26.4   Operating Requirement and Bidding Requirement

26.4.1   Purpose and Function

The Operating Requirement is a measure of a Customer's expected financial obligations to the ISO based on the nature and extent of that Customer's participation in ISO-Administered Markets. A Customer shall be required to allocate Unsecured Credit, where allowed, and/or provide collateral in an amount equal to or greater than its Operating Requirement. Upon a Customer's written request, the ISO will provide a written explanation for any changes in the Customer's Operating Requirement.

The Bidding Requirement is a measure of a Customer's potential financial obligation to the ISO based upon the bids that Customer seeks to submit in an ISO-administered TCC or ICAP auction. A Customer shall be required to allocate Unsecured Credit, where allowed, and/or provide collateral in an amount equal to or greater than its Bidding Requirement prior to submitting bids in an ISO-administered TCC or ICAP auction.

26.4.2   Calculation of Operating Requirement

The Operating Requirement shall be equal to the sum of (i) the Energy and Ancillary Services Component; (ii) the External Transaction Component; (iii) the UCAP Component; (iv~~ii~~) the TCC Component; (~~i~~v) the WTSC Component; (vi) the Virtual Transaction Component; (vii) the DADRP Component; and (vi~~i~~ii) the DSASP Component where:

26.4.2.1   Energy and Ancillary Services Component

The Energy and Ancillary Services Component shall be equal to:

(a)   For Customers without a prepayment agreement, the greater of either:

$$\frac{\text{Basis Amount for Energy and Ancillary Services} \times 16}{\text{Days in Basis Month}}$$

- or -

$$\frac{\text{Total Charges Incurred for Energy and Ancillary Services for Previous Ten (10) Days}}{10} \times 16$$

(b)   For Customers that qualify for a prepayment agreement, subject to the ISO's

credit analysis and approval, and execute a prepayment agreement in the form

provided in Appendix K-1, the greater of either:

$$\frac{\text{Basis Amount for Energy and Ancillary Services}}{\text{Days in Basis Month}} \times 3$$

or-

$$\frac{\text{Total Charges Incurred for Energy and Ancillary Services for Previous Ten (10) Days}}{10} \times 3$$

(c)   For new Customers, the ISO shall determine a substitute for the Basis Amount for

Energy and Ancillary Services for use in the appropriate formula above equal to:

EPL x 720 x AEP

where:

EPL   =   estimated peak Load for the Capability Period; and

AEP   =   average Energy and Ancillary Services price during the Prior Equivalent
              Capability Period after applying the Price Adjustment.

26.4.2.2   External Transaction Component

The External Transaction Component shall equal the sum of the Customer's (i) Import

Credit Requirement, (ii) Export Credit Requirement, (iii) Wheels Through Credit Requirement,

and (iv) the net amount owed to the ISO for settled External Transactions.

26.4.2.2.1 Import Credit Requirement

For a given month, the Import Credit Requirement shall apply to any Customer that Bids

to Import in the Day-Ahead Market ("DAM"), excluding Non-Firm Transactions, unless (i) the

Customer has at least 50 scheduled Day-Ahead Import Bids in the three-month period ending on the 15th day of the preceding month (or the six-month period ending on the 15th day of the preceding month if the Customer has fewer than 50 scheduled Day-Ahead Import Bids in the immediately preceding three-month period), and (ii) fewer than 25% of the MWhs of such scheduled Day-Ahead Import Bids were settled at a loss to the Customer.

The Import Credit Requirement shall equal the sum of the amounts calculated for each Bid in accordance with the appropriate formulas below:

(1) **Upon submission of a DAM Import Bid until posting of the applicable DAM schedule/price.**

The ISO will categorize each Import Bid into one of the 18 Import Price Differential (IPD) groups set forth in the IPD chart in Section 26.4.2.2.4 below, as appropriate, based upon the season and time-of-day of the Import Bid. The amount of credit support required in $/MWh that applies to an Import Bid shall equal the 97th percentile level of the following: the hourly average Energy price calculated in the Real-time Market at the location associated with the Import Bid, minus the Energy price calculated in the DAM at the same location and time, with the dataset used to perform this calculation consisting of all hours that are in the same IPD group as the hour to which the Import Bid applies, and that occurred no earlier than April 1, 2005 nor later than the end of the calendar month preceding the month to which the Import Bid applies. The amount of credit support required in $/MWh shall not be less than $0/MWh.

The credit requirement for each Import Bid shall be calculated as follows:

$$Bid_{MWhB} * Max\ (IPD_{CS}, 0)$$

Where:

Bid_{MWhB} = the total quantity of MWhs that a Customer Bids to Import in a particular hour and at a particular location.

IPD_{CS} = the amount of credit support required, in \$/MWh, for an Import Bid as described above, for the location associated with the Import Bid and for the IPD group that contains the hour to which the Import Bid applies.

(2) Upon posting of the applicable DAM schedule/price until completion of the hour Bid in real-time for a DAM Import Bid.

The credit requirement for each Import Bid shall be calculated as follows:

$$SchBid_{MWhI} * \text{Max} (IPD_{CS}, 0)$$

Where:

$SchBid_{MWhI}$ = the total quantity of MWhs that is scheduled in the DAM in a particular hour and at a particular location as a result of the Customer's Import Bid.

IPD_{CS} = the amount of credit support required, in \$/MWh, for an Import Bid as described above, for the location associated with the Import Bid and for the IPD group that contains the hour to which the Import Bid applies.

(3) Upon completion of the hour Bid in real-time for a DAM Import Bid until the net amount owed to the ISO is determined for settled External Transactions.

