6.5 Schedule 5 - Charges for Operating Reserve Service

The ISO must offer this service when Transmission Service is used to serve Load within the NYCA. Transmission Customers and LSEs must ~~either~~ purchase this service from the ISO. The charges for Operating Reserve Service are set forth below.

The NYSRC shall be responsible for evaluating the adequacy of the criteria for determining the required level of Operating Reserves and shall modify such criteria from time to time as required. The ISO shall establish additional categories of Operating Reserves if necessary to ensure reliability.

The ISO will ensure that Suppliers that are compensated for using Capacity to provide one Operating Reserve product are not simultaneously compensated for providing another Operating Reserve product, or Regulation Service, using the same Capacity (consistent with the additive nature of the market clearing price calculation formulae in Sections 15.4.5.1 and 15.4.6.1 of Rate Schedule 4 of the ISO Services Tariff).

6.5.1 Operating Reserves Charges

Transmission Customers~~, and~~ Customers engaging in Export Transactions, ~~-~~except for Export Transactions at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England, and LSEs shall pay the ISO for Operating Reserves. The ISO shall compute the hourly Operating Reserves charge using the following equation:

$$Operating\ Reserves\ Charge_{c,h} = Operating\ Reserves\ Costs_h * \frac{WithdrawalUnits_{c,h}}{TotalWithdrawalUnits_h}$$

Where:

c = Transmission Customer.

h = A given hour in the relevant Billing Period.

$Operating\ Reserves\ Charge_{c,h}$ = The amount, in \$, for which Transmission Customer c is responsible for hour h.

$Operating\ Reserves\ Costs_h$ = The cost to the ISO of providing all Operating Reserves, in \$, for hour h minus the total Forecast Reserve Charge collected for hour h pursuant to OATT Section 6.5.2 below.

$WithdrawalUnits_{c,h}$ = The Withdrawal Billing Units, in MWh, for Transmission Customer c in hour h, except for the Withdrawal Billing Units to supply Station Power as a third-party provider and except for Scheduled Energy Withdrawals at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England.

$TotalWithdrawalUnits_h$ = The sum, in MWh, of Withdrawal Billing Units for all Transmission Customers in hour h, except for the Withdrawal Billing Units to supply Station Power as third-party providers and except for Scheduled Energy Withdrawals at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England.

~~an hourly charge equal to the product of (A) the cost to the ISO of providing all Operating Reserves for a given hour; and (B) the ratio of (i) the LSE's hourly Load or the Transmission Customer's hourly scheduled Export Transactions, except for Export Transactions at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England, to (ii) the sum of all Load in the NYCA and all scheduled Export Transactions, except for Export Transactions at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England, for a given hour.~~ The cost to the ISO of providing Operating Reserves in each hour will equal the total amount that the ISO pays to procure Operating Reserves on behalf of the market in the Day-

Ahead Market and the Real-Time Market, ~~less~~ (1) minus the payments collected from entities that are scheduled to provide less Operating Reserves in the Real-Time Market than in the Day-Ahead Market during that hour, under Rate Schedule 4 of the ISO Services Tariff, and (2) minus the forecast reserve charge payments collected, as described in OATT Section 6.5.2 below. The ISO shall aggregate the hourly charges to produce a total charge for a given Dispatch Day.

LSEs taking service under Section 5 of the OATT to supply Station Power as third-party providers shall pay to the ISO a daily charge for this service equal to the product of (A) the daily cost to the ISO of providing all Operating Reserves, as defined in the prior paragraph, ~~for the day~~ and (B) the ratio of (i) the LSE's Station Power supplied under Section 5 of the OATT for the day to (ii) the sum of all Load in the NYCA and all scheduled Exports, except for Export Transactions at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England, for the day. The ISO shall credit the daily charges paid for Operating Reserves by LSEs taking service under Section 5 of the OATT to supply Station Power as third-party providers on a Load ratio share basis to the Load in the NYCA for that day and all scheduled Exports for the day except for Export Transactions at a CTS Enabled Interface with ISO New England resulting from Exports that are not associated with wheels through New England.

6.5.2   Forecast Reserve Charge

6.5.2.1   Forecast Reserve Charge to LSEs

The ISO shall charge, and each LSE shall pay a forecast reserve charge calculated according to the following formula:

$LSEForecast\ Reserve\ Charge_{c,z,h}$

$$= Forecast\ Reserve\ Price_{z,h} * \max\left(0, AEW_{c,z,h} - (DAS_{c,z,h} + 1)\right)$$

Where:

c = A Load Serving Entity.

h = A given hour in the relevant Billing Period.

z = A Load Zone.

$LSE Forecast\ Reserve\ Charge_{c,z,h}$ = The amount, in \$, for which Transmission Customer c in Load Zone z is responsible for in hour h.

