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MSR-0001

DAM NYCA Supplier Energy

Suppliers offer their resources to the DAM to provide energy to the NYISO wholesale energy market or to supply energy contracted outside of the NYISO through bilateral contracts. Bilateral energy is not settled through the NYISO; however, transmission service must be scheduled with the NYISO to transport the energy from the source of the transactions to their points of withdrawal. Resources will not receive payment from the NYISO for any capacity scheduled by SCUC that is committed to serve bilateral transactions.

Suppliers offer their resources by submitting offers/bids to the NYISO, which are then evaluated by Security Constrained Unit Commitment [SCUC]. SCUC schedules the most economical resources to serve any load and bilateral transactions scheduled, and to solve security constraints. Resources that are scheduled by SCUC receive a binding contract with the NYISO to supply the energy scheduled.

Hourly Settlement

Hourly Settlement Inputs

DA_Transaction_MWHR: Hourly capacity committed to serve bilateral transactions
DA_Dispatch_MWHR: Hourly SCUC schedule, including capacity serving bilateral transactions
DA_Price_of_Energy: Hourly DAM LBMP energy component
DA_Price_of_Losses: Hourly DAM LBMP losses component
DA_Price_of_Congestion: Hourly DAM LBMP congestion component

Hourly Settlement Outputs

Hourly_DA_LBMP_MWHR: Hourly DAM energy sold/(purchased)
Hourly_Day_Ahead_LBMP: Hourly DAM LBMP
Hourly_DA_Energy_\$: Hourly DAM energy settlement

Hourly Settlement

Hourly_DA_LBMP_MWHR = DA_Dispatch_MWHR - DA_Transaction_MWHR

Hourly_Day_Ahead_LBMP = DA_Price_of_Energy + DA_Price_of_Losses - DA_Price_of_Congestion

Hourly_DA_Energy_\$ = Hourly_DA_LBMP_MWHR x Hourly_Day_Ahead_LBMP

Hourly Settlement Reported

Hourly_DA_LBMP_MWHR: Hourly Advisory Billing Statement – Billing Code 202
Hourly_Day_Ahead_LBMP: Hourly Advisory Billing Statement – Billing Code 203
Hourly_DA_Energy_\$: Hourly Advisory Billing Statement – Billing Code 204

Daily Settlement

Daily Settlement Inputs

Hourly_DA_LBMP_MWHR: Hourly DAM energy sold/(purchased)
Hourly_DA_Energy_\$: Hourly DAM energy settlement

Daily Settlement Output

Daily_DA_LBMP_MWHR: Daily DAM energy sold/(purchased)
Daily_DA_Energy_\$: Daily DAM energy settlement

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DAM Non-NYCA Supplier Energy

Suppliers located externally to the NYCA offer their resources to the DAM to provide energy to the NYISO wholesale energy market through bilateral contracts. Suppliers offer their resources to provide LBMP market energy by submitting offers/bids to the NYISO through the bilateral transaction scheduling process. NYCA LBMP energy imports are scheduled as import transactions with the NYISO reference bus as the scheduled point of withdrawal. DAM LBMP energy imports are evaluated and scheduled by Security Constrained Unit Commitment [SCUC].

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_LBMP_Imp_Transaction_MWh:	Hourly LBMP energy import transaction MWh scheduled by SCUC
DA_Price_of_Energy:	Hourly DAM LBMP energy component at the proxy bus bid as point of injection
DA_Price_of_Losses:	Hourly DAM LBMP losses component at the proxy bus bid as point of injection
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component at the proxy bus bid as point of injection

Hourly Settlement Outputs

Hr_DA_LBMP_Imp_Energy_\$:	Hourly DAM LBMP import energy - energy settlement
Hr_DA_LBMP_Imp_Losses_\$:	Hourly DAM LBMP import energy - losses settlement
Hr_DA_LBMP_Imp_Congestion_\$:	Hourly DAM LBMP import energy - congestion settlement
Hr_DA_LBMP_Imp_\$:	Hourly Net DAM LBMP import settlement

Hourly Settlement

$Hr_DA_LBMP_Imp_Energy_\$ = Hr_DA_LBMP_Imp_Transaction_MWhr \times DA_Price_of_Energy$

$Hr_DA_LBMP_Imp_Losses_\$ = Hr_DA_LBMP_Imp_Transaction_MWhr \times DA_Price_of_Losses$

$Hr_DA_LBMP_Imp_Congestion_\$ = Hr_DA_LBMP_Imp_Transaction_MWhr \times \{-DA_Price_of_Congestion\}$

$Hr_DA_LBMP_Imp_\$ = Hr_DA_LBMP_Imp_Energy_\$ + Hr_DA_LBMP_Imp_Losses_\$ + Hr_DA_LBMP_Imp_Congestion_\$$

Hourly Settlement Reported

Hr_DA_LBMP_Imp_Transaction_MWh:	Hourly Advisory Billing Statement – Billing Code 511
Hr_DA_LBMP_Imp_Energy_\$:	Hourly Advisory Billing Statement – Billing Code 512
Hr_DA_LBMP_Imp_Losses_\$:	Hourly Advisory Billing Statement – Billing Code 513
Hr_DA_LBMP_Imp_Congestion_\$:	Hourly Advisory Billing Statement – Billing Code 514
Hr_DA_LBMP_Imp_\$:	Hourly Advisory Billing Statement – Billing Code 515

Daily Settlement

Daily Settlement Inputs

Hr_DA_LBMP_Imp_MWh:	Hourly LBMP energy import transaction MWh scheduled by SCUC
Hr_DA_LBMP_Imp_Energy_\$:	Hourly DAM LBMP import energy - energy settlement
Hr_DA_LBMP_Imp_Losses_\$:	Hourly DAM LBMP import energy - losses settlement
Hr_DA_LBMP_Imp_Congestion_\$:	Hourly DAM LBMP import energy - congestion settlement
Hr_DA_LBMP_Imp_\$:	Hourly Net DAM LBMP import settlement

Daily Settlement Output

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DAM Non-NYCA Supplier Energy

Daily_DA_LBMP_Imp_MWh:	Daily DAM LBMP import energy sold/(purchased)
Daily_DA_LBMP_Imp_Energy_\$:	Daily DAM LBMP import energy - energy settlement
Daily_DA_LBMP_Imp_Losses_\$:	Daily DAM LBMP import energy - losses settlement
Daily_DA_LBMP_Imp_Congestion_\$:	Daily DAM LBMP import energy - congestion settlement
Daily_DA_LBMP_Imp_\$:	Daily Net DAM LBMP import settlement

Daily Settlement

Daily_DA_LBMP_Imp_MWh = $\sum\{Hr_DA_LBMP_Imp_MWhr\}$

Daily_DA_LBMP_Imp_Energy_\$ = $\sum\{Hr_DA_LBMP_Imp_Energy_ \$\}$

Daily_DA_LBMP_Imp_Losses_\$ = $\sum\{Hr_DA_LBMP_Imp_Losses_ \$\}$

Daily_DA_LBMP_Imp_Congestion_\$ = $\sum\{Hr_DA_LBMP_Imp_Congestion_ \$\}$

Daily_DA_LBMP_Imp_\$ = $\sum\{Hr_DA_LBMP_Imp_ \$\}$

Daily Settlement Reported

Daily_DA_LBMP_Imp_MWh:	Daily Advisory Billing Statement – Billing Code 758
Daily_DA_LBMP_Imp_Energy_\$:	Daily Advisory Billing Statement – Billing Code 759
Daily_DA_LBMP_Imp_Losses_\$:	Daily Advisory Billing Statement – Billing Code 760
Daily_DA_LBMP_Imp_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 761
Daily_DA_LBMP_Imp_\$:	Daily Advisory Billing Statement – Billing Code 762

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_MWh:	Daily DAM LBMP import energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Imp_Energy_\$:	Daily DAM LBMP import energy - energy settlement [Billing Code 759]
Daily_DA_LBMP_Imp_Losses_\$:	Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$:	Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_MWh:	Daily DAM LBMP export energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Exp_Energy_\$:	Daily DAM LBMP export energy - energy settlement [Billing Code 759]
Daily_DA_LBMP_Exp_Losses_\$:	Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$:	Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_LBMP_MWh:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 758]
Daily_DA_Rep_Energy_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 759]
Daily_DA_Rep_Losses_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_NYCA_LSE_MWh:	Daily DAM LSE energy scheduled [Billing Code 700]
Daily_DAM_NYCA_LSE_Energy_\$:	Daily DAM LSE energy settlement [Billing Code 701]
Daily_DAM_NYCA_LSE_Losses_\$:	Daily DAM LSE losses settlement [Billing Code 702]
Daily_DAM_NYCA_LSE_Congestion_\$:	Daily DAM LSE congestion settlement [Billing Code 703]
Daily_DAM_Int_Trans_Losses_\$:	Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$:	Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$:	Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$:	Daily DAM Import Transaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$:	Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$:	Daily DAM Export Transaction congestion settlement [Billing Code 752]

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DAM Non-NYCA Supplier Energy

Daily_DAM_WT_Trans_Losses_\$: Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$: Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_LBMP_MWh: Monthly DAM energy sold/(purchased)
Monthly_DA_Energy_\$: Monthly DAM energy settlement
Monthly_DA_Losses_\$: Monthly DAM losses settlement
Monthly_DA_Congestion_\$: Monthly DAM congestion settlement

Monthly Settlement

$$\text{Monthly_DA_LBMP_MWh} = \sum\{\text{Daily_DA_LBMP_Imp_MWh} + \text{Daily_DA_LBMP_Exp_MWh} + \text{Daily_DA_Rep_LBMP_MWh} + \text{Daily_DAM_NYCA_LSE_MWh}\}$$

$$\text{Monthly_DA_Energy_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Energy_\$} + \text{Daily_DA_LBMP_Exp_Energy_\$} + \text{Daily_DA_Rep_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Losses_\$} + \text{Daily_DAM_NYCA_LSE_Congestion_\$}\}$$

$$\text{Monthly_DA_Losses_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Losses_\$} + \text{Daily_DA_LBMP_Exp_Losses_\$} + \text{Daily_DA_Rep_Losses_\$} + \text{Daily_DA_Imp_Trans_Losses_\$} + \text{Daily_DA_Exp_Trans_Losses_\$} + \text{Daily_DA_WT_Trans_Losses_\$}\}$$

$$\text{Monthly_DA_Congestion_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Congestion_\$} + \text{Daily_DA_LBMP_Exp_Congestion_\$} + \text{Daily_DA_Rep_Congestion_\$} + \text{Daily_DA_Imp_Trans_Congestion_\$} + \text{Daily_DA_Exp_Trans_Congestion_\$} + \text{Daily_DA_WT_Trans_Congestion_\$}\}$$

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 MSR-0045
 Operating Reserves Service Cost Recovery

The NYISO's costs of providing Operating Reserves Service are recovered from internal NYCA withdrawals & exports per their respective ratio share of total internal NYCA withdrawals & exports.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_LBMP_Export_MWh:	Hourly Transmission Customer Non-NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Exp_Trans_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_LBMP_Export_MWh	Hourly Total NYISO LBMP export energy Transaction: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Exp_Trans_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Res_Avail_\$:	Hourly Total NYISO Reserves Service Availability Payment cost
Hr_Res_Penalty_\$:	Hourly Total NYISO Reserve Pick-up Penalty revenue

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_Mwh	Hourly Export only Transmission Customer MWh withdrawal
Hr_Res_Charge_\$	Hourly Transmission Customer Reserves Service cost allocation

Hourly Settlement

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Export_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Res_Charge_\$} = \{ \text{Hr_Res_Avail_\$} - \text{Hr_Res_Penalty_\$} \} \times \{ \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} \} \div \{ \text{Hr_NYCA_LSE_MWh} + \text{Hr_LBMP_Export_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Exp_Trans_MWh} + \text{Hr_Imp_Trans_MWh} \}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Hourly Advisory Statement Billing Code 600
Hr_Export_MWh	Hourly Advisory Statement Billing Code 601
Hr_Res_Charge_\$	Hourly Advisory Statement Billing Code 610

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_Mwh	Hourly Export only Transmission Customer MWh withdrawal
Hr_Res_Charge_\$	Hourly Transmission Customer Reserves Service cost allocation

Daily Settlement Output

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Regulation and Frequency Response Service Cost Recovery

The NYISO's costs of providing Regulation & Frequency Response Service are recovered from internal NYCA withdrawals per their respective ratio share of total internal NYCA withdrawals.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Reg_Avail_\$:	Hourly Total NYISO Regulation Service Availability Payment cost
Hr_Reg_Penalty_\$:	Hourly Total NYISO Regulation Penalty revenue

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Reg_Charge_\$	Hourly Transmission Customer Regulation Service cost allocation

Hourly Settlement

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Reg_Charge_\$} = \{\text{Hr_Reg_Avail_\$} - \text{Hr_Reg_Penalty_\$}\} \times \text{Hr_Ancillary_Services_MWh} \div \{\text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh}\}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Hourly Advisory Statement Billing Code 600
Hr_Reg_Charge_\$	Hourly Advisory Statement Billing Code 612

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Reg_Charge_\$	Hourly Transmission Customer Regulation Service cost allocation

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Reg_Charge_\$	Daily Transmission Customer Regulation Service cost allocation

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{\text{Hr_Ancillary_Services_MWh}\}$$

$$\text{Daily_Reg_Charge_\$} = \sum\{\text{Hr_Reg_Charge_\$}\}$$

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Regulation and Frequency Response Service Cost Recovery
Daily Settlement Reported

Daily_Ancillary_Services_MWh
Daily_Reg_Charge_\$_

Daily Advisory Statement Billing Code 800
Daily Advisory Statement Billing Code 807

Monthly Settlement

Monthly Settlement Inputs

Daily_Reg_Charge_\$_

Daily Transmission Customer Regulation Service cost allocation

Monthly Settlement Outputs

Mth_Reg_Charge_\$_

Monthly Transmission Customer Regulation Service cost allocation

Monthly Settlement

$Mth_Reg_Charge_\$ = \sum\{ Daily_Reg_Charge_\$ \}$

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MSR-0042
Regulation & Frequency Response Service

The purpose for Regulation & Frequency Response Service [Regulation Service] is to ensure sufficient capacity to balance supply with system demand during real time operation and to assist in maintaining scheduled Interconnection frequency at 60 hertz. Regulation Service is accomplished by committing on-line resources whose outputs are increased or decreased, predominately through the use of Automatic Generation Control [AGC], as necessary to follow changes in system load. Resources are not obligated to provide Regulation Service unless they have been offered to the market and scheduled by the NYISO to supply the service. The scheduling and dispatch of Regulation Service are described in detail in the *NYISO Ancillary Services Manual at Chapter 4: Regulation & Frequency Response Service*.

The NYISO schedules Regulation Service in the Day-Ahead Market [DAM] from qualified resources that have been offered to the DAM. Units are compensated for availing themselves to Regulation Service dispatch through an availability payment. Energy settlements for energy supplied during the provision of Regulation Service are made per *Chapter 5: Power Supplier Balancing Market Settlements* of this manual. DAM availability payments are based upon the hourly Regulation Service capacity scheduled for the resource by SCUC, the respective hourly DAM Regulation Service Market Clearing Price [MCP], any adjustment due to for non-performance through an Availability Index, and any replacement Regulation Service cost recovery assessed to the resource. In the event that additional Regulation Service is required over that scheduled in the DAM, the NYISO may secure such service through a Supplemental Resource Evaluation [SRE]. In the event that additional resources are scheduled to supply Regulation Service, those resources will be compensated based upon the hourly Regulation Service capacity scheduled for the resource by the SRE, the respective hourly SRE Regulation Service Market Clearing Price [MCP], any adjustment due to for non-performance through an Availability Index, and any replacement Regulation Service cost recovery assessed to the resource.

Regulation Margin

The Regulation Margin is defined as the portion of Resource's bid operating capacity below its Upper Operating Limit and the portion above the unit's bid Minimum Generation Point reserved for AGC dispatch. Essentially, the total capacity that is offered for dispatch by AGC is twice the bid Regulation Margin.

Prior to July 25, 2001, unit Regulation Margin could not exceed the product of: (1) Resources' Regulation Ramp Rate [RRR] and (2) 5 minutes [nominal SCD interval length]. The Resources' Regulation Ramp Rates [RRR] are defined in the MIS - Generation Commitment Parameters.

Effective July 25, 2001, significant market enhancements were implemented to encourage units to be on dispatch by allowing units to supply energy in response to price signals. The enhancements included payments for uninstructed energy, under specific conditions, and eliminating barriers which result in units being off schedule. The purpose of these initiatives were to encourage units to place themselves 'on dispatch' and lacking communications or necessary equipment, allow the units to respond to the need for additional energy by responding to price signals. The specific steps to be taken are as follows:

Elimination of accumulating base points in the SCD process for purposes of scheduling energy and for purposes of setting price.

Elimination of the 1% response rate rule, in its place will be the capability for units to provide up to three response rates and a corresponding MW level for energy, a single response rate for reserve response and a single response rate for regulation response.

Modification of the regulation performance penalties rules for both regulating and non-regulating units.

The NYISO may commit additional Resources to supply Regulation Service after the close of the DAM. Resources, including those not scheduled by SCUC, may be offered to supply the service up to 90 minutes before the hour of operation. The post-SCUC Regulation Service MCP may be less than the DAM MCP.

Regulation Service Scheduled [Regulation Margin]

Hr_DAM_Regulation_MCP_\$:	Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_\$:	Hrly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Hr_DAM_Reg_Avail_MW:	Hourly Day-Ahead Market Regulation Margin scheduled
Hr_SRE_Reg_Avail_MW:	Hourly Supplemental Resource Evaluation Regulation Margin scheduled

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Regulation & Frequency Response Service

Scheduled Regulation Service Reported

Hr_DAM_Reg_Avail_MW:	Hourly Advisory Billing Statement – Billing Code 217
Hr_DAM_Regulation_MCP_\$:	Hourly Advisory Billing Statement – Billing Code 218
Hr_SRE_Reg_Avail_MW:	Hourly Advisory Billing Statement – Billing Code 219
Hr_SRE_Regulation_MCP_\$:	Hourly Advisory Billing Statement – Billing Code 220

Regulation Service Prior to July 25, 2001

Prior to July 25, 2001, Resources providing Regulation & Frequency Response Service were paid availability payments for reserving operating capacity for the purpose of being dispatched in 6-second intervals by AGC. The Availability payments were reduced for intervals when the scheduled Resources were not available for AGC dispatch [i.e. off control]. In addition to reductions in the Availability payments, service providers may have been charged for any resultant replacement Regulation Service costs. The supplier would also accumulate Regulation Penalties for being off base point.

Balancing Market Evaluation [BME] may value Regulation Service provider energy such that the unit will be scheduled off-control for an hour. A net BME Regulation Service schedule of zero will result in the unit being paid for DAM Regulation Service even though it was scheduled as dispatchable by Security Constrained Dispatch [SCD] into the available operating capacity that had been reserved for dispatch by AGC [i.e. Regulation Service].

Resource Availability Index

The Availability Index is an hourly ratio of the amount of time that a Resource is available to provide Regulation Service in a given hour. The ratio is computed as the number of seconds in an hour that the unit was “on control” [i.e. available for AGC dispatch] divided by 3,600 seconds. Availability payments are adjusted by this ratio to reflect the Resources’ failure to fulfill their commitments to provide Regulation Service.

Inputs to Hourly Availability Index Calculation

On_Control_Time Number of seconds Resource was available to provide Regulation Service

Outputs from Hourly Availability Index Calculation

AI Hourly Resource Availability Index

Hourly Availability Index Calculation

$$AI = \{ \text{On_Control_Time} \div 3,600 \text{ seconds} \}$$

Hourly Availability Index Reported

AI Hourly Advisory Billing Statement – Billing Code 216

Hourly Regulation Service Availability Payments

Inputs to Hourly Regulation Service Availability Payment Settlement

Hr_DAM_Regulation_MCP_\$:	Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_\$:	Hourly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Hr_DAM_Reg_Avail_MW:	Hourly Day-Ahead Market Regulation Margin scheduled
Hr_SRE_Reg_Avail_MW:	Hourly Supplemental Resource Evaluation Regulation Margin scheduled

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Regulation & Frequency Response Service

AI: Resource Availability Index

Outputs from Hourly Regulation Service Availability Payment Settlement

Hr_Reg_Avail_\$: Hourly Net Regulation Service Availability Payment

Hourly Regulation Service Availability Payment Settlement

$$\text{Hr_Reg_Avail_\$} = \{ (\text{Hr_DAM_Reg_Avail_MW} \times \text{Hr_DAM_Regulation_MCP_\$} \times \text{AI}) + (\text{Hr_SRE_Reg_Avail_MW} \times \text{Hr_SRE_Regulation_MCP_\$} \times \text{AI}) - \text{Hr_Replacement_Reg_Cost} \}$$

Replacement Regulation & Frequency Response Service Costs

Resources that fail to provide or be available to provide Regulation Service may be required to purchase replacement Regulation Service. The availability of each Regulation Service provider is tracked through the Availability Index. Replacement costs are capped at the total cost incurred by the NYISO to secure replacement Regulation Service through Supplemental Resource Evaluation or Balancing Market Evaluation.

Inputs to Replacement Regulation Cost Calculation

Hr_DAM_Regulation_MCP_\$: Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_\$: Hrly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Hr_DAM_Reg_Avail_MW: Hourly Day-Ahead Market Regulation Margin scheduled
Hr_SRE_Reg_Avail_MW: Hourly Supplemental Resource Evaluation Regulation Margin scheduled
AI: Resource Availability Index

Outputs from Hourly Replacement Regulation Cost Calculation

Hr_Replacement_Reg_MWh: Regulation scheduled by ISO SRE
Hr_ISO_Increased_Reg_Cost_Cap: Replacement Regulation Cost Cap
Hr_Replacement_Reg_Cost: Resource's share of Regulation Replacement Costs

Hourly Replacement Regulation Cost Calculation

$\text{Hr_ISO_Replacement_Reg_MWh} = \Sigma \{ \text{Hr_SRE_Reg_Avail_MW} \}$, by provider by hour

$$\text{Hr_ISO_Replacement_Reg_Cost} = \text{Hr_ISO_Replacement_Reg_MWh} \times \{ \max(0, [\text{Hr_SRE_Regulation_MCP_\$} - \text{Hr_DAM_Regulation_MCP_\$}]) \}$$

$$\text{Hr_Replacement_Reg_MWh} = \{ (\text{Hr_DAM_Reg_Avail_MW} \times (1 - \text{PI})) \}$$

$$\text{Hr_Replacement_Reg_Cost} = \{ \text{Hr_ISO_Replacement_Reg_Cost} \times \text{Hr_Replacement_Reg_MWh} \} \div \text{Hr_ISO_Replacement_Reg_MWh}$$

Hourly Replacement Regulation Cost Reported

Hr_Replacement_Reg_Cost Hourly Advisory Billing Statement – Billing Code 221

Regulation Service After July 25, 2001

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Regulation & Frequency Response Service

After July 25, 2001, Resources providing Regulation & Frequency Response Service are paid availability payments for reserving operating capacity for the purpose of being dispatched in 6-second intervals by AGC. Availability payments are not necessarily reduced, as long as system regulation performance is within pre-determined limits.

Balancing Market Evaluation [BME] may value Regulation Service provider energy such that the unit will be scheduled off-control for an hour. A net BME Regulation Service schedule of zero will result in the unit being paid for DAM Regulation Service even though it was scheduled as dispatchable by Security Constrained Dispatch [SCD] into the available operating capacity that had been reserved for dispatch by AGC [i.e. Regulation Service].

The settlements for Regulation Service Availability Payments will be based on unit Performance Index (PI). PI is the measurement of regulation performance as calculated by the Performance Tracking System and *documented in NYISO Operating Manual – Ancillary Services, Section 4, Page 15*. The PI falls between 0 and 1. A monthly Market Participation Threshold [MPT] is assigned the unit, which is a PI that must be maintained on an hourly basis to avoid forfeiture of availability payments for regulation service for that subject hour. The MPT falls between 0 and 1. The initial MPT is set at .90. A Payment Scaling Factor [PSF] is also applied which reflects value of service differences among regulation service providers with performance at or above the MPT. The PSF falls between 0 and MPT.

At the end of each month CPS performance will be reviewed by MMU. If the NYISO CPS is greater than .95, then the defined MPT for all suppliers remains at .90. If CPS falls below .95 then the MPT will be increased one basis point for each basis point that the CPS is below 95%, to a maximum MPT of .95. For Example: If the CPS = .92 then the MPT for the following month will be set to .93. Suppliers who fail to meet the MPT for 2 consecutive months are subject to review by MMU and suspension from bidding into the regulation market. MMU will work with the supplier to determine when reinstatement into the market can be achieved. Suppliers who have satisfied MMU reinstatement requirements will be allowed to offer regulation service provided they enter bids of \$0 until they demonstrate acceptable performance. For the purpose of this determination, acceptable performance shall be demonstrated once the provider has completed the following:

Scheduled to provide regulation service for a minimum of 100 hours and a minimum of 500 MWs of regulation service during any 30 day consecutive period;

And

The performance that must be attained during the reinstatement period is that the provider must measure a PI that meets the MPT for all hours selected to provide the service.

The BIC shall review the appropriateness of MPT and PSF values on the recommendation of NYISO staff. System conditions such as a decline in the CPS or the number of suppliers, or any other event which indicates that regulation performance or market participation is not meeting NYISO criteria for performance or reliability may result in NYISO staff review and recommendation for changes to the MPT or the PSF.

$$[(PI - PSF) / (1 - PSF)] * [(MCP\$ * MW)]$$

Example: PI = .93, MCP\$ = \$25, MWs = 10, MPT = .90, PSF = .20 for HE = 3

$$\text{Regulation payment} = [(.93 - .20) / (1 - .20)] * [(\$25 * 10)] = \$228.13$$

Hourly Regulation Service Availability Payments

Inputs to Hourly Regulation Service Availability Payment Settlement

Hr_DAM_Regulation_MCP_\$:	Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_\$:	Hrly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Hr_DAM_Reg_Avail_MW:	Hourly Day-Ahead Market Regulation Margin scheduled
Hr_SRE_Reg_Avail_MW:	Hourly Supplemental Resource Evaluation Regulation Margin scheduled

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PI: Performance Index (PI) as calculated by the Performance Tracking System
MPT Minimum Participation Threshold
PSF Payment Scaling Factor (PSF)

Outputs from Hourly Regulation Service Availability Payment Settlement

Hr_Reg_Avail_\$: Hourly Net Regulation Service Availability Payment

Hourly Regulation Service Availability Payment Settlement Calculation

$$\text{Hr_Reg_Avail_\$} = \{ (PI - PSF) \div (1 - PSF) \} \times \{ \text{Hr_DAM_Reg_Avail_MW} \times \text{Hr_DAM_Regulation_MCP_\$} \} + \{ (PI - PSF) \div (1 - PSF) \} \times \{ \text{Hr_SRE_Reg_Avail_MW} \times \text{Hr_SRE_Regulation_MCP_\$} \}$$

Hourly Regulation Service Availability Payment Settlement Reported

Hr_DAM_Regulation_MCP_\$: Hourly Advisory Billing Statement – Billing Code 218
Hr_SRE_Regulation_MCP_\$: Hourly Advisory Billing Statement – Billing Code 220
Hr_DAM_Reg_Avail_MW: Hourly Advisory Billing Statement – Billing Code 217
Hr_SRE_Reg_Avail_MW: Hourly Advisory Billing Statement – Billing Code 219
PI: Hourly Advisory Billing Statement – Billing Code 216

Daily Regulation Service Availability Payment Settlement

Inputs to Daily Regulation Service Availability Payment Settlement

Hr_Reg_Avail_\$: Hourly Net Regulation Service Availability Payment
Hr_Replacement_Reg_Cost: Hourly share of Regulation Replacement Costs

Outputs from Daily Regulation Service Availability Payment Settlement

Daily_Reg_Avail_\$: Daily Net Regulation Service Availability Payment Settlement

Daily Regulation Service Availability Payment Settlement Calculation

$$\text{Daily_Reg_Avail_\$} = \Sigma \{ \text{Hr_Reg_Avail_\$} - \text{Hr_Replacement_Reg_Cost} \}$$

Daily Regulation Service Availability Payment Settlement Reported

Daily_Reg_Avail_\$\$ Daily Advisory Settlement Statement Billing Code 308

Monthly Regulation Service Availability Payment Settlement

Inputs to Monthly Regulation Service Availability Payment Settlement

Daily_Reg_Avail_\$: Daily Net Regulation Service Availability Payment

Outputs from Monthly Regulation Service Availability Payment Settlement

Monthly_Reg_Avail_\$: Monthly Net Regulation Service Availability Payment Settlement

Monthly_Reg_Avail_\$\$ Monthly Power Supplier Settlement Statement

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Monthly Regulation Service Availability Payment Settlement Calculation

Monthly_Reg_Avail_\$: $\Sigma\{\text{Daily_Reg_Avail_}\}$

Monthly Regulation Service Availability Payment Settlement Reported

Monthly_Reg_Avail_\$ Monthly Power Supplier Settlement Statement

Regulation & Frequency Response Penalty Charges Prior to July 25, 2001

Generators that do not operate within tolerable bandwidths of dispatched base points may incur a charge for causing Regulation. These Regulation Penalty Charges are used to offset the total cost of providing Regulation & Frequency Response Service.

Inputs to SCD Interval Regulation & Frequency Response Service Penalty Charges

Hr_DAM_Regulation_MCP_\$:	Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_\$:	Hrly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Hr_DAM_Reg_Avail_MW:	Hourly Day-Ahead Market Regulation Margin scheduled
Hr_SRE_Reg_Avail_MW:	Hourly Supplemental Resource Evaluation Regulation Margin scheduled
AI:	Resource Availability Index
Positive_Error	SCD interval accumulated over-generation
Negative_Error	SCD interval accumulated under-generation
On-Control	Seconds resource was on control
In_Service	Seconds resource was in service
Voltage_Support_Flag	Resource re-dispatched to provide Voltage Support
Reserve_P/U_Flag	Interval dispatch caused by Reserve pick-up
SCD Interval	SCD interval length in seconds
SCD_Regulation_Penalty	SCD interval Regulation Penalty Charge
OOM_Flag	Resource dispatched out of economic merit

Outputs from SCD Interval

Energy_Deviation	Net deviation from base point
SCD_Reg_Penalty	SCD interval Regulation Penalty Charge

SCD Interval Penalty Charge Settlement calculation

Energy_Deviation = $\max\{0, (\text{Positive_Error} + \text{Abs}[\text{Negative_Error}])\}$

SCD_Reg_Penalty =

IF:	Voltage_Support_Flag = "Y"; OR, Reserve_P/U_Flag="Y"; OR, OOM_Flag="Y"; OR, On_Control > 0); THEN,
	SCD_Reg_Penalty = 0;
	ELSE
IF:	[Hr_SRE_Regulation_MCP_\$ > 0; THEN

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$SCD_Reg_Penalty = Hr_SRE_Reg_MCP_\$ \times Energy_Deviation \times SCD_Interval / 3600$
seconds;

ELSE,

$SCD_Reg_Penalty = Hr_DAM_Reg_MCP_\$ \times Energy_Deviation \times SCD_Interval / 3600$ }

Regulation & Frequency Response Penalty Charges Beginning July 25, 2001

Non-providers of Regulation and Frequency Response Service that did not operate within their respective tolerable bandwidths of dispatched base points may have incurred Regulation Penalty Charges. Regulation Penalty Charges assessed to resources not following their dispatched base points within tolerable bandwidths are used to offset the total cost of providing Regulation & Frequency Response Service.

