6.18   Rate Schedule 18 – Carbon Charges and Payments for External Transactions and Allocation of the Carbon Residual

6.18.1 Carbon Charges for Import Transactions and Wheels Through

The ISO shall charge each Transmission Customer scheduling Imports and Wheels Through the LBMPc at the relevant Proxy Generator Bus ("Transmission Customer Carbon Charge").

$$\text{Transmission Customer Carbon Charge}_{icp} = InjectionUnits_{icp} * LBMPc_{ip}$$

Where:

$Transmission\ Customer\ Carbon\ Charge_{icp}$	$\equiv$	The carbon charge for Transmission Customer c in RTD interval i at Proxy Generator Bus p;
$InjectionUnits_{icp}$	$\equiv$	The total Injection Billing Units for all Imports and Wheels Through, in MWh, for Transmission Customer c in RTD interval i at Proxy Generator Bus p;
$LBMPc_{ip}$	$\equiv$	real-time price of carbon in \$/MWh at the Point of Receipt p (*i.e.*, the Proxy Generator Bus) in RTD interval i, using the method to calculate LBMPc described in Section 6.18.4 of this Rate Schedule 18;

6.18.2 Carbon Payments for Export Transactions and Wheels Through

The ISO shall pay each Transmission Customer scheduling Exports and Wheels Through the LBMPc at the relevant Proxy Generator Bus ("Transmission Customer Carbon Payment").

$$\text{Transmission Customer Carbon Payment}_{icp} = WithdrawalUnits_{icp} * LBMPc_{ip}$$

Where:

$Transmission\ Customer\ Carbon\ Payment_{icp}$	$\equiv$	The carbon payment for Transmission Customer c in RTD interval i at Proxy Generator Bus p;

$WithdrawalUnits_{icp}$	$\equiv$	The Withdrawal Billing Units for Exports and Wheels Through, in MWh, for Transmission Customer c in RTD interval i at Proxy Generator Bus p;
$LBMPc_{ip}$	$\equiv$	real-time price of carbon in \$/MWh at the Point of Delivery p (*i.e.*, the Proxy Generator Bus) in RTD interval i, using the method to calculate LBMPc described in Section 6.18.4 of this Rate Schedule 18;

6.18.3 Calculation of Carbon Residual Credits/Charges

The ISO shall calculate a carbon residual each hour by subtracting the sum of all Transmission Customer Carbon Payments (as determined in accordance with Section 6.18.2 of this Rate Schedule 18) from the sum of all: (1) Supplier Carbon Charges (as determined in accordance with Section 15.9 of the ISO Services Tariff); and (2) Transmission Customer Carbon Charges (as determined in accordance with Section 6.18.1 of this Rate Schedule 18) ("Carbon Residual").

If the Carbon Residual is positive, the ISO shall calculate the Carbon Residual credit paid to Transmission Customers as follows:

$$Carbon\ Residual\ Credit_{ch} = \frac{\sum_z(WithdrawalUnits_{czh} * HourlyLBMPc_{zh})}{\sum_z(TotalWithdrawalUnits_{zh} * HourlyLBMPc_{zh})} * CarbonResidual_h$$

Where:

h = A given hour in the relevant Billing Period.

$Carbon\ Residual\ Credit_{ch}$ = The amount, in \$, that Transmission Customer c will receive for hour h.

$CarbonResidual_h$ = The Carbon Residual, in \$, for hour h.

$TotalWithdrawalUnits_{zh}$ = The sum, in MWh, of Withdrawal Billing Units for all Transmission Customers in Load Zone z in hour h, except for Withdrawal Billing Units for Wheels Through, Exports, self-supply of Station Power, remote self-supply of Station Power, or Station Power from third-party providers.

$Hourly\,LBMPc_{zh}$ = real-time price of carbon integrated to an hourly value, in \$/MWh, in Load Zone z for hour h.

$WithdrawalUnits_{czh}$ = The Withdrawal Billing Units, in MWh, for Transmission Customer c in Load Zone z in hour h, except for Withdrawal Billing Units for Wheels Through, Exports, self-supply of Station Power, remote self-supply of Station Power, or Station Power from third-party providers.

