Rate Schedule 3

Payments for Regulation Service ~~and Establishment of Regulation Service Performance Standards~~

This Rate Schedule applies to Suppliers that provide Regulation Service to the ISO. Transmission Customers will purchase Regulation Service from the ISO under the ISO OATT.

1.0 Obligations of the ISO and Suppliers

1.1 The ISO shall:

(a) Establish Regulation Service criteria and requirements in the ISO Procedures to ensure that Generators follow changes in Load consistent with the Reliability Rules;

(b) Provide RTD Base Point Signals, ~~or when appropriate RTD-CAM Base Point Signals,~~ and AGC Base Point Signals to Generators providing Regulation Service to direct their output;

(c) Establish criteria in the ISO Procedures that Suppliers must meet to qualify, or re-qualify, to supply this Service;

(d) Establish minimum metering requirements and telecommunication capability required for a Generator to be able to respond to AGC Base Point Signals and RTD Base Point Signals~~, or RTD-CAM Base Point Signals,~~ sent by the ISO;

(e) Select Suppliers to provide Regulation Service in the Day-Ahead Market and the Real-Time Market, as described in Section 2.0 of this Rate Schedule;

(f) Pay Suppliers for providing Regulation Service as described in Sections 4.0 and 5.0 of this Rate Schedule; and

(g) Monitor the Suppliers' performance to ensure that they provide Regulation Service as required, as described in Section 3.0 of this Rate Schedule.

1.2 Suppliers shall:

(a) Use Generators that are ~~Dispatchable, or that ar~~ISO Committed Flexible or Self-Committed Flexible, ~~and~~ within the ~~D~~dispatchable portion of their operating range, and ~~that are~~ able to respond to AGC Base Point Signals ~~sent by~~ from the ISO pursuant to the ISO Procedures;

(b) Not use, contract to provide, or otherwise commit the Capability that is designated to provide Regulation Service to provide Energy or ~~Spinning~~Operating Reserves to any party other than the ISO; and

(c) Pay any charges imposed under this Rate Schedule including, if they are re-instituted, the charges described in Section ~~7~~8.0 of this Rate Schedule.

(d) Comply with Base Point Signals issued by the ISO at all times pursuant to the ISO Procedures; and

(e) Comply with the ISO Procedures that apply to providing Regulation Service

2.0 Selection of Suppliers in the Day-Ahead Market and the Real-Time Market

(a) The ISO shall select Suppliers, in the Day-Ahead Market, to provide Regulation

Service for each hour in the following Dispatch Day, from those that have Bid to provide Regulation Service from Generators that meet the qualification standards and criteria established in Section 1 of this Rate Schedule and in the ISO Procedures

(b) Real-Time Market: The ISO shall establish a Real-Time Market for Regulation Service and will establish a real-time Regulation Service Market-Clearing ~~p~~Price in each interval~~;~~. ~~except at times~~During any period when the ISO suspends AGC Base Point Signals, pursuant to Section 9.0 of this Rate Schedule, the real-time Market-Clearing Price for Regulation Service shall automatically be set at zero and all real-time balancing obligations will be suspended. The ISO shall select Suppliers for Regulation Service from those that have Bid to provide Regulation Service from Generators that meet the qualification standards and criteria established in the ISO Procedures;

(c) The ISO shall establish separate Market Clearing Prices for Regulation Service in the Day-Ahead Market and the Real-Time Market.

2.1 Bidding Process

(a) Any qualified Supplier may submit a Bid in the Day- Ahead Market or the Real-Time Market to provide Regulation Service, provided, however, that Bids submitted by Suppliers that are attempting to re-qualify to provide Regulation Service, after being disqualified pursuant to Section 3.0 of this Rate Schedule 3, may be limited by the ISO pursuant to ISO Procedures.

(b) Bids rejected by the ISO may be modified and

Issued by:	William J. Museler, President	Effective:	July 25, 2001
Issued on:	June 6, 2001		

resubmitted by the Supplier to the ISO in accordance with the terms of the ISO Tariff.

