

Attachment A
Examples of MRTU Station Power Load Settlement

Attachment A – Examples of Station Power Load Settlement After MRTU

The following four examples describe how Station Power Load will be settled under MRTU. The process described below for allocating meter data to the Remote Self-Supply or Third Party Load Ids has not changed from how it is performed today under the existing (pre-MRTU) CAISO Market. The only change is the move from settlement of Station Power Load at Zonal prices in today's market to settlement at the resource specific LMP after MRTU.

All meter data when initially polled is recorded under the On-Site Self-Supply Load ID. At the end of the Netting Period the CAISO will determine what portion of the metered Station Power Load in each 5-minute interval was served by Remote Self-Supply or Third Party Supply. The CAISO will then reallocate the meter data from the On-Site Self-Supply Load ID to either the Remote Self-Supply ID or the Third Partly Supply Load ID accordingly.

The Netting Period is used only to determine what portion of Station Power Load was self-supplied and what portion of the Station Power Load was supplied by remote generation or by the third party utility. Generation and Station Power Load will be settled independently based on 10-minute settlement intervals.

As stated above the CAISO's Station Power Program has not changed with the exception of Zonal versus LMP settlement after MRTU. The California ISO Station Power Program Overview which explains details of the program can be located on the CAISO website at the following link:

<http://www.caiso.com/17d1/17d1a7c658b70.pdf>

Assumptions for Examples:

- To simplify the examples the monthly Netting Period contains five hours
- GEN 1 represents the Station Power Portfolio owner
- UDC1 represents the third-party utility
- The Station Power Load in these examples was not scheduled in the Day-Ahead Market
- Station Power Load is subject to all Load based charges which may include Bid Cost Recovery Uplift Charges such as RUC Tier 1 Uplift for unscheduled load and any settlement charges normally allocated to CAISO Measured Demand. These additional charges are not detailed in the examples below.
- Station Power Load reported under the On-Site Self-Supply Load ID is exempt from the Access Charge. Station Power Load reported under Remote Self-Supply Load ID and Third Partly Supply Load ID are subject to the Access Charge.
- For Generators, the Real-Time LMP for Instructed Energy will be calculated as the weighted average of the two 5-minute LMPs at the resource location. For Uninstructed Energy the Real-Time LMP will be calculated as

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the simple average of the individual LMPs for the two 5-minute dispatch intervals.

- For Station Power Load the charge for Real-Time Uninstructed Imbalance Energy will be calculated based on the simple average of the two 5-minute dispatch interval LMPs.

Example 1 – On-Site Self-Supply where the Station Power Portfolio contains one Generator source and one Station Power Load connected at the same node

SC	Resource	Time Periods					Gross
		1	2	3	4	5	
	Generation						
GEN1	Source	18	0	0	0	0	18
GEN1	On-site Load	0	-2	-2	-2	-2	-8
UDC1	Third Party Load	0	0	0	0	0	0

Since the gross generation of 18MW is greater than the gross load of 8MW all Station Power Load has been served by On-Site Self-Supply. There will be no meter re-allocation and GEN 1 is responsible for the load meter for the on-site load in each time period.

MRTU Settlement

Since the Generation Source and the Station Power Load are at the same node GEN1 will be charged or paid based on the same LMPs. Since all the Station Power Load was self supplied; GEN1 is responsible for all load based charges for the Station Power Load with the exception of the Access Charge.

- GEN1 will be paid the Real-Time LMP for the 18MW of Generation.
- GEN1 will be charged for Real-Time Imbalance Energy at the Uninstructed Price based on the simple average of the two five-minute dispatch interval LMPs for the 8 MW of Station Power Load.

Example 2 – The same as Example 1 above but the on-site Generator fails to supply the Station Power Load and therefore the Meter Data must be reallocated to the Third Party Utility.