The credit requirement for each Import Bid shall be calculated as follows:

$$\text{Max} ((BalPay\$ - DAMPay\$), 0)$$

Where:

$BalPay_\$$ = $(SchBid_{MWhI} - Actual_{MWhI}) * RT\ LBMP_I$

$DAMPay_\$$ = $SchBid_{MWhI} * DAM\ LBMP_I$

$SchBid_{MWhI}$ = the total quantity of MWhs that is scheduled in the DAM in a particular hour at a particular location as a result of the Customer's Import Bid.

$Actual_{MWhI}$ = the total quantity of MWhs that is scheduled in real-time associated with the Customer's Import Bid in a particular hour and at a particular location for the hour completed.

DAM LBMP$_I$ = the Day-Ahead LBMP in a particular hour and at a particular location associated with the Customer's Import Bid.

RT LBMP$_I$ = the Real-Time LBMP in a particular hour and at a particular location associated with the Customer's Import Bid.

26.4.2.2.2 Export Credit Requirement

The Export Credit Requirement shall apply to any Customer that Bids to Export in the DAM or Hour-Ahead Market ("HAM"), excluding Non-Firm Transactions.

The Export Credit Requirement shall equal the sum of the amounts calculated for each Bid in accordance with the appropriate formulas below:

(1)   **Upon submission of a DAM Export Bid until posting of the applicable DAM schedule/price.**

The ISO will categorize each Export Bid into one of the 18 Export Price Differential (EPD) groups set forth in the EPD chart in Section 26.4.2.2.4 below, as appropriate, based upon the season and time-of-day of the Export Bid. The amount of credit support required in $/MWh that applies to an Export Bid shall equal the 97th percentile level of the following: the Energy price calculated in the DAM at the location associated with the Export Bid, minus the hourly average Energy price calculated in the Real-time Market at the same location and time, with the dataset used to perform this calculation consisting of all hours that are in the same EPD group as the hour to which the Export Bid applies, and that occurred no earlier than April 1, 2005 nor later than the end of the calendar month preceding the month to which the Export Bid applies. The amount of credit support required in $/MWh shall not be less than $0/MWh.

The credit requirement for all DAM Export Bids with the same hour/date and location shall be calculated as follows:

$$(\text{Max} ((\text{Max}_N(\text{Bid}_{MWh} * \text{Bid}_{\$E})), (\text{BidMax}_{MWhB} * \text{EPD}_{CS})))$$

Where:

Bid_{MWh} = the total quantity of MWhs that a Customer Bids to Export in the DAM in a particular hour and at a particular location at or below each Bid Price.

$\text{Bid}_{\$E}$ = the Bid Price in \$/MWh at which the Customer Bids to purchase the Bid_{MWh} of Exports in a particular hour and at a particular location.

N = the set of hourly Export Bid Prices in a particular hour and at a particular location.

BidMax_{MWhB} = the total quantity of MWhs that a Customer Bids to Export in the DAM in a particular hour and at a particular location.

EPD_{CS} = the amount of credit support required, in \$/MWh, for an Export Bid as described above, for the location associated with the Export Bid and for the EPD group that contains the hour to which the Export Bid applies.

(2) **Upon posting of the applicable DAM schedule/price until completion of hour Bid in real-time for a DAM Export Bid.**

The credit requirement for each Export Bid shall be calculated as follows:

$$(\text{SchBid}_{MWhE} * (\text{Max} (\text{EPD}_{CS}, \text{DAM LBMP}_E)))$$

Where:

SchBid_{MWhE} = the total quantity of MWhs that is scheduled in the DAM in a particular hour at a particular location as a result of the Customer's Export Bid.

EPD_{CS} = the amount of credit support required, in \$/MWh, for an Export Bid as described above, for the location associated with the Export Bid and for the EPD group that contains the hour to which the Export Bid applies.

DAM LBMP_E = the Day-Ahead LBMP in a particular hour and at a particular location associated with the Customer's Export Bid.

(3) **Upon submission of a HAM Export Bid until completion of the hour Bid in real-time.**

The amount of credit support required in \$/MWh that applies to HAM Export

Bids in the same hour/date and at the same location shall equal the maximum

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amount of the payment potentially due to the ISO based on the MWhs of Exports

Bid for purchase at each Bid Price in a particular hour and at a particular location.

The credit requirement for all HAM Export Bids with the same hour/date and

location shall be calculated as follows:

$$(Max_N ((Max (Bid_{MWhE}, 0)) * Bid_{\$E}))$$

Where:

Bid_{MWhE} = the total quantity of MWhs that a Customer Bids to Export in the HAM in a particular hour and at a particular location at or below each Bid Price minus the MWhs of Exports scheduled in the DAM in the same hour at the same location.

$Bid_{\$E}$ = the Bid Price in $/MWh at which the Customer Bids to purchase the Bid_{MWhE} of Exports in a particular hour and at a particular location.

N = the set of hourly Export Bid Prices in a particular hour and at a particular location.

(4)   Upon completion of the hour Bid in real-time for an Export Bid until the net amount owed to the ISO is determined for settled External Transactions.

The amount of credit support required will equal the sum of the Day-Ahead

Credit Calculation and Real-Time Credit Calculation for each completed hour.

The credit requirement for each Export Bid shall be calculated as follows:

Day-Ahead Credit Calculation + Real-Time Credit Calculation

The Day-Ahead Credit Calculation only applies to DAM Export Bids and the

Real-Time Credit Calculation applies to all HAM Export Bids including HAM

Bids associated with a DAM Bid.