(c) ~~Subject to the real-time Availability Bid Price rule specified in subsection (e),~~ Bids in the Day-Ahead Market that are not accepted by the ISO shall be automatically considered for the Real-Time Market, unless withdrawn by the Supplier

(d) Each Bid shall contain the following information: (i) the maximum amount of Capability (in MW) that the Supplier is willing to provide for Regulation Service; (ii) the Generator's regulation response rate (in MW/Minute) which must be sufficient to permit that Generator to provide the offered amount of Regulation Service within a nominally five (5) minute Real-Time Dispatch interval (or, when appropriate an RTD-CAM interval) and which shall be the same as the ramp rate specified in the Energy Bid for that Generator; (iii) the Supplier's Availability Bid Price (in $/MW); and (iv) the physical location and name or designation of the Generator.

3.0 Monitoring Regulation Service Performance and Performance Related Payment Adjustments

(a) The ISO shall establish (i) Generator performance measurement criteria; (ii) procedures to disqualify Suppliers whose Generators consistently fail to meet those criteria; and (iii) procedures to re-qualify disqualified Suppliers, which may include a requirement to first demonstrate acceptable performance for a time.

(b) The ISO shall establish and implement a Performance Tracking System to monitor the performance of Generators that provide Regulation Service. The ISO shall develop performance indices, which may vary with Control Performance, as part of the ISO Procedures. The Performance Tracking System shall compute the difference between the Energy

actually supplied and the Energy scheduled by the ISO for all Generators serving Load within the NYCA as set forth in the ISO Procedures. The ISO shall use these values to reduce Regulation Service payments pursuant to Section 5.4 of this Rate Schedule.

(c) Suppliers that consistently fail to perform adequately may be disqualified by the ISO, pursuant to ISO Procedures.

4.0 Regulation Service Settlements – Day-Ahead Market

4.1 Calculation of Day-Ahead Market Clearing Prices

The ISO shall calculate Day-Ahead Market Clearing Prices for Regulation Service for each hour of the following day. The ~~Real-Time~~Day-Ahead Market-Clearing Price shall equal the Day-Ahead Shadow Price of the ISO's Regulation Service constraint requirement. Day-Ahead Shadow Prices will be calculated by the ISO's SCUC ~~program~~. Each hourly Day-Ahead Shadow Price will reflect Suppliers' opportunity costs and Availability Bids. Shadow Prices will also reflect the Regulation Service Demand Curves described in Section ~~6~~7.0 of this Rate Schedule, which will ensure that Regulation Service is not procured at a cost greater than the Demand Curve indicates should be paid.

Each Supplier that is scheduled Day-Ahead to provide Regulation Service shall be paid the Day-Ahead Market Clearing Price in each hour, multiplied by the amount of Regulation Service that it is scheduled to provide in that hour.

4.2 Other Day-Ahead Payments

As is provided in Article 4 and Attachment C of the Services Tariff, the ISO shall compensate each ~~Dispatchable~~ISO Committed Flexible Generator ~~Supplier~~ that provides

Regulation Service if its Bid Production Cost to provide the Energy and Ancillary Services it is scheduled to supply in the Day-Ahead Market, including start-up costs, minimum Load costs, and Availability Bids, exceeds the revenues it receives from the sale of Energy and Ancillary Services.

No payments shall be made to any Supplier providing Regulation Service in excess of the amount of Regulation Service scheduled by the ISO in the Day-Ahead Market, except to the extent that a Supplier is directed to provide the excess amount by the ISO.

5.0 Regulation Service Settlements – Real-Time Market

5.1 Calculation of Real-Time Market Clearing Prices

The ISO shall calculate Real-Time Market Clearing Prices for Regulation Service for every interval, except as noted in Section 9.0 of this Rate Schedule. The Real-Time Market-Clearing Price shall equal the real-time Shadow Price for the ISO's Regulation Service constraint requirement. Real-time Shadow Prices will be calculated by the ISO's RTD. ~~and RTD-CAM programs.~~ Each real-time Shadow Price will reflect Suppliers' opportunity costs and Availability Bids. Shadow Prices will also reflect the Regulation Service Demand Curves described in Section ~~6~~7.0 of this Rate Schedule, which will ensure that Regulation Service is not procured at a cost greater than the Demand Curve indicates should be paid.