Generating units that persistently under-generate are subject to a penalty. The marginal clearing price for regulation is used in the calculation of the penalty. The under generation penalty shall be calculated each SCD interval and accumulated for each hour.

On-dispatch, non-regulating and off-dispatch, non-regulating units that persistently under-generate shall be subject to a regulation penalty. The limit below which the unit is subject to penalty shall include a tolerance and a time delay of approximately 3 SCD cycles to give the unit "wobble room" to respond to changing prices.

On-dispatch, non-regulating and off-dispatch, non-regulating units that persistently over-generate may be subject to a regulation penalty in the future. The limit above which the unit is subject to penalty shall include a tolerance and a time delay of approximately 3 SCD cycles to give the unit "wobble room" to respond to changing prices.

The over-generation penalty limit (PLO_n) for the SCD interval beginning with the $n-1^{st}$ execution of SCD (at time = t_{n-1}) and ending with the n^{th} execution (at time = t_n) is made at the completion of the n^{th} execution of SCD.

Inputs to SCD Interval Regulation Penalty Charges Calculation

Hr_DAM_Regulation_MCP_	Hourly Day-Ahead Market Regulation Service Market Clearing Price
Hr_SRE_Regulation_MCP_	Hrly Supplemental Resource Evaluation Regulation Service Market Clearing Price
Voltage_Support_Flag	Resource re-dispatched to provide Voltage Support
Reserve_P/U_Flag	Interval dispatch caused by Reserve pick-up
SCD Interval	SCD interval length
SCD_Regulation_Penalty	SCD interval Regulation Penalty Charge
OOM_Flag	Resource dispatched out of economic merit
PURPA_Flag	Indication that unit is classified as operating under PURPA eligibility
PLU	Penalty limit for under generating
PLO	Penalty limit for over generating
Adj_MW	Adjusted unit output over SCD interval

Outputs from SCD Interval Regulation Penalty Charges Calculation

SCD_U-Reg_Penalty	SCD interval regulation penalty charge for under generation
SCD_O-Reg_Penalty	SCD interval regulation penalty charge for over generation
SCD_Reg_Penalty	SCD interval net regulation penalty charge

SCD Interval Regulation Penalty Charges Calculation

SCD_U-Reg_Penalty = :
IF: Voltage_Support_Flag = "Y"; OR,
Reserve_P/U_Flag="Y"; OR,

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OOM_Flag="Y"; THEN,

SCD_U-Reg_Penalty = 0;

ELSE,

IF: [Hr_SRE_Regulation_MCP_\$ > 0; THEN,

SCD_U-Reg_Penalty = Hr_SRE_Regulation_MCP_\$ x {max (0, PLU - Adj_MW) x
SCD_Interval ÷ 3600 seconds;

ELSE,

SCD_U-Reg_Penalty = Hr_DAM_Regulation_MCP_\$ x {max (0, PLU - Adj_MW) x
SCD_Interval ÷ 3600 seconds

SCD_O-Reg_Penalty =

IF: Voltage_Support_Flag = "Y"; OR,
Reserve_P/U_Flag="Y"; OR,
OOM_Flag="Y"; THEN,

SCD_O-Reg_Penalty = 0;

ELSE,

IF: [Hr_SRE_Regulation_MCP_\$ > 0, THEN,

SCD_O-Reg_Penalty = Hr_SRE_Regulation_MCP_\$ x {max (0, Adj_MW – PLO) x
SCD_Interval ÷ 3600 seconds;

ELSE,

SCD_O-Reg_Penalty = Hr_DAM_Regulation_MCP_\$ x max (0, Adj_MW – PLO) x
SCD_Interval ÷ 3600 seconds

SCD_Reg_Penalty = SCD_U-Reg_Penalty + SCD_O-Reg_Penalty

Hourly Regulation & Frequency Response Service Penalty Charges

Inputs to Hourly Regulation & Frequency Response Service Penalty Charges

SCD_Reg_Penalty SCD interval Regulation Penalty Charge

Outputs from Hourly Regulation & Frequency Response Service Penalty Charges

Hr_Reg_Penalty_Charge: Hourly Integrated SCD interval Regulation Penalty Charge

Hourly Regulation & Frequency Response Service Penalty Charges

Hr_Reg_Penalty_Charge = Σ {SCD_Reg_Penalty}

Hourly Regulation & Frequency Response Service Penalty Charges Reported

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Regulation & Frequency Response Service

Hr_Regulation_Penalty_Charge Hourly Advisory Billing Statement – Billing Code 221

Daily Regulation & Frequency Response Service Penalty Charges

Inputs to Daily Regulation & Frequency Response Service Penalty Charges

Hr_Reg_Penalty_Charge Hourly Integrated SCD interval Regulation Penalty Charge

Outputs from Daily Regulation & Frequency Response Service Penalty Charges

Daily_Reg_Penalty_Charge Daily Regulation Penalty Charge

Daily Regulation & Frequency Response Service Penalty Charge Settlement calculation

Daily_Reg_Penalty_Charge = $\Sigma\{ \text{Hr_Reg_Penalty_Charge} \}$

Daily Regulation & Frequency Response Service Penalty Charge Settlement Reported

Daily_Regulation_Penalty_Charge Daily Advisory Billing Statement – Billing Code 309

Monthly Regulation & Frequency Response Service Penalty Charge

Inputs to Monthly Regulation & Frequency Response Service Penalty Charges

Daily_Reg_Penalty_Charge Daily Regulation Penalty Charge

Outputs from Monthly Regulation & Frequency Response Service Penalty Charges

Mth_Reg_Penalty_Charge Monthly roll-up of Daily Regulation Penalty Charges

Monthly Regulation & Frequency Response Service Penalty Charge Settlement calculation

Mth_Reg_Penalty_Charge = $\Sigma\{ \text{Daily_Reg_Penalty_Charge} \}$

Monthly Regulation & Frequency Response Service Penalty Charges Reported

Monthly_Regulation_Penalty_Charge Power Supplier Monthly Settlement Statement

Daily Regulation Service Availability Payment Settlement

Inputs to Daily Regulation Service Availability Payment Settlement

Hr_Reg_Avail_\$: Hourly Net Regulation Service Availability Payment

Outputs from Daily Regulation Service Availability Payment Settlement

Daily_Reg_Avail_\$: Daily Net Regulation Service Availability Payment Settlement

Daily Regulation Service Availability Payment Settlement Calculation

Daily_Reg_Avail_\$: $\Sigma\{ \text{Hr_Reg_Avail_\$} - \text{Hr_Replacement_Reg_Cost} \}$

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Daily Regulation Service Availability Payment Settlement Reported

Daily_Reg_Avail_\$ Daily Advisory Settlement Statement Billing Code 308

Monthly Regulation Service Availability Payment Settlement

Inputs to Monthly Regulation Service Availability Payment Settlement

Daily_Reg_Avail_\$: Daily Net Regulation Service Availability Payment

Outputs from Monthly Regulation Service Availability Payment Settlement

Monthly_Reg_Avail_\$: Monthly Net Regulation Service Availability Payment Settlement

Monthly Regulation Service Availability Payment Settlement Calculation

Monthly_Reg_Avail_\$ = Σ {Daily_Reg_Avail_\$}

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Voltage Support Service Cost Recovery

The NYISO recovers the annual cost of providing Voltage Support Service through an annual rate. The annual rate is established based upon forecasted NYISO transmission system withdrawals, the projected annual costs of providing Voltage Support Service, plus or minus any prior year cost recovery shortfalls or over-collections, respectively. The per megawatthour rate is computed externally to the Billing and Accounting System and entered as a fixed annual rate.

Fixed MWh Charge Rate

Rate Determinants

ISO_NYCA_LSE_MWh:	Forecasted annual NYISO-wide NYCA LSE MWh
ISO_LBMP_Export_MWh:	Forecasted annual NYISO-wide LBMP Energy Export MWh
ISO_Int_Trans_MWh:	Forecasted annual NYISO-wide Internal Transaction LSE MWh
ISO_Imp_Trans_MWh:	Forecasted annual NYISO-wide Import Transaction LSE MWh
ISO_Exp_Trans_MWh:	Forecasted annual NYISO-wide Export Transaction Transmission Customer MWh
ISO_WT_Trans_MWh:	Forecasted annual NYISO-wide Wheel Transaction Transmission Customer MWh
CY_VSS_\$:	Projected annual NYISO Voltage Support Service costs
PY_VSS_Bal_\$:	Prior year cost recovery shortfall/(over-collection)

Rate

VSS_Rate_\$: Voltage Support Service per MWh rate

Annual Rate Calculation

Ancillary_Services_MWh = ISO_NYCA_LSE_MWh + ISO_Int_Trans_MWh + ISO_Imp_Trans_MWh :

Export_MWh = ISO_LBMP_Export_MWh + ISO_Exp_Trans_MWh

$$VSS_Rate_ \$ = \{CY_VSS_ \$ + PY_VSS_ Bal_ \$\} \div \{ ISO_NYCA_LSE_MWh + ISO_Int_Trans_MWh + ISO_Imp_Trans_MWh + ISO_LBMP_Export_MWh + ISO_Exp_Trans_MWh + ISO_WT_Trans_MWh\}$$

Rate Reported

VSS_Rate_\$: Hourly advisory billing statement – Billing Code 605
Rate is also posted to the NYISO web site

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_NYCA_LSE_MWh:	Hourly NYCA LSE: DAM + RT MWh
Hr_TC_LBMP_Export_MWh:	Hourly LBMP Energy Export: DAM + RT MWh
Hr_TC_Int_MWh:	Hourly Internal Transaction LSE: DAM + RT MWh
Hr_TC_Imp_MWh:	Hourly Import Transaction LSE: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Export Transaction Transmission Customer: DAM + RT MWh
Hr_TC_WT_MWh:	Hourly Wheel Transaction Transmission Customer: DAM + RT MWh
VSS_Rate_\$:	Voltage Support Service per MWh rate

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Export Transmission Customer MWh withdrawal

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Voltage Support Service Cost Recovery

Hr_VSS_Charge_\$: Hourly Voltage Support Service charge

Hourly Settlement

Hr_Ancillary_Services_MWh = Hr_TC_NYCA_LSE_MWh + Hr_TC_Int_Trans_MWh + Hr_TC_Imp_Trans_MWh

Hr_Export_MWh = Hr_TC_LBMP_Export_MWh + Hr_TC_Exp_Trans_MWh

Hr_VSS_Charge_\$ = VSS_Rate_\$ x { Hr_Ancillary_Services_MWh + Hr_Export_MWh + Hr_TC_WT_MWh }

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Hourly Advisory Statement Billing Code 600
Hr_Export_MWh	Hourly Advisory Statement Billing Code 601
Hr_TC_WT_MWh	Hourly Advisory Statement Billing Code 602
Hr_VSS_Charge_\$:	Hourly Advisory Statement Billing Code 606

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Export Transmission Customer MWh withdrawal
Hr_TC_WT_MWh:	Hourly Wheel Transaction Transmission Customer MWh withdrawal
Hr_VSS_Charge_\$:	Hourly Voltage Support Service charge

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Export Transmission Customer MWh withdrawal
Daily_TC_WT_MWh:	Daily Wheel Transaction Transmission Customer MWh withdrawal
Daily_VSS_Charge_\$:	Daily Voltage Support Service charge

Daily Settlement

Daily_Ancillary_Services_MWh = \sum { Hr_Ancillary_Services_MWh }

Daily_Export_MWh = \sum { Hr_Export_MWh }

Daily_TC_WT_MWh = \sum { Hr_TC_WT_MWh }

Daily_VSS_Charge_\$ = \sum { Hr_VSS_Charge_\$ }

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_TC_WT_MWh	Daily Advisory Statement Billing Code 802
Daily_VSS_Charge_\$:	Daily Advisory Statement Billing Code 804

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Voltage Support Service Cost Recovery

Monthly Settlement

Monthly Settlement Inputs

Daily_VSS_Charge_\$: Daily Voltage Support Service charge

Monthly Settlement Outputs

Mth_VSS_Charge_\$: Monthly Voltage Support Service charge

Monthly Settlement

$Mth_VSS_Charge_\$ = \sum\{ Daily_VSS_Charge_\$ \}$

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DAM Margin Assurance Cost Recovery

The NYISO's DAM Margin Assurance costs are recovered from Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer Export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_\$} = \text{Hr_DA_Energy_Residual_\$} + \text{Hr_DA_Loss_Residual_\$} + \text{Hr_RT_Energy_Residual_\$} + \text{Hr_RT_Losses_Residual_\$} + \text{Hr_RT_Congestion_Residual_\$} + \text{Hr_DAM_Contract_Balancing_\$} + \text{Hr_Emergency_Sales_Revenue_\$} - \text{Hr_Emergency_Purchases_Costs_\$}$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\text{Hr_Residual_Balancing_\$} = \text{Hr_Residual_\$} \times \left\{ \frac{\text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh}}{\text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh}} \right\}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\$	Daily Advisory Statement Billing Code 611

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DAM Margin Assurance Cost Recovery
Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_	Daily residual balancing

Daily Settlement

Daily_Ancillary_Services_MWh = $\sum\{ \text{Hr_Ancillary_Services_MWh} \}$

Daily_Export_MWh = $\sum\{ \text{Hr_Export_MWh} \}$

Daily_Wheel_MWh = $\sum\{ \text{Hr_Wheel_MWh} \}$

Daily_Residual_Balancing_ = $\sum\{ \text{Hr_Residual_Balancing_} \}$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802
Daily_Residual_Balancing_	Daily Advisory Statement Billing Code 813

Monthly Settlement

Monthly Settlement Inputs

Daily_Residual_Balancing_	Daily residual balancing
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Monthly Settlement Outputs

Monthly_Residual_Balancing_	Monthly residual balancing
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Monthly Settlement

Monthly_Residual_Balancing_ = $\sum\{ \text{Daily_Residual_Balancing_} \}$

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Balancing Congestion Residual

The NYISO's Balancing Congestion revenue/expenditures received/paid from/to LSE's for Balancing LBMP Congestion may not equal the NYISO's expenditures/revenue from Balancing LBMP Congestion for supply. Any residual over-/under-collections are balanced with the Transmission Customers. Balancing Congestion Residual over-/under-collections are balanced with the Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_RT_LBMP_Imp_Congestion_\$:	Hourly Total NYISO Balancing LBMP import energy - congestion settlement [Billing Code 519]
Hr_RT_LBMP_Exp_Congestion_\$:	Hourly Total NYISO Balancing LBMP export energy - congestion settlement [Billing Code 519]
Hr_RT_Rep_Congestion_\$:	Hourly NYISO Balancing LBMP replacement congestion for curtailed imports [Billing Code 519]
Hr_RT_Int_Congestion_\$:	Hourly Total NYISO internal transaction – balancing Congestion TUC [Billing Code 507]
Hr_RT_Imp_Congestion_\$:	Hourly Total NYISO import transaction – balancing Congestion TUC [Billing Code 507]
Hr_RT_Exp_Congestion_\$:	Hourly Total NYISO export transaction – balancing Congestion TUC [Billing Code 507]
Hr_RT_WT_Congestion_\$:	Hourly Total NYISO wheel transaction – balancing Congestion TUC [Billing Code 507]
Hr_RT_NYCA_LSE_Congestion_\$:	Hourly Total NYISO Balancing NYCA LSE Congestion settlement [Billing Code 411]
Hr_RT_NYCA_Sup_Congestion_\$:	Hourly Total NYISO Balancing NYCA Supplier Congestion settlement
Hr_RT_VL_Congestion_\$:	Hourly Total NYISO Balancing Virtual Load Congestion settlement
Hr_RT_VS_Congestion_\$:	Hourly Total NYISO Balancing Virtual Supplier Congestion settlement
Hr_DA_Energy_Residual_\$:	Hourly Total NYISO DAM Energy Residual per MSR-0034
Hr_RT_Energy_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0035
Hr_DA_Loss_Residual_\$:	Hourly Total NYISO DAM Losses Residual per MSR-0036
Hr_RT_Losses_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0037
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing Costs
Hr_Emergency_Sales_Revenue_\$:	Hourly Total NYISO Emergency Energy Sales revenue
Hr_Emergency_Purchases_Cost_\$:	Hourly Total NYISO Emergency Energy Purchases costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer Export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_} \$ = \{ \text{Hr_RT_Int_Congestion_} \$ + \text{Hr_RT_Exp_Congestion_} \$ + \text{Hr_RT_Imp_Congestion_} \$ + \text{Hr_RT_WT_Congestion_} \$ + \text{Hr_RT_LBMP_Exp_Congestion_} \$ + \text{Hr_RT_Rep_Congestion_} \$ + \text{Hr_RT_NYCA_LSE_Congestion_} \$ + \text{Hr_RT_VL_Congestion_} \$ -$$

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Balancing Congestion Residual

$$\begin{aligned} & \text{Hr_RT_LBMP_Imp_Congestion_\$} - \text{Hr_RT_NYCA_Sup_Congestion_\$} - \text{Hr_RT_VS_Congestion_\$} + \text{Hr_DA_Energy_Residual_\$} + \\ & \text{Hr_DA_Loss_Residual_\$} + \text{Hr_RT_Energy_Residual_\$} + \text{Hr_RT_Losses_Residual_\$} + \text{Hr_DAM_Contract_Balancing_\$} + \\ & \text{Hr_Emergency_Sales_Revenue_\$} - \text{Hr_Emergency_Purchases_Costs_\$} \end{aligned}$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\begin{aligned} \text{Hr_Residual_Balancing_\$} = \text{Hr_Residual_\$} \times \{ & \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh} \} \div \\ & \{ \text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \\ & \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh} \} \end{aligned}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\\$	Daily Advisory Statement Billing Code 611

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_\\$	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_\\$:	Daily residual balancing

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{\text{Hr_Ancillary_Services_MWh}\}$$

$$\text{Daily_Export_MWh} = \sum\{\text{Hr_Export_MWh}\}$$

$$\text{Daily_Wheel_MWh} = \sum\{\text{Hr_Wheel_MWh}\}$$

$$\text{Daily_Residual_Balancing_\$} = \sum\{\text{Hr_Residual_Balancing_\$}\}$$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802

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Balancing Congestion Residual

Daily_Residual_Balancing_

Daily Advisory Statement Billing Code 813

Monthly Settlement

Monthly Settlement Inputs

Daily_Residual_Balancing_:

Daily residual balancing

Monthly Settlement Outputs

Monthly_Residual_Balancing_:

Monthly residual balancing

Monthly Settlement

Monthly_Residual_Balancing_\$ = $\sum\{ \text{Daily_Residual_Balancing_} \}$

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MSR-0037
Balancing Losses Residual

The NYISO's Balancing Losses revenue/expenditures received/paid from/to LSE's for Balancing LBMP Losses may not equal the NYISO's expenditures/revenue from Balancing LBMP Losses for supply. Any residual over-/under-collections are balanced with the Transmission Customers. Balancing Losses Residual over-/under-collections are balanced with the Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_RT_LBMP_Imp_Losses_\$:	Hourly Total NYISO Balancing LBMP import energy - Losses settlement [Billing Code 518]
Hr_RT_LBMP_Exp_Losses_\$:	Hourly Total NYISO Balancing LBMP export energy - Losses settlement [Billing Code 518]
Hr_RT_Rep_Losses_\$:	Hrly Tot. NYISO Balancing LBMP replacement Losses for curtailed imports [Billing Code 518]
Hr_RT_Int_Losses_\$:	Hourly Total NYISO internal transaction – balancing Losses TUC [Billing Code 506]
Hr_RT_Imp_Losses_\$:	Hourly Total NYISO import transaction – balancing Losses TUC [Billing Code 506]
Hr_RT_Exp_Losses_\$:	Hourly Total NYISO export transaction – balancing Losses TUC [Billing Code 506]
Hr_RT_WT_Losses_\$:	Hourly Total NYISO wheel transaction – balancing Losses TUC [Billing Code 506]
Hr_RT_NYCA_LSE_Losses_\$:	Hourly Total NYISO Balancing NYCA LSE Losses settlement [Billing Code 410]
Hr_RT_NYCA_Sup_Losses_\$:	Hourly Total NYISO Balancing NYCA Supplier Losses settlement
Hr_RT_VL_Losses_\$:	Hourly Total NYISO Balancing Virtual Load Losses settlement
Hr_RT_VS_Losses_\$:	Hourly Total NYISO Balancing Virtual Supplier Losses settlement
Hr_DA_Energy_Residual_\$:	Hourly Total NYISO DAM Energy Residual per MSR-0034
Hr_RT_Energy_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0035
Hr_DA_Loss_Residual_\$:	Hourly Total NYISO DAM Losses Residual per MSR-0036
Hr_RT_Congestion_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0038
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing costs
Hr_Emergency_Sales_Revenue_\$:	Hourly Total NYISO Emergency Energy Sales Revenue
Hr_Emergency_Purchases_Costs_\$:	Hourly Total NYISO Emergency Energy Purchases costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer Export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_} \$ = \{ \text{Hr_RT_Int_Losses_} \$ + \text{Hr_RT_Exp_Losses_} \$ + \text{Hr_RT_Imp_Losses_} \$ + \text{Hr_RT_WT_Losses_} \$ + \text{Hr_RT_LBMP_Exp_Losses_} \$ + \text{Hr_RT_Rep_Losses_} \$ + \text{Hr_RT_NYCA_LSE_Losses_} \$ + \text{Hr_RT_VL_Losses_} \$ -$$

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MSR-0037

Balancing Losses Residual

$$\text{Hr_RT_LBMP_Imp_Losses_} \$ - \text{Hr_RT_NYCA_Sup_Losses_} \$ - \text{Hr_RT_VS_Losses_} \$ + \text{Hr_DA_Energy_Residual_} \$ + \text{Hr_DA_Loss_Residual_} \$ + \text{Hr_RT_Energy_Residual_} \$ + \text{Hr_RT_Congestion_Residual_} \$ + \text{Hr_DAM_Contract_Balancing_} \$ + \text{Hr_Emergency_Sales_Revenue_} \$ - \text{Hr_Emergency_Purchases_Costs_} \$$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\text{Hr_Residual_Balancing_} \$ = \text{Hr_Residual_} \$ \times \{ \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh} \} \div \{ \text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh} \}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\$	Daily Advisory Statement Billing Code 611

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_\$:	Daily residual balancing

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{ \text{Hr_Ancillary_Services_MWh} \}$$

$$\text{Daily_Export_MWh} = \sum\{ \text{Hr_Export_MWh} \}$$

$$\text{Daily_Wheel_MWh} = \sum\{ \text{Hr_Wheel_MWh} \}$$

$$\text{Daily_Residual_Balancing_} \$ = \sum\{ \text{Hr_Residual_Balancing_} \$ \}$$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802

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MSR-0037

Balancing Losses Residual

Daily_Residual_Balancing_

Daily Advisory Statement Billing Code 813

Monthly Settlement

Monthly Settlement Inputs

Daily_Residual_Balancing_:

Daily residual balancing

Monthly Settlement Outputs

Monthly_Residual_Balancing_:

Monthly residual balancing

Monthly Settlement

Monthly_Residual_Balancing_\$ = $\sum\{ \text{Daily_Residual_Balancing_} \}$

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MSR-0036
DAM Losses Residual

The NYISO's DAM Losses revenue/expenditures received/paid from/to LSE's for DAM LBMP Losses may not equal the NYISO's expenditures/revenue from DAM LBMP Losses for supply. Any residual over-/under-collections are balanced with the Transmission Customers. DAM Losses Residual over-/under-collections are balanced with the Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_DA_LBMP_Imp_Losses_\$:	Hourly Total NYISO DAM LBMP import energy - Losses settlement [Billing Code 513]
Hr_DA_LBMP_Exp_Losses_\$:	Hourly Total NYISO DAM LBMP export energy - Losses settlement [Billing Code 513]
Hr_DA_Rep_Losses_\$:	Hrly Tot. NYISO DAM LBMP replacement Losses for curtailed imports [Billing Code 513]
Hr_DA_Int_Losses_\$:	Hourly Total NYISO internal transaction – DAM Losses TUC [Billing Code 502]
Hr_DA_Imp_Losses_\$:	Hourly Total NYISO import transaction – DAM Losses TUC [Billing Code 502]
Hr_DA_Exp_Losses_\$:	Hourly Total NYISO export transaction – DAM Losses TUC [Billing Code 502]
Hr_DA_WT_Losses_\$:	Hourly Total NYISO wheel transaction – DAM Losses TUC [Billing Code 502]
Hr_DA_NYCA_LSE_Losses_\$:	Hourly Total NYISO DAM NYCA LSE Losses settlement [Billing Code 410]
Hr_DA_NYCA_Sup_Losses_\$:	Hourly Total NYISO DAM NYCA Supplier Losses settlement
Hr_DA_VL_Losses_\$:	Hourly Total NYISO DAM Virtual Load Losses settlement
Hr_DA_VS_Losses_\$:	Hourly Total NYISO DAM Virtual Supplier Losses settlement
Hr_DA_Energy_Residual_\$:	Hourly Total NYISO DAM Energy Residual per MSR-0034
Hr_RT_Energy_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0035
Hr_RT_Loss_Residual_\$:	Hourly Total NYISO DAM Losses Residual per MSR-0037
Hr_RT_Congestion_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0038
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing costs
Hr_Emergency_Sales_Revenue_\$:	Hourly Total NYISO Emergency Energy Sales Revenue
Hr_Emergency_Purchases_Costs_\$:	Hourly Total NYISO Emergency Energy Purchases costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer Export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_} \$ = \{ \text{Hr_DA_Int_Losses_} \$ + \text{Hr_DA_Exp_Losses_} \$ + \text{Hr_DA_Imp_Losses_} \$ + \text{Hr_DA_WT_Losses_} \$ + \text{Hr_DA_LBMP_Exp_Losses_} \$ + \text{Hr_DA_Rep_Losses_} \$ + \text{Hr_DA_NYCA_LSE_Losses_} \$ + \text{Hr_DA_VL_Losses_} \$ -$$

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MSR-0036
DAM Losses Residual

$$\text{Hr_DA_LBMP_Imp_Losses_} \$ - \text{Hr_DA_NYCA_Sup_Losses_} \$ - \text{Hr_DA_VS_Losses_} \$ + \text{Hr_DA_Energy_Residual_} \$ + \\ \text{Hr_RT_Loss_Residual_} \$ + \text{Hr_RT_Energy_Residual_} \$ + \text{Hr_RT_Congestion_Residual_} \$ + \text{Hr_DAM_Contract_Balancing_} \$ + \\ \text{Hr_Emergency_Sales_Revenue_} \$ - \text{Hr_Emergency_Purchases_Costs_} \$$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\text{Hr_Residual_Balancing_} \$ = \text{Hr_Residual_} \$ \times \{ \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh} \} \div \\ \{ \text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \\ \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh} \}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\$	Daily Advisory Statement Billing Code 611

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_\$:	Daily residual balancing

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{ \text{Hr_Ancillary_Services_MWh} \}$$

$$\text{Daily_Export_MWh} = \sum\{ \text{Hr_Export_MWh} \}$$

$$\text{Daily_Wheel_MWh} = \sum\{ \text{Hr_Wheel_MWh} \}$$

$$\text{Daily_Residual_Balancing_} \$ = \sum\{ \text{Hr_Residual_Balancing_} \$ \}$$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802

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MSR-0036

DAM Losses Residual

Daily_Residual_Balancing_

Daily Advisory Statement Billing Code 813

Monthly Settlement

Monthly Settlement Inputs

Daily_Residual_Balancing_:

Daily residual balancing

Monthly Settlement Outputs

Monthly_Residual_Balancing_:

Monthly residual balancing

Monthly Settlement

Monthly_Residual_Balancing_\$ = $\sum\{ \text{Daily_Residual_Balancing_} \}$

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MSR-0035
Balancing Energy Residual

The NYISO's Balancing energy revenue/expenditures received/paid from/to LSE's for Balancing LBMP energy may not equal the NYISO's expenditures/revenue for Balancing LBMP energy supply. Any residual over-/under-collections are balanced with the Transmission Customers. Balancing Energy Residual over-/under-collections are balanced with the Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_RT_LBMP_Imp_Energy_\$:	Hourly Total NYISO Balancing LBMP import energy - energy settlement [Billing Code 517]
Hr_RT_LBMP_Exp_Energy_\$:	Hourly Total NYISO Balancing LBMP export energy - energy settlement [Billing Code 517]
Hr_RT_Rep_Energy_\$:	Hrly Total NYISO Balancing LBMP replacement energy for curtailed imports [Billing Code 517]
Hr_RT_NYCA_LSE_Energy_\$:	Hourly Total NYISO Balancing NYCA LSE energy settlement [Billing Code 409]
Hr_RT_NYCA_Sup_Energy_\$:	Hourly Total NYISO Balancing NYCA Supplier energy settlement
Hr_RT_VL_Energy_\$:	Hourly Total NYISO Balancing Virtual Load energy settlement
Hr_RT_VS_Energy_\$:	Hourly Total NYISO Balancing Virtual Supplier energy settlement
Hr_DA_Energy_Residual_\$:	Hourly Total NYISO DAM Energy Residual per MSR-0034
Hr_DA_Loss_Residual_\$:	Hourly Total NYISO DAM Losses Residual per MSR-0036
Hr_RT_Loss_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0037
Hr_RT_Congestion_Residual_\$:	Hourly Total NYISO DAM Balancing Congestion Residual per MSR-0038
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing costs
Hr_Emergency_Sales_Revenue_\$:	Hourly Total NYISO Emergency Energy Sales Revenue
Hr_Emergency_Purchases_Costs_\$:	Hourly Total NYISO Emergency Energy Purchases Costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_\$} = \{ \text{Hr_RT_LBMP_Exp_Energy_\$} + \text{Hr_RT_Rep_Energy_\$} + \text{Hr_RT_NYCA_LSE_Energy_\$} + \text{Hr_RT_VL_Energy_\$} - \text{Hr_RT_LBMP_Imp_Energy_\$} - \text{Hr_RT_NYCA_Sup_Energy_\$} - \text{Hr_RT_VS_Energy_\$} \} + \text{Hr_DA_Energy_Residual_\$} + \text{Hr_DA_Loss_Residual_\$} + \text{Hr_RT_Loss_Residual_\$} + \text{Hr_RT_Congestion_Residual_\$} + \text{Hr_DAM_Contract_Balancing_\$} + \text{Hr_Emergency_Sales_Revenue_\$} - \text{Hr_Emergency_Purchases_Costs_\$}$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