Where:

Day-Ahead Credit Calculation = Max (Adjusted Export Day-Ahead Credit Calculation, 0)

Adjusted Export Day-Ahead Credit Calculation = the credit requirement calculated in accordance with section 26.4.2.2.2(2) minus the Balancing Payment.

Balancing Payment $= Max ((SchBid_{MWhE} - Actual_{MWhE}), 0) * RT\ LBMP_E$

$SchBid_{MWhE}$ = the total quantity of MWhs that is scheduled in the DAM in a particular hour and at a particular location as a result of the Customer's Export Bid.

$Actual_{MWhE}$ = the total quantity of MWhs that is scheduled in real-time associated with the Customer's Export Bid in a particular hour and at a particular location for the hour completed.

$RT\ LBMP_E$ = the Real-Time LBMP in a particular hour and at a particular location associated with the Customer's Export Bid.

Real-Time Credit Calculation $= Max ((Max ((Actual_{MWhE} - SchBid_{MWhE}),0) * RT\ LBMP_E), 0)$

$Actual_{MWhE}$ = the total quantity of MWhs that is scheduled in real-time associated with the Customer's Export Bid in a particular hour and at a particular location for the hour completed.

$SchBid_{MWhE}$ = the total quantity of MWhs that is scheduled in the DAM in a particular hour and at a particular location as a result of the Customer's Export Bid.

$RT\ LBMP_E$ = the Real-Time LBMP in a particular hour and at a particular location associated with the Customer's Export Bid.

26.4.2.2.3 Wheels Through Credit Requirement

The Wheels Through Credit Requirement shall apply to any Customer that Bids to Wheel Through in the DAM or HAM, excluding Non-Firm Transactions.

The Wheels Through Credit Requirement shall equal the sum of the amounts calculated for each Bid in accordance with the appropriate formulas below:

(1) **Upon submission of a DAM Wheels Through Bid until posting of the applicable DAM schedule/price.**

The amount of credit support required in $/MWh that applies to the DAM Wheels Through Bid shall equal the maximum payment potentially due to the ISO based on the Customer's Bid Prices on the Bid curve.

The credit requirement for each Wheels Through Bid shall be calculated as follows:

$$\text{Max } (\text{Max}_N (\text{BidPt}_{MWhN} * \text{Bid}\$_{\$/MWhN}),0)$$

Where:

N $=$ each Bid Price on the Bid curve.

BidPt_{MWhN} $=$ the MWhs associated with the Bid Price on the Bid curve.

$\text{Bid}\$_{\$/MWhN}$ $=$ the amount that the customer is willing to pay for congestion in $/MWh on the Bid curve associated with the Customer's Wheels Through Bid.

(2) **Upon posting of the applicable Wheels Through DAM schedule/price until completion of the hour Bid in real-time.**

The credit requirement for each DAM Wheels Through Bid shall be calculated as follows:

$$\text{Max } (\text{SchBid}_{MWhW} * (\text{DAM LBMP}_{POW} - \text{DAM LBMP}_{POI}), 0))$$

Where:

SchBid_{MWhW} $=$ the total quantity of MWhs scheduled in the DAM as a result of the Customer's Bid to schedule Wheels Through.

DAM LBMP_{POI} $=$ the Day-Ahead LBMP in the hour and at the Point of Injection associated with the Wheels Through Bid.

DAM LBMP_{POW} $=$ the Day-Ahead LBMP in the hour and at the Point of Withdrawal associated with the Wheels Through Bid.

(3) **Upon creation of a HAM Wheels Through Bid until the completion of the hour Bid in real-time.**

The amount of credit support required in $/MWh that applies to HAM Wheels Through Bid shall equal the price of the maximum value of exposure based on Bid Prices on the Bid curve.

The credit requirement for each Wheels Through Bid shall be calculated as follows:

$$\text{Max}(\text{Max}_N (\text{Max } (\text{BidPt}_{MWhW}, 0) * \text{Bid}\$_{\$/MWhN}),0)$$

Where:

N   =   each Bid Price on the Bid curve.

$BidPt_{MWhW}$ =   the MWhs associated with the Bid Price on the Bid curve minus the MWhs of the DAM Bid with same hour/date, location and Bid transaction ID.

$Bid\$_{\$/MWhN}$ =   the amount that the customer is willing to pay for congestion in $/MWh on the Bid curve associated with the Customer's Wheels Through Bid.

(4)   Upon completion of the hour Bid in real-time for a Wheels Through Bid until the net amount owed to the ISO is determined for settled External Transactions.

The amount of credit support required will equal the sum of the Day-Ahead Credit Calculation and Real-Time Credit Calculation for each completed hour.

The credit requirement for each Wheels Through Bid shall be calculated as follows:

Day-Ahead Credit Calculation + Real-Time Credit Calculation

The Day-Ahead Credit Calculation only applies to DAM Wheels Through Bids and the Real-Time Credit Calculation applies to all HAM Wheels Through Bids including HAM Bids associated with a DAM Bid.

Where:

Day-Ahead Credit Calculation = Max (Adjusted Wheels Through Day-Ahead Credit Calculation, 0)

Adjusted Wheels Through Day-Ahead Credit Calculation = the credit requirement calculated in section 26.4.2.2.3(2) minus the Balancing Payment.

Balancing Payment   =   Max $((SchBid_{MWhW} - Actual_{MWhW}), 0) * (RT\ LBMP_{POW} - RT\ LBMP_{POI})$

$SchBid_{MWhW}$ =   the total quantity of MWhs that is scheduled in the DAM as a result of the Customer's Wheels Through Bid.