5.2 Real-Time Regulation Service Balancing Payments

Any deviation from a Supplier's Day-Ahead schedule to provide Regulation Service shall be settled pursuant to the following rules.

(a) When the Supplier's real-time Regulation Service schedule is less than it Day-Ahead Regulation Service award, the Supplier shall pay a charge for the imbalance equal to the product of: (a) the Real-Time Market Clearing Price for Regulation Service; and (b) the difference between the Supplier's scheduled Day-

Ahead Regulation Service award and its real-time ~~Operating Reserves~~Regulation Service -schedule (subject to possible reductions pursuant to Section 5.4 of this Rate Schedule.)

(b) When the Supplier's real-time Regulation Service schedule is greater than its Day-Ahead Regulation Service award, the ISO shall pay the Supplier an amount to compensate it for the imbalance equal to the product of: (a) the Real-Time Market Clearing Price for Regulation Service; and (b) the difference between the Supplier's scheduled Day-Ahead Regulation Service award and its real-time Regulation Service schedule (subject to possible reductions pursuant to Section 5.4 of this Rate Schedule.) .

5.3 Other Real-Time Regulation Service Payments

As is provided in Article 4 and Attachment C of the Services Tariff, the ISO shall compensate each ~~Dispatchable~~ ISO Committed Flexible ~~Supplier~~Generator that provides Regulation Service if its Bid Production Cost to provide the Energy and Ancillary Services it is scheduled to supply in the Real-Time Market, including start-up costs, minimum Load costs, and Availability Bids, exceeds the revenues it receives from the sale of Energy and Ancillary Services.

No payments shall be made to any Supplier providing Regulation Service in excess of the amount of Regulation Service scheduled by the ISO in the Real-Time Market, except to the extent that a Supplier is directed to provide the excess amount by the ISO.

~~A Regulation Service Supplier that is instructed to provide Energy at a level above its RTD Base Point Signal in a given dispatch interval shall receive a payment equal to the lower of its average AGC Base Point Signal over the duration of the interval, or its total actual output during the dispatch interval. A Regulation Service Supplier that is instructed to provide Energy~~

~~at a rate lower than its RTD Base Point Signal in a given dispatch interval shall receive a payment equal to its RTD Base Point Signal for that dispatch interval.~~ **(This language will be replaced by the language to be added to new Section 6.0)**

(Placeholder for the "Hold Harmless" Concept Discussed at Recent MSWG Meetings.)

5.4 Performance-Based Adjustments to Regulation Service Payments

The total amount paid to ~~Supplier~~Generators~~s~~ for providing Regulation Service shall be reduced to reflect the ~~Supplier~~Generator's performance pursuant to the following formula:

$$Total\ Payment = \text{~~(~~}(DAMCP_{reg}\ x\ DAR_{cap}) + \text{(}((RTR_{cap}\ x\ K_{pi})\ - DAR_{cap})\ x\ RTMCP_{reg})\ \text{~~}x\ K_{pi}\text{~~}$$

Where:

$DAMCP_{reg}$ is the applicable Market Clearing Price for Regulation Service (in MW), in the Day-Ahead Market as established by the ISO pursuant to Section 4.1 of this Rate Schedule;

DAR_{cap} is the Regulation Service Capability (in MW) offered by the Supplier and selected by the ISO in the Day-Ahead Market;

$RTMCP_{reg}$ is the applicable Market Clearing Price for Regulation Service (in MW), in the Real-Time Market as established by the ISO pursuant to Section 5.1 of this Rate Schedule;

RTR_{cap} is the Regulation Service Capability (in MW) offered by the Supplier and selected by the ISO in the Real-Time Market; and

K_{pi} is a factor, with a value between 0.0 and 1.0 inclusive, derived from each Supplier's Regulation Service performance, as measured by the performance indices set forth in the ISO Procedures, and determined pursuant to the following equation:.

$$K_{pi} = \frac{PI - PSF}{1 - PSF}$$

Where:

PI is the unit's performance index; and

PSF is the payment scaling factor, established pursuant to ISO procedures.

