



- **A Generator can be related to multiple buses**
- **Each Bus represents both a metering and bidding point**
- **Bidding, can optionally be performed at a single bus per Generator**

## Example: Gen/Bus Relationships

Bus	1	2	3
Bid (DAM)	10	--	--
Forecast	11	--	--
Meter	4	4	4

- **The Generator is associated with 3 buses (Bus 1, Bus 2, Bus 3)**
- **The Generator can bid Day-Ahead using Bus 1**
- **TO Meter readings will be loaded for all 3 buses**

# Initial Settlement

Bus	1	2	3
Bid (DAM)	10	--	--
Forecast	11	--	--
Meter	4	4	4

- **Bus 1 buys 10 MW @ Day-Ahead \$**
- **Bus 1 buys 1 MW @ Real Time \$ (initial invoice)**
- **At 4 month true-up TO reports bus 1, 2 & 3 meter reads of 4 MW each.**

# Final Settlement

Bus	1	2	3
Bid (DAM)	10	--	--
Forecast	11	--	--
Meter	4	4	4

## Generator Total:

- Need to buy 1 more MW @ Real Time \$ (Based on a metered total of 12 MW and a initial settlement of 11 MW)

## Breakdown:

- Bus 1 sells back 7 MW (Based on a forecast of 11 MW and meter value of 4 MW)
- Bus 2 buys 4 MW at Real Time \$
- Bus 3 buys 4 MW at Real Time \$

# Metering Options: Net Load and Generation

**Scenario: Generator generates energy for an entire hour and consumes load for the remainder of the hour and current practice is that load is netted out.**

Type	MW	Explanation
Generation	10	Assume all generation is netted out. The gross generation is 12 MW, but the uploaded meter value is 10 MW because it takes into account the 2 MW of load.
Load	2	Do not upload this value as it is included in the 10 MW generation meter value
Summary		<ul style="list-style-type: none"><li>➤ Only 1 meter reading (of 10 MW of generation) is uploaded.</li><li>➤ Negative readings cannot be uploaded.</li><li>➤ If the Load &gt; Gen, then a SP meter reading (and not a generation reading) will be uploaded</li></ul>

## Metering Options: Gross Load and Generation

<b>Scenario: Generator generates energy for a fraction of an hour and consumes load for the remainder of the hour</b>		
<b>Type</b>	<b>MW</b>	<b>Explanation</b>
<b>Generation</b>	<b>12</b>	<b>This value represents all generated MWs during the portion of the hour the generator was on-line.</b>
<b>Load</b>	<b>2</b>	<b>Assume load for the entire hour is 2 MW The hourly average LBMP will be used for billing purposes</b>
<b>Summary</b>	<b>2 Meter readings are uploaded (one for Generation (10 MW) and one for Load (2 MW))</b>	

# Additional Notes

- **No Station Power Bus meter readings will be uploaded until after the 1<sup>st</sup> invoice is completed (This will be the case after Web Based Reconciliation is deployed).**
- **A MW Cap will be placed on Station Power bidding for each Billing Org.**
- **Ancillary Services for 3<sup>rd</sup> party supply – needs discussion.**
  - *NYISO recommendation – use Daily average price where applicable (Reserves, Regulation, Black Start, Schedule 1, Voltage Support)*
  - *Increased collections will roll back into Schedule 1.*

# Accounting and Billing Calculations



# Unit Net Gen

- Hourly Unit Net Gen Profile for all hours in the month will be calculated from Hourly Gen and Hourly Unit Station Power for each unit for each hour

Net Generation by Unit:															
HB	0	1	2	3	4	...	713	714	715	716	717	718	719	Net	Neg Net
Generator #															
1	10.00	8.00	-1.00	-2.00	0.00	...	0.00	-2.00	-2.00	-1.00	5.00	10.00	10.00	<b>35.00</b>	-8.00
2	4.00	2.00	-4.00	<b>-5.00</b>	0.00	...	0.00	-5.00	-4.00	-5.00	-4.00	-5.00	-4.00	<b>-30.00</b>	<b>-36.00</b>
3	-4.00	-4.00	-4.00	-4.00	0.00	...	0.00	-4.00	-4.00	-4.00	-4.00	2.00	4.00	<b>-26.00</b>	-32.00
4	-3.00	-3.00	-3.00	-3.00	0.00	...	0.00	-3.00	-3.00	-3.00	-3.00	4.00	8.00	<b>-12.00</b>	-24.00
<b>Owner Total:</b>													<b>-33.00</b>		

Note: If this calculation results in a negative value, then the unit consumed more MWs in station power than it produced as energy MW in that hour. In the example above, units 2, 3, and 4 consumed more station power than the energy they generated according to the Net calculation shown in the “Net” column.