$Actual_{MWhW}$ =   the total quantity of MWhs that is scheduled in real-time associated with the Customer's Wheels Through Bid for the hour completed.

$RT\ LBMP_{POI}$ =   the Real-Time LBMP in the hour and at the Point of Injection associated with the Wheels Through Bid.

$RT\ LBMP_{POW}$ =   the Real-Time LBMP in the hour and at the Point of Withdrawal associated with the Wheels Through Bid.

Real-Time Credit Calculation = Max (Max ($(Actual_{MWhW} - SchBid_{MWhW})$, 0) * ($RT\ LBMP_{POW} - RT\ LBMP_{POI}$), 0)

$SchBid_{MWhW}$ =   the total quantity of MWhs that is scheduled in the DAM as a result of the Customer's Bid to Wheel Through Energy.

$Actual_{MWhW}$ =   the total quantity of MWhs that is scheduled in real-time associated with the Customer's Wheels Through Bid for the hour completed.

$RT\ LBMP_{POI}$ =   the Real-Time LBMP in the hour and at the Point of Injection associated with the Wheels Through Bid.

$RT\ LBMP_{POW}$ =   the Real-Time LBMP in the hour and at the Point of Withdrawal associated with the Wheels Through Bid.

26.4.2.2.4 Calculation of Price Differentials

Import Price Differential (IPD) Groups

Summer	For each Proxy Generator Bus
HB07–10	IPD-1
HB11–14	IPD-2
HB15–18	IPD-3
HB19–22	IPD-4
Weekend/ Holiday (HB07–22)	IPD-5
Night (HB23–06)	IPD-6
Winter	
HB07–10	IPD-7
HB11–14	IPD-8
HB15–18	IPD-9
HB19–22	IPD-10
Weekend/ Holiday (HB07–22)	IPD-11
Night (HB23–06)	IPD-12
Rest-of-Year	
HB07–10	IPD-13
HB11–14	IPD-14
HB15–18	IPD-15
HB19–22	IPD-16
Weekend/ Holiday (HB07–22)	IPD-17
Night (HB23–06)	IPD-18

Where:

Summer = May, June, July, and August

Winter = December, January, and February

Rest-of-Year = March, April, September, October, and November

HB07–10 = weekday hours beginning 07:00–10:00

HB11–14 = weekday hours beginning 11:00–14:00

HB15–18 = weekday hours beginning 15:00–18:00

HB19–22 = weekday hours beginning 19:00– 22:00

Weekend/Holiday = weekend and holiday hours beginning 07:00–22:00

Night = all hours beginning 23:00– 06:00

Export Price Differential (EPD) Groups

Summer	For each Proxy Generator Bus
HB07–10	EPD-1
HB11–14	EPD-2
HB15–18	EPD-3
HB19–22	EPD-4
Weekend/ Holiday (HB07–22)	EPD-5
Night (HB23–06)	EPD-6
Winter	
HB07–10	EPD-7
HB11–14	EPD-8
HB15–18	EPD-9
HB19–22	EPD-10
Weekend/ Holiday (HB07–22)	EPD-11
Night (HB23–06)	EPD-12
Rest-of-Year	
HB07–10	EPD-13
HB11–14	EPD-14
HB15–18	EPD-15
HB19–22	EPD-16
Weekend/ Holiday (HB07–22)	EPD-17
Night (HB23–06)	EPD-18

Where:

Summer	=	May, June, July, and August
Winter	=	December, January, and February
Rest-of-Year	=	March, April, September, October, and November
HB07–10	=	weekday hours beginning 07:00–10:00
HB11–14	=	weekday hours beginning 11:00–14:00
HB15–18	=	weekday hours beginning 15:00–18:00
HB19–22	=	weekday hours beginning 19:00– 22:00
Weekend/Holiday	=	weekend and holiday hours beginning 07:00–22:00
Night	=	all hours beginning 23:00– 06:00

26.4.2.32   UCAP Component

The UCAP Component shall be equal to the total of all amounts then-owed (billed and unbilled) for UCAP purchased in the ISO-administered markets.

26.4.2.43   TCC Component

The TCC Component shall be equal to the greater of either the amount calculated in accordance with Section 26.4.2.43.1 or Section 26.4.2.43.2 below.

26.4.2.43.1   TCC Award Calculation

The sum of the amounts calculated in accordance with the appropriate per TCC term-based formula listed below for TCC purchases less the amounts calculated in accordance with the appropriate per TCC term-based formula listed below for TCC sales; *provided however,* that upon initial award of a TCC until the ISO receives payment for the TCC (or payment for the first year of a two-year TCC), the NYISO will hold the greater of the payment obligation for the TCC or the credit requirement for the TCC calculated in accordance with this Section 26.4.2.43.1.

26.4.2.~~4~~3.1.1 Two-Year TCCs:

(1) upon initial award of a two-year TCC until completion of the final round of the current two-year Sub-Auction, the sum of the first year and second year amounts, which will be calculated as follows:

First Year:
the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

 where:

  Pijt   =   market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC.

