

# DRAFT

## MSR-0022

### 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 Likewise, any energy withdrawn in real time in excess of that purchased from the DAM and served through bilateral contracts outside of the NYISO to serve NYCA points of withdrawal is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.

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_MW:	Hourly LBMP MWhr purchased through their DAM bid
LSE_DAM_Bilateral_MW:	Hourly DAM bilateral MWhr scheduled for which the LSE is the withdrawal
LSE_HAM_Bilateral_MW:	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

$$\text{LSE\_SCD\_MW} = \text{Hourly\_LSE\_Forecast\_MW} + \{\text{Meter\_Error} \times \text{Fixed\_Correction\_Ratio}\}; \text{ otherwise,}$$

$$\text{Adjusted\_Est\_SZ\_MW} = \text{Estimated\_SZ\_MW} - \sum\{\text{Hourly\_LSE\_Forecast\_MW for all LSE with fixed correction ratios}\}$$

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Adjusted\_SZ\_MW = SCD\_SZ\_MW –  $\Sigma$ { 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_MW:	Hourly LBMP MWhr purchased through their DAM bid
Hourly_LSE_DAM_Bilateral_MW:	Hourly DAM bilateral MWhr scheduled for withdrawal by the LSE
LSE_HAM_Bilateral_MW:	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_MW:	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\_MW = { LSE\_MW – (Hourly\_LSE\_DAM\_MW + Hourly\_LSE\_DAM\_Bilateral\_MW + Hourly\_LSE\_HAM\_Bilateral\_MW)}

SCD\_LSE\_Energy\_\$ = LSE\_SCD\_Interval\_MW x RT\_Price\_of\_Energy x SCD\_Interval ÷ 3,600 seconds

SCD\_LSE\_Losses\_\$ = LSE\_SCD\_Interval\_MW x RT\_Price\_of\_Losses x SCD\_Interval ÷ 3,600 seconds

SCD\_LSE\_Congestion\_\$ = LSE\_SCD\_Interval\_MW x { -1 x RT\_Price\_of\_Congestion} x SCD\_Interval ÷ 3,600 seconds

## NYCA LSE Hourly Balancing Market Energy Settlement

### Hourly Settlement Inputs

SCD_Interval	Length of the SCD interval in seconds
SCD_LSE_MW:	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

### Hourly Settlement Outputs

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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

$$\text{Hourly\_LSE\_RT\_MWh} = \Sigma\{\text{SCD\_LSE\_MW} \times \text{SCD\_Interval} \div 3,600 \text{ seconds}\}$$

$$\text{Hourly\_LSE\_RT\_Energy\_\$} = \Sigma\{\text{SCD\_LSE\_Energy\_\$}\}$$

$$\text{Hourly\_LSE\_RT\_Losses\_\$} = \Sigma\{\text{SCD\_LSE\_Losses\_\$}\}$$

$$\text{Hourly\_LSE\_RT\_Congestion\_\$} = \Sigma\{\text{SCD\_LSE\_Congestion\_\$}\}$$

$$\text{Hourly\_LSE\_RT\_LBMP} = \{ \text{Hourly\_LSE\_RT\_Energy\_\$} + \text{Hourly\_LSE\_RT\_Losses\_\$} + \text{SCD\_LSE\_Congestion\_\$} \} /$$

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

$$\text{Daily\_LSE\_RT\_MWh} = \Sigma\{\text{Hourly\_LSE\_RT\_MWh}\}$$

$$\text{Daily\_LSE\_RT\_Energy\_\$} = \Sigma\{\text{Hourly\_LSE\_RT\_Energy\_\$}\}$$

$$\text{Daily\_LSE\_RT\_Losses\_\$} = \Sigma\{\text{Hourly\_LSE\_RT\_Losses\_\$}\}$$

$$\text{Daily\_LSE\_RT\_Congestion\_\$} = \Sigma\{\text{Hourly\_LSE\_RT\_Congestion\_\$}\}$$

