyResourcePriorityLevelRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'gmdh}$ =

(BADailyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{BrtKOuu'UU'gmd}$ /
(BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$)) *
Min(

BAHourlyResourceForcedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$,

BAHourlyResourcePlannedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$,
BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$)

Where Exists

BADailyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{BrtKOuu'UU'gmd}$

Note:
Values of daily variables in the preceding formula apply to all Trading Hours of the Trading Day

3.6.17 BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtgmd}$ =

$$\sum_{K} \sum_{O} \sum_{u} \sum_{u'} \sum_{U} \sum_{U'}$$ BADailyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{BrtKOuu'UU'gmd}$

3.6.18 BADailyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{BrtKOuu'UU'gmd}$ =
Maximum over h
$\{\sum_{h}$ BAHourlyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignated

Qty $_{BrtKOuu'UU'gmdh}$ $\}$

Note:
BAHourlyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQty $_{BrtKOuu'UU'gmdh}$ may be defined for only the 1st Trading Hour of the Trading Day and undefined (NULL) for all other Trading Hours of the Trading Day.

3.6.19 BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$ =

$$\sum_{O} \sum_{U} \sum_{U'}$$ BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$

3.6.20 BAHourlyResourceForcedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$ =

Max(0, BAHourlyResourceCPMForcedOutageCapacityQty $_{Brtmdh}$ −
BAHourlyResourceTotalPeriodHigherPriorityLevelDesignatedQty $_{Brtgmdh}$)

Where Exists
     BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$
And Where Exists
     BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignated
     Quantity $_{Brtgmd}$

3.6.21 BADailyResourceAllLevelsRAMaintenanceOutageBackstopCapacityDesignatedQuantity
$_{Brtmd}$ =

$$\sum_{g} \text{BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQ}$$

uantity $_{Brtgmd}$

3.6.22 BAHourlyResourcePlannedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$ =

Max(0, BAHourlyResourceCPMPlannedOutageCapacityQty $_{Brtmdh}$ −
BAHourlyResourceTotalPeriodHigherPriorityLevelDesignatedQty $_{Brtgmdh}$)

Where Exists
     BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$
And Where Exists
     BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignated
     Quantity $_{Brtgmd}$

CPM Outage-Adjusted Availability Quantities

3.6.23 BAHourlyResourcePrioritizedCPMCapacityForcedOutageAvailabilityQuantity $_{BrtOUU'gmdh}$
=

((BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$ /
(BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuanti
ty $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$)) *
Min(
BAHourlyResourceForcedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$,
BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantit
y $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$))

Where Exists
     BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$

3.6.24 BAHourlyResourcePrioritizedCPMCapacityPlannedOutageAvailabilityQuantity

$BrtOUU'gmdh$ =

((BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$ /
(BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$)) *
Min(

BAHourlyResourcePlannedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$,
BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtgmd}$ + BAHourlyResourceTotalLevelCPMCapacityDesignatedQuantity $_{Brtgmdh}$))

Where Exists

BAHourlyResourcePrioritizedCPMCapacityDesignatedQty $_{BrtOUU'gmdh}$

3.7   Outputs

Output Req ID	Name	Description
1.0	In addition to any outputs listed below, all inputs shall be included as outputs.	All inputs
2.0	BADailyRAMaintenanceOutageReplacementBackstopCapacitySettlementAmount $_{Bmd}$	Total daily settlement amount ($) for designated RA Maintenance Outage Replacement Backstop Capacity associated with replacement RA-supplying Business Associate **B** for Trading Day **d** of Trading Month **m**.
3.0	BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacityPayment $_{BUU'md}$	Total daily payment ($) for designated RA Maintenance Outage Replacement Backstop Capacity associated with replacement RA-supplying Business Associate **B** during Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U** for Trading Day **d** of Trading Month **m**.
4.0	BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityPayment $_{Buu'UU'md}$	Total daily payment ($) for designated RA Maintenance Outage Replacement Backstop Capacity associated with backstop RA-supplying Business Associate **B**, UDC ID **u** (for the RA-short LSE) Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that