If the Carbon Residual is negative, indicating a shortfall, the ISO shall charge, and each Transmission Customer shall pay, a Carbon Residual charge calculated as follows:

$$Carbon\ Residual\ Charge_{ch} = (-1) * CarbonResidual_h * \frac{WithdrawalUnits_{ch}}{TotalWithdrawalUnits_h}$$

Where:

h = A given hour in the relevant Billing Period.

$Carbon\ Residual\ Charge_{ch}$ = The amount, in \$, that Transmission Customer c will pay for hour h.

$Carbon\ Residual_h$ = The Carbon Residual, in \$, for hour h.

$WithdrawalUnits_{ch}$ = The Withdrawal Billing Units, in MWh, for Transmission Customer c in hour h, except for Withdrawal Billing Units for Wheels Through, Exports, self-supply of Station Power, remote self-supply of Station Power, or Station Power from third-party providers.

$TotalWithdrawalUnits_h$ = The sum, in MWh, of Withdrawal Billing Units for all Transmission Customers in hour h, except for Withdrawal Billing Units for Wheels Through, Exports, self-supply of Station Power, remote self-supply of Station Power, or Station Power from third-party providers.

6.18.4 Calculation of LBMPc

The NYISO shall calculate the real-time price of carbon (the "LBMPc") based on the impact of charging Suppliers a Cost of Carbon Emissions. The ISO shall calculate the LBMPc for each Load Zone and each Proxy Generator Bus for each real-time interval using the following formulae:

$$Emissions\ Cost_{ip} = (Emissions_{ip} * SCC_i)$$

$$\left(\frac{LBMP_{ip} - VOM_{ip}}{Fuel\ Cost_{ip} + Emissions\ Cost_{ip}}\right) = IHR_{ip}$$

$$LBMPc_{ip} = Max\left((IHR_{ip} * Net\ SCC_i * Emissions_{ip}),\ 0\right)$$

Where:

IHR_{ip}	$\equiv$	The implied heat rate for the marginal resource in real-time interval i at location p, stated in mmBtu/MWh. If IHR_{ip}, calculated using the equation above, is less than the minimum implied heat rate set forth in ISO Procedures, then IHR_{ip} shall be set to zero. If IHR_{ip}, calculated using the equation above, is greater than the maximum implied heat rate set forth in ISO Procedures, then IHR_{ip} shall be set to that maximum implied heat rate;
VOM_{ip}	$\equiv$	The variable operations and maintenance cost assumed for the marginal resource in real-time interval i at location p, as described in ISO Procedures, stated in $/MWh;
$Emissions\ Cost_{ip}$	$\equiv$	The emissions cost calculated for the marginal resource in real-time interval i at location p, stated in $/mmBtu;
$Emissions_{ip}$	$\equiv$	The rate of carbon dioxide emissions assumed for the estimated marginal fuel or blend of fuels for real-time interval i at location p, as described in ISO Procedures, stated in tons/mmBtu;
$Net\ SCC_i$	$\equiv$	The Social Cost of Carbon net of RGGI and other applicable emissions costs for real-time interval i, stated in $/ton;
SCC_i	$\equiv$	The Social Cost of Carbon for real-time interval i, stated in $/ton;
$LBMP_{ip}$	$\equiv$	The LBMP for real-time interval i at location p, stated in $/MWh;
$Fuel\ Cost_{ip}$		The assumed fuel cost for the marginal resource in real-time interval i at location p, as described in ISO Procedures, stated in $/mmBtu;
$LBMPc_{ip}$	$\equiv$	The calculated Carbon Impact to the LBMP for real-time interval i at location p, stated in $/MWh;

The NYISO shall post the LBMPc on its website. If the applicable LBMP from which the LBMPc is derived is corrected pursuant to Services Tariff Section 20, the LBMPc shall be recalculated based on the applicable revised LBMP and updated if necessary.