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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 =  $\sum\{\text{Daily\_RT\_LBMP\_Exp\_MWHR}\} + \sum\{\text{Daily\_LSE\_RT\_MWHR}\} + \sum\{\text{Daily\_RT\_LBMP\_Imp\_MWHR}\}$

Monthly\_RT\_TC\_Energy =  $\sum\{\text{Daily\_RT\_LBMP\_Exp\_Energy\_}\$}\} + \sum\{\text{Daily\_LSE\_RT\_Energy\_}\$}\} + \sum\{\text{Daily\_LSE\_RT\_Losses\_}\$}\} + \sum\{\text{Daily\_LSE\_RT\_Congestion\_}\$}\} + \sum\{\text{Daily\_RT\_LBMP\_Imp\_Energy\_}\$}\}$

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 LBMP Energy Export

LBMP energy export transactions are balanced for any difference between real-time energy withdrawals scheduled and that scheduled day-ahead. 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_MW:	Hourly DAM transaction energy <i>bid</i>
BME_LBMP_Exp_MW:	Hourly BME transaction energy <i>bid</i>
SCD_LBMP_Exp_MW:	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_MW:	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

Point of Injection is the NYISO Reference Bus.

Point of Withdrawal is a NYISO external proxy bus.

$$\text{SCD\_LBMP\_Exp\_MW} = \{ \text{RT\_LBMP\_Exp\_MW} - \text{DAM\_LBMP\_Exp\_MW} \}$$

*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.*

$$\text{SCD\_LBMP\_Exp\_Energy\_\$} = \text{SCD\_LBMP\_Exp\_MW} \times \text{Bal\_POW\_Price\_of\_Energy} \times \text{SCD\_Interval} \div 3600 \text{ seconds}$$

$$\text{SCD\_LBMP\_Exp\_Losses\_\$} = \text{SCD\_LBMP\_Exp\_MW} \times \text{Bal\_POW\_Price\_of\_Losses} \times \text{SCD\_Interval} \div 3600 \text{ seconds}$$

$$\text{SCD\_LBMP\_Exp\_Congestion\_\$} = \text{SCD\_LBMP\_Exp\_MW} \times \text{Bal\_POW\_Price\_of\_Congestion} \times \text{SCD\_Interval} \div 3600 \text{ seconds}$$

#### Hourly interval Settlement

##### Hourly Settlement Inputs

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SCD_Interval	SCD interval length in seconds
SCD_LBMP_Exp_MW:	SCD interval RT LBMP export transaction balancing energy
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

$$\text{Hr\_RT\_Bal\_Exp\_MWh} = \sum\{\text{SCD\_LBMP\_Exp\_MW} \times \text{SCD\_Interval} \div 3,600 \text{ seconds}\}$$

$$\text{Hr\_RT\_LBMP\_Exp\_Losses\_\$} = \sum\{\text{SCD\_LBMP\_Exp\_Losses\_\$}\}$$

$$\text{Hr\_RT\_LBMP\_Exp\_Congestion\_\$} = \sum\{\text{SCD\_LBMP\_Exp\_Congestion\_\$}\}$$

$$\text{Hr\_RT\_LBMP\_Exp\_\$} = \text{Hr\_RT\_LBMP\_Exp\_Energy\_\$} + \text{Hr\_RT\_LBMP\_Exp\_Losses\_\$} + \text{Hr\_RT\_LBMP\_Exp\_Congestion\_\$}$$

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

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Daily\_RT\_LBMP\_Exp\_MWh =  $\sum\{\text{Hr\_RT\_LBMP\_Exp\_MWh}\}$

Daily\_RT\_LBMP\_Exp\_Losses\_\$ =  $\sum\{\text{Hr\_RT\_LBMP\_Exp\_Losses\_}\}$

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\_\$ =  $\sum\{\text{Daily\_RT\_LBMP\_Imp\_Losses\_}\$ + \text{Daily\_RT\_LBMP\_Exp\_Losses\_}\$ + \text{Daily\_RT\_Rep\_Losses\_}\$ + \text{Daily\_RT\_Imp\_Trans\_Losses\_}\$ : \text{Daily\_RT\_Exp\_Trans\_Losses\_}\$ : \text{Daily\_RT\_WT\_Trans\_Losses\_}\}$