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MSR-0035
Balancing Energy Residual

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\text{Hr_Residual_Balancing_\$} = \text{Hr_Residual_\$} \times \{ \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh} \} \div \{ \text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh} \}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\\$	Daily Advisory Statement Billing Code 611

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_\\$	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_\\$:	Daily residual balancing

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{ \text{Hr_Ancillary_Services_MWh} \}$$

$$\text{Daily_Export_MWh} = \sum\{ \text{Hr_Export_MWh} \}$$

$$\text{Daily_Wheel_MWh} = \sum\{ \text{Hr_Wheel_MWh} \}$$

$$\text{Daily_Residual_Balancing_\$} = \sum\{ \text{Hr_Residual_Balancing_\$} \}$$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802
Daily_Residual_Balancing_\\$	Daily Advisory Statement Billing Code 813

Monthly Settlement

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MSR-0035
Balancing Energy Residual
Monthly Settlement Inputs

Daily_Residual_Balancing_\$: Daily residual balancing

Monthly Settlement Outputs

Monthly_Residual_Balancing_\$: Monthly residual balancing

Monthly Settlement

Monthly_Residual_Balancing_\$ = $\sum\{ \text{Daily_Residual_Balancing_} \$ \}$

DRAFT
MSR-0034
DAM Energy Residual

The NYISO's DAM energy revenue/expenditures received/paid from/to LSE's for DAM LBMP energy may not equal the NYISO's expenditures/revenue for DAM LBMP energy supply. Any residual over-/under-collections are balanced with the Transmission Customers. DAM Energy Residual over-/under-collections are balanced with the Transmission Customers per their respective ratio share of transmission service scheduled.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_LBMP_Exp_MWh:	Hourly Transmission Customer LBMP export energy: DAM + RT MWh
Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_TC_Exp_MWh:	Hourly Transmission Customer Export Transaction: DAM + RT MWh
Hr_TC_WT_Trans_MWh:	Hourly Transmission Customer Wheel Transaction: DAM + RT MWh
Hr_LBMP_Exp_MWh:	Hourly Total NYISO LBMP export energy: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_Exp_MWh:	Hourly Total NYISO Export Transaction: DAM + RT MWh
Hr_WT_Trans_MWh:	Hourly Total NYISO Wheel Transaction: DAM + RT MWh
Hr_DA_LBMP_Imp_Energy_\$:	Hourly Total NYISO DAM LBMP import energy - energy settlement [Billing Code 512]
Hr_DA_LBMP_Exp_Energy_\$:	Hourly Total NYISO DAM LBMP export energy - energy settlement [Billing Code 512]
Hr_DA_Rep_Energy_\$:	Hrly Total NYISO DAM LBMP replacement energy for curtailed imports [Billing Code 512]
Hr_DA_NYCA_LSE_Energy_\$:	Hourly Total NYISO DAM NYCA LSE energy settlement [Billing Code 404]
Hr_DA_NYCA_Sup_Energy_\$:	Hourly Total NYISO DAM NYCA Supplier energy settlement
Hr_DA_VL_Energy_\$:	Hourly Total NYISO DAM Virtual Load energy settlement
Hr_DA_VS_Energy_\$:	Hourly Total NYISO DAM Virtual Supplier energy settlement
Hr_RT_Energy_Residual_\$:	Hourly Total NYISO Balancing Energy Residual per MSR-0035
Hr_DA_Loss_Residual_\$:	Hourly Total NYISO DAM Losses Residual per MSR-0036
Hr_RT_Loss_Residual_\$:	Hourly Total NYISO Balancing Losses Residual per MSR-0037
Hr_RT_Congestion_Residual_\$:	Hourly Total NYISO DAM Balancing Congestion Residual per MSR-0038
Hr_DAM_Contract_Balancing_\$:	Hourly Total NYISO DAM Contract Balancing costs
Hr_Emergency_Sales_Revenue_\$:	Hourly Total NYISO Emergency Energy Sales Revenue
Hr_Emergency_Purchases_Costs_\$:	Hourly Total NYISO Emergency Energy Purchases Costs

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_\$	Hourly NYISO-wide market residual
Hr_Residual_Balancing_\$	Hourly Transmission Customer residual balancing

Hourly Settlement

$$\text{Hr_Residual_} \$ = \{ \text{Hr_DA_LBMP_Exp_Energy_} \$ + \text{Hr_DA_Rep_Energy_} \$ + \text{Hr_DA_NYCA_LSE_Energy_} \$ + \text{Hr_DA_VL_Energy_} \$ - \text{Hr_DA_LBMP_Imp_Energy_} \$ - \text{Hr_DA_NYCA_Sup_Energy_} \$ - \text{Hr_DA_VS_Energy_} \$ \} + \text{Hr_RT_Energy_Residual_} \$ + \text{Hr_DA_Loss_Residual_} \$ + \text{Hr_RT_Loss_Residual_} \$ + \text{Hr_RT_Congestion_Residual_} \$ + \text{Hr_DAM_Contract_Balancing_} \$ + \text{Hr_Emergency_Sales_Revenue_} \$ - \text{Hr_Emergency_Purchases_Costs_} \$$$

$$\text{Hr_Ancillary_Services_MWh} = \text{Hr_TC_NYCA_LSE_MWh} + \text{Hr_TC_Int_Trans_MWh} + \text{Hr_TC_Imp_Trans_MWh}$$

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DAM Energy Residual

$$\text{Hr_Export_MWh} = \text{Hr_TC_LBMP_Exp_MWh} + \text{Hr_TC_Exp_Trans_MWh}$$

$$\text{Hr_Wheel_MWh} = \text{Hr_TC_WT_Trans_MWh}$$

$$\text{Hr_Residual_Balancing_\$} = \text{Hr_Residual_\$} \times \{ \text{Hr_Ancillary_Services_MWh} + \text{Hr_Export_MWh} + \text{Hr_Wheel_MWh} \} \div \\ \{ \text{Hr_LBMP_Exp_MWh} + \text{Hr_NYCA_LSE_MWh} + \text{Hr_Int_Trans_MWh} + \text{Hr_Imp_Trans_MWh} + \\ \text{Hr_Exp_Trans_MWh} + \text{Hr_WT_Trans_MWh} \}$$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 600
Hr_Export_MWh	Daily Advisory Statement Billing Code 601
Hr_Wheel_MWh	Daily Advisory Statement Billing Code 602
Hr_Residual_Balancing_\\$	Daily Advisory Statement Billing Code 611

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_Export_MWh	Hourly Transmission Customer export MWh withdrawal
Hr_Wheel_MWh	Hourly Transmission Customer Wheeled MWh withdrawal
Hr_Residual_Balancing_\\$	Hourly Transmission Customer residual balancing

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_Export_MWh	Daily Transmission Customer export MWh withdrawal
Daily_Wheel_MWh	Daily Transmission Customer Wheeled MWh withdrawal
Daily_Residual_Balancing_\\$:	Daily residual balancing

Daily Settlement

$$\text{Daily_Ancillary_Services_MWh} = \sum\{ \text{Hr_Ancillary_Services_MWh} \}$$

$$\text{Daily_Export_MWh} = \sum\{ \text{Hr_Export_MWh} \}$$

$$\text{Daily_Wheel_MWh} = \sum\{ \text{Hr_Wheel_MWh} \}$$

$$\text{Daily_Residual_Balancing_\$} = \sum\{ \text{Hr_Residual_Balancing_\$} \}$$

Daily Settlement Reported

Daily_Ancillary_Services_MWh	Daily Advisory Statement Billing Code 800
Daily_Export_MWh	Daily Advisory Statement Billing Code 801
Daily_Wheel_MWh	Daily Advisory Statement Billing Code 802
Daily_Residual_Balancing_\\$	Daily Advisory Statement Billing Code 813

Monthly Settlement

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DAM Energy Residual
Monthly Settlement Inputs

Daily_Residual_Balancing_\$: Daily residual balancing

Monthly Settlement Outputs

Monthly_Residual_Balancing_\$: Monthly residual balancing

Monthly Settlement

Monthly_Residual_Balancing_\$ = $\sum\{ \text{Daily_Residual_Balancing_}\$ \}$

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DAM Congestion Balancing

DAM congestion residuals result from differences between the TCC capacity auctioned to contract holders and the congestion actually experienced through the DAM. Revenue from LBMP congestion costs charged for energy purchased in the DAM by LSEs and transmission usage charge congestion revenue from transmission service scheduled in the DAM are netted against LBMP congestion costs incurred for energy supply scheduled in the DAM and TCC Rent expenditures. Any residual over-/under-collections are balanced by the Transmission Owners. DAM Congestion over-/under-collections are balanced with the Transmission Owners per their respective megawatt-mile coefficients.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_LBMP_Imp_Congestion_\$:	Hourly Total NYISO DAM LBMP import energy - congestion settlement [Billing Code 514]
Hr_DA_LBMP_Exp_Congestion_\$:	Hourly Total NYISO DAM LBMP export energy - congestion settlement [Billing Code 514]
Hr_DA_Rep_Congestion_\$:	Hourly Total NYISO DAM LBMP replacement energy for curtailed imports [Billing Code 514]
Hr_DA_NYCA_LSE_Congestion_\$:	Hourly Total NYISO DAM NYCA LSE congestion settlement [Billing Code 405]
Hr_DA_NYCA_Sup_Congestion_\$:	Hourly Total NYISO DAM NYCA Supplier congestion settlement
Hr_DA_VL_Congestion_\$:	Hourly Total NYISO DAM Virtual Load congestion settlement
Hr_DA_VS_Congestion_\$:	Hourly Total NYISO DAM Virtual Supplier congestion settlement
Hr_DA_Int_Trans_Congestion_\$:	Hourly Total NYISO DAM Internal Transaction congestion settlement [Billing Code 503]
Hr_DA_Imp_Trans_Congestion_\$:	Hourly Total NYISO DAM ImportTransaction congestion settlement [Billing Code 503]
Hr_DA_Exp_Trans_Congestion_\$:	Hourly Total NYISO DAM Export Transaction congestion settlement [Billing Code 503]
Hr_DA_WT_Trans_Congestion_\$:	Hourly Total NYISO DAM Wheel Transaction congestion settlement [Billing Code 503]
Hr_TCC_Rent_\$:	Hourly Total NYISO DAM Wheel Transaction congestion settlement [Billing Code 901]

Hourly Settlement Outputs

Hr_DA_Congestion_Balancing_\$	Hourly Total NYISO DAM congestion balancing
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Hourly Settlement

$$\text{Hr_DA_Congestion_Balancing_}\$ = \text{Hr_DA_LBMP_Exp_Congestion_}\$ + \text{Hr_DA_Rep_Congestion_}\$ + \text{Hr_DA_NYCA_LSE_Congestion_}\$ + \text{Hr_DA_VL_Congestion_}\$ + \text{Hr_DA_Int_Trans_Congestion_}\$ + \text{Hr_DA_Imp_Trans_Congestion_}\$ + \text{Hr_DA_Exp_Trans_Congestion_}\$ + \text{Hr_DA_WT_Trans_Congestion_}\$ - \text{Hr_DA_LBMP_Imp_Congestion_}\$ - \text{Hr_DA_NYCA_Sup_Congestion_}\$ - \text{Hr_DA_VS_Congestion_}\$ - \text{Hr_TCC_Rent_}\$$$

Daily Settlement

Daily Settlement Inputs

Hr_DA_Congestion_Balancing_\$	Hourly Total NYISO DAM congestion balancing
CE_MWMC	Consolidated Edison of NY Megawatt-mile coefficient
CH_MWMC	Central Hudson Electric & Gas Megawatt-mile coefficient
LI_MWMC	Long Island Power Authority Megawatt-mile coefficient
NI_MWMC	Niagara Mohawk Megawatt-mile coefficient
OR_MWMC	Orange & Rockland Megawatt-mile coefficient
NY_MWMC	New York State Electric & Gas Megawatt-mile coefficient
PA_MWMC	Power Authority of New York Megawatt-mile coefficient
RG_MWMC	Rochester Gas & Electric Megawatt-mile coefficient

Daily Settlement Output

CE_Daily_DA_Congestion_Balancing_\$	Consolidated Edison of NY DAM congestion balancing
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DAM Congestion Balancing

CH_Daily_DA_Congestion_Balancing_	Central Hudson Electric & Gas DAM congestion balancing
LI_Daily_DA_Congestion_Balancing_	Long Island Power Authority DAM congestion balancing
NI_Daily_DA_Congestion_Balancing_	Niagara Mohawk DAM congestion balancing
OR_Daily_DA_Congestion_Balancing_	Orange & Rockland DAM congestion balancing
NY_Daily_DA_Congestion_Balancing_	New York State Electric & Gas DAM congestion balancing
PA_Daily_DA_Congestion_Balancing_	Power Authority of New York DAM congestion balancing
RG_Daily_DA_Congestion_Balancing_	Rochester Gas & Electric DAM congestion balancing

Daily Settlement

$$CE_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times CE_MWMC$$

$$CH_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times CH_MWMC$$

$$LI_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times LI_MWMC$$

$$NI_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times NI_MWMC$$

$$OR_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times OR_MWMC$$

$$NY_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times NY_MWMC$$

$$PA_Daily_DA_LBMP_Exp_MWh = \sum\{Hr_DA_Congestion_Balancing_ \$\} \times PA_MWMC$$

$$RG_Daily_DA_LBMP_Exp_MWh = \sum\{Daily_DA_Congestion_Balancing_ \$\} \times RG_MWMC$$

Daily Settlement Reported

..._MWMC	Respective Transmission Owner Daily Advisory Statement Billing Code 1013
..._Daily_DA_Congestion_Balancing	Respective Transmission Owner Daily Advisory Statement Billing Code 1014

Monthly Settlement

Monthly Settlement Inputs

CE_Daily_DA_Congestion_Balancing	Consolidated Edison of NY DAM congestion balancing
CH_Daily_DA_Congestion_Balancing	Central Hudson Electric & Gas DAM congestion balancing
LI_Daily_DA_Congestion_Balancing	Long Island Power Authority DAM congestion balancing
NI_Daily_DA_Congestion_Balancing	Niagara Mohawk DAM congestion balancing
OR_Daily_DA_Congestion_Balancing	Orange & Rockland DAM congestion balancing
NY_Daily_DA_Congestion_Balancing	New York State Electric & Gas DAM congestion balancing
PA_Daily_DA_Congestion_Balancing	Power Authority of New York DAM congestion balancing
RG_Daily_DA_Congestion_Balancing	Rochester Gas & Electric DAM congestion balancing

Monthly Settlement Outputs

CE_Monthly_DA_Congestion_Balancing_	Consolidated Edison of NY DAM congestion balancing
CH_Monthly_DA_Congestion_Balancing_	Central Hudson Electric & Gas DAM congestion balancing
LI_Monthly_DA_Congestion_Balancing_	Long Island Power Authority DAM congestion balancing
NI_Monthly_DA_Congestion_Balancing_	Niagara Mohawk DAM congestion balancing

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DAM Congestion Balancing

OR_Monthly_DA_Congestion_Balancing_ \$	Orange & Rockland DAM congestion balancing
NY_Monthly_DA_Congestion_Balancing_ \$	New York State Electric & Gas DAM congestion balancing
PA_Monthly_DA_Congestion_Balancing_ \$	Power Authority of New York DAM congestion balancing
RG_Monthly_DA_Congestion_Balancing_ \$	Rochester Gas & Electric DAM congestion balancing

Monthly Settlement

$$CE_Monthly_DA_LBMP_Exp_MWh = \sum\{ CE_Daily_DA_LBMP_Exp_MWh \}$$

$$CH_Monthly_DA_LBMP_Exp_MWh = \sum\{ CH_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$LI_Monthly_DA_LBMP_Exp_MWh = \sum\{ LI_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$NI_Monthly_DA_LBMP_Exp_MWh = \sum\{ NI_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$OR_Monthly_DA_LBMP_Exp_MWh = \sum\{ OR_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$NY_Monthly_DA_LBMP_Exp_MWh = \sum\{ NY_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$PA_Monthly_DA_LBMP_Exp_MWh = \sum\{ PA_Daily_DAM_Congestion_Balancing_ \$ \}$$

$$RG_Monthly_DA_LBMP_Exp_MWh = \sum\{ RG_Daily_DAM_Congestion_Balancing_ \$ \}$$

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MSR-0028
Transmission Congestion Contract Rent

Transmission Congestion Contract [TCC] Rent is settled at day-ahead LBMP congestion costs. TCCs are financial instruments that may be used to hedge against DAM congestion or purely as an investment subject to the occurrence of transmission congestion over a specified contract path.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_POI_Price_of_Congestion: Hourly DAM LBMP congestion component of the Point of Injection of the TCC
Hr_DA_POW_Price_of_Congestion: Hourly DAM LBMP congestion component of the Point of Withdrawal of the TCC
TCC #: TCC identification number
TCC_MW: TCC megawatt capacity

Hourly Settlement Outputs

TCC #: TCC identification number
Hr_TCC_Rent_\$: Hourly DAM Transmission Congestion Contract Rent settlement

Hourly Settlement

$Hr_TCC_Rent_\$ = TCC_MW \times \{-1 \times (Hr_DA_POW_Price_of_Congestion - Hr_DA_POI_Price_of_Congestion)\}$

Hourly Settlement Reported

TCC #: Hourly Advisory Statement Billing Code: 900
Hr_TCC_Rent_\$: Hourly Advisory Statement Billing Code: 901

Daily Settlement

Daily Settlement Inputs

TCC #: TCC identification number
Hr_TCC_Rent_\$: Hourly Transmission Congestion Contract Rent settlement

Daily Settlement Outputs

TCC #: TCC identification number
Daily_TCC_Rent_\$: Daily Transmission Congestion Contract Rent settlement

Daily Settlement

$Daily_TCC_Rent_\$ = \sum\{Hr_TCC_Rent_ \$\}$

Daily Settlement Reported

TCC #: Hourly Advisory Statement Billing Code: 900

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Transmission Congestion Contract Rent

Daily_TCC_Rent_\$: Hourly Advisory Statement Billing Code: 903

Monthly Settlement

Monthly Settlement Inputs

TCC_#: TCC identification number
Daily_TCC_Rent_\$: Daily Transmission Congestion Contract Rent settlement

Monthly Settlement Outputs

TCC_#: TCC identification number
Monthly_TCC_Rent_\$: Monthly Transmission Congestion Contract Rent settlement

Monthly Settlement

Monthly_TCC_Rent_:= $\sum\{\text{Daily_TCC_Rent_}\}$

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MSR-0025

Balancing Market NYCA Supplier Bid Production Cost Guarantee

Suppliers scheduled for energy or synchronous reserves in-day above that committed in the DAM may be eligible for recovery their incremental energy & spinning reserves costs. A supplemental payment may be due should revenue received from LBMP energy balancing market sales, Voltage Support Lost Opportunity Cost payments, Regulation Service Availability for capacity committed above DAM commitments , Synchronous Reserves Service Availability for capacity committed above DAM commitments , and Reserves Lost Opportunity Cost payments be insufficient to recover the unit's incremental costs.

Bid Production Cost

Eligible bid production costs [incremental energy] are for capacity scheduled above unit minimum generation blocks, DAM LBMP market commitments, and bilateral transactions commitments.

Minimum Generation Block Cost

Eligible minimum generation block costs are the bid unit minimum generation block costs, prorated for any bilateral transaction commitments. If committed in the DAM, units are ineligible for Minimum Generation Cost recovery in the Balancing Market because the DAM cost guarantee mechanism ensures recovery of Minimum Generation Costs. Should the unit be committed after the DAM closing and be dispatched at minimum generation levels per economics, to provide synchronous Reserves during periods of negative with negative LBMP's are ensured recovery of their minimum generation costs.

Start-up Cost

Start-up costs are ineligible for recovery if unit has bilateral commitments. Generators are eligible for Balancing Market Start-up Cost recovery for any additional unit start-ups over those scheduled in the DAM. DAM start-up costs are prorated for actual operation to DAM commitments.

Net Ancillary Services Margins

Margins earned for providing Voltage Support, Regulation or Synchronous Reserves Ancillary Services, above DAM commitments, are netted with LBMP energy market revenue and the lesser of bid or mitigated costs to determine whether generators costs exceeded the revenue realized from the aforementioned Ancillary Services and the energy market.

LBMP Market Energy Revenue

LBMP Market Energy Revenue is revenue realized for LBMP energy sales above capacity committed to the DAM LBMP energy commitments.

Eligibility rules for Balancing Market bid production cost recovery

Certain generator performance and status criteria may disqualify generators from eligibility to fully recover their costs through Balancing Market Bid Production Cost payments.

PURPA

Generators classified as PURPA generators are ineligible for Balancing Market bid production cost recovery. PURPA generators are usually supporting bilateral contracts. In order to avoid buying or selling merchant energy, these PURPA designated bilateral contract schedules are increased or decreased within the billing system to match that units' real time output. Should a generator have merchant transaction commitments scheduled in addition to PURPA designated bilaterals, the generator may purchase replacement energy for any non-PURPA bilaterals for operation below capacity committed to serve the PURPA contract.

Dispatch below scheduled commitments

SCD intervals during which generators have been dispatched below DAM or BME commitments are ineligible for Balancing Market bid production cost recovery due to the fact that the unit will purchase energy from the NYISO to fulfill such commitments.

Off-Dispatch

SCD intervals during which generators are "off-dispatch" and not being operated out of economic merit are ineligible for Balancing Market bid production cost recovery due to the fact that the unit may have been dispatched to bid economics had they been available to respond to SCD interval dispatch.

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Balancing Market NYCA Supplier Bid Production Cost Guarantee

Ramp Rate Constrained Down

SCD intervals during which generators are being dispatched to decrease their outputs and the units are sufficiently lagging behind such base points that it is not possible for them to achieve such outputs due to bid ramp rate limitations are flagged as being ramp rate constrained and are ineligible for cost recovery.

Output \leq 0 MW

Non-grouped generators that not being dispatched out of economic merit; are producing no real energy; or are consuming energy as a pump storage unit are ineligible for bid production cost recovery in the Balancing Market.

Grouped Generators

Some generation plants are comprised of a number of individual generating units. Individual generating units comprising a plant/group may not be metered individually, rather, the plant is metered in aggregate [i.e. as a group]. As a result of the unavailability of performance tracking data at the individual unit level, actual settlement of bid production cost guarantee payments is performed at the group unit level.

Group versus Individual Unit output

In order to perform performance based settlements, group unit output is allocated to individual units per their ratio share of the individual units' average ramped SCD base point to the aggregated total average ramped SCD base points of all the individual units' comprising the group for the interval.

Group versus Individual Unit LBMP Energy Market Revenue

Energy settlements are performed at the group unit level. Group unit LBMP Market Energy Revenue is allocated to individual units per their ratio share of the individual units' average ramped SCD base point to the aggregated total average ramped SCD base points of all the individual units' comprising the group for the interval.

Group Bid Production Cost Guarantee

Bid production cost payments are computed at the individual unit level, summed for the day, and are then summed to the group for settlement. When daily revenue exceeds daily costs, the daily bid production cost computed is a negative value. In order to ensure that the margins realized by some individual units within a group do not negate the daily losses realized by the other individual units of the group, negative daily bid production costs computed for profitable units are set to zero prior to summation to the group.

Start-up Costs

Start-up costs are settled at the daily level. Individual unit start-up costs are summed for the day, summed to the group, and settled at the group level.

Bid Production Cost Basis

Bid Production Cost Basis is the megawatt value used to compute bid production costs. Generators may be dispatched uneconomically to provide Ancillary Services or for grid security/reliability. Generators may also deviate from dispatched schedules. Bid production costs are based upon desired generation output.

Non-providers of Regulation or Operating Reserves Ancillary Services

The Bid Production Cost Basis' for generators dispatched uneconomically is the lesser of the generators' output, adjusted to billing quality metered output, and the average SCD ramped base point over the dispatch interval. The generators' output, adjusted to billing quality metered output, are the Bid Production Cost Basis' for generators dispatched out of economic merit. In the event that the LBMP is negative and the generator is over-generating [i.e. generators' output, adjusted to billing quality metered output is greater than the average SCD ramped base point over the dispatch interval] then the Bid Production Cost Basis is the generators' output, adjusted to billing quality metering.

Effective July 25, 2001:

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Balancing Market NYCA Supplier Bid Production Cost Guarantee

The Bid Production Cost Basis' for generators dispatched economically is the lesser of the generators' output, adjusted to billing quality metered output, and the average Energy Payment Limit computed for the generators over the dispatch interval. In the event that the LBMP is negative and the generator is over-generating [i.e. generators' output, adjusted to billing quality metered output is greater than the average Energy Payment Limit] then the Bid Production Cost Basis is the generators' output, adjusted to billing quality metering.

Regulation or Operating Reserves Ancillary Services Providers

The Bid Production Cost Basis' for generators dispatched uneconomically is the lesser of the generators' output, adjusted to billing quality metered output, the average AGC desired base point over the dispatch interval, or the average SCD ramped base point over the dispatch interval. The generators' output, adjusted to billing quality metered output, are the Bid Production Cost Basis' for generators dispatched out of economic merit. In the event that the LBMP is negative and the generator is over-generating [i.e. generators' output, adjusted to billing quality metered output is greater than the average SCD ramped base point over the dispatch interval] then the Bid Production Cost Basis is the generators' output, adjusted to billing quality metering.

Applicable Bid Curve

The NYISO applies the most recently submitted incremental energy bid costs, as may be mitigated, to the bid production cost guarantee algorithms.

SCD interval Settlement Inputs

Transaction_MWHR:	Total SCD interval capacity committed to serve bilateral transactions
SCUC_MWHR:	Total SCD interval capacity committed in the DAM, inclusive of bilateral transactions
BPC_Basis	MWh basis, as determined by the rule set detailed above, applied to the BPC equation over the SCD interval
SCD_Price_of_Energy:	SCD interval LBMP energy component
SCD_Price_of_Losses:	SCD interval LBMP losses component
SCD_Price_of_Congestion:	SCD interval LBMP congestion component
BME_Bid_Dollars_1:	Hourly BME incremental energy curve point 1 costs per bid or mitigation
BME_Bid_MW_1:	Hourly BME incremental energy curve point 1 MW bid
BME_Bid_Dollars_2:	Hourly BME incremental energy curve point 2 costs per bid or mitigation
BME_Bid_MW_2:	Hourly BME incremental energy curve point 2 MW bid
BME_Bid_Dollars_3:	Hourly BME incremental energy curve point 3 costs per bid or mitigation
BME_Bid_MW_3:	Hourly BME incremental energy curve point 3 MW bid
BME_Bid_Dollars_4:	Hourly BME incremental energy curve point 4 costs per bid or mitigation
BME_Bid_MW_4:	Hourly BME incremental energy curve point 4 MW bid
BME_Bid_Dollars_5:	Hourly BME incremental energy curve point 5 costs per bid or mitigation
BME_Bid_MW_5:	Hourly BME incremental energy curve point 5 MW bid
BME_Bid_Dollars_6:	Hourly BME incremental energy curve point 6 costs per bid or mitigation
BME_Bid_MW_6:	Hourly BME incremental energy curve point 6 MW bid
BME_Mingen_Dollars:	Hourly BME minimum generation block costs per bid or mitigation
BME_Mingen_MW:	Hourly BME minimum generation block MW
BME_Reg_Avail_MW:	Hourly BME Regulation Capacity scheduled
BME_Reg_Bid_\$:	Hourly BME Regulation Service bid cost per MW
BME_Reg_MCP_\$:	Hourly BME Regulation Service market clearing price
BME_Sync_Res_Avail_MW:	Hourly BME Synchronous Reserve Capacity scheduled
BME_Sync_Res_Bid_\$:	Hourly BME Synchronous Reserve Service bid cost per MW
BME_Sync_Res_MCP_\$:	Hourly BME Synchronous Reserve Service market clearing price
BME_LRR_Flag	Indication that commitment due to local reliability rules
Block_Bid	Indication that unit bid was in block format versus monotonically increasing curve segments
Segments	Number of incremental bid curve segments
BME_Hr_Start-up	Start-up costs computed and used by BME
Balancing_Energy_Rev_\$	Balancing Market energy sales revenue over SCD interval

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MSR-0025

Balancing Market NYCA Supplier Bid Production Cost Guarantee

SCD Interval Incremental Production Cost Settlement Outputs

Balancing_Bid_\$_Basis _n :	Balancing Market Bid Production Cost point used as cost at point “n” of the unit bid curve
Balancing_BPC _{SCD} :	Balancing Market Bid Production Cost over SCD interval, per BPC Basis
Balancing_BPC _{COM} :	Balancing Market Bid Production Cost for capacity serving bilateral & DAM contracts over SCD interval
Balancing_BPC _{MIN} :	Balancing Market Bid Production Cost of minimum generation block
Balancing_BPC:	Balancing Market Bid Production Cost over SCD interval

SCD interval BPC Settlement

Where “n” is the bid curve point defining the curve, or block, segments’ upper capacity point, loop through the following equation for all curve segments, up to the *Balancing Market Bid Production Cost MWh* basis:

$$\text{Balancing_Bid_}_\$ _\text{Basis}_n = \{ \text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \} + \{ \text{BME_Bid_Dollars}_n - [\text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1})] \}$$

$$\text{Balancing_BPC}_{\text{SCD}} = \sum_{1 \rightarrow n} \{ (\text{BME_Bid_Dollars}_n + \text{BME_Bid_Dollars}_{n-1}) \times (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \div 2 \};$$

Where “n” is the bid curve point defining the curve, or block, segments’ upper capacity point, loop through the following equation for all curve segments, up to the minimum generation capacity:

$$\text{Balancing_Bid_}_\$ _\text{Basis}_n = \{ \text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \} + \{ \text{BME_Bid_Dollars}_n - [\text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1})] \}$$

$$\text{Balancing_BPC}_{\text{MIN}} = \sum_{1 \rightarrow n} \{ (\text{BME_Bid_Dollars}_n + \text{BME_Bid_Dollars}_{n-1}) \times (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \div 2 \};$$

Where “n” is the bid curve point defining the curve, or block, segments’ upper capacity point, loop through the following equation for all curve segments, up to the total capacity committed for bilateral transactions and DAM energy contracts:

$$\text{Balancing_Bid_}_\$ _\text{Basis}_n = \{ \text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \} + \{ \text{BME_Bid_Dollars}_n - [\text{BME_Bid_MW}_n \times (\text{BME_Bid_Dollars}_n - \text{BME_Bid_Dollars}_{n-1}) \div (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1})] \}$$

$$\text{Balancing_BPC}_{\text{COM}} = \sum_{1 \rightarrow n} \{ (\text{BME_Bid_Dollars}_n + \text{BME_Bid_Dollars}_{n-1}) \times (\text{BME_Bid_MW}_n - \text{BME_Bid_MW}_{n-1}) \div 2 \};$$

$$\text{Balancing_BPC} = ([\text{Balancing_BPC}_{\text{SCD}} - \max\{\text{Balancing_BPC}_{\text{COM}}, \text{Balancing_BPC}_{\text{MIN}}\}] - \text{Balancing_Energy_Rev_}_\$) \times \text{SCD Interval} \div 3600 \text{ seconds}$$

$$\text{Balancing_BPC} = 0 \text{ IF LBMP is } < \$0;$$

Hourly Incremental Production Cost Settlement Inputs

Balancing_BPC:	Balancing Market Bid Production Cost over SCD interval
Balancing_Reg_Margin_\$:	Net Balancing Market margin earned for Regulation Service over SCD interval
Balancing_Res_Margin_\$:	Net Balancing Market margin earned for Reserves Service over SCD interval
Balancing_VSS_LOC_\$:	Balancing Market Voltage Support lost opportunity cost revenue over SCD interval
BME_Min_Gen_Cost:	Minimum generation block cost bid in BME
Sync_LOC_\$:	Synchronous Reserve lost opportunity cost revenue over SCD interval

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Balancing Market NYCA Supplier Bid Production Cost Guarantee

Hourly Incremental Production Cost Settlement Outputs

Hr_Balancing_BPC: Balancing Market Bid Production Cost
Balancing_Reg_Margin_\$: Net Balancing Market margin earned for Regulation Service over SCD interval
Balancing_Res_Margin_\$: Net Balancing Market margin earned for Reserves Service over SCD interval
VSS_LOC_\$: Balancing Market Voltage Support lost opportunity cost revenue over SCD interval

Hourly BPC Settlement

Balancing_Reg_Margin_\$ = : BME_Reg_Avail_MW x {BME_Reg_MCP_\$ - BME_Reg_Bid_\$}

Balancing_Res_Margin_\$ = BME_Sync_Res_Avail_MW x {BME_Sync_Res_MCP_\$ - BME_Sync_Res_Bid_\$} + \sum Sync_LOC_\$

Hr_Balancing_BPC = \sum Balancing_BPC + BME_Min_Gen_Cost - Balancing_Reg_Margin_\$ - Balancing_Res_Margin_\$ - VSS_LOC_\$

Hourly Settlement Reported

Hr_Balancing_BPCG: Hourly Advisory Billing Statement – Billing Code 210

Daily Settlement

Daily Settlement Inputs

Hr_Balancing_BPC: Balancing Market Bid Production Cost
Hr_Balancing_Startup_\$: Bid or mitigated start-up costs

Daily Settlement Output

Daily_Balancing_BPCG: Balancing Market bid production cost payment

Daily Settlement

Daily_Balancing_BPCG = max{ 0, \sum (Hr_Balancing_BPC) + \sum (Hr_Balancing_Startup_\$)}

Daily Settlement Reported

Daily_Balancing_BPCG: Hourly Advisory Billing Statement – Billing Code 305

Monthly Settlement

Monthly Settlement Inputs

Daily_Balancing_BPCG: Balancing Market bid production cost payment

Monthly Settlement Outputs

Mth_Balancing_BPCG: Monthly Balancing Market bid production cost guarantee

Monthly Settlement

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Balancing Market NYCA Supplier Bid Production Cost Guarantee

$Mth_Balancing_BPCG = \sum\{ Daily_Balancing_BPCG \}$

Monthly Settlement Reported In Power Supplier Monthly Settlement Statement

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 Virtual Load Balancing Energy

Virtual Load is bid into the NYISO DAM in the same manner as price capped load. Since the MWh contracted day-ahead are purely financial and not based upon an actual energy consumed, the actual metered load of the “virtual” load is zero in real-time. This results in the Virtual Load selling back their hourly DAM purchases, which balances at real-time prices. If the DAM LBMPs are lower than the real-time LBMPs, the Virtual loads realize a profit.