Version 1 – Original Meter Read

SC	Resource ID	1	2	3	4	5	Gross
	Generation						
GEN1	Source	0	0	0	0	0	0
GEN1	On-site Load	-2	-2	-2	-2	-2	-10
UDC1	Third Party Load	0	0	0	0	0	0

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Since the gross Generation of 0MW is less than the gross Load of 10MW GEN1 failed to Self-Supply the Station Power Load and Third Party Supply has occurred.

Version 2 – Reallocated Meter Data

SC	Resource ID	1	2	3	4	5	Gross
	Generation						
GEN1	Source	0	0	0	0	0	0
GEN1	On-site Load	0	0	0	0	0	0
UDC1	Third Party Load	-2	-2	-2	-2	-2	-10

All of the meter data for the Generation Source on the On-Site Self-Supply Load ID has been reallocated to UDC1 which is the Third Party Supply Load ID. The Third Party Utility will now be responsible for all charges related to the Station Power Load including the Access Charge.

MRTU Settlement

- UDC1 will be charged for Real-Time Imbalance Energy for a total of 10MW at the Uninstructed Price based on the simple average of the two five-minute dispatch interval LMPs at the location of the Station Power Load.
- UDC1 will be billed the Access Charge
- GEN1 will receive a retail bill from UDC1 for the Station Power Load
- GEN1 will be billed the Station Power Fee of \$200 for the reallocation of meter data from the On-Site Self-Supply Load ID to the Third Party Supply Load ID.

Example 3 – The Station Power Portfolio contains one Generator and one Station Power load at the same location (A) as well as a Remote Generator (B) that is separated from Generation/Load Site A by the CAISO Grid. The Station Power Load at Load Site A was served by the Remote Generator (B) within the Station Power Portfolio.

Version 1 – Original Meter Read

SC	Resource ID	Time Periods					Gross
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
	Generation						
GEN1	Source A	0	0	0	0	0	0
GEN1	On-site Load A	-2	-2	-2	-2	-2	-10
GEN1	Remote Load A	0	0	0	0	0	0
	Third Party Load						
UDC1	A	0	0	0	0	0	0
	Generation						
GEN1	Source B	15	0	0	0	0	15

Since the gross Generation of 0MW is < gross Load of 10MW for Site A, Generation Source A has failed to supply the Station Power Load through On-Site

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Self-Supply. However, since the Station Power Portfolio also includes Generator B and the gross Portfolio Generation of 15MW is > than the gross Load of 10MW all meter data will be reallocated to the Remote Self-Supply Load ID for Site A. Generation Source B will supply the Station Power Load located at Site A.

Version 2 - Reallocated Meter Data

<u>SC</u>	<u>Resource ID</u> Generation	Time Periods					<u>Gross</u>
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
GEN1	Source A	0	0	0	0	0	0
GEN1	On-site Load A	0	0	0	0	0	0
GEN1	Remote Load A Third Party Load	-2	-2	-2	-2	-2	-10
UDC1	A Generation	0	0	0	0	0	0
GEN1	Source B	15	0	0	0	0	15

All meter data from the On-Site Self-Supply Load ID for Site A has been re-allocated to the Remote Self-Supply Load ID for Site A as shown above.

MRTU Settlement

Since Generation Source B is located at a different node from On-Site Load A the settlement for each will be based on different LMPs.

- GEN 1 will be paid the Real-Time LMP for a total of 15MW for Generation Source B at its location (B).
- GEN 1 will be charged Real-Time Uninstructed Energy for a total of 15MW based on the simple average of the five minute LMPs for the Station Power Load at its location (A).
- GEN 1 will be charged the Access Charge since the CAISO grid was used to supply the Station Power Load.
- Gen 1 will be billed the Station Power Fee of \$200 from the CAISO for re-allocation of meter data from the On-Site Self-Supply Load ID to the Remote Self-Supply Load ID.

Example 4 – The Station Power Portfolios contains two sites (A&B) that are separated by the CAISO Grid. Both sites include an On-Site Generator and a Station Power Load.