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$$\text{Monthly\_RT\_TUC\_Congestion\_\$} = \sum\{\text{Daily\_RT\_LBMP\_Imp\_Congestion\_\$} + \text{Daily\_RT\_LBMP\_Exp\_Congestion\_\$} + \\ \text{Daily\_RT\_Rep\_Congestion\_\$} + \text{Daily\_RT\_Imp\_Trans\_Congestion\_\$} + \text{Daily\_RT\_Exp\_Trans\_Congestion\_\$} + \\ \text{Daily\_RT\_WT\_Trans\_Congestion\_\$}\}$$



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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_MW	Hourly DAM Virtual Load energy contracted
SCD_Interval	SCD interval length in seconds

### SCD Interval Settlement Outputs

SCD_RT_VL_MW:	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

$$SCD\_RT\_VL\_MW = -DAM\_MW$$

$$SCD\_RT\_VL\_Energy\_\$ = SCD\_RT\_VL\_MW \times RT\_Price\_of\_Energy \times SCD\_Interval \div 3600 \text{ seconds}$$

$$SCD\_RT\_VL\_Losses\_\$ = SCD\_RT\_VL\_MW \times RT\_Price\_of\_Losses \times SCD\_Interval \div 3600 \text{ seconds}$$

$$SCD\_RT\_VL\_Congestion\_\$ = SCD\_RT\_VL\_MW \times \{-1 \times RT\_Price\_of\_Congestion\} \times SCD\_Interval \div 3600 \text{ seconds}$$

$$SCD\_RT\_VL\_\$ = SCD\_RT\_VL\_Energy\_\$ + SCD\_RT\_VL\_Losses\_\$ + SCD\_RT\_VL\_Congestion\_\$$$

## 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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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 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 August 29, 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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## Balancing Market NYCA Supplier Bid Production Cost Guarantee

### SCD Interval Incremental Production Cost Settlement Outputs

Balancing_Bid_\$_Basis <sub>n</sub> :	Balancing Market Bid Production Cost point used as cost at point “n” of the unit bid curve
Balancing_BPC <sub>SCD</sub> :	Balancing Market Bid Production Cost over SCD interval, per BPC Basis
Balancing_BPC <sub>COM</sub> :	Balancing Market Bid Production Cost for capacity serving bilateral & DAM contracts over SCD interval
Balancing_BPC <sub>MIN</sub> :	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

# DRAFT

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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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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\_\$ :=  $\sum$ { Daily\_TCC\_Rent\_\$ }

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MSR-0029  
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

$$CE\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ CE\_Daily\_DA\_LBMP\_Exp\_MWh \}$$

$$CH\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ CH\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$LI\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ LI\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$NI\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ NI\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$OR\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ OR\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$NY\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ NY\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$PA\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ PA\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

$$RG\_Monthly\_DA\_LBMP\_Exp\_MWh = \sum\{ RG\_Daily\_DAM\_Congestion\_Balancing\_ \$ \}$$

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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MSR-0034  
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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MSR-0034  
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\_\$ =  $\sum\{ \text{Daily\_Residual\_Balancing\_} \$ \}$



DRAFT  
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\_\$ =  $\sum\{ \text{Daily\_Residual\_Balancing\_} \$ \}$

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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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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\_\$ =  $\sum$ { Daily\_Residual\_Balancing\_\$ }

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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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## 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\_\$ =  $\sum$ { Daily\_Residual\_Balancing\_\$ }

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MSR-0038  
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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MSR-0038