Second Year:

$$+1.909 \sqrt{e^{10.9729 \; + \; .6514 \; (\ln \; (|p_{ij}|+e)) \; + \; .6633 \; * \; Zone \; J}}$$

where:

  Pijt   =   market clearing price of that two-year TCC minus the market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC

(2) upon completion of the final round of the current two-year Sub-Auction until completion of the final round of the current one-year Sub-Auction, the sum of the first year and second year amounts, which will be calculated as follows:

First Year:
the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below
where:

  Pijt   =   market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC

Second Year:

$$+1.909 \quad \sqrt{e^{10.9729 \; + \; .6514 \; (\ln \; (|p_{ij}| + e)) \; + \; .6633 \; * \; Zone \; J}}$$

where:

Pijt = market clearing price of a two-year TCC in the final round of the current two-year Sub-Auction with the same POI and POW combination as the two-year TCC minus the market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC

(3) upon completion of the final round of the current one-year Sub-Auction until the

ISO receives payment for the second year of the two-year TCC, the sum of the

first year and second year amounts, which will be calculated as follows:

First Year:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.43.1.5 below

where:

Pijt = market clearing price of a one-year TCC in the final round of the current one-year Sub-Auction with the same POI and POW combination as the two-year TCC

Second Year:

$$+1.909 \quad \sqrt{e^{10.9729 \; + \; .6514 \; (\ln \; (|p_{ij}| + e)) \; + \; .6633 \; * \; Zone \; J}}$$

where:

Pijt = market clearing price of a two-year TCC in the final round of the current two-year Sub-Auction with the same POI and POW combination as the two-year TCC minus the market clearing price of a one-year TCC in the final round of the current one-year Sub-Auction with the same POI and POW combination as the two-year TCC

(4) upon ISO receipt of payment for the second year of the two-year TCC until

commencement of year two of the two-year TCC, the sum of the first year and

second year amounts, which will be calculated as follows:

First Year:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.43.1.5 below

where:

Pijt   =   market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior equivalent Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC

Second Year:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.43.1.5 below

where:

Pijt   =   market clearing price of a one-year TCC in the final round of the one-year Sub-Auction in the prior equivalent Capability Period Centralized TCC Auction with the same POI and POW combination as the two-year TCC

(5)   upon commencement of year two of a two-year TCC until commencement of the

final six months of the two-year TCC:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.43.1.5 below

where:

Pijt   =   market clearing price of a one-year TCC in the final round of the most recently completed one-year Sub-Auction with the same POI and POW combination as the two-year TCC

(6)   upon commencement of the final six months of a two-year TCC until

commencement of the final month of the two-year TCC:

the amount calculated in accordance with the six-month TCC formula set forth in Section 26.4.2.43.1.5 below

where:

Pijt   =   market clearing price of a six-month TCC in the final round of the most recently completed six-month Sub-Auction with the same POI and POW combination as the two-year TCC

(7)   upon commencement of the final month of a two-year TCC:

the amount calculated in accordance with the one-month TCC formula set forth in Section 26.4.2.4~~3~~.1.5 below

where:

Pijt   =   market clearing price of a one-month TCC in the most recently completed monthly reconfiguration auction with the same POI and POW combination as the two-year TCC

26.4.2.4~~3~~.1.2 One-Year TCCs:

(1)   upon initial award of a one-year TCC until completion of the final round of the

current one-year Sub-Auction:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.4~~3~~.1.5 below

(2)   upon completion of the final round of the current one-year Sub-Auction until

commencement of the final six months of the one-year TCC:

the amount calculated in accordance with the one-year TCC formula set forth in Section 26.4.2.4~~3~~.1.5 below

where:

Pijt   =   market clearing price of a one-year TCC in the final round of the current one-year Sub-Auction with the same POI and POW combination as the one-year TCC

(3)   upon commencement of the final six months of a one-year TCC until

commencement of the final month of the one-year TCC:

the amount calculated in accordance with the six-month TCC formula set forth in Section 26.4.2.4~~3~~.1.5 below

where:

Pijt   =   market clearing price of a six-month TCC in the final round of the most recently completed six-month Sub-Auction with the same POI and POW combination as the one-year TCC

(4)   upon commencement of the final month of a one-year TCC:

the amount calculated in accordance with the one-month TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

where:

Pijt   =   market clearing price of a one-month TCC in the most recently completed monthly reconfiguration auction with the same POI and POW combination as the one-year TCC

26.4.2.~~4~~3.1.3 Six-Month TCCs:

(1)   upon initial award of a six-month TCC until completion of the final round of the

current six-month Sub-Auction:

the amount calculated in accordance with the six-month TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

(2)   upon completion of the final round of the current six-month Sub-Auction until

commencement of the final month of a six-month TCC:

the amount calculated in accordance with the six-month TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

where:

Pijt   =   market clearing price of a six-month TCC in the final round of the current six-month Sub-Auction with the same POI and POW combination as the one-year TCC

(3)   upon commencement of the final month of a six-month TCC:

the amount calculated in accordance with the one-month TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

where:

Pijt   =   market clearing price of a one-month TCC in the most recently completed monthly reconfiguration auction with the same POI and POW combination as the six-month TCC

26.4.2.~~4~~3.1.4 One-Month TCCs:

upon initial award of a one-month TCC:

the amount calculated in accordance with the one-month TCC formula set forth in Section 26.4.2.~~4~~3.1.5 below

26.4.2.4~~3~~.1.5   TCC formulas:

for one-year TCCs, representing a 5% probability curve:

$$+1.909 \sqrt{e^{10.9729 + .6514\,(\ln\,(|P_{ijt}|+e)) + .6633\,*\,Zone\,J}} - 1\ P_{ijt}$$

for six-month TCCs, representing a 3% probability curve:

$$+2.565 \sqrt{e^{11.6866 + .4749(\ln(|p_{ijt}|+e)) + .4856*ZoneJ - .0373\,Summer}} - 1\ P_{ijt}$$

for one-month TCCs, representing a 3% probability curve:

$$+2.221 \sqrt{e^{11.2682 + 0.3221(\ln\,(|p_{ijt}|+e)) + 1.3734*ZoneJ + 2.001*ZoneK + Month}} - 1\ P_{ijt}$$

where:

P_{ijt} = market clearing price of i to j TCC in round t of the auction in which the TCC was purchased;

Zone J = 1 if TCC sources or sinks but not both in Zone J, zero otherwise;

Zone K = 1 if TCC sources or sinks but not both in Zone K and does not source or sink in Zone J, 0 otherwise;

Summer = 1 for six-month TCCs sold in the spring auction, 0 otherwise; and

Month = the following values:

January	=	0
February	=	-0.0201
March	=	0
April	=	0
May	=	0.8181
June	=	0.2835
July	=	0.5201
August	=	0.7221
September	=	0
October	=	0.32
November	=	-0.7681
December	=	0

Provided, however, for purposes of determining the credit holding requirement for a Fixed Price TCC, the market clearing price shall be replaced by the fixed price associated with that Fixed Price TCC, as determined in Section 19.2.1 or Section 19.2.2, of Attachment M as appropriate, of the OATT.

Further, when calculating "Pijt" in Section 26.4.2.43.1, in the event there is no market clearing price for a two-year, one-year, six-month, or one-month TCC in the appropriate prior Capability Period Centralized TCC Auction with the same POI and POW combination as the awarded two-year, one-year, six-month, or one-month TCC, as appropriate, then the market clearing price shall equal a proxy price, assigned by the ISO, for a TCC with like characteristics.

26.4.2.43.2   Mark-to-Market Calculation

The projected amount of the Primary Holder's payment obligation to the NYISO, if any, considering the net mark-to-market value of all TCCs in the Primary Holder's portfolio, as defined for these purposes, according to the formula below:

$$\sum_{n \in N} \left\{ \frac{NAP_n}{90} \times RD_n \right\} + \sum ACR_n$$

where:

NAP = the net amount of Congestion Rents between the POI and POW composing each TCC_n during the previous ninety days

RD = the remaining number of days in the life of TCC_n; *provided, however,* that in the case of Grandfathered TCCs, RD shall equal the remaining number of days in the life of the longest duration TCC sold in an ISO-administered auction then outstanding;

N = the set of TCCs held by the Primary Holder; and

ACR = the net amount owed to the ISO for Congestion Rents between the POI and POW composing each TCC_n.

26.4.2.~~5~~4 WTSC Component

The WTSC Component shall be equal to the greater of either:

$$\frac{\text{Greatest Amount Owed for WTSC During Any}}{\text{Single Month in the Prior Equivalent Capability Period}} \text{ x 50}$$
$$\text{Days in Month}$$

- or –

$$\frac{\text{Total Charges Incurred for WTSC Based Upon the Most}}{\text{Recent Monthly Data Provided by the Transmission Owner}} \text{ x 50}$$
$$\text{Days in Month}$$

26.4.2.~~6~~5   Virtual Transaction Component

The Virtual Transaction Component shall be equal to the sum of the Customer's

(i) Virtual Supply credit requirement ("VSCR") for all outstanding Virtual Supply Bids, plus (ii)

Virtual Load credit requirement ("VLCR") for all outstanding Virtual Load Bids, plus (iii) net

amount owed to the ISO for settled Virtual Transactions.

Where:

$$VSCR = \sum (VSG_{MWh} \text{ x } VSG_{CS})$$
$$VLCR = \sum (VLG_{MWh} \text{ x } VLG_{CS})$$

Where:

VSG_{MWh} = the total quantity of MWhs of Virtual Supply that a Customer Bids for all Virtual Supply positions in the Virtual Supply group

VSG_{CS} = the amount of credit support required in \$/MWh for the Virtual Supply group

VLG_{MWh} = the total quantity of MWhs of Virtual Load that a Customer Bids for all Virtual Load positions in the Virtual Load group

VLG_{CS} = the amount of credit support required in \$/MWh for the Virtual Load group

The ISO will categorize each Virtual Supply Bid into one of the 72 Virtual Supply groups

set forth in the Virtual Supply chart below, as appropriate, based upon the season, Load Zone,

and time-of-day of the Virtual Supply Bid. The amount of credit support required in \$/MWh for

a Virtual Transaction in a particular Virtual Supply group shall equal the price differential

between the Energy price in the Day-Ahead Market and the Energy price in the Real-Time

Market, at the 97th percentile, based upon all possible Virtual Supply positions in the Virtual

Supply group for the period of time from April 1, 2005, through the end of the preceding

calendar month.

The ISO will categorize each Virtual Load Bid into one of the 30 Virtual Load groups set

forth in the Virtual Load chart below, as appropriate, based upon the season, Load Zone, and

time-of-day of the Virtual Load Bid. The amount of credit support required in $/MWh for a

Virtual Transaction in a particular Virtual Load group shall equal the price differential between

the Energy price in the Day-Ahead Market and the Energy price in the Real-Time Market, at the

97th percentile, based upon all possible Virtual Load positions in the Virtual Load group for the

period of time from April 1, 2005, through the end of the preceding calendar month.

If a Customer submits Bids for both Virtual Load and Virtual Supply for the same day,

hour, and Load Zone, then for those Bids, until such time as those Bids have been evaluated by

SCUC, only the greater of the Customer's (i) VLCR for the total MWhs Bid for Virtual Load, or

(ii) VSCR for the total MWhs Bid for Virtual Supply will be included when calculating the

Customer's Virtual Transaction Component. After evaluation of those Bids by SCUC, then only

the credit requirement for the net position of the accepted Bids (in MWhs of Virtual Load or

Virtual Supply) will be included when calculating the Customer's Virtual Transaction

Component.