The Generator at Site A is generating enough to cover the Station Power Load at site A and is also over-generating enough to cover some of the Station Power Load at Site B. Since the over-generation at Site A was not enough to cover all of the Station Power Load at Site B Third Party Allocation of some of the Station Power Load located at Site B has occurred.

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Version 1 – Original Meter Data

SC	Resource ID	Time Periods					Gross
		1	2	3	4	5	
	Generation						
GEN1	Source A	15	0	0	0	0	15
GEN1	On-site Load A	-2	-2	-2	-2	-2	-10
GEN1	Remote Load A	0	0	0	0	0	0
	Third Party Load						
UDC1	A	0	0	0	0	0	0
	Generation						
GEN1	Source B	0	0	0	0	0	0
GEN1	On-site Load B	-4	-4	-4	-4	-4	-20
GEN1	Remote Load B	0	0	0	0	0	0
	Third Party Load						
UDC1	B	0	0	0	0	0	0
							-15

The Generator at Site A has generated 15MW which is enough to cover the On-site Station Power Load of 10MW at site A. The Generator at Site A is also over-generating enough (5MW) to cover some of the Station Power Load at Site B. Since the over-generation at Site A was not enough to cover all of the Station Power Load at Site B some Third Party allocation will occur as shown in Version 2 below.

Version 2 – Reallocated Meter Data

SC	Resource ID	Time Periods					Gross
		1	2	3	4	5	
	Generation						
GEN1	Source A	15	0	0	0	0	15
GEN1	On-site Load A	-2	-2	-2	-2	-2	-10
GEN1	Remote Load A	0	0	0	0	0	0
UDC1	Third Party Load A	0	0	0	0	0	0
	Generation						
GEN1	Source B	0	0	0	0	0	0
GEN1	On-site Load B	0	0	0	0	0	0
GEN1	Remote Load B	-1	-1	-1	-1	-1	-5
UDC1	Third Party Load B	-3	-3	-3	-3	-3	-15
							-15

Since Site A has gross Generation of 15MW which is > the gross Load at Site A of 10MW all of the Station Power at Site A was self-supplied. Site B has gross Generation of 0MW which is < than gross Load at Site B of 20MW so no self-supply of Station Power has occurred at Site B. The entire Station Power Portfolio has

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gross Generation < than gross Load so Third Party Supply has also occurred in the amount of 15MW which is the net deficit of the portfolio. Therefore, 15MW has been allocated to UDC1 to the Third Party Supply Load ID. There is a remaining positive 5MW at Generation Source A that can be used to serve the Station Power at Location B so this quantity is re-allocated to the Remote Self-Supply Load ID for Load B.

MRTU Settlements

Settlement will be based on multiple LMPs since some of the Station Power Load at Site B was supplied by Generation at Site A.

- GEN1 is paid the Real-Time LMP for Generation at its location A.
- GEN 1 is charged Real-Time Uninstructed Energy for a total of 5 MW for the Station Power Load at the location of On-Site Load B and for a total of 10MW at the location of On-Site A.
- GEN 1 will be charged for the Access Charge since the CAISO Grid was used to serve the 5MW of Station Power at Site B.
- GEN 1 will be charged two Station Power Fees of \$200 each from the CAISO for the re-allocation of meter data from the On-Site Self-Supplied Load at Site B to the Remote Self-Supply Load ID and for the re-allocation of meter data to the Third Party Supply Load ID.
- UDC1 is charged Real-Time Uninstructed Energy for a total of 15MW of Station Power Load based on the simple average of the two 5 minute dispatch interval LMPs at the location of On-Site Load B.
- UDC1 will charged the Access Charge
- Both GEN1 and UDC1 will be assessed the Access Charge since the CAISO Grid was used to supply the Station Power Load.
- GEN1 will receive a retail bill from UDC1 for the Station Power Load

Additional detailed examples for the settlement of Station Power Load are posted on the CAISO website at the following link:

<http://www.caiso.com/docs/2005/03/09/2005030917231424025.xls>