SCD Interval Settlement

SCD Interval Settlement Inputs

RT_Price_of_Energy:	SCD interval LBMP energy component
RT_Price_of_Losses:	SCD interval LBMP losses component
RT_Price_of_Congestion:	SCD interval LBMP congestion component
DAM_MWh	Hourly DAM Virtual Load energy contracted
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

SCD_RT_VL_MWh:	SCD interval Virtual Load energy purchased
SCD_RT_VL_Energy_\$:	SCD interval Virtual Load energy settlement
SCD_RT_VL_Losses_\$:	SCD interval Virtual Load losses settlement
SCD_RT_VL_Congestion_\$:	SCD interval Virtual Load congestion settlement
SCD_RT_VL_\$:	SCD interval net Virtual Load settlement

SCD Interval Settlement

$$SCD_RT_VL_MWh = - DAM_MWh \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VL_Energy_\$ = SCD_RT_VL_MWh \times RT_Price_of_Energy \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VL_Losses_\$ = SCD_RT_VL_MWh \times RT_Price_of_Losses \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VL_Congestion_\$ = SCD_RT_VL_MWh \times \{-1 \times RT_Price_of_Congestion\} \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VL_\$ = SCD_RT_VL_Energy_\$ + SCD_RT_VL_Losses_\$ + SCD_RT_VL_Congestion_\$$$

Hourly Settlement

Hourly Settlement Inputs

SCD_RT_VL_\$:	SCD interval net Virtual Load balancing settlement
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Hourly Settlement Outputs

Hr_RT_VL_\$:	Hourly net Virtual Load balancing settlement
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Hourly Settlement

$$Hr_RT_VL_\$ = \sum\{Hr_RT_VL_ \$\}$$

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Virtual Load Balancing Energy
Hourly Settlement Reported

Hr_RT_VL_\$: Hourly Advisory Billing Statement – Billing Code 416

Daily Settlement

Daily Settlement Inputs

Hr_RT_VL_\$: Hourly net Virtual Load balancing settlement

Daily Settlement Outputs

Daily_RT_VL_\$: Daily net Virtual Load balancing settlement

Daily Settlement

Daily_RT_VL_\$ = $\sum\{Hr_RT_VL_ \$\}$

Daily Settlement Reported

Daily_RT_VL_\$: Daily Advisory Billing Statement – Billing Code 774

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_VL_\$: Daily net Virtual Load balancing settlement

Monthly Settlement Outputs

Monthly_RT_VL_\$: Monthly Monthly net Virtual Load balancing settlement

Daily Settlement

Monthly_RT_VL_\$ = $\sum\{Daily_RT_VL_ \$\}$

Monthly Settlement Reported

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Balancing LBMP Energy Export

LBMP energy export transactions are balanced the the higher of their DAM and BME schedules less the transmission service scheduled in real time. The settlements are settled at LBMPs dependent upon whether the contract(s) are modified and who modifies the schedule.

SCD interval Settlement

SCD_POW_Price_of_Energy:	SCD interval Point of Withdrawal LBMP energy component
SCD_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component
SCD_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component
BME_POW_Price_of_Energy:	Hourly BME Point of Withdrawal LBMP energy component
BME_POW_of_Losses:	Hourly BME Point of Withdrawal LBMP losses component
BME_POW_Price_of_Congestion:	Hourly BME Point of Withdrawal LBMP congestion component
DAM_LBMP_Exp_MWh:	Hourly DAM transaction energy <i>bid</i>
BME_LBMP_Exp_MWh:	Hourly BME transaction energy <i>bid</i>
SCD_LBMP_Exp_MWh:	SCD interval transaction energy that actually flowed
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

Bal_POW_of_Energy:	SCD interval Point of Withdrawal LBMP energy component per settlement rules
Bal_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component per settlement rules
Bal_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component per settlement rules
SCD_LBMP_Exp_MWh:	SCD interval transaction balancing energy
SCD_LBMP_Exp_Energy_\$:	SCD interval Transmission Usage Charge energy settlement
SCD_LBMP_Exp_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_LBMP_Exp_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

SCD Interval Settlement

Points of Injection and withdrawal are both NYISO external proxy buses.

$$SCD_LBMP_Exp_MWh = \{ \max (DAM_LBMP_Exp_MWh, BME_LBMP_Exp_MWh) - RT_LBMP_Exp_MWh \} \times SCD_Interval \div 3600 \text{ seconds}$$

Bal_POW_Price_of_Energy, Bal_POW_Price_of_Losses, Bal_POW_Price_of_Congestion =

If the transaction is not curtailed, or is curtailed by NYISO or an external control area the “SCD...” price components are used for Bal_POW_Price_of_Energy, Bal_POW_Price_of_Losses, Bal_POW_Price_of_Congestion.

If the transaction is curtailed by the Market Participant the lesser of the “SCD...” and “BME...” price components are used for Bal_POW_Price_of_Energy, Bal_POW_Price_of_Losses, Bal_POW_Price_of_Congestion.

$$SCD_LBMP_Exp_Energy_\$ = SCD_LBMP_Exp_MWh \times Bal_POW_Price_of_Energy \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Exp_Losses_\$ = SCD_LBMP_Exp_MWh \times Bal_POW_Price_of_Losses \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Exp_Congestion_\$ = SCD_LBMP_Exp_MWh \times Bal_POW_Price_of_Congestion \times SCD_Interval \div 3600 \text{ seconds}$$

Hourly interval Settlement

Hourly Settlement Inputs

SCD_LBMP_Exp_MWh:	SCD interval RT LBMP export transaction balancing energy
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Balancing LBMP Energy Export

SCD_LBMP_Exp_Energy_\$: SCD interval RT LBMP export energy settlement
SCD_LBMP_Exp_Losses_\$: SCD interval RT LBMP export energy losses settlement
SCD_LBMP_Exp_Congestion_\$: SCD interval RT LBMP export energy congestion settlement

Hourly Settlement Outputs

Hr_Bal_Exp_MWh: Hourly Balancing transaction energy
Hr_RT_LBMP_Exp_Energy_\$: Hourly Balancing LBMP export energy settlement
Hr_RT_LBMP_Exp_Losses_\$: Hourly Balancing LBMP export energy losses settlement
Hr_RT_LBMP_Exp_Congestion_\$: Hourly Balancing LBMP export energy congestion settlement
Hr_RT_LBMP_Exp_\$: Total Hourly Balancing LBMP export energy settlement

Hourly Settlement

$$\text{Hr_RT_Bal_Exp_MWh} = \sum\{\text{SCD_LBMP_Exp_MWh}\}$$

$$\text{Hr_RT_LBMP_Exp_Losses_\$} = \sum\{\text{SCD_LBMP_Exp_Losses_\$}\}$$

$$\text{Hr_RT_LBMP_Exp_Congestion_\$} = \sum\{\text{SCD_LBMP_Exp_Congestion_\$}\}$$

$$\text{Hr_RT_LBMP_Exp_\$} = \text{Hr_RT_LBMP_Exp_Energy_\$} + \text{Hr_RT_LBMP_Exp_Losses_\$} +$$

$$\text{Hr_RT_LBMP_Exp_Congestion_\$}$$

Hourly Settlement Reported

Hr_RT_Bal_Exp_MWh: Hourly Advisory Statement Billing Code: 516
Hr_RT_LBMP_Exp_Energy_\$: Hourly Advisory Statement Billing Code: 517
Hr_RT_LBMP_Exp_Losses_\$: Hourly Advisory Statement Billing Code: 518
Hr_RT_LBMP_Exp_Congestion_\$: Hourly Advisory Statement Billing Code: 519
Hr_RT_LBMP_Exp_\$: Hourly Advisory Statement Billing Code: 520

Daily Settlement

Daily Settlement Inputs

Hr_Bal_Exp_MWh: Hourly Balancing transaction energy
Hr_RT_LBMP_Exp_Energy_\$: Hourly Balancing LBMP export energy settlement
Hr_RT_LBMP_Exp_Losses_\$: Hourly Balancing LBMP export energy losses settlement
Hr_RT_LBMP_Exp_Congestion_\$: Hourly Balancing LBMP export energy congestion settlement
Hr_RT_LBMP_Exp_\$: Total Hourly Balancing LBMP export energy settlement

Daily Settlement Outputs

Daily_Bal_Exp_MWh: Hourly Balancing transaction energy
Daily_RT_LBMP_Exp_Energy_\$: Hourly Balancing LBMP export energy settlement
Daily_RT_LBMP_Exp_Losses_\$: Hourly Balancing LBMP export energy losses settlement
Daily_RT_LBMP_Exp_Congestion_\$: Hourly Balancing LBMP export energy congestion settlement
Daily_RT_LBMP_Exp_\$: Total Hourly Balancing LBMP export energy settlement

Daily Settlement

$$\text{Daily_RT_LBMP_Exp_MWh} = \sum\{\text{Hr_RT_LBMP_Exp_MWh}\}$$

$$\text{Daily_RT_LBMP_Exp_Losses_\$} = \sum\{\text{Hr_RT_LBMP_Exp_Losses_\$}\}$$

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Balancing LBMP Energy Export

Daily_RT_LBMP_Exp_Losses_\$ = $\sum\{\text{Hr_RT_LBMP_Exp_Losses_}\}$

Daily_RT_LBMP_Exp_Congestion_\$ = $\sum\{\text{Hr_RT_LBMP_Exp_Congestion_}\}$

Daily_RT_LBMP_Exp_\$ = $\sum\{\text{Hr_RT_LBMP_Exp_}\}$

Daily Settlement Reported

Daily_RT_Bal_Exp_MWh:	Hourly Advisory Statement Billing Code: 763
Daily_RT_LBMP_Exp_Energy_\$:	Hourly Advisory Statement Billing Code: 764
Daily_RT_LBMP_Exp_Losses_\$:	Hourly Advisory Statement Billing Code: 765
Daily_RT_LBMP_Exp_Congestion_\$:	Hourly Advisory Statement Billing Code: 766
Daily_RT_LBMP_Exp_\$:	Hourly Advisory Statement Billing Code: 767

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_LSE_Energy_\$:	Daily RT NYCA LSE net energy, losses, & congestion settlement [Billing Codes 701- 703]
Daily_RT_LBMP_Imp_Energy_\$:	Hourly Balancing LBMP export energy settlement [Billing Code 764]
Daily_RT_LBMP_Imp_Losses_\$:	Daily RT LBMP import energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily RT LBMP import energy - congestion settlement [Billing Code 766]
Daily_RT_LBMP_Exp_Energy_\$:	Hourly Balancing LBMP export energy settlement [Billing Code 764]
Daily_RT_LBMP_Exp_Losses_\$:	Daily RT LBMP export energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily RT LBMP export energy - congestion settlement [Billing Code 766]
Daily_RT_Rep_Losses_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 765]
Daily_RT_Rep_Congestion_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 766]
Daily_RT_Int_Trans_Losses_\$:	Daily RT Internal Transaction losses settlement [Billing Code 755]
Daily_RT_Int_Trans_Congestion_\$:	Daily RT Internal Transaction congestion settlement [Billing Code 756]
Daily_RT_Imp_Trans_Losses_\$:	Daily RT Import Transaction losses settlement [Billing Code 755]
Daily_RT_Imp_Trans_Congestion_\$:	Daily RT ImportTransaction congestion settlement [Billing Code 756]
Daily_RT_Exp_Trans_Losses_\$:	Daily RT Export Transaction losses settlement [Billing Code 755]
Daily_RT_Exp_Trans_Congestion_\$:	Daily RT Export Transaction congestion settlement [Billing Code 756]
Daily_RT_WT_Trans_Losses_\$:	Daily RT Wheel Transaction losses settlement [Billing Code 755]
Daily_RT_WT_Trans_Congestion_\$:	Daily RT Wheel Transaction congestion settlement [Billing Code 756]

Monthly Settlement Outputs

Monthly_RT_Energy_\$:	Monthly RT Energy settlement
Monthly_RT_TUC_Losses_\$:	Monthly RT losses Transmission Usage Charge settlement
Monthly_RT_TUC_Congestion_\$:	Monthly RT congestion Transmission Usage Charge settlement

Monthly Settlement

Monthly_RT_Energy_\$ = $\sum\{\text{Daily_RT_LSE_Energy_} + \text{Daily_RT_LBMP_Imp_Energy_} + \text{Daily_RT_LBMP_Exp_Energy_}\}$

Monthly_RT_TUC_Losses_\$ = $\sum\{\text{Daily_RT_LBMP_Imp_Losses_} + \text{Daily_RT_LBMP_Exp_Losses_} + \text{Daily_RT_Rep_Losses_} + \text{Daily_RT_Imp_Trans_Losses_} + \text{Daily_RT_Exp_Trans_Losses_} + \text{Daily_RT_WT_Trans_Losses_}\}$

Monthly_RT_TUC_Congestion_\$ = $\sum\{\text{Daily_RT_LBMP_Imp_Congestion_} + \text{Daily_RT_LBMP_Exp_Congestion_} + \text{Daily_RT_Rep_Congestion_} + \text{Daily_RT_Imp_Trans_Congestion_} + \text{Daily_RT_Exp_Trans_Congestion_} + \text{Daily_RT_WT_Trans_Congestion_}\}$

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Balancing LBMP Energy Export

Daily_RT_WT_Trans_Congestion_{\$}

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Balancing Market NYCA LSE Energy

Customers may purchase energy from the Day-Ahead [DAM] LBMP Energy Market to serve NYCA points of withdrawal. Any energy purchased from the DAM and served through bilateral contracts outside of the NYISO market in excess of real time withdrawals is sold back to the NYISO energy markets in real time. Likewise, any energy withdrawn in real time in excess of that purchased from the DAM and served through bilateral contracts outside of the NYISO to serve NYCA points of withdrawal is purchased in real time from the Balancing Market.

LSE Load in real time

The NYISO does not meter energy withdrawals by LSEs in real time. The organizations responsible for maintaining billing quality metering for NYCA points of withdrawal are called Meter Authorities. The Meter Authorities maintain metering systems to measure energy flow and provide this data for most NYCA points of withdrawal. Since billing quality metering data is not readily available for all NYCA points of withdrawal for settlement immediately following a particular month's transactions, the NYISO allocates instantaneous integrated sub-zonal load to all LSEs within each sub-zone, based upon the ratio of the LSEs' hourly bus forecasts to the total sub-zone hourly forecast. LSEs may update their bus forecasts for the preceding day by noon the next day, providing a mechanism for entities to be settled using more accurate withdrawal data, if available. LSEs that have billing quality metering at their respective points of withdrawal may be modeled in the billing system so that their real time load is based upon their updated forecasts versus the ratio share of sub-zonal load methodology previously described. Those points designated as having billing quality metering systems that provide hourly billing quality withdrawal data the day after the day of operation are excluded from the sub-zonal load allocation process, such that only the non-metered load is allocated.

The manner in which NYISO sub-zonal load is computed is defined in Chapter 14: NYCA Sub-zonal Withdrawals. Settlements that use the sub-zonal load computed by the NYISO are subsequently adjusted to values based on revenue quality metering, when available from Meter Authorities. The NYISO has established a settlement adjustment process that provides for the adjustment of estimated/allocated withdrawals to billing quality metered values. Currently, the settlement adjustment process entails four opportunities to adjust withdrawal amounts. The Meter Authority responsible for providing billing quality metering submits hourly metered withdrawals at the LSE bus level. These hourly values are backcasted to the integrated instantaneous load profile of that LSE bus, adjusting the hourly withdrawal to the metered value supplied by the Meter Authority.

Real Time LSE load calculation inputs

SZ_MW:	Average sub-zonal load over the SCD interval, based upon 6 second data scans
Hourly_LSE_Forecast_MW:	Hourly LSE bus forecast MWhr submitted with their DAM bid
Hourly_LSE_DAM_MWh:	Hourly LBMP MWhr purchased through their DAM bid
LSE_DAM_Bilateral_MWh:	Hourly DAM bilateral MWhr scheduled for which the LSE is the withdrawal
LSE_HAM_Bilateral_MWh:	HAM or adjustments to DAM bilateral transaction MWh in HAM process
Fixed Correction_Ratio	Value indicating that the submitted forecast should be used in lieu of the ratio

Outputs from LSE Real Time Withdrawal calculation

Estimated_SZ_MW	Total of sub-zonal load based upon energy scheduled for withdrawal by LSEs
Meter_Error_MW	Difference between real time sub-zonal load and Estimated_SZ_MW
Adjusted_Est_SZ_MW	Estimated_SZ_MW adjusted for LSEs with fixed correction ratios
Adjusted_SZ_MW	SZ_MW adjusted for LSEs with fixed correction ratios
LSE_Correction_Ratio	Ratio of Adjusted_SZ_MW to Adjusted_Est_SZ_MW
LSE_SCD_MW:	SCD interval withdrawal MW

LSE Real Time Withdrawal calculation

$$\text{Estimated_SZ_MW} = \sum\{\text{Hourly_LSE_Forecast_MW}\}$$

$$\text{Meter_Error} = \text{SCD_SZ_MW} - \text{Estimated_SZ_Load}$$

IF Fixed_Correction_Ratio = 0, then

$$\text{LSE_SCD_MW} = \text{Hourly_LSE_Forecast_MW} + \{\text{Meter_Error} \times \text{Fixed_Correction_Ratio}\}; \text{ otherwise,}$$

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Balancing Market NYCA LSE Energy

Adjusted_Est_SZ_MW = Estimated_SZ_MW - Σ { Hourly_LSE_Forecast_MW for all LSE with fixed correction ratios}

Adjusted_SZ_MW = SCD_SZ_MW - Σ { Hourly_LSE_Forecast_MW for all LSE with fixed correction ratios}

LSE_Correction_Ratio = Adjusted_SZ_MW / Adjusted_Est_SZ_MW

LSE_SCD_MW = LSE_Correction_Ratio x Hourly_LSE_Forecast_MW

NYCA LSE SCD Interval Balancing Market Energy Settlement

The Balancing Market provides for the settlement of any differences between the actual withdrawal of energy in real time and that either purchased through the DAM or scheduled to be served through bilateral transactions.

SCD Interval Settlement Inputs

SCD_Interval	Length of the SCD interval in seconds
LSE_SCD_MW	SCD interval point of withdrawal MW
Hourly_LSE_DAM_MWh:	Hourly LBMP MWhr purchased through their DAM bid
Hourly_LSE_DAM_Bilateral_MWh:	Hourly DAM bilateral MWhr scheduled for withdrawal by the LSE
LSE_HAM_Bilateral_MWh:	Hourly HAM or adjustments to DAM bilateral MWh scheduled for withdrawal by the LSE
RT_Price_of_Energy:	SCD Interval Real Time LBMP energy component
RT_Price_of_Losses:	SCD Interval Real Time LBMP losses component
RT_Price_of_Congestion:	SCD Interval Real Time LBMP congestion component

SCD Interval Settlement Outputs

SCD_LSE_MWh:	SCD interval Balancing Market energy settled
SCD_LSE_Energy_\$:	SCD interval Balancing Market energy settlement
SCD_LSE_Losses_\$:	SCD interval Balancing Market losses settlement
SCD_LSE_Congestion_\$:	SCD interval Balancing Market congestion settlement

SCD Interval Settlement Outputs

SCD_LSE_MWh = {SCD_Interval x LSE_MW - (Hourly_LSE_DAM_MWh + Hourly_LSE_DAM_Bilateral_MWh + Hourly_LSE_HAM_Bilateral_MWh)} / 3600 seconds

SCD_LSE_Energy_\$ = LSE_SCD_Interval_MWh x RT_Price_of_Energy

SCD_LSE_Losses_\$ = LSE_SCD_Interval_MWh x RT_Price_of_Losses

SCD_LSE_Congestion_\$ = LSE_SCD_Interval_MWh x {-1 x RT_Price_of_Congestion}

NYCA LSE Hourly Balancing Market Energy Settlement

Hourly Settlement Inputs

SCD_LSE_MWh:	SCD interval Balancing Market energy settled
SCD_LSE_Energy_\$:	SCD interval Balancing Market energy settlement
SCD_LSE_Losses_\$:	SCD interval Balancing Market losses settlement
SCD_LSE_Congestion_\$:	SCD interval Balancing Market congestion settlement

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Balancing Market NYCA LSE Energy
Hourly Settlement Outputs

Hourly_LSE_RT_MWh:	Hourly Balancing Market LSE energy settled
Hourly_LSE_RT_LBMP:	Hourly time & load weighted LSE Bus LBMP
Hourly_LSE_RT_Energy_\$:	Hourly Balancing Market LSE energy settlement
Hourly_LSE_RT_Losses_\$:	Hourly Balancing Market LSE losses settlement
Hourly_LSE_RT_Congestion_\$:	Hourly Balancing Market LSE congestion settlement

Hourly Settlement Calculation

$$\text{Hourly_LSE_RT_MWh} = \Sigma\{\text{SCD_LSE_MWh}\}$$

$$\text{Hourly_LSE_RT_Energy_\$} = \Sigma\{\text{SCD_LSE_Energy_\$}\}$$

$$\text{Hourly_LSE_RT_Losses_\$} = \Sigma\{\text{SCD_LSE_Losses_\$}\}$$

$$\text{Hourly_LSE_RT_Congestion_\$} = \Sigma\{\text{SCD_LSE_Congestion_\$}\}$$

$$\text{Hourly_LSE_RT_LBMP} = \{ \text{Hourly_LSE_RT_Energy_\$} + \text{Hourly_LSE_RT_Losses_\$} + \text{SCD_LSE_Congestion_\$} \} /$$

Hourly_LSE_RT_MWh

Hourly Settlement Reported

Hourly_LSE_RT_MWh:	Billing Code 407
Hourly_LSE_RT_LBMP:	Billing Code 408
Hourly_LSE_RT_Energy_\$:	Billing Code 409
Hourly_LSE_RT_Losses_\$:	Billing Code 410
Hourly_LSE_RT_Congestion_\$:	Billing Code 411

NYCA LSE Daily Balancing Market Energy Settlement

Daily Settlement Inputs

Hourly_LSE_RT_MWh:	Hourly Balancing Market LSE energy settled
Hourly_LSE_RT_LBMP:	Hourly time & load weighted LSE Bus LBMP
Hourly_LSE_RT_Energy_\$:	Hourly Balancing Market LSE energy settlement
Hourly_LSE_RT_Losses_\$:	Hourly Balancing Market LSE losses settlement
Hourly_LSE_RT_Congestion_\$:	Hourly Balancing Market LSE congestion settlement

Daily Settlement Outputs

Daily_LSE_RT_MWh:	Daily Balancing Market LSE energy settled
Daily_LSE_RT_Energy_\$:	Daily Balancing Market LSE energy settlement
Daily_LSE_RT_Losses_\$:	Daily Balancing Market LSE losses settlement
Daily_LSE_RT_Congestion_\$:	Daily Balancing Market LSE congestion settlement

Daily Settlement Calculation

$$\text{Daily_LSE_RT_MWh} = \Sigma\{\text{Hourly_LSE_RT_MWh}\}$$

$$\text{Daily_LSE_RT_Energy_\$} = \Sigma\{\text{Hourly_LSE_RT_Energy_\$}\}$$

$$\text{Daily_LSE_RT_Losses_\$} = \Sigma\{\text{Hourly_LSE_RT_Losses_\$}\}$$

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Daily_LSE_RT_Congestion_\$ = $\Sigma\{ \text{Hourly_LSE_RT_Congestion_}\$ \}$

Daily Settlement Reported

Daily_LSE_RT_MWh:	Billing Code 704
Daily_LSE_RT_Energy_\$:	Billing Code 705
Daily_LSE_RT_Losses_\$:	Billing Code 706
Daily_LSE_RT_Congestion_\$:	Billing Code 707

Monthly Settlement

Monthly Settlement Inputs

Daily_LSE_RT_MWh:	Daily RT LSE energy scheduled [Billing Code 704]
Daily_LSE_RT_Energy_\$:	Daily RT LSE energy settlement[Billing Code 705]
Daily_LSE_RT_Losses_\$:	Daily RT LSE losses settlement[Billing Code 706]
Daily_LSE_RT_Congestion_\$:	Daily RT LSE congestion settlement[Billing Code 707]
Daily_RT_LBMP_Imp_MWHR:	Daily RT LBMP energy scheduled for Import [Billing Code 763]
Daily_RT_LBMP_Imp_Energy_\$:	Daily RT LBMP Import energy settlement [Billing Code 764]
Daily_RT_LBMP_Exp_MWHR:	Daily RT LBMP supply scheduled for import[Billing Code 763]
Daily_RT_LBMP_Exp_Energy_\$:	Daily RT LBMP imported supply energy settlement[Billing Code 764]

Monthly Settlement Outputs

Monthly_RT_TC_MWHR:	Monthly RT Transmission Customer LBMP energy scheduled
Monthly_RT_TC_Energy:	Monthly RT Transmission Customer LBMP energy settlement

Monthly Settlement

Monthly_TC_RT_MWh = $\Sigma\{ \text{Daily_RT_LBMP_Exp_MWHR} \} + \Sigma\{ \text{Daily_LSE_RT_MWHR} \} + \Sigma\{ \text{Daily_RT_LBMP_Imp_MWHR} \}$

Monthly_RT_TC_Energy = $\Sigma\{ \text{Daily_RT_LBMP_Exp_Energy_}\$ \} + \Sigma\{ \text{Daily_LSE_RT_Energy_}\$ \} + \Sigma\{ \text{Daily_LSE_RT_Losses_}\$ \} + \Sigma\{ \text{Daily_LSE_RT_Congestion_}\$ \} + \Sigma\{ \text{Daily_RT_LBMP_Imp_Energy_}\$ \}$

Monthly Settlement Reported

The Transmission Customer Monthly Settlement Statement provides an aggregation of all daily energy, losses, & congestion settlement results.

Monthly_RT_TC_MWHR:	Transmission Customer Settlement Statement Balancing Energy MWh
Monthly_RT_TC_Energy:	Transmission Customer Settlement Statement Balancing Energy
Monthly_RT_TC_Losses:	Transmission Customer Settlement Statement Balancing Losses
Monthly_RT_TC_Congestion:	Transmission Customer Settlement Statement Balancing Congestion

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 Balancing Transmission Usage Charges – Wheel-Through Transactions

Wheel-through bilateral transactions are balanced the the higher of their DAM and BME schedules less the transmission service actually scheduled in real time. The settlements are settled at LBMPs dependent upon whether the contract(s) are modified and who modifies the schedule.

SCD interval Settlement

SCD_POI_of_Losses:	SCD interval Point of Injection LBMP losses component
SCD_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component
SCD_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component
SCD_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component
BME_POI_of_Losses:	Hourly BME Point of Injection LBMP losses component
BME_POI_Price_of_Congestion:	Hourly BME Point of Injection LBMP congestion component
BME_POW_of_Losses:	Hourly BME Point of Withdrawal LBMP losses component
BME_POW_Price_of_Congestion:	Hourly BME Point of Withdrawal LBMP congestion component
DAM_WT_Trans_MWh:	Hourly DAM transaction energy <i>bid</i>
BME_WT_Trans_MWh:	Hourly BME transaction energy <i>bid</i>
SCD_WT_Trans_MWh:	SCD interval transaction energy that actually flowed
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

Bal_POI_of_Losses:	SCD interval Point of Injection LBMP losses component per settlement rules
Bal_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component per settlement rules
Bal_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component per settlement rules
Bal_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component per settlement rules
SCD_Bal_WT_Trans_MWh:	SCD interval transaction balancing energy
SCD_WT_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_WT_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

SCD Interval Settlement

Points of Injection and withdrawal are both NYISO external proxy buses.

$$SCD_Bal_WT_Trans_MWh = \{ \max (DAM_WT_Trans_MWh, BME_WT_Trans_MWh) - RT_WT_Trans_MWh \} \times SCD_Interval \div 3600 \text{ seconds}$$

Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, Bal_POW_Price_of_Congestion =

If the transaction is not curtailed, or is curtailed by NYISO or an external control area the “SCD...” price components are used for Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, & Bal_POW_Price_of_Congestion.