# Retail Load to Net Negative Units

- For each LLC that has a negative Monthly Accumulated Unit Net Generation (MW), a calculation must be run to allocate Retail Load to Net Negative Units within that LLC. This allocation will be distributed only to the units with a Negative Monthly Accumulated Unit Net Gen, allocated first to the most negative unit and progressing until all MWs are distributed to the units that consumed more energy than they produced.

<b>Generator</b>	<b>Unit Net Gen</b>	<b>Allocation</b>	
1	35.000		
2	-30.000	30.000	
3	-26.000	3.000	
4	-12.000	-	
	<b>-33.000</b>	<b>33.000</b>	

For the above example, allocation of Retail Load to Net Negative Units results in only units 2 (30MW) and 3 (3MW) covering retail load

# Retail Load Allocation

- Retail Load Allocation needs to be calculated to provide an index that will determine the hourly wholesale cost of allocated 3<sup>rd</sup> Party station power.
- **Allocation Formula:**  
**(Unit Net Gen \* Allocation of Retail Load to Net Negative Units) /  $\Sigma$**   
**(Hourly Unit Net Gen < 0)**

Allocation of Retail Load to Units 2, 3 and 4 to Net Negative Hours During the Month:												
HB	0	1	2	3	...	714	715	716	717	718	719	Total
Generator#1												
2	-	-	3.333	<b>4.167</b>	#	4.167	3.333	4.167	3.333	4.167	3.333	<b>30.000</b>
3	0.375	0.375	0.375	0.375	#	0.375	0.375	0.375	0.375	-	-	<b>3.000</b>
4	-	-	-	-	#	-	-	-	-	-	-	<b>-</b>
												<b>33.000</b>

- For example, Unit 2 has a Net Gen of -5.00 for hour 3 and an allocation of retail load to net negative units of 30.000. Unit 2 has negative net generation totaling -36.00 MWHRS over the month.
- Hourly Allocation of Retail Load for Negative Net Gen for hour 3 for unit 2 is:  
 $((-5.00 * 30.000) / 36.00) = 4.167 \text{ MW}$ .

# Gen Bus LBMP

HB	0	1	2	3	...	714	715	716	717	718	719
Generator #											
1	\$ 33.62	\$ 28.46	\$ 21.72	\$ 22.54	...	\$ 42.86	\$ 42.58	\$ 51.36	\$ 45.63	\$ 40.47	\$ 30.12
2	\$ 33.62	\$ 28.46	\$ 21.72	<b>\$ 22.54</b>	...	\$ 42.86	\$ 42.58	\$ 51.36	\$ 45.63	\$ 40.47	\$ 30.12
3	\$ 33.62	\$ 28.46	\$ 21.72	\$ 22.54	...	\$ 42.86	\$ 42.58	\$ 51.36	\$ 45.63	\$ 40.47	\$ 30.12
4	\$ 33.62	\$ 28.46	\$ 21.72	\$ 22.54	...	\$ 42.86	\$ 42.58	\$ 51.36	\$ 45.63	\$ 40.47	\$ 30.12

# Rebate Calculation

- Use Retail Load Allocation and Gen Bus LBMP to determine the Retail Load Adjustment:

Retail Load \$ Adjustment:												
HB	0	1	2	3	...	714	715	716	717	718	719	Total
Generator#1												
2	\$ -	\$ -	\$ 72.41	\$ <b>93.92</b>	...	\$178.58	\$141.93	\$214.00	\$ 152.10	\$168.63	\$100.40	<b>1,121.97</b>
3	\$ 12.61	\$ 10.67	\$ 8.15	\$ 8.45	...	\$ 16.07	\$ 15.97	\$ 19.26	\$ 17.11	\$ -	\$ -	<b>\$ 108.29</b>
4	\$ -	\$ -	\$ -	\$ -	...	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	<b>\$ -</b>
												<b>1,230.25</b>

Unit 2 has a Hourly Retail Load Allocation for hour 3 of 4.167 MW and a Gen Bus LBMP of \$22.54. The Hourly Retail Load Adjustment \$ is  $4.167 * \$22.54 = \$93.92$

The Aggregated Monthly Retail Load Adjustment \$ =  $\sum$  Hourly Retail Load Allocation. For the above example, the Aggregated Monthly Retail Load Adjustment \$ for unit 2 is \$1,121.97

# Rebate/Charges – Breakdown

<b>Generator</b>	<b>NYISO Rebate to GenCo</b>	<b>NYISO Charge to T.O.</b>	<b>Energy MW T.O. can charge to GenCo</b>
<b>2</b>	<b>\$1,121.97</b>	<b>\$1,121.97</b>	<b>30</b>
<b>3</b>	<b>\$108.29</b>	<b>\$108.29</b>	<b>3</b>