Output Req ID	Name	Description
		extends from Bill Period Start Date **U'** to Bill Period End Date **U** for Trading Day **d** of Trading Month **m**.
5.0	BADailyResourceDesignated PeriodShortLSERAMaintenan ceOutageReplacementBackst opCapacityPayment Bruu'UU'md	Total daily payment (in $) for designated RA Maintenance Outage Replacement Backstop Capacity associated with backstop RA-supplying Business Associate **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U** for Trading Day **d** of Trading Month **m**.
6.0	BADailyResourceDesignated NonLSERAMaintenanceOuta geReplacementBackstopCapa cityPayment Bruu'UU'md	Total daily payment (in $) for all designated RA Maintenance Outage Replacement Backstop Capacity from resources providing the capacity in association with their Business Associate **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
7.0	BADailyResourceDesignatedL SERAMaintenanceOutageRe placementBackstopCapacityP ayment Bruu'UU'md	Total daily payment (in $) for all designated RA Maintenance Outage Replacement Backstop Capacity provided by resources representing LSE Non-Designated RA Capacity in association with LSE Business Associate **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
8.0	BADailyResourceRAMaintena nceOutageReplacementBacks topCapacityPayment BrtKOuu'UU'md	Total daily payment (in $) for all designated RA Maintenance Outage Replacement Backstop Capacity from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K** (for a RA-supplying LSE), Exceptional Dispatch

Output Req ID	Name	Description
		Type **O**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
9.0	BADailyRAMaintenanceOutageReplacementBackstopCapacitySettlementQuantity $_{Bmd}$	Total daily settlement quantity (MW) for designated RA Maintenance Outage Replacement Backstop Capacity associated with replacement RA-supplying Business Associate **B** for Trading Day **d** of Trading Month **m**.
10.0	BADailyDesignatedPeriodRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BUU'md}$	Total daily quantity (in MW) of designated RA Maintenance Outage Replacement Backstop Capacity associated with backstop RA-supplying Business Associate **B**, Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
11.0	BADailyDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Buu'UU'md}$	Total daily quantity (in MW) for designated RA Maintenance Outage Replacement Backstop Capacity associated with backstop RA-supplying Business Associate **B**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U** for Trading Day **d** of Trading Month **m**.
12.0	BADailyResourceDesignatedPeriodShortLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$	Total daily quantity (in MW) for designated RA Maintenance Outage Replacement Backstop Capacity associated with backstop RA-supplying Business Associate **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U** for Trading Day **d** of Trading Month **m**.

Output Req ID	Name	Description
13.0	BADailyResourceDesignatedNonLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$	Total daily quantity (in MW) for all designated RA Maintenance Outage Replacement Backstop Capacity from resources providing the capacity in association with their Business Associate **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
14.0	BADailyResourceDesignatedLSERAMaintenanceOutageReplacementBackstopCapacityQuantity $_{Bruu'UU'md}$	Total daily quantity (in MW) for all designated RA Maintenance Outage Replacement Backstop Capacity provided by resources representing LSE Non-Designated RA Capacity in association with LSE Business Associate ID **B**, Resource ID **r**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
15.0	BADailyResourceRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'md}$	Total daily quantity (in MW), adjusted for any outage or other resource curtailment, of all designated RA Maintenance Outage Replacement Backstop Capacity procured and available from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K** (for a RA-supplying LSE), Exceptional Dispatch Type **O**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Day **d** of Trading Month **m**.
16.0	BAHourlyResourceTotalRAMaintenanceOutageReplacementBackstopCapacityQuantity $_{BrtKOuu'UU'mdh}$	Total hourly quantity (in MW), adjusted for any outage or other resource curtailment, of all designated RA Maintenance Outage Replacement Backstop Capacity procured and available from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K**