Virtual Supply Groups

Summer	Load Zones A–F	Load Zones G–I	Load Zone J	Load Zone K
HB07–10	VSG-1	VSG-7	VSG-13	VSG-19
HB11–14	VSG-2	VSG-8	VSG-14	VSG-20

HB15–18	VSG-3	VSG-9	VSG-15	VSG-21
HB19–22	VSG-4	VSG-10	VSG-16	VSG-22
Weekend/ Holiday (HB07–22)	VSG-5	VSG-11	VSG-17	VSG-23
Night (HB23–06)	VSG-6	VSG-12	VSG-18	VSG-24
Winter				
HB07–10	VSG-25	VSG-31	VSG-37	VSG-43
HB11–14	VSG-26	VSG-32	VSG-38	VSG-44
HB15–18	VSG-27	VSG-33	VSG-39	VSG-45
HB19–22	VSG-28	VSG-34	VSG-40	VSG-46
Weekend/ Holiday (HB07–22)	VSG-29	VSG-35	VSG-41	VSG-47
Night (HB23–06)	VSG-30	VSG-36	VSG-42	VSG-48
Rest-of-Year				
HB07–10	VSG-49	VSG-55	VSG-61	VSG-67
HB11–14	VSG-50	VSG-56	VSG-62	VSG-68
HB15–18	VSG-51	VSG-57	VSG-63	VSG-69
HB19–22	VSG-52	VSG-58	VSG-64	VSG-70
Weekend/ Holiday (HB07–22)	VSG-53	VSG-59	VSG-65	VSG-71
Night (HB23–06)	VSG-54	VSG-60	VSG-66	VSG-72

Where:

Summer	=	May, June, July, and August
Winter	=	December, January, and February
Rest-of-Year	=	March, April, September, October, and November
HB07–10	=	weekday hours beginning 07:00–10:00
HB11–14	=	weekday hours beginning 11:00–14:00
HB15–18	=	weekday hours beginning 15:00–18:00
HB19–22	=	weekday hours beginning 19:00– 22:00
Weekend/Holiday	=	weekend and holiday hours beginning 07:00–22:00
Night	=	all hours beginning 23:00– 06:00

Virtual Load Groups

Summer	Load Zones A–F	Load Zones G–I	Load Zone J	Load Zone K
HB07–10	VLG-1	VLG-4	VLG-8	VLG-12
HB11–14	VLG-2	VLG-5	VLG-9	VLG-13
HB15–18	VLG-2	VLG-6	VLG-10	VLG-14

HB19–22	VLG-1	VLG-4	VLG-8	VLG-15
Weekend/ Holiday (HB07–22)	VLG-3	VLG-4	VLG-8	VLG-16
Night (HB23–06)	VLG-1	VLG-7	VLG-11	VLG-12
Winter				
HB07–10	VLG-17	VLG-19	VLG-21	VLG-23
HB11–14	VLG-17	VLG-20	VLG-21	VLG-23
HB15–18	VLG-18	VLG-19	VLG-22	VLG-24
HB19–22	VLG-17	VLG-20	VLG-21	VLG-24
Weekend/ Holiday (HB07–22)	VLG-17	VLG-20	VLG-21	VLG-23
Night (HB23–06)	VLG-17	VLG-20	VLG-21	VLG-23
Rest-of-Year				
HB07–10	VLG-25	VLG-26	VLG-27	VLG-29
HB11–14	VLG-25	VLG-26	VLG-28	VLG-29
HB15–18	VLG-25	VLG-26	VLG-28	VLG-30
HB19–22	VLG-25	VLG-26	VLG-27	VLG-30
Weekend/ Holiday (HB07–22)	VLG-25	VLG-26	VLG-27	VLG-30
Night (HB23–06)	VLG-25	VLG-26	VLG-27	VLG-29

Where:

Summer	=	May, June, July, and August
Winter	=	December, January, and February
Rest-of-Year	=	March, April, September, October, and November
HB07–10	=	weekday hours beginning 07:00–10:00
HB11–14	=	weekday hours beginning 11:00–14:00
HB15–18	=	weekday hours beginning 15:00–18:00
HB19–22	=	weekday hours beginning 19:00– 22:00
Weekend/Holiday	=	weekend and holiday hours beginning 07:00–22:00
Night	=	all hours beginning 23:00– 06:00

26.4.2.76 DADRP Component

The DADRP Component shall be equal to the product of: (i) the Demand Reduction Provider's monthly average of MWh of accepted Demand Reduction Bids during the prior summer Capability Period or, where the Demand Reduction Provider does not have a history of accepted Demand Reduction bids, a projected monthly average of the Demand Reduction

Provider's accepted Demand Reduction bids; (ii) the average Day-Ahead LBMP at the NYISO Reference Bus during the prior summer Capability Period; (iii) twenty percent (20%); and (iv) a factor of four (4). The ISO shall adjust the amount of Unsecured Credit and/or collateral that a Demand Reduction Provider is required to provide whenever the DADRP Component increases or decreases by ten percent (10%) or more.

26.4.2.87 DSASP Component

The DSASP Component is calculated every two months based on the Demand Side Resource's Operating Capacity available for the scheduling of such services, the delta between the Day-Ahead and hourly market clearing prices for such products in the like two-month period of the previous year, and the location of the Demand Side Resource. Resources located East of Central-East shall pay the Eastern reserves credit support requirement and Resources located West of Central-East shall pay the Western reserves credit support requirement. The DSASP Component shall be equal to:

(a) For Demand Side Resources eligible to offer only Operating Reserves, the product of (i) the maximum hourly Operating Capacity (MW) for which the Demand Side Resource may be scheduled to provide Operating Reserves, (ii) the amount of Eastern or Western reserves credit support, as appropriate, in $/MW per day, and (iii) three (3) days.