If the transaction is curtailed by the Market Participant the lesser of the “SCD...” and “BME...” price components are used for Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, & Bal_POW_Price_of_Congestion.

$$SCD_WT_Trans_Losses_\$ = SCD_Bal_WT_Trans_MWh \times (Bal_POW_Price_of_Losses - Bal_POI_Price_of_Losses) \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_WT_Trans_Congestion_\$ = SCD_Bal_WT_Trans_MWh \times \{ -1 \times (Bal_POW_Price_of_Congestion - Bal_POI_Price_of_Congestion) \} \times SCD_Interval \div 3600 \text{ seconds}$$

Hourly interval Settlement

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Balancing Transmission Usage Charges – Wheel-Through Transactions

Hourly Settlement Inputs

SCD_Bal_WT_Trans_MWh:	SCD interval transaction balancing energy
SCD_WT_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_WT_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

Hourly Settlement Outputs

Hr_RT_Bal_WT_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_WT_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_WT_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_WT_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Hourly Settlement

$$\text{Hr_RT_Bal_WT_Trans_MWh} = \sum\{\text{SCD_Bal_WT_Trans_MWh}\}$$

$$\text{Hr_RT_WT_Trans_Losses_\$} = \sum\{\text{SCD_WT_Trans_Losses_\$}\}$$

$$\text{Hr_RT_WT_Trans_Congestion_\$} = \sum\{\text{SCD_WT_Trans_Congestion_\$}\}$$

$$\text{Hr_RT_WT_Trans_TUC_\$} = \text{Hr_RT_WT_Trans_Losses_\$} + \text{Hr_RT_WT_Trans_Congestion_\$}$$

Hourly Settlement Reported

Hr_RT_Bal_WT_Trans_MWh:	Hourly Advisory Statement Billing Code: 505
Hr_RT_WT_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 506
Hr_RT_WT_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 507
Hr_RT_WT_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 508

Daily Settlement

Daily Settlement Inputs

Hr_RT_Bal_WT_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_WT_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_WT_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_WT_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_RT_Bal_WT_Trans_MWh:	Daily Balancing transaction energy scheduled
Daily_RT_WT_Trans_Losses_\$:	Daily Balancing Transmission Usage Charge losses settlement
Daily_RT_WT_Trans_Congestion_\$:	Daily Balancing Transmission Usage Charge congestion settlement
Daily_RT_WT_Trans_TUC_\$:	Total Daily Balancing Transmission Usage Charge settlement

Daily Settlement

$$\text{Daily_RT_Bal_WT_Trans_MWh} = \sum\{\text{Hr_RT_Bal_WT_Trans_MWh}\}$$

$$\text{Daily_RT_WT_Trans_Losses_\$} = \sum\{\text{Hr_RT_WT_Trans_Losses_\$}\}$$

$$\text{Daily_RT_WT_Trans_Congestion_\$} = \sum\{\text{Hr_RT_WT_Trans_Congestion_\$}\}$$

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Balancing Transmission Usage Charges – Wheel-Through Transactions

$$\text{Daily_RT_WT_Trans_TUC_\$} = \sum\{\text{Hr_RT_WT_Trans_TUC_\$}\}$$

Daily Settlement Reported

Daily_RT_WT_Trans_MWHR:	Daily Advisory Billing Statement – Billing Code 754
Daily_RT_WT_Trans_Losses_\$:	Daily Advisory Billing Statement – Billing Code 755
Daily_RT_WT_Trans_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 756
Daily_RT_WT_Trans_TUC_\$:	Daily Advisory Billing Statement – Billing Code 757

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_LBMP_Imp_Losses_\$:	Daily RT LBMP import energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily RT LBMP import energy - congestion settlement [Billing Code 766]
Daily_RT_LBMP_Exp_Losses_\$:	Daily RT LBMP export energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily RT LBMP export energy - congestion settlement [Billing Code 766]
Daily_RT_Rep_Losses_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 765]
Daily_RT_Rep_Congestion_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 766]
Daily_RT_Int_Trans_Losses_\$:	Daily RT Internal Transaction losses settlement [Billing Code 755]
Daily_RT_Int_Trans_Congestion_\$:	Daily RT Internal Transaction congestion settlement [Billing Code 756]
Daily_RT_Imp_Trans_Losses_\$:	Daily RT Import Transaction losses settlement [Billing Code 755]
Daily_RT_Imp_Trans_Congestion_\$:	Daily RT ImportTransaction congestion settlement [Billing Code 756]
Daily_RT_Exp_Trans_Losses_\$:	Daily RT Export Transaction losses settlement [Billing Code 755]
Daily_RT_Exp_Trans_Congestion_\$:	Daily RT Export Transaction congestion settlement [Billing Code 756]
Daily_RT_WT_Trans_Losses_\$:	Daily RT Wheel Transaction losses settlement [Billing Code 755]
Daily_RT_WT_Trans_Congestion_\$:	Daily RT Wheel Transaction congestion settlement [Billing Code 756]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$:	Monthly RT losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$:	Monthly RT congestion Transmission Usage Charge settlement

Monthly Settlement

$$\text{Monthly_RT_TUC_Losses_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Losses_\$} + \text{Daily_RT_LBMP_Exp_Losses_\$} + \text{Daily_RT_Rep_Losses_\$} + \text{Daily_RT_Imp_Trans_Losses_\$} + \text{Daily_RT_Exp_Trans_Losses_\$} + \text{Daily_RT_WT_Trans_Losses_\$}\}$$

$$\text{Monthly_RT_TUC_Congestion_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Congestion_\$} + \text{Daily_RT_LBMP_Exp_Congestion_\$} + \text{Daily_RT_Rep_Congestion_\$} + \text{Daily_RT_Imp_Trans_Congestion_\$} + \text{Daily_RT_Exp_Trans_Congestion_\$} + \text{Daily_RT_WT_Trans_Congestion_\$}\}$$

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Balancing Transmission Usage Charges – NYCA Export Transactions

Non-LBMP export bilateral transactions are balanced the the higher of their DAM and BME schedules less the transmission service scheduled in real time. The settlements are settled at LBMPs dependent upon whether the contract(s) are modified and who modifies the schedule.

SCD interval Settlement

SCD_POI_of_Losses:	SCD interval Point of Injection LBMP losses component
SCD_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component
SCD_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component
SCD_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component
BME_POI_of_Losses:	Hourly BME Point of Injection LBMP losses component
BME_POI_Price_of_Congestion:	Hourly BME Point of Injection LBMP congestion component
BME_POW_of_Losses:	Hourly BME Point of Withdrawal LBMP losses component
BME_POW_Price_of_Congestion:	Hourly BME Point of Withdrawal LBMP congestion component
DAM_Exp_Trans_MWh:	Hourly DAM transaction energy <i>bid</i>
BME_Exp_Trans_MWh:	Hourly BME transaction energy <i>bid</i>
SCD_Exp_Trans_MWh:	SCD interval transaction energy that actually flowed
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

Bal_POI_of_Losses:	SCD interval Point of Injection LBMP losses component per settlement rules
Bal_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component per settlement rules
Bal_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component per settlement rules
Bal_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component per settlement rules
SCD_Bal_Exp_Trans_MWh:	SCD interval transaction balancing energy
SCD_Exp_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Exp_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

SCD Interval Settlement

Points of Injection are not NYISO external proxy buses.

$$SCD_Bal_Exp_Trans_MWh = \{\max(DAM_Exp_Trans_MWh, BME_Exp_Trans_MWh) - RT_Exp_Trans_MWh\} \times SCD_Interval \div 3600 \text{ seconds}$$

$$\underline{Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, Bal_POW_Price_of_Congestion = \dots}$$

If the transaction is not curtailed, or is curtailed by NYISO or an external control area the “SCD...” price components are used for Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, & Bal_POW_Price_of_Congestion.

If the transaction is curtailed by the Market Participant the lesser of the “SCD...” and “BME...” price components are used for Bal_POI_Price_of_Losses, Bal_POI_Price_of_Congestion, Bal_POW_Price_of_Losses, & Bal_POW_Price_of_Congestion.

$$SCD_Exp_Trans_Losses_\$ = SCD_Bal_Exp_Trans_MWh \times (Bal_POW_Price_of_Losses - Bal_POI_Price_of_Losses) \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_Exp_Trans_Congestion_\$ = SCD_Bal_Exp_Trans_MWh \times \{-1 \times (Bal_POW_Price_of_Congestion - Bal_POI_Price_of_Congestion)\} \times SCD_Interval \div 3600 \text{ seconds}$$

Hourly interval Settlement

Hourly Settlement Inputs

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Balancing Transmission Usage Charges – NYCA Export Transactions

SCD_Bal_Exp_Trans_MWh:	SCD interval transaction balancing energy
SCD_Exp_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Exp_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

Hourly Settlement Outputs

Hr_RT_Bal_Exp_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Exp_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Exp_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Exp_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Hourly Settlement

$$\text{Hr_RT_Bal_Exp_Trans_MWh} = \sum\{\text{SCD_Bal_Exp_Trans_MWh}\}$$

$$\text{Hr_RT_Exp_Trans_Losses_\$} = \sum\{\text{SCD_Exp_Trans_Losses_\$}\}$$

$$\text{Hr_RT_Exp_Trans_Congestion_\$} = \sum\{\text{SCD_Exp_Trans_Congestion_\$}\}$$

$$\text{Hr_RT_Exp_Trans_TUC_\$} = \text{Hr_RT_Exp_Trans_Losses_\$} + \text{Hr_RT_Exp_Trans_Congestion_\$}$$

Hourly Settlement Reported

Hr_RT_Bal_Exp_Trans_MWh:	Hourly Advisory Statement Billing Code: 505
Hr_RT_Exp_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 506
Hr_RT_Exp_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 507
Hr_RT_Exp_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 508

Daily Settlement

Daily Settlement Inputs

Hr_RT_Bal_Exp_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Exp_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Exp_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Exp_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_RT_Bal_Exp_Trans_MWh:	Daily Balancing transaction energy scheduled
Daily_RT_Exp_Trans_Losses_\$:	Daily Balancing Transmission Usage Charge losses settlement
Daily_RT_Exp_Trans_Congestion_\$:	Daily Balancing Transmission Usage Charge congestion settlement
Daily_RT_Exp_Trans_TUC_\$:	Total Daily Balancing Transmission Usage Charge settlement

Daily Settlement

$$\text{Daily_RT_Bal_Exp_Trans_MWh} = \sum\{\text{Hr_RT_Bal_Exp_Trans_MWh}\}$$

$$\text{Daily_RT_Exp_Trans_Losses_\$} = \sum\{\text{Hr_RT_Exp_Trans_Losses_\$}\}$$

$$\text{Daily_RT_Exp_Trans_Congestion_\$} = \sum\{\text{Hr_RT_Exp_Trans_Congestion_\$}\}$$

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Balancing Transmission Usage Charges – NYCA Export Transactions

$$\text{Daily_RT_Exp_Trans_TUC_\$} = \sum\{\text{Hr_RT_Exp_Trans_TUC_\$}\}$$

Daily Settlement Reported

Daily_RT_Exp_Trans_MWHR:	Daily Advisory Billing Statement – Billing Code 754
Daily_RT_Exp_Trans_Losses_\$:	Daily Advisory Billing Statement – Billing Code 755
Daily_RT_Exp_Trans_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 756
Daily_RT_Exp_Trans_TUC_\$:	Daily Advisory Billing Statement – Billing Code 757

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_LBMP_Imp_Losses_\$:	Daily RT LBMP import energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily RT LBMP import energy - congestion settlement [Billing Code 766]
Daily_RT_LBMP_Exp_Losses_\$:	Daily RT LBMP export energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily RT LBMP export energy - congestion settlement [Billing Code 766]
Daily_RT_Rep_Losses_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 765]
Daily_RT_Rep_Congestion_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 766]
Daily_RT_Int_Trans_Losses_\$:	Daily RT Internal Transaction losses settlement [Billing Code 755]
Daily_RT_Int_Trans_Congestion_\$:	Daily RT Internal Transaction congestion settlement [Billing Code 756]
Daily_RT_Imp_Trans_Losses_\$:	Daily RT Import Transaction losses settlement [Billing Code 755]
Daily_RT_Imp_Trans_Congestion_\$:	Daily RT ImportTransaction congestion settlement [Billing Code 756]
Daily_RT_Exp_Trans_Losses_\$:	Daily RT Export Transaction losses settlement [Billing Code 755]
Daily_RT_Exp_Trans_Congestion_\$:	Daily RT Export Transaction congestion settlement [Billing Code 756]
Daily_RT_WT_Trans_Losses_\$:	Daily RT Wheel Transaction losses settlement [Billing Code 755]
Daily_RT_WT_Trans_Congestion_\$:	Daily RT Wheel Transaction congestion settlement [Billing Code 756]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$:	Monthly RT losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$:	Monthly RT congestion Transmission Usage Charge settlement

Monthly Settlement

$$\text{Monthly_RT_TUC_Losses_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Losses_\$} + \text{Daily_RT_LBMP_Exp_Losses_\$} + \text{Daily_RT_Rep_Losses_\$} + \text{Daily_RT_Imp_Trans_Losses_\$} + \text{Daily_RT_Exp_Trans_Losses_\$} + \text{Daily_RT_WT_Trans_Losses_\$}\}$$

$$\text{Monthly_RT_TUC_Congestion_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Congestion_\$} + \text{Daily_RT_LBMP_Exp_Congestion_\$} + \text{Daily_RT_Rep_Congestion_\$} + \text{Daily_RT_Imp_Trans_Congestion_\$} + \text{Daily_RT_Exp_Trans_Congestion_\$} + \text{Daily_RT_WT_Trans_Congestion_\$}\}$$

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 Balancing Market Transmission Usage Charges – NYCA Import Transactions

Non-LBMP Import Bilateral transactions are settled upon bid capacity regardless of any difference between bid and scheduled service. Import bilaterals are treated like internal bilaterals and considered purely financial in nature; however, NYCA load will always be served reliably. In the event of curtailment by the NYISO, the scheduling party will be required to purchase replacement energy at the import's point of injection [POI] at the prevailing POI LBMP.

SCD interval Settlement

SCD_POI_of_Losses:	SCD interval Point of Injection LBMP losses component
SCD_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component
SCD_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component
SCD_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component
DAM_Imp_Trans_MWh:	Hourly DAM transaction energy <i>bid</i>
HAM_Imp_Trans_MWh:	Hourly HAM transaction energy <i>bid</i>
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

SCD_Bal_Imp_Trans_MWh:	SCD interval transaction balancing energy
SCD_Imp_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Imp_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

SCD Interval Settlement

Point of Injection is a NYISO external proxy bus

Point of Withdrawal is not a NYISO external proxy bus or the NYISO Reference bus

$$SCD_Bal_Imp_Trans_MWh = \{ \max (DAM_Imp_Trans_MWh, HAM_Imp_Trans_MWh) - DAM_Imp_Trans_MWh \} \times SCD_Interval \div 3600$$

seconds

$$SCD_Imp_Trans_Losses_\$ = SCD_Bal_Imp_Trans_MWh \times (SCD_POW_Price_of_Losses - SCD_POI_Price_of_Losses) \times SCD_Interval \div 3600$$

seconds

$$SCD_Imp_Trans_Congestion_\$ = SCD_Bal_Imp_Trans_MWh \times \{ -1 \times (SCD_POW_Price_of_Congestion - SCD_POI_Price_of_Congestion) \} \times SCD_Interval \div 3600$$

seconds

Hourly interval Settlement

Hourly Settlement Inputs

SCD_Bal_Imp_Trans_MWh:	SCD interval transaction balancing energy
SCD_Imp_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Imp_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

Hourly Settlement Outputs

Hr_RT_Bal_Imp_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Imp_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Imp_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Imp_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

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Balancing Market Transmission Usage Charges – NYCA Import Transactions

Hourly Settlement

$Hr_RT_Bal_Imp_Trans_MWh = \sum\{SCD_Bal_Imp_Trans_MWh\}$
 $Hr_RT_Imp_Trans_Losses_\$ = \sum\{SCD_Imp_Trans_Losses_ \$\}$
 $Hr_RT_Imp_Trans_Congestion_ \$ = \sum\{SCD_Imp_Trans_Congestion_ \$\}$
 $Hr_RT_Imp_Trans_TUC_ \$ = Hr_RT_Imp_Trans_Losses_ \$ + Hr_RT_Imp_Trans_Congestion_ \$$

Hourly Settlement Reported

Hr_RT_Bal_Imp_Trans_MWh:	Hourly Advisory Statement Billing Code: 505
Hr_RT_Imp_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 506
Hr_RT_Imp_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 507
Hr_RT_Imp_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 508

Daily Settlement

Daily Settlement Inputs

Hr_RT_Bal_Imp_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Imp_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Imp_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Imp_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_RT_Bal_Imp_Trans_MWh:	Daily Balancing transaction energy scheduled
Daily_RT_Imp_Trans_Losses_\$:	Daily Balancing Transmission Usage Charge losses settlement
Daily_RT_Imp_Trans_Congestion_\$:	Daily Balancing Transmission Usage Charge congestion settlement
Daily_RT_Imp_Trans_TUC_\$:	Total Daily Balancing Transmission Usage Charge settlement

Daily Settlement

$Daily_RT_Bal_Imp_Trans_MWh = \sum\{Hr_RT_Bal_Imp_Trans_MWh\}$
 $Daily_RT_Imp_Trans_Losses_ \$ = \sum\{Hr_RT_Imp_Trans_Losses_ \$\}$
 $Daily_RT_Imp_Trans_Congestion_ \$ = \sum\{Hr_RT_Imp_Trans_Congestion_ \$\}$
 $Daily_RT_Imp_Trans_TUC_ \$ = \sum\{Hr_RT_Imp_Trans_TUC_ \$\}$

Daily Settlement Reported

Daily_RT_Imp_Trans_MWhr:	Daily Advisory Billing Statement – Billing Code 754
Daily_RT_Imp_Trans_Losses_\$:	Daily Advisory Billing Statement – Billing Code 755
Daily_RT_Imp_Trans_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 756
Daily_RT_Imp_Trans_TUC_\$:	Daily Advisory Billing Statement – Billing Code 757

Monthly Settlement

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Balancing Market Transmission Usage Charges – NYCA Import Transactions

Monthly Settlement Inputs

Daily_RT_LBMP_Imp_Losses_\$:	Daily RT LBMP import energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily RT LBMP import energy - congestion settlement [Billing Code 766]
Daily_RT_LBMP_Exp_Losses_\$:	Daily RT LBMP export energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily RT LBMP export energy - congestion settlement [Billing Code 766]
Daily_RT_Rep_Losses_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 765]
Daily_RT_Rep_Congestion_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 766]
Daily_RT_Int_Trans_Losses_\$:	Daily RT Internal Transaction losses settlement [Billing Code 755]
Daily_RT_Int_Trans_Congestion_\$:	Daily RT Internal Transaction congestion settlement [Billing Code 756]
Daily_RT_Imp_Trans_Losses_\$:	Daily RT Import Transaction losses settlement [Billing Code 755]
Daily_RT_Imp_Trans_Congestion_\$:	Daily RT ImportTransaction congestion settlement [Billing Code 756]
Daily_RT_Exp_Trans_Losses_\$:	Daily RT Export Transaction losses settlement [Billing Code 755]
Daily_RT_Exp_Trans_Congestion_\$:	Daily RT Export Transaction congestion settlement [Billing Code 756]
Daily_RT_WT_Trans_Losses_\$:	Daily RT Wheel Transaction losses settlement [Billing Code 755]
Daily_RT_WT_Trans_Congestion_\$:	Daily RT Wheel Transaction congestion settlement [Billing Code 756]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$:	Monthly RT losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$:	Monthly RT congestion Transmission Usage Charge settlement

Monthly Settlement

$$\text{Monthly_RT_TUC_Losses_} \$ = \sum \{ \text{Daily_RT_LBMP_Imp_Losses_} \$ + \text{Daily_RT_LBMP_Exp_Losses_} \$ + \text{Daily_RT_Rep_Losses_} \$ + \text{Daily_RT_Imp_Trans_Losses_} \$: \text{Daily_RT_Exp_Trans_Losses_} \$: \text{Daily_RT_WT_Trans_Losses_} \$ \}$$
$$\text{Monthly_RT_TUC_Congestion_} \$ = \sum \{ \text{Daily_RT_LBMP_Imp_Congestion_} \$ + \text{Daily_RT_LBMP_Exp_Congestion_} \$ + \text{Daily_RT_Rep_Congestion_} \$ + \text{Daily_RT_Imp_Trans_Congestion_} \$ + \text{Daily_RT_Exp_Trans_Congestion_} \$ + \text{Daily_RT_WT_Trans_Congestion_} \$ \}$$

Balancing Market Transmission Usage Charges – NYCA Internal Transactions

Bilateral transactions between suppliers and loads located within the NYCA are purely financial in nature and are not usually subject to curtailment. Curtailments are usually a result of generators' inability to fulfill specific contractual obligations to physically serve the contract rather than purchasing energy from the spot market to cover the contracts.

Qualified PURPA facilities are contractually required to physically serve their "PURPA" bilateral contracts. When PURPA generators offer these resources at prices where DAM economics result in their not being scheduled to serve those contracts in the DAM, those generators will purchase energy from the DAM to cover those commitments; thus jeopardizing their Qualified Facilities status.

PURPA generators are often cogeneration facilities which operate to supply steam to manufacturing processes. Since actual steam demand may vary in real-time, the generators' MWh output may vary. In order to accommodate this issue, DAM versus real-time market economics differences, and system re-dispatch, a mechanism has been created within the settlements system that will either increase or decrease the PURPA bilateral transactions' MWh to match the output of the PURPA generator, avoiding exposing their Qualified Facilities status.

SCD interval Settlement

SCD Interval Settlement Inputs

SCD_POI_of_Losses:	SCD interval Point of Injection LBMP losses component
SCD_POI_Price_of_Congestion:	SCD interval Point of Injection LBMP congestion component
SCD_POW_of_Losses:	SCD interval Point of Withdrawal LBMP losses component
SCD_POW_Price_of_Congestion:	SCD interval Point of Withdrawal LBMP congestion component
DAM_Int_Trans_MWh:	Hourly DAM transaction energy contracted
HAM_Int_Trans_MWh:	Hourly HAM transaction energy scheduled
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

SCD_Bal_Int_Trans_MWh:	SCD interval transaction balancing energy
SCD_Int_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Int_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

SCD Interval Settlement

Point of Injection is not a NYISO external proxy bus or the NYISO Reference bus

Point of Withdrawal is not a NYISO external proxy bus or the NYISO Reference bus

$$SCD_Bal_Int_Trans_MWh = \{ \max (DAM_Int_Trans_MWh, HAM_Int_Trans_MWh) - DAM_Int_Trans_MWh \} \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_Int_Trans_Losses_\$ = SCD_Bal_Int_Trans_MWh \times (SCD_POW_Price_of_Losses - SCD_POI_Price_of_Losses) \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_Int_Trans_Congestion_\$ = SCD_Bal_Int_Trans_MWh \times \{ -1 \times (SCD_POW_Price_of_Congestion - SCD_POI_Price_of_Congestion) \} \times SCD_Interval \div 3600 \text{ seconds}$$

Hourly interval Settlement

Hourly Settlement Inputs

SCD_Bal_Int_Trans_MWh:	SCD interval transaction balancing energy
SCD_Int_Trans_Losses_\$:	SCD interval Transmission Usage Charge losses settlement
SCD_Int_Trans_Congestion_\$:	SCD interval Transmission Usage Charge congestion settlement

Hourly Settlement Outputs

Hr_RT_Bal_Int_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Int_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Int_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Int_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Hourly Settlement

$$\text{Hr_RT_Bal_Int_Trans_MWh} = \sum\{\text{SCD_Bal_Int_Trans_MWh}\}$$

$$\text{Hr_RT_Int_Trans_Losses_\$} = \sum\{\text{SCD_Int_Trans_Losses_\$}\}$$

$$\text{Hr_RT_Int_Trans_Congestion_\$} = \sum\{\text{SCD_Int_Trans_Congestion_\$}\}$$

$$\text{Hr_RT_Int_Trans_TUC_\$} = \text{Hr_RT_Int_Trans_Losses_\$} + \text{Hr_RT_Int_Trans_Congestion_\$}$$

Hourly Settlement Reported

Hr_RT_Bal_Int_Trans_MWh:	Hourly Advisory Statement Billing Code: 505
Hr_RT_Int_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 506
Hr_RT_Int_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 507
Hr_RT_Int_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 508

Daily Settlement

Daily Settlement Inputs

Hr_RT_Bal_Int_Trans_MWh:	Hourly Balancing transaction energy
Hr_RT_Int_Trans_Losses_\$:	Hourly Balancing Transmission Usage Charge losses settlement
Hr_RT_Int_Trans_Congestion_\$:	Hourly Balancing Transmission Usage Charge congestion settlement
Hr_RT_Int_Trans_TUC_\$:	Total Hourly Balancing Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_RT_Bal_Int_Trans_MWh:	Daily Balancing transaction energy scheduled
Daily_RT_Int_Trans_Losses_\$:	Daily Balancing Transmission Usage Charge losses settlement
Daily_RT_Int_Trans_Congestion_\$:	Daily Balancing Transmission Usage Charge congestion settlement
Daily_RT_Int_Trans_TUC_\$:	Total Daily Balancing Transmission Usage Charge settlement

Daily Settlement

$$\text{Daily_RT_Bal_Int_Trans_MWh} = \sum\{\text{Hr_RT_Bal_Int_Trans_MWh}\}$$

MSR-0018

Balancing Market NYCA Internal Transaction Transmission Usage Charge

Daily_RT_Int_Trans_Losses_\$ = $\sum\{\text{Hr_RT_Int_Trans_Losses_}\}$

Daily_RT_Int_Trans_Congestion_\$ = $\sum\{\text{Hr_RT_Int_Trans_Congestion_}\}$

Daily_RT_Int_Trans_TUC_\$ = $\sum\{\text{Hr_RT_Int_Trans_TUC_}\}$

Daily Settlement Reported

Daily_RT_Int_Trans_MWHR:	Daily Advisory Billing Statement – Billing Code 754
Daily_RT_Int_Trans_Losses_\$:	Daily Advisory Billing Statement – Billing Code 755
Daily_RT_Int_Trans_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 756
Daily_RT_Int_Trans_TUC_\$:	Daily Advisory Billing Statement – Billing Code 757

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_LBMP_Imp_Losses_\$:	Daily RT LBMP import energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily RT LBMP import energy - congestion settlement [Billing Code 766]
Daily_RT_LBMP_Exp_Losses_\$:	Daily RT LBMP export energy - losses settlement [Billing Code 765]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily RT LBMP export energy - congestion settlement [Billing Code 766]
Daily_RT_Rep_Losses_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 765]
Daily_RT_Rep_Congestion_\$:	Daily RT LBMP replacement energy for curtailed imports [Billing Code 766]
Daily_RT_Int_Trans_Losses_\$:	Daily RT Internal Transaction losses settlement [Billing Code 755]
Daily_RT_Int_Trans_Congestion_\$:	Daily RT Internal Transaction congestion settlement [Billing Code 756]
Daily_RT_Imp_Trans_Losses_\$:	Daily RT Import Transaction losses settlement [Billing Code 755]
Daily_RT_Imp_Trans_Congestion_\$:	Daily RT ImportTransaction congestion settlement [Billing Code 756]
Daily_RT_Exp_Trans_Losses_\$:	Daily RT Export Transaction losses settlement [Billing Code 755]
Daily_RT_Exp_Trans_Congestion_\$:	Daily RT Export Transaction congestion settlement [Billing Code 756]
Daily_RT_WT_Trans_Losses_\$:	Daily RT Wheel Transaction losses settlement [Billing Code 755]
Daily_RT_WT_Trans_Congestion_\$:	Daily RT Wheel Transaction congestion settlement [Billing Code 756]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$:	Monthly RT losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$:	Monthly RT congestion Transmission Usage Charge settlement

Monthly Settlement

Monthly_RT_TUC_Losses_\$ = $\sum\{\text{Daily_RT_LBMP_Imp_Losses_} + \text{Daily_RT_LBMP_Exp_Losses_} + \text{Daily_RT_Rep_Losses_} + \text{Daily_RT_Imp_Trans_Losses_} + \text{Daily_RT_Exp_Trans_Losses_} + \text{Daily_RT_WT_Trans_Losses_}\}$

Monthly_RT_TUC_Congestion_\$ = $\sum\{\text{Daily_RT_LBMP_Imp_Congestion_} + \text{Daily_RT_LBMP_Exp_Congestion_} + \text{Daily_RT_Rep_Congestion_} + \text{Daily_RT_Imp_Trans_Congestion_} + \text{Daily_RT_Exp_Trans_Congestion_} + \text{Daily_RT_WT_Trans_Congestion_}\}$

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 MSR-0017
 Virtual Supply Balancing Energy

Virtual Supply is bid into the NYISO DAM in the same manner as price capped load. Since the MWh contracted day-ahead are purely financial and not based upon an actual generator producing energy, the output of this “virtual” generator is zero in real-time. The result is the Virtual Supplier purchases back their hourly DAM schedules, which balances at real-time prices. If the DAM LBMPs are higher than the real-time LBMPs, the Virtual Suppliers realize a profit.