Output Req ID	Name	Description
		(for a RA-supplying LSE), Exceptional Dispatch Type **O**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**.
17.0	BAHourlyResourcePriorityLevelRAMaintenanceOutageReplacementBackstopCapacityQuantity BrtKOuu'UU'gmdh	Prioritized hourly quantity (in MW), adjusted for any outage or other resource curtailment, of all designated RA Maintenance Outage Replacement Backstop Capacity procured and available from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K** (for a RA-supplying LSE), Exceptional Dispatch Type **O**, UDC ID **u** (for the RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**.
18.0	BADailyResourceTotalLevelRAMaintenanceOutageBackstopCapacityDesignatedQuantity Brtgmd	Total daily quantity (in MW) for all designated RA Maintenance Outage Replacement Backstop Capacity that is procured from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Priority Level **g**, and Trading Day **d** of Trading Month **m**.
19.0	BADailyResourcePrioritizedRAMaintenanceOutageBackstopCapacityDesignatedQuantity BrtKOuu'UU'gmd	Daily designated RA Maintenance Outage Replacement Backstop Capacity (in MW) that is procured from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Counter BA ID **K** (for a RA-supplying LSE), Exceptional Dispatch Type **O**, UDC ID **u** (for a RA-short LSE), Alternate BA ID **u'** (for the RA-short LSE), Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, Trading Day **d** and Trading Month **m**.

Output Req ID	Name	Description
20.0	BAHourlyResourceTotalLevel CPMCapacityDesignatedQuantity $_{Brtgmdh}$	Total hourly quantity (in MW) for all CPM Capacity procured from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Priority Level **g** and Trading Hour **h** of Trading Day **d** and Trading Month **m**.
21.0	BAHourlyResourceForcedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$	The available hourly capacity (in MW) remaining from a resource for a particular priority level of capacity services, after taking into account any Forced Outage or de-rating of available resource capacity, sold or substituted RA capacity, RMR capacity associated with the resource and any designated capacity having a higher priority level. The output is presented by Business Associate **B,** Resource ID **r**, Resource Type **t**, Priority Level **g** for Trading Hour **h** of Trading Day **d** and Trading Month **m**.
22.0	BADailyResourceAllLevelsRAMaintenanceOutageBackstopCapacityDesignatedQuantity $_{Brtmd}$	Total daily quantity (in MW) for all CPM Capacity procured from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t** and Trading Day **d** of Trading Month **m**.
23.0	BAHourlyResourcePlannedOutageRemainingAvailabilityQuantity $_{Brtgmdh}$	The available hourly capacity (in MW) remaining from a resource for a particular priority level of capacity services, after taking into account any Planned Outage or de-rating of available resource capacity (based on net qualified capacity – NQC), sold or substituted RA capacity, RMR capacity associated with the resource and any designated capacity having a higher priority level. The output is presented by Business Associate **B**, Resource ID **r**, Resource Type **t**, Priority Level **g** for Trading Hour **h** of Trading Day **d** and Trading Month **m**.
24.0	BAHourlyResourcePrioritizedCPMCapacityForcedOutageAvailabilityQuantity $_{BrtOUU'gmdh}$	Prioritized hourly quantity (in MW), adjusted for any forced outage or other resource curtailment, of all designated CPM Capacity procured and available from a resource associated with Business

Output Req ID	Name	Description
		Associate ID **B**, Resource ID **r**, Resource Type **t**, Exceptional Dispatch Type **O**, Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**.
25.0	BAHourlyResourcePrioritized CPMCapacityPlannedOutage AvailabilityQuantity BrtOUU'gmdh	Prioritized hourly quantity (in MW), adjusted for any planned outage, of all designated CPM Capacity procured and available from a resource associated with Business Associate ID **B**, Resource ID **r**, Resource Type **t**, Exceptional Dispatch Type **O**, Settlement Billing Period that extends from Bill Period Start Date **U'** to Bill Period End Date **U**, Priority Level **g**, and Trading Hour **h** of Trading Day **d** and Trading Month **m**.

4. Charge Code Effective Date

Charge Code/ Pre-calc Name	Document Version	Effective Start Date	Effective End Date	Version Update Type
CC 7886 – RA Maintenance Outage Replacement Backstop Capacity Settlement	5.0	01/01/13	Open	Documentation Edits and Configuration Impacted