Balancing Congestion Residual

$$\text{Hr\_RT\_LBMP\_Imp\_Congestion\_\$} - \text{Hr\_RT\_NYCA\_Sup\_Congestion\_\$} - \text{Hr\_RT\_VS\_Congestion\_\$} + \text{Hr\_DA\_Energy\_Residual\_\$} + \text{Hr\_DA\_Loss\_Residual\_\$} + \text{Hr\_RT\_Energy\_Residual\_\$} + \text{Hr\_RT\_Losses\_Residual\_\$} + \text{Hr\_DAM\_Contract\_Balancing\_\$} + \text{Hr\_Emergency\_Sales\_Revenue\_\$} - \text{Hr\_Emergency\_Purchases\_Costs\_\$}$$

$$\text{Hr\_Ancillary\_Services\_MWh} = \text{Hr\_TC\_NYCA\_LSE\_MWh} + \text{Hr\_TC\_Int\_Trans\_MWh} + \text{Hr\_TC\_Imp\_Trans\_MWh}$$

$$\text{Hr\_Export\_MWh} = \text{Hr\_TC\_LBMP\_Exp\_MWh} + \text{Hr\_TC\_Exp\_Trans\_MWh}$$

$$\text{Hr\_Wheel\_MWh} = \text{Hr\_TC\_WT\_Trans\_MWh}$$

$$\text{Hr\_Residual\_Balancing\_\$} = \text{Hr\_Residual\_\$} \times \left\{ \frac{\text{Hr\_Ancillary\_Services\_MWh} + \text{Hr\_Export\_MWh} + \text{Hr\_Wheel\_MWh}}{\text{Hr\_LBMP\_Exp\_MWh} + \text{Hr\_NYCA\_LSE\_MWh} + \text{Hr\_Int\_Trans\_MWh} + \text{Hr\_Imp\_Trans\_MWh} + \text{Hr\_Exp\_Trans\_MWh} + \text{Hr\_WT\_Trans\_MWh}} \right\}$$

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

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-0038

## 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\_\$ =  $\sum$ { Daily\_Residual\_Balancing\_\$ }

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 MSR-0039  
 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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MSR-0039  
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\_ =  $\sum\{ \text{Daily\_Residual\_Balancing\_} \}$

DRAFT  
MSR-0041  
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

DRAFT  
MSR-0041

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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MSR-0041  
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

$Mth\_VSS\_Charge\_\$ = \sum\{ Daily\_VSS\_Charge\_\$ \}$

DRAFT  
 MSR-0043  
 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

$$\text{Daily\_Ancillary\_Services\_MWh} = \sum \{ \text{Hr\_Ancillary\_Services\_MWh} \}$$

$$\text{Daily\_Reg\_Charge\_\$} = \sum \{ \text{Hr\_Reg\_Charge\_\$} \}$$

DRAFT  
MSR-0043  
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

$Mth\_Reg\_Charge\_\$ = \sum\{ Daily\_Reg\_Charge\_\$ \}$

DRAFT  
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

$Hr\_Ancillary\_Services\_MWh = Hr\_TC\_NYCA\_LSE\_MWh + Hr\_TC\_Int\_Trans\_MWh + Hr\_TC\_Imp\_Trans\_MWh$

$Hr\_Export\_MWh = Hr\_TC\_LBMP\_Export\_MWh + Hr\_TC\_Exp\_Trans\_MWh$

$Hr\_Res\_Charge\_\$ = \{Hr\_Res\_Avail\_\$ - Hr\_Res\_Penalty\_ \$\} \times \{Hr\_Ancillary\_Services\_MWh + Hr\_Export\_MWh\} \div \{Hr\_NYCA\_LSE\_MWh + Hr\_LBMP\_Export\_MWh + Hr\_Int\_Trans\_MWh + Hr\_Exp\_Trans\_MWh + Hr\_Imp\_Trans\_MWh\}$

### 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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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

$Daily\_Ancillary\_Services\_MWh = \sum\{Hr\_Ancillary\_Services\_MWh\}$

$Daily\_BS\_Charge\_\$ = \sum\{Hr\_BS\_Charge\_ \$\}$

DRAFT  
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

$Mth\_BS\_Charge\_\$ = \sum\{Daily\_BS\_Charge\_ \$\}$