SCD Interval Settlement

SCD Interval Settlement Inputs

RT_Price_of_Energy:	SCD interval LBMP energy component
RT_Price_of_Losses:	SCD interval LBMP losses component
RT_Price_of_Congestion:	SCD interval LBMP congestion component
DAM_MWh	Hourly DAM Virtual Supply energy contracted
SCD_Interval	SCD interval length in seconds

SCD Interval Settlement Outputs

SCD_RT_VS_MWh:	SCD interval Virtual Supply energy purchased
SCD_RT_VS_Energy_\$:	SCD interval Virtual Supply energy settlement
SCD_RT_VS_Losses_\$:	SCD interval Virtual Supply losses settlement
SCD_RT_VS_Congestion_\$:	SCD interval Virtual Supply congestion settlement
SCD_RT_VS_\$:	SCD interval net Virtual Supply settlement

SCD Interval Settlement

$$SCD_RT_VS_MWh = - DAM_MWh \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VS_Energy_\$ = SCD_RT_VS_MWh \times RT_Price_of_Energy \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VS_Losses_\$ = SCD_RT_VS_MWh \times RT_Price_of_Losses \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VS_Congestion_\$ = SCD_RT_VS_MWh \times \{-1 \times RT_Price_of_Congestion\} \times SCD_Interval \div 3600 \text{ seconds}$$

$$SCD_RT_VS_\$ = SCD_RT_VS_Energy_\$ + SCD_RT_VS_Losses_\$ + SCD_RT_VS_Congestion_\$$$

Hourly Settlement

Hourly Settlement Inputs

SCD_RT_VS_\$:	SCD interval net Virtual Supply balancing settlement
---------------	--

Hourly Settlement Outputs

Hr_RT_VS_\$:	Hourly net Virtual Supply balancing settlement
--------------	--

Hourly Settlement

$$Hr_RT_VS_\$ = \sum\{Hr_RT_VS_ \$\}$$

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MSR-0017
Virtual Supply Balancing Energy
Hourly Settlement Reported

Hr_RT_VS_\$: Hourly Advisory Billing Statement – Billing Code 417

Daily Settlement

Daily Settlement Inputs

Hr_RT_VS_\$: Hourly net Virtual Supply balancing settlement

Daily Settlement Outputs

Daily_RT_VS_\$: Daily net Virtual Supply balancing settlement

Daily Settlement

Daily_RT_VS_\$ = $\sum\{Hr_RT_VS_ \$\}$

Daily Settlement Reported

Daily_RT_VS_\$: Daily Advisory Billing Statement – Billing Code 775

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_VS_\$: Daily net Virtual Supply balancing settlement

Monthly Settlement Outputs

Monthly_RT_VS_\$: Monthly Monthly net Virtual Supply balancing settlement

Daily Settlement

Monthly_RT_VS_\$ = $\sum\{Daily_RT_VS_ \$\}$

Monthly Settlement Reported

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MSR-0016
Non-NYCA Supplier Balancing Market Energy

Suppliers located externally to the NYCA offer their resources to the real-time market to provide energy to the NYISO wholesale energy market through bilateral contracts. This real-time supply is scheduled through the Balancing Market Evaluation process. DAM LBMP energy import schedules that are changed either by BME or curtailed in-hour are balanced through MSR-0016. NYCA LBMP energy imports are scheduled as import transactions with the NYISO reference bus as the scheduled point of withdrawal.

SCD Interval Settlement

SCD Interval Settlement Inputs

Hr_DAM_LBMP_Imp_Transaction_MWh:	Hourly LBMP energy import transaction MWh scheduled by SCUC
SCD_RT_LBMP_Imp_Transaction_MWh:	SCD interval LBMP energy import transaction MWh actually transacted
RT_Price_of_Energy:	SCD interval LBMP energy component at the proxy bus bid as point of injection
RT_Price_of_Losses:	SCD interval LBMP losses component at the proxy bus bid as point of injection
RT_Price_of_Congestion:	SCD interval LBMP congestion component at the proxy bus bid as point of injection
SCD_interval	Length of the SCD interval in seconds

SCD Interval Settlement Outputs

SCD_LBMP_Imp_Transaction_MWh:	SCD interval LBMP import balancing energy MWh
SCD_LBMP_Imp_Energy_\$:	SCD interval LBMP import energy - energy settlement
SCD_LBMP_Imp_Losses_\$:	SCD interval LBMP import energy - losses settlement
SCD_LBMP_Imp_Congestion_\$:	SCD interval import energy - congestion settlement
SCD_LBMP_Imp_\$:	SCD interval Net DAM LBMP import settlement

SCD Interval Settlement

$$SCD_LBMP_Imp_Transaction_MWh = \{SCD_RT_LBMP_Imp_Transaction_MWh - Hr_DAM_LBMP_Imp_Transaction_MWh\} \times SCD_interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Imp_Energy_\$ = SCD_LBMP_Imp_Transaction_MWh \times RT_Price_of_Energy \times SCD_interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Imp_Losses_\$ = SCD_LBMP_Imp_Transaction_MWh \times RT_Price_of_Losses \times SCD_interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Imp_Congestion_\$ = SCD_LBMP_Imp_Transaction_MWh \times \{-RT_Price_of_Congestion\} \times SCD_interval \div 3600 \text{ seconds}$$

$$SCD_LBMP_Imp_\$ = SCD_LBMP_Imp_Energy_\$ + SCD_LBMP_Imp_Losses_\$ + SCD_LBMP_Imp_Congestion_\$$$

Hourly Settlement

Hourly Settlement Inputs

SCD_LBMP_Imp_Transaction_MWh:	SCD interval LBMP import balancing energy MWh
SCD_LBMP_Imp_Energy_\$:	SCD interval LBMP import energy - energy settlement
SCD_LBMP_Imp_Losses_\$:	SCD interval LBMP import energy - losses settlement
SCD_LBMP_Imp_Congestion_\$:	SCD interval import energy - congestion settlement
SCD_LBMP_Imp_\$:	SCD interval Net DAM LBMP import settlement

Hourly Settlement Outputs

HR_RT_LBMP_Imp_Transaction_MWh:	Hourly LBMP import balancing energy MWh
HR_RT_LBMP_Imp_Energy_\$:	Hourly LBMP import balancing energy - energy settlement

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Non-NYCA Supplier Balancing Market Energy

HR_RT_LBMP_Imp_Losses_\$: Hourly LBMP import balancing energy - losses settlement
HR_RT_LBMP_Imp_Congestion_\$: Hourly import balancing energy - congestion settlement
HR_RT_LBMP_Imp_\$: Hourly Net DAM LBMP import balancing settlement

Hourly Settlement

$Hr_RT_LBMP_Imp_MWh = \sum\{SCD_LBMP_Imp_MWh\}$

$Hr_RT_LBMP_Imp_Energy_\$ = \sum\{SCD_LBMP_Imp_Energy_ \$\}$

$Hr_RT_LBMP_Imp_Losses_ \$ = \sum\{SCD_LBMP_Imp_Losses_ \$\}$

$Hr_RT_LBMP_Imp_Congestion_ \$ = \sum\{SCD_LBMP_Imp_Congestion_ \$\}$

$Hr_RT_LBMP_Imp_ \$ = \sum\{SCD_LBMP_Imp_ \$\}$

Hourly Settlement Reported

Hr_RT_LBMP_Imp_Transaction_MWh: Hourly Advisory Billing Statement – Billing Code 511
Hr_RT_LBMP_Imp_Energy_\$: Hourly Advisory Billing Statement – Billing Code 512
Hr_RT_LBMP_Imp_Losses_\$: Hourly Advisory Billing Statement – Billing Code 513
Hr_RT_LBMP_Imp_Congestion_\$: Hourly Advisory Billing Statement – Billing Code 514
Hr_RT_LBMP_Imp_\$: Hourly Advisory Billing Statement – Billing Code 515

Daily Settlement

Daily Settlement Inputs

Hr_RT_LBMP_Imp_MWh: Hourly LBMP energy import transaction MWh scheduled by SCUC
Hr_RT_LBMP_Imp_Energy_\$: Hourly DAM LBMP import energy - energy settlement
Hr_RT_LBMP_Imp_Losses_\$: Hourly DAM LBMP import energy - losses settlement
Hr_RT_LBMP_Imp_Congestion_\$: Hourly DAM LBMP import energy - congestion settlement
Hr_RT_LBMP_Imp_\$: Hourly Net DAM LBMP import settlement

Daily Settlement Output

Daily_RT_LBMP_Imp_MWh: Daily DAM LBMP import energy sold/(purchased)
Daily_RT_LBMP_Imp_Energy_\$: Daily DAM LBMP import energy - energy settlement
Daily_RT_LBMP_Imp_Losses_\$: Daily DAM LBMP import energy - losses settlement
Daily_RT_LBMP_Imp_Congestion_\$: Daily DAM LBMP import energy - congestion settlement
Daily_RT_LBMP_Imp_\$: Daily Net DAM LBMP import settlement

Daily Settlement

$Daily_RT_LBMP_Imp_MWh = \sum\{Hr_RT_LBMP_Imp_MWh\}$

$Daily_RT_LBMP_Imp_Energy_ \$ = \sum\{Hr_RT_LBMP_Imp_Energy_ \$\}$

$Daily_RT_LBMP_Imp_Losses_ \$ = \sum\{Hr_RT_LBMP_Imp_Losses_ \$\}$

$Daily_RT_LBMP_Imp_Congestion_ \$ = \sum\{Hr_RT_LBMP_Imp_Congestion_ \$\}$

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Non-NYCA Supplier Balancing Market Energy

Daily_RT_LBMP_Imp_\$ = $\sum\{Hr_RT_LBMP_Imp_ \$\}$

Daily Settlement Reported

Daily_RT_LBMP_Imp_MWh:	Daily Advisory Billing Statement – Billing Code 758
Daily_RT_LBMP_Imp_Energy_\$:	Daily Advisory Billing Statement – Billing Code 759
Daily_RT_LBMP_Imp_Losses_\$:	Daily Advisory Billing Statement – Billing Code 760
Daily_RT_LBMP_Imp_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 761
Daily_RT_LBMP_Imp_\$:	Daily Advisory Billing Statement – Billing Code 762

Monthly Settlement

Monthly Settlement Inputs

Daily_RT_LBMP_Imp_MWh:	Daily LBMP import balancing energy sold/(purchased) [Billing Code 758]
Daily_RT_LBMP_Imp_Energy_\$:	Daily LBMP import balancing energy - energy settlement [Billing Code 759]
Daily_RT_LBMP_Imp_Losses_\$:	Daily LBMP import balancing energy - losses settlement [Billing Code 760]
Daily_RT_LBMP_Imp_Congestion_\$:	Daily LBMP import balancing energy - congestion settlement [Billing Code 761]
Daily_RT_LBMP_Exp_MWh:	Daily LBMP export balancing energy sold/(purchased) [Billing Code 758]
Daily_RT_LBMP_Exp_Energy_\$:	Daily LBMP export balancing energy - energy settlement [Billing Code 759]
Daily_RT_LBMP_Exp_Losses_\$:	Daily LBMP export balancing energy - losses settlement [Billing Code 760]
Daily_RT_LBMP_Exp_Congestion_\$:	Daily LBMP export balancing energy - congestion settlement [Billing Code 761]
Daily_RT_Rep_LBMP_MWh:	Daily LBMP replacement balancing energy for curtailed imports [Billing Code 758]
Daily_RT_Rep_Energy_\$:	Daily LBMP replacement balancing energy for curtailed imports [Billing Code 759]
Daily_RT_Rep_Losses_\$:	Daily LBMP replacement balancing energy for curtailed imports [Billing Code 760]
Daily_RT_Rep_Congestion_\$:	Daily LBMP replacement balancing energy for curtailed imports [Billing Code 761]
Daily_RT_NYCA_LSE_MWh:	Daily LSE balancing energy scheduled [Billing Code 700]
Daily_RT_NYCA_LSE_Energy_\$:	Daily LSE balancing energy settlement[Billing Code 701]
Daily_RT_NYCA_LSE_Losses_\$:	Daily LSE balancing losses settlement[Billing Code 702]
Daily_RT_NYCA_LSE_Congestion_\$:	Daily LSE balancing congestion settlement[Billing Code 703]
Daily_RT_Int_Trans_Losses_\$:	Daily Internal Transaction balancing losses settlement [Billing Code 751]
Daily_RT_Int_Trans_Congestion_\$:	Daily Internal Transaction balancing congestion settlement [Billing Code 752]
Daily_RT_Imp_Trans_Losses_\$:	Daily Import Transaction balancing losses settlement [Billing Code 751]
Daily_RT_Imp_Trans_Congestion_\$:	Daily ImportTransaction balancing congestion settlement [Billing Code 752]
Daily_RT_Exp_Trans_Losses_\$:	Daily Export Transaction balancing losses settlement [Billing Code 751]
Daily_RT_Exp_Trans_Congestion_\$:	Daily Export Transaction balancing congestion settlement [Billing Code 752]
Daily_RT_WT_Trans_Losses_\$:	Daily Wheel Transaction balancing losses settlement [Billing Code 751]
Daily_RT_WT_Trans_Congestion_\$:	Daily Wheel Transaction balancing congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_LBMP_MWh:	Monthly DAM energy sold/(purchased)
Monthly_DA_Energy_\$:	Monthly DAM energy settlement
Monthly_DA_Losses_\$:	Monthly DAM losses settlement
Monthly_DA_Congestion_\$:	Monthly DAM congestion settlement

Monthly Settlement

Monthly_DA_LBMP_MWh = $\sum\{ \text{Daily_RT_LBMP_Imp_MWh} + \text{Daily_RT_LBMP_Exp_MWh} + \text{Daily_RT_Rep_LBMP_MWh} + \text{Daily_RTM_NYCA_LSE_MWh} \}$

Monthly_DA_Energy_\$ = $\sum\{ \text{Daily_RT_LBMP_Imp_Energy_ \$} + \text{Daily_RT_LBMP_Exp_Energy_ \$} + \text{Daily_RT_Rep_Energy_ \$} + \dots \}$

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Non-NYCA Supplier Balancing Market Energy

$$\text{Daily_RTM_NYCA_LSE_Energy_\$} + \text{Daily_RTM_NYCA_LSE_Losses_\$} + \text{Daily_RTM_NYCA_LSE_Congestion_\$}$$

$$\text{Monthly_DA_Losses_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Losses_\$} + \text{Daily_RT_LBMP_Exp_Losses_\$} + \text{Daily_RT_Rep_Losses_\$} + \\ \text{Daily_RT_Imp_Trans_Losses_\$} + \text{Daily_RT_Exp_Trans_Losses_\$} + \text{Daily_RT_WT_Trans_Losses_\$}\}$$

$$\text{Monthly_DA_Congestion_\$} = \sum\{\text{Daily_RT_LBMP_Imp_Congestion_\$} + \text{Daily_RT_LBMP_Exp_Congestion_\$} + \text{Daily_RT_Rep_Congestion_\$} \\ + \text{Daily_RT_Imp_Trans_Congestion_\$} + \text{Daily_RT_Exp_Trans_Congestion_\$} + \text{Daily_RT_WT_Trans_Congestion_\$}\}$$

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MSR-0015

Balancing NYCA Supplier Energy

The Balancing Energy Market for NYCA Power Suppliers provides for the settlement of LBMP market energy commitments met in real-time, incremental or decremental over unit capacity committed to serve DAM LBMP energy and bilateral contract energy.

A number of factors dictate the level of supply at which resources are settled in the Balancing Market. These factors range from contractual obligations to generator performance criteria, such as unit status. Listed below are the logical triggers that impact this settlement:

- ❖ Is the Resource a customer under the Market Administration & Control Area Services Tariff?
- ❖ Is the Resource located within the NYCA?
- ❖ Is the Resource "in-service"?
- ❖ Is the Resource operating within expected tolerances?
- ❖ Is the LBMP less than zero?
- ❖ Is Resource a Regulation Service provider?
- ❖ Is Resource classified as a PURPA Class 1 supplier?
- ❖ Is Resource classified as a PURPA Class 2 supplier?
- ❖ Is the Resource being specifically dispatched to respond to a "Reserve Pick-up"?
- ❖ Is the Resource "on-dispatch"?
- ❖ Is the Resource being dispatched "out of economic merit" and if so, why?
- ❖ Is the unit schedule a result of a derate as an Energy Limited Resource [ELR]?
- ❖ Is the unit schedule a result of a derate as a Capacity Limited Resource [CLR]?
- ❖ Is the date of scheduled service prior to July 25, 2001?
- ❖ Is the unit a grouped unit or member of group?

NYCA Power Suppliers may offer capacity not committed in the day-ahead market [DAM] to the real-time/Balancing Market to provide energy to the New York wholesale energy market or to supply energy according to any bilateral contract commitments. Bilateral energy is not settled through the NYISO; however, bilateral transactions must be scheduled with the NYISO to secure transmission service to transport the energy from the source of the transactions to their points of withdrawal [a.k.a points of delivery or sinks].

Capacity not scheduled day-ahead may be offered by submitting offers/bids to the NYISO, which are then evaluated by Balancing Market Evaluation [BME]. BME, like Security Constrained Unit Commitment [SCUC], schedules the most economic resources to serve any load and bilateral transactions scheduled.

NYCA Resource Balancing Market energy settlements are driven by the resources' energy obligations, real time status and performance. Settlements are performed at the Security Constrained Dispatch [SCD] interval level, which is nominally 5 minutes in length. The SCD interval settlements are time & load weighted, and integrated to provide hourly settlements.

Prior to July 25, 2001, the basis for balancing energy settlements may be the actual output of the unit, the SCD base point of the unit, the AGC base point of the unit, or a derivative of the three quantities. Effective July 25, 2001, generation that is scheduled "off-dispatch" could "chase price". An "economic base point" (EBP) is calculated at the end of each dispatch. In the steady state the EBP of a generating unit is the energy production rate (MW) at the intersection of RT LBMP and the unit's energy bid, called the "price-based MW limit" (PBML). The EBP recognizes the ramp rate of the unit and may not exactly align with PBML. The average energy payment limit (EPL) represents the upper limit for average energy supplied over an SCD interval that will serve as the "balancing MW basis" for energy settlement.

After July 25, 2001, an off-dispatch generating unit is paid for energy produced up to the higher of its "BME base point" (average of its' ramped base point at the start and end of the SCD interval) or its "economic base point" (EBP) plus a tolerance. This will allow off-dispatch generating units to "chase price" and be paid for deviations above their schedules provided such deviations are economically consistent. While an EBP may be calculated for on-dispatch generating units, such units shall be paid for energy produced up to their "SCD base point" (BP) plus a tolerance, currently 3% of the unit's operating capacity.

Resources that provide Regulation Service are dispatched in 6 second intervals [AGC base points]. Regulation Service providers are paid based upon either the units' output, SCD, AGC base points, or a derivative of the three. The AGC base points are averaged over the SCD interval for billing purposes. The SCD base point instructs generation to increase, decrease, or hold their output, based upon economics or security. The AGC base point allows system supply to follow system load more closely by shortening the time period between system dispatches from the SCD interval, which is nominally every 5 minutes, to every 6 seconds.

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Balancing NYCA Supplier Energy

The purpose for Regulation Service is to ensure sufficient capacity “on-dispatch” to follow system loading during real time operation. Regulation Service providers may be dispatched into uneconomic areas of their bid curve. In order to provide for lost opportunity cost recovery, Regulation Service providers are paid at the greater of the SCD or AGC base points, and the lesser of their AGC base point or adjusted output to ensure that failure to supply the energy dispatched is not compensated.

If an SCD interval is the result of a Reserve Pick-up, operating reserve suppliers are dispatched at emergency ramp rates. During a Reserve Pick-up, over-generation will be compensated at the prevailing LBMP. In other words, settlements are based upon units’ outputs versus AGC base points, SCD basepoints, or Energy Payment Limits. Over-generation during Reserve Pick-ups is rewarded because it may provide for faster resolution of the system constraint that prompted the Reserve Pick-up. The response of providers of Operating Reserve Service is tracked to ensure that the amount of Operating Reserves scheduled were indeed provided when Reserve Pick-ups have been dispatched.

Another instance where units are compensated based upon their adjusted output is when the Resource is being dispatched out of economic merit. This condition is usually the result of a system constraint that SCD cannot solve, communication problems, where the NYISO has lost the ability to dispatch or monitor unit performance, or to address a reliability issue. Out of merit dispatch also relieves the unit of performance penalties.

Generation designated as PURPA Class 1 or Class 2 suppliers are balanced differently from non-PURPA units. PURPA Class 1 generation is designated to serve a specific load/host. PURPA Class 1 bilateral transactions are either increased or decreased to match the supplying units’ output so that no balancing energy is purchased or sold in the Balancing Market. Class 1 Suppliers may provide a transaction stacking order to specify the order in which bilateral contracts are modified. PURPA Class 2 generation automatically purchases replacement energy from or sells any over-generation to the Balancing Market. The logic being that PURPA Class 2 units serve the transmission district in which they are located. As a result, the load in that district would be purchasing/consuming the over-generated energy. Class 2 Suppliers may provide a stacking order to specify the order in which bilateral replacement energy is purchased.

SCD Interval Settlement

SCD Interval NYCA Supplier Balancing Market Energy Settlement Inputs

DA_Transaction_MWh:	Total hourly capacity committed to serve DAM bilateral transactions
Hr_DA_MWh:	Hourly DAM energy sold/(purchased)
RT_Transaction_MWh:	Modification to hourly bilateral transaction MWh schedule
Gen_SCD_Adjusted_MW:	Unit SCD interval output, adjusted by billing quality metering data
SCD_Ramped_BP_MW:	SCD base point
AGC_Desired_Gen_MW:	Automatic Generator Control [AGC] base point for Regulation providers
EPL_MW	Energy Payment Limit
Normal_UOL	Units’ normal upper operating limit
In-Service_Flag:	Flag indicating that unit is “in service”
On-Control_Flag:	Flag indicating unit is “on control”
Out_of_Merit_Flag:	Flag indicating unit is being dispatched out of economic merit
On_Dispatch_Flag	Flag indicating unit is dispatched at SCD interval
ELR_Flag	Flag indicating unit dispatched off DAM schedule for energy limitation
CLR_Flag	Flag indicating unit dispatched out of economic merit for capacity limitation
PURPA_Class:	PURPA Class 1 or 2 supplier designation; null = non-PURPA
Reserve_Pickup_Flag:	Flag indicating that the SCD interval is the result of a Reserve Pick-up
RT_Price_of_Energy:	SCD interval LBMP energy component
RT_Price_of_Losses:	SCD interval LBMP losses component
RT_Price_of_Congestion:	SCD interval LBMP congestion component
SCD_Interval:	SCD interval length, in seconds

SCD Interval NYCA Supplier Balancing Market Energy Settlement Inputs

MW_Obligation:	Total unit capacity committed for DAM energy and bilateral transactions
Gen_SCD_LBMP_MWh:	SCD interval energy sold/(purchased)

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Balancing NYCA Supplier Energy

The formula to compute the Balancing Energy settlement is comprised of the product of the Balancing Energy, bought or sold, and the prevailing LBMP. The output level upon which the Balancing Energy is computed depends on unit status and performance data; dispatched output; and unit economics.

SCD Interval Balancing Energy for Non-PURPA, Non-Provider of Regulation Service

Logic designating Resource as Non-PURPA, Non-Provider of Regulation Service:

PURPA_Class = null, AND
In-Service_Flag = Y, AND
On-Control_Flag = N

For units to be paid based upon their SCD interval unit output, adjusted to billing quality metered output:

Out_of_Merit_Flag = Y AND ELR_Flag = N AND CLR_Flag = N, OR

Reserve_Pickup_Flag = Y, OR

If {RT_Price_of_Energy + RT_Price_of_Losses - RT_Price_of_Congestion} < 0 AND

Gen_SCD_LBMP_MWh < 0

SCD interval balancing energy calculation:

MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh

Gen_SCD_LBMP_MWh = {Gen_SCD_Adjusted_MW - MW_Obligation} x SCD_Interval / 3,600 seconds

For balancing basis to be unit SCD Ramped base point BP MW [prior to 7/25/2001] or EPL MW:

Out_of_Merit_Flag = N, AND

Reserve_Pickup_Flag = N, AND

Gen_SCD_Adjusted_MW ≥ SCD_Ramped_BP_MW or EPL_MW

SCD interval balancing energy calculation:

MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh

If Date < July 25, 2001 OR On_Dispatch_Flag = "Y", then

Gen_SCD_LBMP_MWh = { SCD_Ramped_BP_MW - MW_Obligation} x SCD_Interval / 3,600 seconds;

Otherwise, Gen_SCD_LBMP_MWh = { EPL_MW - MW_Obligation} x SCD_Interval / 3,600 seconds

SCD Interval Balancing Energy for Non-PURPA, Regulation Service Provider

SCD Interval Balancing Energy for Non-PURPA, Regulation Service Provider

Logic designating Resource as Non-PURPA, Regulation Service Provider:

PURPA_Class = null, AND

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In-Service_Flag = Y, AND

On-Control_Flag = Y

For Regulating units' balancing basis to be their output, adjusted by billing quality metering:

Out_of_Merit_Flag = Y, OR

{{Reserve_Pickup_Flag = Y} AND (Gen_Adjusted_MW > SCD_Ramped_BP_MW)}, OR

{{Gen_Adjusted_MW > SCD_Ramped_BP_MW} AND (Gen_Adjusted_MW > AGC_Desired_Gen_MW) AND
(RT_Price_of_Energy + RT_Price_of_Losses - RT_Price_of_Congestion < 0)}, OR

{{Gen_SCD_Adjusted_MW < AGC_Desired_Gen_MW} AND (AGC_Desired_Gen_MW ≥ SCD_Ramped_BP_MW)}, OR

{2 x (AGC_Desired_Gen_MW - Gen_SCD_Adjusted_MW) ≥ (SCD_Ramped_BP_MW - Gen_SCD_Adjusted_MW)}

SCD interval balancing energy calculation:

MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh

Gen_SCD_LBMP_MWh = {Gen_SCD_Adjusted_MW - MW_Obligation} x SCD_Interval / 3,600 seconds

For Regulating units' balancing basis to be their SCD Ramped base point:

Out_of_Merit_Flag = N, AND

{ Gen_SCD_Adjusted_MW ≥ AGC_Desired_Gen_MW, AND

Reserve_Pickup_Flag = Y, AND

Gen_SCD_Adjusted_MW ≤ SCD_Ramped_BP_MW }, OR

{Gen_SCD_Adjusted_MW ≥ AGC_Desired_Gen_MW, AND

Reserve_Pickup_Flag = N, AND

AGC_Desired_Gen_MW ≤ SCD_Ramped_BP_MW}

SCD interval balancing energy calculation:

MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh

Gen_SCD_LBMP_MWh = { SCD_Ramped_BP_MW - MW_Obligation } x SCD_Interval / 3,600 seconds

For Regulating units' balancing basis to be their Average AGC Desired base point:

Out_of_Merit_Flag = N, AND

Gen_SCD_Adjusted_MW ≥ AGC_Desired_Gen_MW, AND

Reserve_Pickup_Flag = N, AND

AGC_Desired_Gen_MW > SCD_Ramped_BP_MW

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Balancing NYCA Supplier Energy
SCD interval balancing energy calculation:

$$MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh$$

$$Gen_SCD_LBMP_MWh = \{AGC_Desired_Gen_MW - MW_Obligation\} \times SCD_Interval / 3,600 \text{ seconds}$$

SCD Interval Balancing Energy for PURPA Resources

Logic designating Resource as Non-PURPA, Regulation Service Provider:

PURPA_Class \neq null, AND

In-Service_Flag = Y, AND

On-Control_Flag = N

SCD interval balancing energy calculation:

$$MW_Obligation = DA_Transaction_MWh + Hourly_DA_LBMP_MWh + RT_Transaction_MWh$$

Note:

PURPA units are always paid based upon their Gen_Adjusted_MW. Class 1 PURPA bilateral transaction energy will be increased or decreased such that the MW_Obligation for the unit will equal the units' Gen_SCD_Adjusted_MW. This ensures that Class 1 PURPA Resources do not purchase or sell wholesale energy.

$$Gen_SCD_LBMP_MWh = \{Gen_SCD_Adjusted_MW - MW_Obligation\} \times SCD_Interval / 3,600 \text{ seconds}$$

SCD Interval Balancing Energy Settlement

SCD Interval Settlement Inputs

Gen_SCD_LBMP_MWh	SCD interval energy sold/(purchased)
RT_Price_of_Energy:	SCD interval LBMP energy component
RT_Price_of_Losses:	SCD interval LBMP losses component
RT_Price_of_Congestion:	SCD interval LBMP congestion component

SCD Interval Settlement Outputs

Gen_SCD_Energy_\$:	SCD interval energy settlement
Gen_SCD_Losses_\$:	SCD interval losses settlement
Gen_SCD_Congestion_\$:	SCD interval congestion settlement

5.2.6.3 SCD Interval Settlement Calculation

$$Gen_SCD_Energy_\$ = Gen_SCD_LBMP_MWh \times RT_Price_of_Energy$$

$$Gen_SCD_Losses_\$ = Gen_SCD_LBMP_MWh \times RT_Price_of_Losses$$

$$Gen_SCD_Congestion_\$ = Gen_SCD_LBMP_MWh \times RT_Price_of_Congestion$$

Power Supplier Hourly Balancing Market Settlement Inputs

Hourly settlement inputs

Gen_SCD_LBMP_MWh:	SCD interval energy sold/(purchased)
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Balancing NYCA Supplier Energy

Gen_SCD_Energy_\$: SCD interval energy settlement
Gen_SCD_Losses_\$: SCD interval losses settlement
Gen_SCD_Congestion_\$: SCD interval congestion settlement

Hourly settlement outputs

Gen_Hourly_LBMP_MWh: Hourly time & load weighted energy sold/(purchased)
Gen_Hourly_LBMP: Hourly time & load weighted LBMP
Gen_Hourly_RT_LBMP_Energy_\$: Hourly energy settlement

Hourly settlement

$$\text{Gen_Hourly_LBMP_MWh} = \sum \{ \text{Gen_SCD_LBMP_MWh} \}$$

$$\text{Gen_Hourly_RT_Energy_\$} = \sum \{ \text{Gen_SCD_Energy_\$} + \text{Gen_SCD_Losses_\$} + \text{Gen_SCD_Congestion_\$} \}$$

$$\text{Gen_Hourly_LBMP} = \text{Gen_Hourly_RT_Energy_\$} \div \text{Gen_Hourly_LBMP_MWh}$$

Hourly Balancing Energy Settlement Reported

Gen_Hourly_Balancing_LBMP_MWh: Hourly Advisory Billing Statement – Billing Code 207
Gen_Hourly_RT_LBMP: Hourly Advisory Billing Statement – Billing Code 208
Gen_Hourly_RT_LBMP_Energy_\$: Hourly Advisory Billing Statement – Billing Code 209

Power Supplier Daily Balancing Market Settlement

Daily Balancing Market Settlement Inputs

Gen_Hourly_Balancing_LBMP_MWh: Hourly balancing energy sold/(purchased)
Gen_Hourly_RT_LBMP_Energy_\$: Hourly balancing LBMP energy settlement

Daily Balancing Market Settlement Outputs

Gen_Daily_RT_LBMP_MWh: Daily balancing energy sold/(purchased)
Gen_Daily_RT_LBMP_Energy_\$: Daily balancing LBMP energy settlement

Daily Balancing Market Settlement

$$\text{Gen_Daily_RT_LBMP_MWh} = \sum \{ \text{Gen_Hourly_Balancing_LBMP_MWh} \}$$

$$\text{Gen_Daily_RT_LBMP_Energy_\$} = \sum \{ \text{Gen_Hourly_Balancing_Energy_\$} \}$$

Daily Balancing Energy Settlement Reported

Gen_Daily_RT_LBMP_MWh: Daily Advisory Billing Statement – Billing Code 300
Gen_Daily_RT_LBMP_Energy_\$: Daily Advisory Billing Statement – Billing Code 301

Monthly Settlement

Monthly Settlement Inputs

Gen_Daily_RT_LBMP_MWh: Daily balancing energy sold/(purchased)
Gen_Daily_RT_LBMP_Energy_\$: Daily balancing LBMP energy settlement

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Balancing NYCA Supplier Energy
Monthly Settlement Outputs

Gen_Monthly_RT_LBMP_MWh : Monthly DAM energy sold/(purchased)
Gen_Monthly_RT_LBMP_Energy_\$: Monthly DAM energy settlement

Monthly Settlement

$Gen_Monthly_RT_LBMP_MWh = \sum\{ Gen_Daily_RT_LBMP_MWh \}$

$Gen_Monthly_RT_LBMP_Energy_\$ = \sum\{ Gen_Daily_RTg_LBMP_Energy_\$ \}$

Monthly Settlement Reported

Power Supplier monthly settlement and associated MWh reported as line item in Monthly Settlement Statement

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DAM NYCA Supplier Bid Production Cost Guarantee

Suppliers scheduled for DAM energy or synchronous reserves are ensured recovery their costs of operation. A supplemental payment may be due should revenue received from LBMP energy market sales, Regulation Service, and Synchronous Reserves Service be insufficient to recover the unit's incremental energy costs, minimum generation cost, and start-up costs.