Where:

The amount of Eastern reserves credit support ($/MW/day) for each two-month period	=	Eastern Price Differential for the same two-month period in the previous year * the higher of two (2) or the maximum number of daily Reserve Activations for the same two-month period in the previous year
The amount of Western reserves credit support ($/MW/day) for	=	Western Price Differential for the same two-month period in the previous year * the higher of two (2)

each two-month period		or the maximum number of daily Reserve Activations for the same two-month period in the previous year
Two-month periods:	=	January and February March and April May and June July and August September and October November and December
MCP_{SRh}	=	Hourly, time-weighted Market Clearing Price for Spinning Reserves
Eastern Price Differential	=	The hourly differential at the 97th percentile of all hourly differentials between the Day-Ahead and Real-Time MCPSRh for Eastern Spinning Reserves for hours in the two-month period of the previous year when the Real-Time MCPSRh for Eastern Spinning Reserves exceeded the Day-Ahead MCPSRh for Eastern Spinning Reserves
Western Price Differential	=	The hourly differential at the 97th percentile of all hourly differentials between the Day-Ahead and Real-Time MCPsSRh for Western Spinning Reserves for hours in the two-month period of the previous year when the Real-Time MCPSRh for Western Spinning Reserves exceeded the Day-Ahead MCPSRh for Western Spinning Reserves
Reserve Activations	=	The number of reserve activations at the 97th percentile of daily reserve activations for days in each two month period of the previous year that had reserve activations.

(b)   For Demand Side Resources eligible to offer only Regulation Service, or

Operating Reserves and Regulation Service, the product of (i) the maximum

hourly Operating Capacity (MW) for which the Demand Side Resource may be

scheduled to provide Regulation Service and Operating Reserves, (ii) the amount

of regulation credit support, as appropriate, in $/MW per day, and (iii) three (3)

days.

Where:

The amount of regulation credit support ($/MW/day) for each two-month period	=	Price Differential for the same two-month period in the previous year * 24 hours
Two-month periods:	=	January and February March and April May and June July and August September and October November and December
MCP_{Regh}	=	Hourly, time-weighted Market Clearing Price for Regulation Services
Price Differential	=	The hourly differential at the 97th percentile of all hourly differentials between the Day-Ahead and Hour-Ahead MCPRegh for hours in the two-month period of the previous year when the Real-Time MCP exceeded the Day-Ahead MCP

26.4.3   Calculation of Bidding Requirement

The Bidding Requirement shall be an amount equal to the sum of:

(i)   the amount of bidding or nominating authorization that the Customer has

requested for use in or during, as appropriate, an upcoming ISO-administered

TCC auction, which shall account for all positive bids or nominations to purchase

TCCs and the absolute value of all negative offers to sell TCCs; *provided,*

however, that the amount of credit required for each TCC that the Customer bids

or nominates to purchase, whether positive, negative, or zero shall not be less than

(a) (2 x $/MW for one-year TCCs) per MW for two-year TCCs, (b) $1,500 per

MW for one-year TCCs, (c) $2,000 per MW for six-month TCCs, and (d) $600

per MW for one-month TCCs;

(ii)   the approximate amount that the Customer may owe following an upcoming TCC

auction as a result of converting expired ETAs into Historic Fixed Price TCCs

pursuant to Section 19.2.1 of Attachment M to the OATT, which shall be

calculated in accordance with the provisions of Section 19.2.1 regarding the

purchase of TCCs with a duration of ten years;

(iii)   the amount of bidding authorization that the Customer has requested for use in an

upcoming ISO-administered ICAP auction; and

(iv)   five (5) days prior to any ICAP Spot Market Auction, the amount that the

Customer may be required to pay for UCAP in the auction, calculated as follows:

$$\sum_{LES}\left[\begin{array}{l}\left((1+Margin_L)*MCP_L\right)*1000*Deficiency_L \\ +\left((1+Margin_L)*MCP_L\right)*1000*\dfrac{ZCP_L-1}{2}*RQT_L\end{array}\right]$$

Where:

S equals a set containing the following locations: New York City, Long Island and
              Rest of State,

L equals a location in the set S,

$Margin_L$ equals 25% if location L is New York City and 100% if location L is Long Island or
              Rest of State,

MCP_L equals the Market-Clearing Price for location L in the most recent Monthly Auction
              that established such a price for the month covered by the ICAP Spot Market
              Auction, measured in dollars per kilowatt-month,

$Deficiency_L$ equals the number of megawatts of Unforced Capacity that are to be procured in
              location L on behalf of that Customer in the ICAP Spot Market Auction in order to
              cover any deficiency for that Customer that exists in that location after the

certification deadline for that ICAP Spot Market Auction, such value not to be less than zero,

ZCP_L equals the percentage determined in accordance with Services Tariff Section 5.14.1.2 for the applicable ICAP Demand Curves as established at the $0.00 point for the appropriate Capability Year, and

RQT_L equals (1) if L is New York City or Long Island, that Customer's share of the Locational Minimum Unforced Capacity Requirement for location L or (2) if L is Rest of State, its share of the NYCA Minimum Unforced Capacity Requirement that remains after reducing this amount by its share of the Locational Minimum Unforced Capacity Requirements for New York City and Long Island, for the month covered by the ICAP Spot Market Auction, measured in megawatts.