$Forecast\ Reserve\ Price_{z,h}$ = This represents the Shadow Price of all forecast reserves in Load Zone z in hour h. It is calculated as: NYCA 30F price $+ \sum_{l \in L}(\text{ShiftFactor}_l^z *$
30FShadowPrice$_l$)
where, ShiftFactor$_l^z$ represent the Shift Factor of Load Zone z on constraint l.

$AEW_{c,z,h}$ = The Actual Energy Withdrawal, in MW, by Customer c in Load Zone z in hour h, except for the Energy to supply Station Power.

$DAS_{c,z,h}$ = Day-Ahead Energy scheduled for purchase from the LBMP Market by Customer c plus Day-Ahead Bilateral Transaction schedules by Customer c in Load Zone z in hour h, except for the Energy to supply Station Power.

NYCA 30F price = The shadow price of the NYCA 30-Minute Reserve Constraint that ensures total Energy, net Imports and 30-Minute Reserve equal or exceed the statewide Load forecast plus the total NYCA 30-Minute Reserve requirements.

30FShadowPrice$_l$ = The Shadow Price of procuring Operating Reserves to meet locational forecast reserve Operating Reserve constraints l in the DAM.

6.5.2.2   Forecast Reserve Charge to Virtual Supply

The ISO shall charge and each Transmission Customer that has its Virtual Supply Bids accepted in the Day-Ahead Market shall pay a forecast reserve charge calculated according to the following formula:

$$VS\ Forecast\ Reserve\ Charge_{c,z,h} = Forecast\ Reserve\ Price_{z,h} * VS\ DAM\ Energy_{c,z,h}$$

Where:

c = Transmission Customer.

z = A Load Zone.

h = A given hour in the relevant Billing Period.

$VS\ Forecast\ Reserve\ Charge_{c,z,h}$ = The amount, in \$, for which Transmission Customer c in Load Zone z is responsible for in hour h.

$Forecast\ Reserve\ Price_{z,h}$ = NYCA 30F price $+\ \sum_{l \in L}(ShiftFactor_l^z\ *\ 30FShadowPrice_l)$

$VS\ DAM\ Energy_{c,z,h}$ = The total Virtual Supply schedule, in MW, for Transmission Customer c in Load Zone z in hour h.

NYCA 30F price = The shadow price of the NYCA 30-Minute Reserve Constraint that ensures total Energy, net Imports and 30-Minute Reserve equal or exceed the statewide Load forecast plus the total NYCA 30-Minute Reserve requirements.

$30FShadowPrice_l$ = The Shadow Price of procuring Operating Reserves to meet locational forecast reserve Operating Reserve constraints l in the DAM.

6.5.2.3   Forecast Reserve Charge to Imports

The ISO shall charge and each Transmission Customer that has its Bids to schedule Imports accepted in the Day-Ahead Market shall pay a forecast reserve charge calculated according to the formula below. If an Import is curtailed at the request of the ISO, the Transmission Customer will not be assessed a forecast reserve charge for the curtailed MWs.

$$Import\ Forecast\ Reserve\ Charge_{c,p,h}$$
$$=\ Forecast\ Reserve\ Price_{p,h}$$
$$*\ \max{(0,(DASImports_{c,p,h} - ActImp_{c,p,h}))}$$

Where:

c = Transmission Customer.

h = A given hour in the relevant Billing Period.

p = A Proxy Generator Bus or "Proxy".

$Import\ Forecast\ Reserve\ Charge_{c,p,h}$ = The amount, in \$, for which Transmission Customer c at Proxy p is responsible for in hour h.

$$Forecast\ Reserve\ Price_p = \text{NYCA 30F price} + \sum_{l \in L}(\text{ShiftFactor}_l^p * \text{30FShadowPrice}_l)$$

$ActImp_{c,p,h}$ = The actual Energy Imported in real-time, in MW, for Transmission Customer c at Proxy p in hour h.

$DASImports_{c,p,h}$ = The total Import schedule, in MW, for Transmission Customer c at Proxy p in hour h.

NYCA 30F price = The shadow price of the NYCA 30-Minute Reserve Constraint that ensures total Energy, net Imports and 30-Minute Reserve equal or exceed the statewide Load forecast plus the total NYCA 30-Minute Reserve requirements.

30FShadowPrice$_l$ = The Shadow Price of procuring Operating Reserves to meet locational forecast reserve Operating Reserve constraints l in the DAM.

6.5.3~~2~~   Self-Supply

Transmission Customers, including LSEs, may provide for Self-Supply of Operating Reserve by placing Resources supplying any one of the Operating Reserves under ISO Operational Control. The Resources must meet ISO rules for acceptability, pursuant to Rate Schedule 4 of the Services Tariff. The specified Resources will receive the market value of the Operating Reserves services provided by the specified Resource as determined in the ISO Services Tariff. In addition, Transmission Customers, including LSEs, may enter into Day-Ahead bilateral financial transactions, *e.g.*, contracts-for-differences, in order to hedge against price volatility in the Operating Reserves markets.