Eligible bid production costs [incremental energy] are for capacity scheduled above unit minimum generation blocks and bilateral transactions commitments.

Eligible minimum generation block costs are the bid unit minimum generation block costs, prorated for any bilateral transactions commitments.

Start-up costs are ineligible for recovery during hours with bilateral commitments.

Hourly Settlement

Hourly Settlement Inputs

DA_Transaction_MWHr:	Total hourly capacity committed to serve bilateral transactions
DA_Dispatch_MWHr:	Hourly SCUC schedule, including capacity serving bilateral transactions
DA_Price_of_Energy:	Hourly DAM LBMP energy component
DA_Price_of_Losses:	Hourly DAM LBMP losses component
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component
DAM_Bid_Dollars_1:	Hourly DAM incremental energy curve point 1 costs per bid or mitigation
DAM_Bid_MW_1:	Hourly DAM incremental energy curve point 1 MW bid
DAM_Bid_Dollars_2:	Hourly DAM incremental energy curve point 2 costs per bid or mitigation
DAM_Bid_MW_2:	Hourly DAM incremental energy curve point 2 MW bid
DAM_Bid_Dollars_3:	Hourly DAM incremental energy curve point 3 costs per bid or mitigation
DAM_Bid_MW_3:	Hourly DAM incremental energy curve point 3 MW bid
DAM_Bid_Dollars_4:	Hourly DAM incremental energy curve point 4 costs per bid or mitigation
DAM_Bid_MW_4:	Hourly DAM incremental energy curve point 4 MW bid
DAM_Bid_Dollars_5:	Hourly DAM incremental energy curve point 5 costs per bid or mitigation
DAM_Bid_MW_5:	Hourly DAM incremental energy curve point 5MW bid
DAM_Bid_Dollars_6:	Hourly DAM incremental energy curve point 6 costs per bid or mitigation
DAM_Bid_MW_6:	Hourly DAM incremental energy curve point 6 MW bid
DAM_Mingen_Dollars:	Hourly DAM minimum generation block costs per bid or mitigation
DAM_Mingen_MW:	Hourly DAM minimum generation block MW
DAM_Reg_Avail_MW:	Hourly DAM Regulation Capacity scheduled
DAM_Reg_Bid_\$:	Hourly DAM Regulation Service bid cost per MW
DAM_Reg_MCP_\$:	Hourly DAM Regulation Service market clearing price
DAM_Sync_Res_Avail_MW:	Hourly DAM Synchronous Reserve Capacity scheduled
DAM_Sync_Res_Bid_\$:	Hourly DAM Synchronous Reserve Service bid cost per MW
DAM_Sync_Res_MCP_\$:	Hourly DAM Synchronous Reserve Service market clearing price
DAM_LRR_Flag	Indication that commitment due to local reliability rules
Block_Bid	Indication that unit bid was in block format versus curve
Segments	Number of incremental bid curve segments
DAM_Hr_Start-up	Start-up costs computed and used by SCUC

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DAM NYCA Supplier Bid Production Cost Guarantee

Hourly Incremental Production Cost Settlement Outputs

Hr_DAM_BPC _{SCUC} :	Hourly DAM Bid Production Cost of SCUC schedule
Hr_DAM_BPC _{BIL} :	Hourly DAM Bid Production Cost of bilateral transaction schedule
Hr_DAM_BPC _{MIN} :	Hourly DAM Bid Production Cost of minimum generation block
Hr_DAM_BPC:	Net Hourly DAM Bid Production Cost
Hr_DAM_Energy_\$:	Hourly DAM energy settlement
Hr_VSS_Availability_\$:	Hourly Voltage Support Availability Revenue
Hr_DAM_Reg_Margin_\$:	Hourly margin earned for Regulation Service
Hr_DAM_Res_Margin_\$:	Hourly margin earned for Synchronous Reserve Service
Hr_DAM_BPCG:	Net Hourly DAM loss/(margin)
Start-up_\$	Start-up Cost [by start-up, prorated for real-time performance]

Hourly BPC Settlement

$$\text{Hr_DAM_LBMP_MWHr} = \text{DA_Dispatch_MWHr} - \text{DA_Transaction_MWHr}$$

$$\text{Hourly_Day_Ahead_LBMP} = \text{DA_Price_of_Energy} + \text{DA_Price_of_Losses} - \text{DA_Price_of_Congestion}$$

$$\text{Hourly_DA_Energy_\$} = \text{Hourly_DA_LBMP_MWHr} \times \text{Hourly_Day_Ahead_LBMP}$$

In order to compute the hourly bid production costs of unit SCUC schedule, cumulative bilateral commitments, and minimum generation block, it is necessary to determine the total area under each segment of the unit's bid curve up to the respective component schedule. In all cases the algorithms are the same.

$$\text{DAM_Bid_Dollars_n} = \{ \text{DAM_Bid_MW_n} \times (\text{DAM_Bid_Dollars_n} - \text{DAM_Bid_Dollars}_{n-1}) \div (\text{DAM_Bid_MW_n} - \text{DAM_Bid_MW}_{n-1}) \} - \{ \text{DAM_Bid_Dollars}_{n-1} - [\text{DAM_Bid_MW}_n \times (\text{DAM_Bid_Dollars}_n - \text{DAM_Bid_Dollars}_{n-1}) \div (\text{DAM_Bid_MW}_n - \text{DAM_Bid_MW}_{n-1})] \}$$

$$\text{Hr_DAM_BPC}_{\text{SCUC}} = \sum \{ (\text{DAM_Bid_Dollars}_n + \text{DAM_Bid_Dollars}_{n-1}) \times (\text{DAM_Bid_MW}_n - \text{DAM_Bid_MW}_{n-1}) \div 2 \};$$

where n = SCUC scheduled output

$$\text{Hr_DAM_BPC}_{\text{BIL}} = \sum \{ (\text{DAM_Bid_Dollars}_n + \text{DAM_Bid_Dollars}_{n-1}) \times (\text{DAM_Bid_MW}_n - \text{DAM_Bid_MW}_{n-1}) \div 2 \};$$

where n = cumulative capacity committed for bilateral transactions

$$\text{Hr_DAM_BPC}_{\text{MIN}} = \sum \{ (\text{DAM_Bid_Dollars}_n + \text{DAM_Bid_Dollars}_{n-1}) \times (\text{DAM_Bid_MW}_n - \text{DAM_Bid_MW}_{n-1}) \div 2 \};$$

where n = minimum generation block

$$\text{Hr_DAM_BPC} = \text{Hr_DAM_BPC}_{\text{SCUC}} - \max\{\text{Hr_DAM_BPC}_{\text{BIL}}, \text{Hr_DAM_BPC}_{\text{MIN}}\}$$

$$\text{Hr_DAM_BPC} = 0 \text{ IF}$$

LBMP is < \$0; OR,
Hr_DAM_BPC_{SCUC} < Hr_DAM_BPC_{BIL};

$$\text{Hr_DAM_Reg_Margin_\$} = \text{DAM_Reg_Avail_MW} \times \{ \text{DAM_Reg_MCP_\$} - \text{DAM_Reg_Bid_\$} \}$$

$$\text{Hr_DAM_Res_Margin_\$} = \text{DAM_Sync_Res_Avail_MW} \times \{ \text{DAM_Sync_Res_MCP_\$} - \text{DAM_Sync_Res_Bid_\$} \}$$

$$\text{Hr_DAM_BPCG} = \text{Hr_DAM_BPC} + \{ \text{DAM_Mingen_Dollars} \times \max(0, [\text{Hr_DAM_BPC}_{\text{MIN}} - \text{Hr_DAM_BPC}_{\text{BIL}}]) \div \text{Hr_DAM_BPC}_{\text{MIN}} \} - \text{Hr_DAM_Energy_\$} - \text{Hr_VSS_Availability_\$} - \text{Hr_DAM_Reg_Margin_\$} - \text{Hr_DAM_Res_Margin_\$}$$

$$\text{HR_DAM_Startup_\$} = \text{Start-up_\$} \times [\text{Up-time} \div \text{SCUC_Hrs_Scheduled}]$$

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DAM NYCA Supplier Bid Production Cost Guarantee

$$\text{HR_DAM_Startup_\$} = 0 \text{ IF DA_Transaction_MWHr} > 0$$

Start-up costs are computed by SCUC and provided to BAS for application to the DAM settlement. DAM start-up costs are prorated by the units actual performance to its DAM commitment in real-time. The start-up cost supplied to BAS will be reported on the first hour of a continuous DAM commitment schedule. If the unit only operates a portion of the hours for the scheduled run, the start-up costs eligible for recovery will be prorated for the period of the unit's schedule that the unit actually operated.

Hourly Settlement Reported

Hr_DAM_BPCG: Hourly Advisory Billing Statement – Billing Code 205
Hr_DAM_Startup_\$: Hourly Advisory Billing Statement – Billing Code 206

Daily Settlement

Daily Settlement Inputs

Hr_DAM_BPCG: Net Hourly DAM loss/(margin)
Hr_DAM_Startup_\$: Bid or mitigated start-up costs

Daily Settlement Output

Daily_DAM_BPCG: Net Hourly DAM loss/(margin)

Daily Settlement

$$\text{Daily_DAM_BPCG} = \max\{0, \sum(\text{Hr_DAM_BPCG}) + \sum(\text{Hr_DAM_Startup_\$})\}$$

Daily Settlement Reported

Daily_DAM_BPCG: Hourly Advisory Billing Statement – Billing Code 302

Monthly Settlement

Monthly Settlement Inputs

Daily_DAM_BPCG: Net Hourly DAM loss/(margin)

Monthly Settlement Outputs

Mth_DAM_BPCG: Monthly DAM bid production cost guarantee

Monthly Settlement

$$\text{Mth_DAM_BPCG} = \sum\{\text{Daily_DAM_BPCG}\}$$

Monthly Settlement Reported In Power Supplier Monthly Settlement Statement

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DAM Virtual Load Energy

Virtual Load is bid into the NYISO DAM in the same manner as price capped load and is settled using the same settlement algorithms as DAM LSE Energy.

Hourly Settlement

Hourly Settlement Inputs

DA_Price_of_Energy:	Hourly DAM LBMP energy component
DA_Price_of_Losses:	Hourly DAM LBMP losses component
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component
DAM_MWh	Hourly DAM Virtual Load energy scheduled by SCUC

Hourly Settlement Outputs

Hr_DA_VL_MWh:	Hourly DAM Virtual Load energy purchased
Hr_DA_VL_Energy_\$:	Hourly DAM Virtual Load energy settlement
Hr_DA_VL_Losses_\$:	Hourly DAM Virtual Load losses settlement
Hr_DA_VL_Congestion_\$:	Hourly DAM Virtual Load congestion settlement
Hr_DA_VL_\$:	Hourly net DAM Virtual Load settlement

Hourly Settlement

$Hr_DA_VL_MWh = DAM_MWh$

$Hr_DA_VL_Energy_\$ = Hr_DA_VL_MWh \times DA_Price_of_Energy$

$Hr_DA_VL_Losses_\$ = Hr_DA_VL_MWh \times DA_Price_of_Losses$

$Hr_DA_VL_Congestion_\$ = Hr_DA_VL_MWh \times \{-1 \times DA_Price_of_Congestion\}$

$Hr_DA_VL_\$ = Hr_DA_VL_Energy_\$ + Hr_DA_VL_Losses_\$ + Hr_DA_VL_Congestion_\$$

Hourly Settlement Reported

Hourly_DA_VL_MWh:	Hourly Advisory Billing Statement – Billing Code 412
Hourly_DA_VL_\$:	Hourly Advisory Billing Statement – Billing Code 413

Daily Settlement

Daily Settlement Inputs

Hr_DA_VL_MWh:	Hourly DAM Virtual Load energy purchased
Hr_DA_VL_\$:	Hourly net DAM Virtual Load settlement

Daily Settlement Outputs

Daily_DA_VL_MWh:	Daily DAM Virtual Load energy purchased
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DAM Virtual Load Energy

Daily_DA_VL_\$: Daily net DAM Virtual Load settlement

Daily Settlement

Daily_DA_VL_MWh = $\sum\{ \text{Hr_DA_VL_MWh} \}$

Daily_DA_VL_\$ = $\sum\{ \text{Hr_DA_VL_\$} \}$

Daily Settlement Reported

Daily_DA_VL_MWh: Daily Advisory Billing Statement – Billing Code 770

Daily_DA_VL_\$: Daily Advisory Billing Statement – Billing Code 771

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_VL_MWh: Daily DAM Virtual Load energy purchased

Daily_DA_VL_\$: Daily net DAM Virtual Load settlement

Monthly Settlement Outputs

Monthly_DA_VL_MWh: Monthly DAM Virtual Load energy purchased

Monthly_DA_VL_\$: Monthly Monthly net DAM Virtual Load settlement

Daily Settlement

Monthly_DA_VL_MWh = $\sum\{ \text{Daily_DA_VL_MWh} \}$

Monthly_DA_VL_\$ = $\sum\{ \text{Daily_DA_VL_\$} \}$

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DAM Non-NYCA LSE Energy

LSE's located externally to the NYCA purchase energy from the NYISO wholesale energy market through bilateral contracts. NYCA LBMP energy exports are scheduled as export transactions with the NYISO reference bus as the scheduled point of injection.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_LBMP_Exp_Transaction_MWh:	Hourly LBMP energy Export transaction MWh scheduled by SCUC
DA_Price_of_Energy:	Hourly DAM LBMP energy component at the proxy bus bid as point of injection
DA_Price_of_Losses:	Hourly DAM LBMP losses component at the proxy bus bid as point of injection
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component at the proxy bus bid as point of injection

Hourly Settlement Outputs

Hr_DA_LBMP_Exp_Energy_\$:	Hourly DAM LBMP Export energy - energy settlement
Hr_DA_LBMP_Exp_Losses_\$:	Hourly DAM LBMP Export energy - losses settlement
Hr_DA_LBMP_Exp_Congestion_\$:	Hourly DAM LBMP Export energy - congestion settlement
Hr_DA_LBMP_Exp_\$:	Hourly Net DAM LBMP Export settlement

Hourly Settlement

$Hr_DA_LBMP_Exp_Energy_\$ = Hr_DA_LBMP_Exp_Transaction_MWhr \times DA_Price_of_Energy$

$Hr_DA_LBMP_Exp_Losses_\$ = Hr_DA_LBMP_Exp_Transaction_MWhr \times DA_Price_of_Losses$

$Hr_DA_LBMP_Exp_Congestion_\$ = Hr_DA_LBMP_Exp_Transaction_MWhr \times \{-1 \times DA_Price_of_Congestion\}$

$Hr_DA_LBMP_Exp_\$ = Hr_DA_LBMP_Exp_Energy_\$ + Hr_DA_LBMP_Exp_Losses_\$ + Hr_DA_LBMP_Exp_Congestion_\$$

Hourly Settlement Reported

Hr_DA_LBMP_Exp_Transaction_MWh:	Hourly Advisory Billing Statement – Billing Code 511
Hr_DA_LBMP_Exp_Energy_\$:	Hourly Advisory Billing Statement – Billing Code 512
Hr_DA_LBMP_Exp_Losses_\$:	Hourly Advisory Billing Statement – Billing Code 513
Hr_DA_LBMP_Exp_Congestion_\$:	Hourly Advisory Billing Statement – Billing Code 514
Hr_DA_LBMP_Exp_\$:	Hourly Advisory Billing Statement – Billing Code 515

Daily Settlement

Daily Settlement Inputs

Hr_DA_LBMP_Exp_MWh:	Hourly LBMP energy Export transaction MWh scheduled by SCUC
Hr_DA_LBMP_Exp_Energy_\$:	Hourly DAM LBMP Export energy - energy settlement
Hr_DA_LBMP_Exp_Losses_\$:	Hourly DAM LBMP Export energy - losses settlement
Hr_DA_LBMP_Exp_Congestion_\$:	Hourly DAM LBMP Export energy - congestion settlement
Hr_DA_LBMP_Exp_\$:	Hourly Net DAM LBMP Export settlement

Daily Settlement Output

Daily_DA_LBMP_Exp_MWh:	Daily DAM LBMP Export energy sold/(purchased)
Daily_DA_LBMP_Exp_Energy_\$:	Daily DAM LBMP Export energy - energy settlement

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Daily_DA_LBMP_Exp_Losses_\$:	Daily DAM LBMP Export energy - losses settlement
Daily_DA_LBMP_Exp_Congestion_\$:	Daily DAM LBMP Export energy - congestion settlement
Daily_DA_LBMP_Exp_\$:	Daily Net DAM LBMP Export settlement

Daily Settlement

Daily_DA_LBMP_Exp_MWh = $\sum\{Hr_DA_LBMP_Exp_MWhr\}$

Daily_DA_LBMP_Exp_Energy_\$ = $\sum\{Hr_DA_LBMP_Exp_Energy_ \$\}$

Daily_DA_LBMP_Exp_Losses_\$ = $\sum\{Hr_DA_LBMP_Exp_Losses_ \$\}$

Daily_DA_LBMP_Exp_Congestion_\$ = $\sum\{Hr_DA_LBMP_Exp_Congestion_ \$\}$

Daily_DA_LBMP_Exp_\$ = $\sum\{Hr_DA_LBMP_Exp_ \$\}$

Daily Settlement Reported

Daily_DA_LBMP_Exp_MWh:	Daily Advisory Billing Statement – Billing Code 758
Daily_DA_LBMP_Exp_Energy_\$:	Daily Advisory Billing Statement – Billing Code 759
Daily_DA_LBMP_Exp_Losses_\$:	Daily Advisory Billing Statement – Billing Code 760
Daily_DA_LBMP_Exp_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 761
Daily_DA_LBMP_Exp_\$:	Daily Advisory Billing Statement – Billing Code 762

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_MWh:	Daily DAM LBMP import energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Imp_Energy_\$:	Daily DAM LBMP import energy - energy settlement [Billing Code 759]
Daily_DA_LBMP_Imp_Losses_\$:	Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$:	Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_MWh:	Daily DAM LBMP export energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Exp_Energy_\$:	Daily DAM LBMP export energy - energy settlement [Billing Code 759]
Daily_DA_LBMP_Exp_Losses_\$:	Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$:	Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_LBMP_MWh:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 758]
Daily_DA_Rep_Energy_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 759]
Daily_DA_Rep_Losses_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_NYCA_LSE_MWh:	Daily DAM LSE energy scheduled [Billing Code 700]
Daily_DAM_NYCA_LSE_Energy_\$:	Daily DAM LSE energy settlement[Billing Code 701]
Daily_DAM_NYCA_LSE_Losses_\$:	Daily DAM LSE losses settlement[Billing Code 702]
Daily_DAM_NYCA_LSE_Congestion_\$:	Daily DAM LSE congestion settlement[Billing Code 703]
Daily_DAM_Int_Trans_Losses_\$:	Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$:	Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$:	Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$:	Daily DAM ImportTransaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$:	Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$:	Daily DAM Export Transaction congestion settlement [Billing Code 752]
Daily_DAM_WT_Trans_Losses_\$:	Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$:	Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

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DAM Non-NYCA LSE Energy

Monthly Settlement Outputs

Monthly_DA_LBMP_MWh:	Monthly DAM energy sold/(purchased)
Monthly_DA_Energy_\$:	Monthly DAM energy settlement
Monthly_DA_Losses_\$:	Monthly DAM losses settlement
Monthly_DA_Congestion_\$:	Monthly DAM congestion settlement

Monthly Settlement

$$\text{Monthly_DA_LBMP_MWhr} = \sum\{\text{Daily_DA_LBMP_Imp_MWh} + \text{Daily_DA_LBMP_Exp_MWh} + \text{Daily_DA_Rep_LBMP_MWh} + \text{Daily_DAM_NYCA_LSE_MWh}\}$$

$$\text{Monthly_DA_Energy_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Energy_\$} + \text{Daily_DA_LBMP_Exp_Energy_\$} + \text{Daily_DA_Rep_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Losses_\$} + \text{Daily_DAM_NYCA_LSE_Congestion_\$}\}$$

$$\text{Monthly_DA_Losses_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Losses_\$} + \text{Daily_DA_LBMP_Exp_Losses_\$} + \text{Daily_DA_Rep_Losses_\$} + \text{Daily_DA_Imp_Trans_Losses_\$} + \text{Daily_DA_Exp_Trans_Losses_\$} + \text{Daily_DA_WT_Trans_Losses_\$}\}$$

$$\text{Monthly_DA_Congestion_\$} = \sum\{\text{Daily_DA_LBMP_Imp_Congestion_\$} + \text{Daily_DA_LBMP_Exp_Congestion_\$} + \text{Daily_DA_Rep_Congestion_\$} + \text{Daily_DA_Imp_Trans_Congestion_\$} + \text{Daily_DA_Exp_Trans_Congestion_\$} + \text{Daily_DA_WT_Trans_Congestion_\$}\}$$

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DAM NYCA LSE Energy

Load Serving Entities [LSE] located within the NYCA may bid to purchase energy through the DAM hedge their exposure to real time LBMP volatility. LSEs submit bids to purchase fixed blocks of energy from the NYISO DAM through the MIS. LSEs may also submit bids to purchase up to three additional blocks of energy through a price capped load bidding mechanism. The additional blocks of energy will be purchased provided the prevailing hourly LBMP is less than the price cap bid for each respective block.

In addition to the fixed blocks of energy purchased in the DAM and any price capped load bid, the LSEs also submit hourly forecasts of real time energy withdrawals. Energy withdrawals from the transmission grid are not metered by systems that can provide revenue quality withdrawal measurements prior to initial invoicing. In order to allocate total sub-zone consumption among the LSEs within a respective sub-zone, hourly load forecasts submitted by via the bidding process are used to allocate hourly sub-zonal withdrawals to the LSEs within each sub-zone. The load forecasts initially submitted day-ahead may be updated prior to noon the day after the day of actual withdrawal to provide LSEs with appropriate revenue quality metering an opportunity to reflect actual hourly withdrawals.

Hourly Settlement

Hourly Settlement Inputs

DA_Price_of_Energy:	Hourly DAM LBMP energy component
DA_Price_of_Losses:	Hourly DAM LBMP losses component
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component
Fixed_Bid_MWh	Hourly DAM NYCA LSE Fixed Block Energy Purchased
Forecast_MWh	Hourly DAM NYCA LSE Forecast MWh
Price_Cap_MWh	Hourly DAM Price Capped load MWh purchased

Hourly Settlement Outputs

Hr_DA_NYCA_LSE_MWh:	Hourly LSE DAM energy sold/(purchased); including price capped load purchased
Hr_DA_LBMP:	Hourly LSE DAM LBMP
Hr_DA_NYCA_LSE_Energy_\$:	Hourly LSE DAM energy settlement
Hr_DA_NYCA_LSE_Losses_\$:	Hourly LSE DAM losses settlement
Hr_DA_NYCA_LSE_Congestion_\$:	Hourly LSE DAM congestion settlement

Hourly Settlement

$$\text{Hr_DA_NYCA_LSE_MWh} = \text{Fixed_Bid_MWh} + \text{Price_Cap_MWh}$$

$$\text{Hr_DA_LBMP} = \text{DA_Price_of_Energy} + \text{DA_Price_of_Losses} - \text{DA_Price_of_Congestion}$$

$$\text{Hr_DA_NYCA_LSE_Energy_\$} = \text{Hr_DA_NYCA_LSE_MWh} \times \text{DA_Price_of_Energy}$$

$$\text{Hr_DA_NYCA_LSE_Losses_\$} = \text{Hr_DA_NYCA_LSE_MWh} \times \text{DA_Price_of_Losses}$$

$$\text{Hr_DA_NYCA_LSE_Congestion_\$} = \text{Hr_DA_NYCA_LSE_MWh} \times \{-1 \times \text{DA_Price_of_Congestion}\}$$

Hourly Settlement Reported

Hr_DA_NYCA_LSE_MWh:	Hourly Advisory Billing Statement – Billing Code 402
Hr_DA_LBMP:	Hourly Advisory Billing Statement – Billing Code 403
Hr_DA_NYCA_LSE_Energy_\$	Hourly Advisory Billing Statement – Billing Code 404
Hr_DA_NYCA_LSE_Losses_\$	Hourly Advisory Billing Statement – Billing Code 405
Hr_DA_NYCA_LSE_Congestion_\$	Hourly Advisory Billing Statement – Billing Code 406

Daily Settlement

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DAM NYCA LSE Energy

Daily Settlement Inputs

Hr_DA_NYCA_LSE_MWh:	Hourly NYCA_LSE DAM energy sold/(purchased); including price capped load purchased
Hr_DA_NYCA_LSE_Energy_\$:	Hourly NYCA_LSE DAM energy settlement
Hr_DA_NYCA_LSE_Losses_\$:	Hourly NYCA_LSE DAM losses settlement
Hr_DA_NYCA_LSE_Congestion_\$:	Hourly NYCA_LSE DAM congestion settlement

Daily Settlement Outputs

Daily_DA_MWh:	Daily NYCA_LSE DAM energy sold/(purchased); including price capped load purchased
Daily_DA_NYCA_LSE_Energy_\$:	Daily NYCA_LSE DAM energy settlement
Daily_DA_NYCA_LSE_Losses_\$:	Daily NYCA_LSE DAM losses settlement
Daily_DA_NYCA_LSE_Congestion_\$:	Daily NYCA_LSE DAM congestion settlement

Daily Settlement

Daily_DA_NYCA_LSE_MWh = $\sum\{ \text{Hr_DA_NYCA_LSE_MWh} \}$

Daily_DA_NYCA_LSE_Energy_\$ = $\sum\{ \text{Hr_DA_NYCA_LSE_Energy_\$} \}$

Daily_DA_NYCA_LSE_Losses_\$ = $\sum\{ \text{Hr_DA_NYCA_LSE_Losses_\$} \}$

Daily_DA_NYCA_LSE_Congestion_\$ = $\sum\{ \text{Hr_DA_NYCA_LSE_Congestion_\$} \}$

Daily Settlement Reported

Daily_DA_NYCA_LSE_MWh:	Daily Advisory Billing Statement – Billing Code 700
Daily_DA_NYCA_LSE_Energy_\$:	Daily Advisory Billing Statement – Billing Code 701
Daily_DA_NYCA_LSE_Losses_\$:	Daily Advisory Billing Statement – Billing Code 702
Daily_DA_NYCA_LSE_Congestion_\$:	Daily Advisory Billing Statement – Billing Code 703

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_MWh:	Daily DAM LBMP import energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Imp_Energy_\$:	Daily DAM LBMP import energy - energy settlement [Billing Code 759]
Daily_DA_LBMP_Exp_MWh:	Daily DAM LBMP export energy sold/(purchased) [Billing Code 758]
Daily_DA_LBMP_Exp_Energy_\$:	Daily DAM LBMP export energy - energy settlement [Billing Code 759]
Daily_DA_Rep_LBMP_MWh:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 758]
Daily_DA_Rep_Energy_\$:	Daily DAM LBMP replacement energy for curtailed imports [Billing Code 759]
Daily_DAM_NYCA_NYCA_LSE_MWh:	Daily DAM NYCA_LSE energy scheduled [Billing Code 700]
Daily_DAM_NYCA_NYCA_LSE_Energy_\$:	Daily DAM NYCA_LSE energy settlement[Billing Code 701]
Daily_DAM_NYCA_NYCA_LSE_Losses_\$:	Daily DAM NYCA_LSE losses settlement[Billing Code 702]
Daily_DAM_NYCA_NYCA_LSE_Congestion_\$:	Daily DAM NYCA_LSE congestion settlement[Billing Code 703]

Monthly Settlement Outputs

Monthly_DA_LBMP_MWh:	Monthly DAM energy sold/(purchased)
Monthly_DA_\$:	Monthly DAM energy settlement

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DAM NYCA LSE Energy

Monthly Settlement

Monthly_DA_MWhr = $\sum\{\text{Daily_DA_LBMP_Imp_MWh} + \text{Daily_DA_LBMP_Exp_MWh} + \text{Daily_DA_Rep_LBMP_MWh} + \text{Daily_DAM_NYCA_LSE_MWh}\}$

Monthly_DA_\$ = $\sum\{\text{Daily_DA_LBMP_Imp_Energy_\$} + \text{Daily_DA_LBMP_Exp_Energy_\$} + \text{Daily_DA_Rep_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Energy_\$} + \text{Daily_DAM_NYCA_LSE_Losses_\$} + \text{Daily_DAM_NYCA_LSE_Congestion_\$}\}$

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DAM NYCA Wheel Through Transaction Transmission Usage Charge

Transmission Customers must schedule transmission service to deliver energy purchased through contractual agreements negotiated externally to the NYISO markets. The contracted energy is not settled through the NYISO process, however, NYISO does charge transmission customers for losses and congestion costs associated with transmission service scheduled to deliver bilaterally contracted energy.

Some Transmission Agreements in effect at NYISO inception may have congestion relief rights associated with them. These rights were carried forward for application in NYISO, providing relief from DAM congestion Transmission Usage Charges up to the capacity defined by the grandfathered right. The rights are recognized by the billing system through a unique User Reference number and Points of Withdrawal & Injection, which define the original Transmission Agreement.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_POI_of_Losses:	Hourly DAM Point of Injection LBMP losses component
Hr_DA_POI_Price_of_Congestion:	Hourly DAM Point of Injection LBMP congestion component
Hr_DA_POW_of_Losses:	Hourly DAM Point of Withdrawal LBMP losses component
Hr_DA_POW_Price_of_Congestion:	Hourly DAM Point of Withdrawal LBMP congestion component
Hr_DA_Exp_Trans_MWh:	Hourly DAM transaction energy bid
GTR_Congestion_Relief_MWh	Hourly DAM Grandfathered Transmission Right Congestion Relief

Hourly Settlement Outputs

Hr_DA_WT_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement
Hr_DA_WT_Trans_Congestion_\$:	Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_WT_Trans_TUC_\$:	Total Hourly DAM Transmission Usage Charge settlement

Hourly Settlement

Point of Injection and Point of Withdrawal are NYISO external proxy buses

$$\text{Hr_DA_WT_Trans_Losses_}\$ = \text{Hr_DA_WT_Trans_MWh} \times \{ (\text{Hr_DA_POW_Price_of_Losses} - \text{Hr_DA_POI_Price_of_Losses}) \}$$

$$\text{Hr_DA_WT_Trans_Congestion_}\$ = \{ \text{Hr_DA_WT_Trans_MWh} - \text{GTR_Congestion_Relief_MWh} \} \times \{ -1 \times (\text{Hr_DAM_POW_Price_of_Congestion} - \text{Hr_DAM_POI_Price_of_Congestion}) \}$$

$$\text{Hr_DA_WT_Trans_TUC_}\$ = \text{Hr_DA_WT_Trans_Losses_}\$ + \text{Hr_DA_WT_Trans_Congestion_}\$$$

Hourly Settlement Reported

Hr_DA_WT_Trans_MWhr:	Hourly Advisory Statement Billing Code: 501
Hr_DA_WT_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 502
Hr_DA_WT_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 503
Hr_DA_WT_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 504

Daily Settlement

Daily Settlement Inputs

Hr_DA_WT_Trans_MWh:	Hourly DAM transaction energy scheduled
Hr_DA_WT_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement
Hr_DA_WT_Trans_Congestion_\$:	Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_WT_Trans_TUC_\$:	Total Hourly DAM Transmission Usage Charge settlement

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DAM NYCA Wheel Through Transaction Transmission Usage Charge

Daily Settlement Outputs

Daily_DA_WT_Trans_MWh: Daily DAM transaction energy scheduled
Daily_DA_WT_Trans_Losses_\$: Daily DAM Transmission Usage Charge losses settlement
Daily_DA_WT_Trans_Congestion_\$: Daily DAM Transmission Usage Charge congestion settlement
Daily_DA_WT_Trans_TUC_\$: Total Daily DAM Transmission Usage Charge settlement

Daily Settlement

Daily_DA_WT_Trans_MWh = $\sum\{Hr_DA_WT_Trans_MWh\}$

Daily_DA_WT_Trans_Losses_\$ = $\sum\{Hr_DA_WT_Trans_Losses_ \$\}$

Daily_DA_WT_Trans_Congestion_\$ = $\sum\{Hr_DA_WT_Trans_Congestion_ \$\}$

Daily_DA_WT_Trans_TUC_\$ = $\sum\{Hr_DA_WT_Trans_TUC_ \$\}$

Daily Settlement Reported

Daily_DAM_WT_Trans_MWHR: Daily Advisory Billing Statement – Billing Code 750
Daily_DAM_WT_Trans_Losses_\$: Daily Advisory Billing Statement – Billing Code 751
Daily_DAM_WT_Trans_Congestion_\$: Daily Advisory Billing Statement – Billing Code 752
Daily_DAM_WT_Trans_TUC_\$: Daily Advisory Billing Statement – Billing Code 753

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_Losses_\$: Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$: Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_Losses_\$: Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$: Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_Losses_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_Int_Trans_Losses_\$: Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$: Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$: Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$: Daily DAM Import Transaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$: Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$: Daily DAM Export Transaction congestion settlement [Billing Code 752]
Daily_DAM_WT_Trans_Losses_\$: Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$: Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$: Monthly DAM losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$: Monthly DAM congestion Transmission Usage Charge settlement

Monthly Settlement

Monthly_DA_TUC_Losses_\$ = $\sum\{Daily_DA_LBMP_Imp_Losses_ \$ + Daily_DA_LBMP_Exp_Losses_ \$ + Daily_DA_Rep_Losses_ \$ +$

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DAM NYCA Wheel Through Transaction Transmission Usage Charge

Daily_DA_Imp_Trans_Losses_\$: Daily_DA_Exp_Trans_Losses_\$: Daily_DA_WT_Trans_Losses_\$}

Monthly_DA_TUC_Congestion_\$ = $\sum\{$ Daily_DA_LBMP_Imp_Congestion_\$ + Daily_DA_LBMP_Exp_Congestion_\$ +
Daily_DA_Rep_Congestion_\$ + Daily_DA_Imp_Trans_Congestion_\$ + Daily_DA_Exp_Trans_Congestion_\$ +
Daily_DA_WT_Trans_Congestion_\$}

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DAM NYCA Non-LBMP Export Transaction Transmission Usage Charge

Transmission Customers must schedule transmission service to deliver energy purchased through contractual agreements negotiated externally to the NYISO markets. The contracted energy is not settled through the NYISO process, however, NYISO does charge transmission customers for losses and congestion costs associated with transmission service scheduled to deliver bilaterally contracted energy.

Some Transmission Agreements in effect at NYISO inception may have congestion relief rights associated with them. These rights were carried forward for application in NYISO, providing relief from DAM congestion Transmission Usage Charges up to the capacity defined by the grandfathered right. The rights are recognized by the billing system through a unique User Reference number and Points of Withdrawal & Injection, which define the original Transmission Agreement.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_POI_of_Losses:	Hourly DAM Point of Injection LBMP losses component
Hr_DA_POI_Price_of_Congestion:	Hourly DAM Point of Injection LBMP congestion component
Hr_DA_POW_of_Losses:	Hourly DAM Point of Withdrawal LBMP losses component
Hr_DA_POW_Price_of_Congestion:	Hourly DAM Point of Withdrawal LBMP congestion component
Hr_DA_Exp_Trans_MWh:	Hourly DAM transaction energy bid
GTR_Congestion_Relief_MWh	Hourly DAM Grandfathered Transmission Right Congestion Relief

Hourly Settlement Outputs

Hr_DA_Exp_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement
Hr_DA_Exp_Trans_Congestion_\$:	Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Exp_Trans_TUC_\$:	Total Hourly DAM Transmission Usage Charge settlement

Hourly Settlement

Point of Injection is not a NYISO external proxy bus or the NYISO Reference bus

Point of Withdrawal is a NYISO external proxy bus

$$\text{Hr_DA_Exp_Trans_Losses_}\$ = \text{Hr_DA_Exp_Trans_MWh} \times \{(\text{Hr_DA_POW_Price_of_Losses} - \text{Hr_DA_POI_Price_of_Losses})\}$$
$$\text{Hr_DA_Exp_Trans_Congestion_}\$ = \{\text{Hr_DA_Exp_Trans_MWh} - \text{GTR_Congestion_Relief_MWh}\} \times \{-1 \times (\text{Hr_DAM_POW_Price_of_Congestion} - \text{Hr_DAM_POI_Price_of_Congestion})\}$$
$$\text{Hr_DA_Exp_Trans_TUC_}\$ = \text{Hr_DA_Exp_Trans_Losses_}\$ + \text{Hr_DA_Exp_Trans_Congestion_}\$$$

Hourly Settlement Reported

Hr_DA_Exp_Trans_MWhr:	Hourly Advisory Statement Billing Code: 501
Hr_DA_Exp_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 502
Hr_DA_Exp_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 503
Hr_DA_Exp_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 504

Daily Settlement

Daily Settlement Inputs

Hr_DA_Exp_Trans_MWh:	Hourly DAM transaction energy scheduled
Hr_DA_Exp_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement

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DAM NYCA Non-LBMP Export Transaction Transmission Usage Charge

Hr_DA_Exp_Trans_Congestion_\$: Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Exp_Trans_TUC_\$: Total Hourly DAM Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_DA_Exp_Trans_MWh: Daily DAM transaction energy scheduled
Daily_DA_Exp_Trans_Losses_\$: Daily DAM Transmission Usage Charge losses settlement
Daily_DA_Exp_Trans_Congestion_\$: Daily DAM Transmission Usage Charge congestion settlement
Daily_DA_Exp_Trans_TUC_\$: Total Daily DAM Transmission Usage Charge settlement

Daily Settlement

Daily_DA_Exp_Trans_MWh = $\sum\{Hr_DA_Exp_Trans_MWh\}$

Daily_DA_Exp_Trans_Losses_\$ = $\sum\{Hr_DA_Exp_Trans_Losses_ \$\}$

Daily_DA_Exp_Trans_Congestion_\$ = $\sum\{Hr_DA_Exp_Trans_Congestion_ \$\}$

Daily_DA_Exp_Trans_TUC_\$ = $\sum\{Hr_DA_Exp_Trans_TUC_ \$\}$

Daily Settlement Reported

Daily_DAM_Exp_Trans_MWhr: Daily Advisory Billing Statement – Billing Code 750
Daily_DAM_Exp_Trans_Losses_\$: Daily Advisory Billing Statement – Billing Code 751
Daily_DAM_Exp_Trans_Congestion_\$: Daily Advisory Billing Statement – Billing Code 752
Daily_DAM_Exp_Trans_TUC_\$: Daily Advisory Billing Statement – Billing Code 753

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_Losses_\$: Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$: Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_Losses_\$: Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$: Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_Losses_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_Int_Trans_Losses_\$: Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$: Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$: Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$: Daily DAM Import Transaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$: Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$: Daily DAM Export Transaction congestion settlement [Billing Code 752]
Daily_DAM_WT_Trans_Losses_\$: Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$: Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$: Monthly DAM losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$: Monthly DAM congestion Transmission Usage Charge settlement

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DAM NYCA Non-LBMP Export Transaction Transmission Usage Charge

Monthly Settlement

Monthly_DA_TUC_Losses_\$ = $\sum\{$ Daily_DA_LBMP_Imp_Losses_\$ + Daily_DA_LBMP_Exp_Losses_\$ + Daily_DA_Rep_Losses_\$ +
Daily_DA_Imp_Trans_Losses_\$: Daily_DA_Exp_Trans_Losses_\$: Daily_DA_WT_Trans_Losses_\$}

Monthly_DA_TUC_Congestion_\$ = $\sum\{$ Daily_DA_LBMP_Imp_Congestion_\$ + Daily_DA_LBMP_Exp_Congestion_\$ +
Daily_DA_Rep_Congestion_\$ + Daily_DA_Imp_Trans_Congestion_\$ + Daily_DA_Exp_Trans_Congestion_\$ +
Daily_DA_WT_Trans_Congestion_\$}

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MSR-0005

DAM NYCA Non-LBMP Import Transaction Transmission Usage Charge

Transmission Customers must schedule transmission service to deliver energy purchased through contractual agreements negotiated externally to the NYISO markets. The contracted energy is not settled through the NYISO process, however, NYISO does charge transmission customers for losses and congestion costs associated with transmission service scheduled to deliver bilaterally contracted energy.

Some Transmission Agreements in effect at NYISO inception may have congestion relief rights associated with them. These rights were carried forward for application in NYISO, providing relief from DAM congestion Transmission Usage Charges up to the capacity defined by the grandfathered right. The rights are recognized by the billing system through a unique User Reference number and Points of Withdrawal & Injection, which define the original Transmission Agreement.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_POI_of_Losses:	Hourly DAM Point of Injection LBMP losses component
Hr_DA_POI_Price_of_Congestion:	Hourly DAM Point of Injection LBMP congestion component
Hr_DA_POW_of_Losses:	Hourly DAM Point of Withdrawal LBMP losses component
Hr_DA_POW_Price_of_Congestion:	Hourly DAM Point of Withdrawal LBMP congestion component
Hr_DA_Imp_Trans_MWh:	Hourly DAM transaction energy bid
GTR_Congestion_Relief_MWh	Hourly DAM Grandfathered Transmission Right Congestion Relief

Hourly Settlement Outputs

Hr_DA_Imp_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement
Hr_DA_Imp_Trans_Congestion_\$:	Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Imp_Trans_TUC_\$:	Total Hourly DAM Transmission Usage Charge settlement

Hourly Settlement

Point of Injection a NYISO external proxy bus

Point of Withdrawal is not a NYISO external proxy bus or the NYISO Reference bus

$$\text{Hr_DA_Imp_Trans_Losses_\$} = \text{Hr_DA_Imp_Trans_MWh} \times \{(\text{Hr_DA_POW_Price_of_Losses} - \text{Hr_DA_POI_Price_of_Losses})\}$$
$$\text{Hr_DA_Imp_Trans_Congestion_\$} = \{\text{Hr_DA_Imp_Trans_MWh} - \text{GTR_Congestion_Relief_MWh}\} \times \{-1 \times (\text{Hr_DAM_POW_Price_of_Congestion} - \text{Hr_DAM_POI_Price_of_Congestion})\}$$
$$\text{Hr_DA_Imp_Trans_TUC_\$} = \text{Hr_DA_Imp_Trans_Losses_\$} + \text{Hr_DA_Imp_Trans_Congestion_\$}$$

Hourly Settlement Reported

Hr_DA_Imp_Trans_MWhr:	Hourly Advisory Statement Billing Code: 501
Hr_DA_Imp_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 502
Hr_DA_Imp_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 503
Hr_DA_Imp_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 504

Daily Settlement

Daily Settlement Inputs

Hr_DA_Imp_Trans_MWh:	Hourly DAM transaction energy scheduled
Hr_DA_Imp_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement

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DAM NYCA Non-LBMP Import Transaction Transmission Usage Charge

Hr_DA_Imp_Trans_Congestion_\$: Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Imp_Trans_TUC_\$: Total Hourly DAM Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_DA_Imp_Trans_MWh: Daily DAM transaction energy scheduled
Daily_DA_Imp_Trans_Losses_\$: Daily DAM Transmission Usage Charge losses settlement
Daily_DA_Imp_Trans_Congestion_\$: Daily DAM Transmission Usage Charge congestion settlement
Daily_DA_Imp_Trans_TUC_\$: Total Daily DAM Transmission Usage Charge settlement

Daily Settlement

Daily_DA_Imp_Trans_MWh = $\sum\{Hr_DA_Imp_Trans_MWh\}$

Daily_DA_Imp_Trans_Losses_\$ = $\sum\{Hr_DA_Imp_Trans_Losses_ \$\}$

Daily_DA_Imp_Trans_Congestion_\$ = $\sum\{Hr_DA_Imp_Trans_Congestion_ \$\}$

Daily_DA_Imp_Trans_TUC_\$ = $\sum\{Hr_DA_Imp_Trans_TUC_ \$\}$

Daily Settlement Reported

Daily_DAM_Imp_Trans_MWhr: Daily Advisory Billing Statement – Billing Code 750
Daily_DAM_Imp_Trans_Losses_\$: Daily Advisory Billing Statement – Billing Code 751
Daily_DAM_Imp_Trans_Congestion_\$: Daily Advisory Billing Statement – Billing Code 752
Daily_DAM_Imp_Trans_TUC_\$: Daily Advisory Billing Statement – Billing Code 753

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_Losses_\$: Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$: Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_Losses_\$: Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$: Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_Losses_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_Int_Trans_Losses_\$: Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$: Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$: Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$: Daily DAM Import Transaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$: Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$: Daily DAM Export Transaction congestion settlement [Billing Code 752]
Daily_DAM_WT_Trans_Losses_\$: Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$: Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$: Monthly DAM losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$: Monthly DAM congestion Transmission Usage Charge settlement

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DAM NYCA Non-LBMP Import Transaction Transmission Usage Charge

Monthly Settlement

Monthly_DA_TUC_Losses_\$ = $\sum\{ \text{Daily_DA_LBMP_Imp_Losses_}\$ + \text{Daily_DA_LBMP_Exp_Losses_}\$ + \text{Daily_DA_Rep_Losses_}\$ + \text{Daily_DA_Imp_Trans_Losses_}\$: \text{Daily_DA_Exp_Trans_Losses_}\$: \text{Daily_DA_WT_Trans_Losses_}\$ \}$

Monthly_DA_TUC_Congestion_\$ = $\sum\{ \text{Daily_DA_LBMP_Imp_Congestion_}\$ + \text{Daily_DA_LBMP_Exp_Congestion_}\$ + \text{Daily_DA_Rep_Congestion_}\$ + \text{Daily_DA_Imp_Trans_Congestion_}\$ + \text{Daily_DA_Exp_Trans_Congestion_}\$ + \text{Daily_DA_WT_Trans_Congestion_}\$ \}$

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MSR-0004

DAM NYCA Internal Transaction Transmission Usage Charge

Transmission Customers must schedule transmission service to deliver energy purchased through contractual agreements negotiated externally to the NYISO markets. The contracted energy is not settled through the NYISO process, however, NYISO does charge transmission customers for losses and congestion costs associated with transmission service scheduled to deliver bilaterally contracted energy.

Some Transmission Agreements in effect at NYISO inception may have congestion relief rights associated with them. These rights were carried forward for application in NYISO, providing relief from DAM congestion Transmission Usage Charges up to the capacity defined by the grandfathered right. The rights are recognized by the billing system through a unique User Reference number and Points of Withdrawal & Injection, which define the original Transmission Agreement.

Hourly Settlement

Hourly Settlement Inputs

Hr_DA_POI_of_Losses:	Hourly DAM Point of Injection LBMP losses component
Hr_DA_POI_Price_of_Congestion:	Hourly DAM Point of Injection LBMP congestion component
Hr_DA_POW_of_Losses:	Hourly DAM Point of Withdrawal LBMP losses component
Hr_DA_POW_Price_of_Congestion:	Hourly DAM Point of Withdrawal LBMP congestion component
Hr_DA_Int_Trans_MWh:	Hourly DAM transaction energy scheduled
GTR_Congestion_Relief_MWh	Hourly DAM Grandfathered Transmission Right Congestion Relief

Hourly Settlement Outputs

Hr_DA_Int_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement
Hr_DA_Int_Trans_Congestion_\$:	Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Int_Trans_TUC_\$:	Total Hourly DAM Transmission Usage Charge settlement

Hourly Settlement

Point of Injection is not a NYISO external proxy bus or the NYISO Reference bus

Point of Withdrawal is not a NYISO external proxy bus or the NYISO Reference bus

$$\text{Hr_DA_Int_Trans_Losses_\$} = \text{Hr_DA_Int_Trans_MWh} \times \{ (\text{Hr_DA_POW_Price_of_Losses} - \text{Hr_DA_POI_Price_of_Losses}) \}$$

$$\text{Hr_DA_Int_Trans_Congestion_\$} = \{ \text{Hr_DA_Int_Trans_MWh} - \text{GTR_Congestion_Relief_MWh} \} \times \{ -1 \times (\text{Hr_DAM_POW_Price_of_Congestion} - \text{Hr_DAM_POI_Price_of_Congestion}) \}$$

$$\text{Hr_DA_Int_Trans_TUC_\$} = \text{Hr_DA_Int_Trans_Losses_\$} + \text{Hr_DA_Int_Trans_Congestion_\$}$$

Hourly Settlement Reported

Hr_DA_Int_Trans_MWh:	Hourly Advisory Statement Billing Code: 501
Hr_DA_Int_Trans_Losses_\$:	Hourly Advisory Statement Billing Code: 502
Hr_DA_Int_Trans_Congestion_\$:	Hourly Advisory Statement Billing Code: 503
Hr_DA_Int_Trans_TUC_\$:	Hourly Advisory Statement Billing Code: 504

Daily Settlement

Daily Settlement Inputs

Hr_DA_Int_Trans_MWh:	Hourly DAM transaction energy scheduled
Hr_DA_Int_Trans_Losses_\$:	Hourly DAM Transmission Usage Charge losses settlement

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DAM NYCA Internal Transaction Transmission Usage Charge

Hr_DA_Int_Trans_Congestion_\$: Hourly DAM Transmission Usage Charge congestion settlement
Hr_DA_Int_Trans_TUC_\$: Total Hourly DAM Transmission Usage Charge settlement

Daily Settlement Outputs

Daily_DA_Int_Trans_MWh: Daily DAM transaction energy scheduled
Daily_DA_Int_Trans_Losses_\$: Daily DAM Transmission Usage Charge losses settlement
Daily_DA_Int_Trans_Congestion_\$: Daily DAM Transmission Usage Charge congestion settlement
Daily_DA_Int_Trans_TUC_\$: Total Daily DAM Transmission Usage Charge settlement

Daily Settlement

Daily_DA_Int_Trans_MWh = $\sum\{Hr_DA_Int_Trans_MWh\}$

Daily_DA_Int_Trans_Losses_\$ = $\sum\{Hr_DA_Int_Trans_Losses_ \$\}$

Daily_DA_Int_Trans_Congestion_\$ = $\sum\{Hr_DA_Int_Trans_Congestion_ \$\}$

Daily_DA_Int_Trans_TUC_\$ = $\sum\{Hr_DA_Int_Trans_TUC_ \$\}$

Daily Settlement Reported

Daily_DAM_Int_Trans_MWhr: Daily Advisory Billing Statement – Billing Code 750
Daily_DAM_Int_Trans_Losses_\$: Daily Advisory Billing Statement – Billing Code 751
Daily_DAM_Int_Trans_Congestion_\$: Daily Advisory Billing Statement – Billing Code 752
Daily_DAM_Int_Trans_TUC_\$: Daily Advisory Billing Statement – Billing Code 753

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_Imp_Losses_\$: Daily DAM LBMP import energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Imp_Congestion_\$: Daily DAM LBMP import energy - congestion settlement [Billing Code 761]
Daily_DA_LBMP_Exp_Losses_\$: Daily DAM LBMP export energy - losses settlement [Billing Code 760]
Daily_DA_LBMP_Exp_Congestion_\$: Daily DAM LBMP export energy - congestion settlement [Billing Code 761]
Daily_DA_Rep_Losses_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 760]
Daily_DA_Rep_Congestion_\$: Daily DAM LBMP replacement energy for curtailed imports [Billing Code 761]
Daily_DAM_Int_Trans_Losses_\$: Daily DAM Internal Transaction losses settlement [Billing Code 751]
Daily_DAM_Int_Trans_Congestion_\$: Daily DAM Internal Transaction congestion settlement [Billing Code 752]
Daily_DAM_Imp_Trans_Losses_\$: Daily DAM Import Transaction losses settlement [Billing Code 751]
Daily_DAM_Imp_Trans_Congestion_\$: Daily DAM Import Transaction congestion settlement [Billing Code 752]
Daily_DAM_Exp_Trans_Losses_\$: Daily DAM Export Transaction losses settlement [Billing Code 751]
Daily_DAM_Exp_Trans_Congestion_\$: Daily DAM Export Transaction congestion settlement [Billing Code 752]
Daily_DAM_WT_Trans_Losses_\$: Daily DAM Wheel Transaction losses settlement [Billing Code 751]
Daily_DAM_WT_Trans_Congestion_\$: Daily DAM Wheel Transaction congestion settlement [Billing Code 752]

Monthly Settlement Outputs

Monthly_DA_TUC_Losses_\$: Monthly DAM losses Transmission Usage Charge settlement
Monthly_DA_TUC_Congestion_\$: Monthly DAM congestion Transmission Usage Charge settlement

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MSR-0004

DAM NYCA Internal Transaction Transmission Usage Charge

Monthly Settlement

Monthly_DA_TUC_Losses_\$ = $\sum\{ \text{Daily_DA_LBMP_Imp_Losses_}\$ + \text{Daily_DA_LBMP_Exp_Losses_}\$ + \text{Daily_DA_Rep_Losses_}\$ + \text{Daily_DA_Imp_Trans_Losses_}\$: \text{Daily_DA_Exp_Trans_Losses_}\$: \text{Daily_DA_WT_Trans_Losses_}\$ \}$

Monthly_DA_TUC_Congestion_\$ = $\sum\{ \text{Daily_DA_LBMP_Imp_Congestion_}\$ + \text{Daily_DA_LBMP_Exp_Congestion_}\$ + \text{Daily_DA_Rep_Congestion_}\$ + \text{Daily_DA_Imp_Trans_Congestion_}\$ + \text{Daily_DA_Exp_Trans_Congestion_}\$ + \text{Daily_DA_WT_Trans_Congestion_}\$ \}$

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MSR-0003

DAM Virtual Supply Energy

Virtual Supply is bid into the NYISO DAM in the same manner as price capped Supply and is settled using the same settlement algorithms as DAM LSE Energy.

Hourly Settlement

Hourly Settlement Inputs

DA_Price_of_Energy:	Hourly DAM LBMP energy component
DA_Price_of_Losses:	Hourly DAM LBMP losses component
DA_Price_of_Congestion:	Hourly DAM LBMP congestion component
DAM_MWh	Hourly DAM Virtual Supply energy scheduled by SCUC

Hourly Settlement Outputs

Hr_DA_VS_MWh:	Hourly DAM Virtual Supply energy sold
Hr_DA_VS_Energy_\$:	Hourly DAM Virtual Supply energy settlement
Hr_DA_VS_Losses_\$:	Hourly DAM Virtual Supply losses settlement
Hr_DA_VS_Congestion_\$:	Hourly DAM Virtual Supply congestion settlement
Hr_DA_VS_\$:	Hourly net DAM Virtual Supply settlement

Hourly Settlement

$Hr_DA_VS_MWh = DAM_MWh$

$Hr_DA_VS_Energy_\$ = Hr_DA_VS_MWh \times DA_Price_of_Energy$

$Hr_DA_VS_Losses_\$ = Hr_DA_VS_MWh \times DA_Price_of_Losses$

$Hr_DA_VS_Congestion_\$ = Hr_DA_VS_MWh \times \{-1 \times DA_Price_of_Congestion\}$

$Hr_DA_VS_\$ = Hr_DA_VS_Energy_\$ + Hr_DA_VS_Losses_\$ + Hr_DA_VS_Congestion_\$$

Hourly Settlement Reported

Hourly_DA_VS_MWh:	Hourly Advisory Billing Statement – Billing Code 414
Hourly_DA_VS_\$:	Hourly Advisory Billing Statement – Billing Code 415

Daily Settlement

Daily Settlement Inputs

Hr_DA_VS_MWh:	Hourly DAM Virtual Supply energy sold
Hr_DA_VS_\$:	Hourly net DAM Virtual Supply settlement

Daily Settlement Outputs

Daily_DA_VS_MWh:	Daily DAM Virtual Supply energy sold
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MSR-0003

DAM Virtual Supply Energy

Daily_DA_VS_\$: Daily net DAM Virtual Supply settlement

Daily Settlement

Daily_DA_VS_MWh = $\sum\{ \text{Hr_DA_VS_MWh} \}$

Daily_DA_VS_\$ = $\sum\{ \text{Hr_DA_VS_\$} \}$

Daily Settlement Reported

Daily_DA_VS_MWh: Daily Advisory Billing Statement – Billing Code 772

Daily_DA_VS_\$: Daily Advisory Billing Statement – Billing Code 773

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_VS_MWh: Daily DAM Virtual Supply energy sold

Daily_DA_VS_\$: Daily net DAM Virtual Supply settlement

Monthly Settlement Outputs

Monthly_DA_VS_MWh: Monthly DAM Virtual Supply energy sold

Monthly_DA_VS_\$: Monthly Monthly net DAM Virtual Supply settlement

Daily Settlement

Monthly_DA_VS_MWh = $\sum\{ \text{Daily_DA_VS_MWh} \}$

Monthly_DA_VS_\$ = $\sum\{ \text{Daily_DA_VS_\$} \}$

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MSR-0047
Black Start Capability Service Cost Recovery

The NYISO's costs of providing Black Start Service are recovered from internal NYCA withdrawals per their respective ratio share of total internal NYCA withdrawals.

Hourly Settlement

Hourly Settlement Inputs

Hr_TC_NYCA_LSE_MWh:	Hourly Transmission Customer NYCA LSE: DAM + RT MWh
Hr_TC_Int_Trans_MWh:	Hourly Transmission Customer Internal Transaction: DAM + RT MWh
Hr_TC_Imp_Trans_MWh:	Hourly Transmission Customer Import Transaction: DAM + RT MWh
Hr_NYCA_LSE_MWh:	Hourly Total NYISO NYCA LSE: DAM + RT MWh
Hr_Int_Trans_MWh:	Hourly Total NYISO Internal Transaction: DAM + RT MWh
Hr_Imp_Trans_MWh:	Hourly Total NYISO Import Transaction: DAM + RT MWh
Hr_BS_\$:	Hourly Total NYISO Black Start Capability Service cost

Hourly Settlement Outputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_BS_Charge_\$	Hourly Transmission Customer Black Start Service cost allocation

Hourly Settlement

$Hr_Ancillary_Services_MWh = Hr_TC_NYCA_LSE_MWh + Hr_TC_Int_Trans_MWh + Hr_TC_Imp_Trans_MWh$

$Hr_BS_Charge_\$ = Hr_BS_\$ \times Hr_Ancillary_Services_MWh \div \{Hr_NYCA_LSE_MWh + Hr_Int_Trans_MWh + Hr_Imp_Trans_MWh\}$

Hourly Settlement Reported

Hr_Ancillary_Services_MWh	Hourly Advisory Statement Billing Code 600
Hr_BS_Charge_\$	Hourly Advisory Statement Billing Code 613

Daily Settlement

Daily Settlement Inputs

Hr_Ancillary_Services_MWh	Hourly NYCA Transmission Customer MWh withdrawal
Hr_BS_Charge_\$	Hourly Transmission Customer Black Start Capability cost allocation

Daily Settlement Output

Daily_Ancillary_Services_MWh	Daily NYCA Transmission Customer MWh withdrawal
Daily_BS_Charge_\$	Daily Transmission Customer Black Start Capability cost allocation

Daily Settlement

$Daily_Ancillary_Services_MWh = \sum\{Hr_Ancillary_Services_MWh\}$

$Daily_BS_Charge_\$ = \sum\{Hr_BS_Charge_ \$\}$

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MSR-0047
Black Start Capability Service Cost Recovery
Daily Settlement Reported

Daily_Ancillary_Services_MWh
Daily_BS_Charge_\$\$

Daily Advisory Statement Billing Code 800
Daily Advisory Statement Billing Code 808

Monthly Settlement

Monthly Settlement Inputs

Daily_BS_Charge_\$\$

Daily Transmission Customer Black Start Capability cost allocation

Monthly Settlement Outputs

Mth_BS_Charge_\$\$

Monthly Transmission Customer Black Start Capability cost allocation

Monthly Settlement

$Mth_BS_Charge_\$ = \sum\{Daily_BS_Charge_ \$\}$

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MSR-0001

DAM NYCA Supplier Energy

Daily Settlement

Daily_DA_LBMP_MWHR = $\Sigma\{\text{Hourly_DA_LBMP_MWHR}\}$

Daily_DA_Energy_\$ = $\Sigma\{\text{Hourly_DA_Energy_}\}$

Daily Settlement Reported

Daily_DA_LBMP_MWHR: Daily Advisory Billing Statement – Billing Code 300

Daily_DA_Energy_\$: Daily Advisory Billing Statement – Billing Code 301

Monthly Settlement

Monthly Settlement Inputs

Daily_DA_LBMP_MWHR: Daily DAM energy sold/(purchased)

Daily_DA_Energy_\$: Daily DAM energy settlement

Monthly Settlement Outputs

Monthly_DA_LBMP_MWHR: Monthly DAM energy sold/(purchased)

Monthly_DA_Energy_\$: Monthly DAM energy settlement

Monthly Settlement

Monthly_DA_LBMP_MWHR = $\Sigma\{\text{Daily_DA_LBMP_MWHR}\}$

Monthly_DA_Energy_\$ = $\Sigma\{\text{Daily_DA_Energy_}\}$

Monthly Settlement Reported In Power Supplier Monthly Settlement Statement