The PSF shall be set between 0 and the minimum performance index required for payment of Availability payments. The PSF is established to reflect the extent of ISO compliance with the standards established by NERC, NPCC or Good Utility Practice for Control Performance and System Security. The PSF is set initially at zero. Should the ISO's compliance with these measures deteriorate, in a manner that can be improved if regulation performance improves, the PSF will be increased. Regulation Service Suppliers will be required to increase their performance index to obtain the same total Regulation Service payment as they received during periods of good ISO performance, as measured by these standards.

6.0 Energy Settlement Rules for Generators Providing Regulation Service

(NOTE: Andrew Hartshorn will make a presentation describing the NYISO's current proposal for handling this issue. If the proposal is accepted it will be incorporated into the next draft of this Rate Schedule.)

~~6~~7.0 Regulation Service Demand Curve

The ISO shall establish a Regulation Service Demand Curve that will apply to both the Day-Ahead and real-time Regulation Service markets. The Market Clearing Prices for ~~Operating Reserves~~Regulation Service calculated pursuant to Sections 4.1 and 5.1 of this Rate Schedule shall reflect the demand curve established in this Section so that ~~Operating Reserves~~Regulation Service is ~~are~~ not purchased at a cost higher than the demand curve indicates

should be paid.

The Regulation Service Demand Curve shall be established at the following quantity/price points: ~~. . . . . **(Numbers to be added.)**~~

First 25 MW (*i.e.,* from 250-275 MW or 175-200 MW depending on the time) @ $250/MW

Remainder of the applicable Regulation Service requirement @ $300/MW

The ISO shall, however, ~~shall~~ have the authority to temporarily modify these quantity and price points in response to operational or reliability problems that arise in real-time. In the event that it is necessary to temporarily modify these points, the ISO will post the modified points as soon as possible. It will ~~also be required to~~ report on the reasons for, and duration of, the modification to the Business Issues Committee as soon as possible. ~~(~~**(Placeholder: ISO staff believes that if it becomes necessary to temporarily change the curves ISO staff should conduct an investigation to determine whether a longer lasting change is needed. ISO staff's current view is that it should have the authority to keep a temporary change in effect for some period of time, and to make a change permanent if the Management Committee ratifies it – in a procedure similar to that used for "exigent circumstances" § 205 filings. The ISO welcomes stakeholder input on this concept.)**

A periodic independent review of the Regulation Service Demand Curve will be performed in accordance with the ISO Procedures to determine whether the parameters of the Regulation Demand Curve should be adjusted.

~~7~~8.0 Reinstating Performance Charges

The ISO will monitor, on a real-time hourly or daily basis, as appropriate, its compliance with the standards established by NERC and NPCC and with the standards of Good Utility Practice for Control Performance, Area Control Area, Disturbance Control Standards, Reserve Pickup Performance and System Security. Should it appear to the ISO that degradation in

performance threatens compliance with one or more of the established standards for these criteria or compromises reliability, and that reinstating the performance charges that were originally part of the ISO's market design, would assist in improving compliance with established standards for these criteria, or would assist in re-establishing reliability, the ISO may require Suppliers of Regulation Service, as well as Suppliers not providing Regulation Service, to pay a performance charge. Any reinstatement of Regulation penalties pursuant to this Section shall not override previous Commission-approved settlement agreements that exempt a particular unit from such penalties. The ISO shall provide notice of its decision to reinstate performance charges to the Commission, to each Customer and to the Operating Committee and the Business Issues Committee no less than seven days before it re-institutes the performance charges.

If the ISO determines that performance charges are necessary, Suppliers of Regulation Service shall pay a performance charge to the ISO as follows:

Performance Charge = Energy Deviation x MCP_{reg} x (Length of Interval/60 minutes)

Where:

Energy Deviation (in MW) is the absolute difference between the actual Energy supplied by the Supplier and the Energy required by the AGC Base Point Signals, whether positive or negative, averaged over each RTD interval; and

MCP_{reg} is the Market Clearing Price ($/MW) which applies to the RTD interval for this Service in the Real-Time Market or the Day-Ahead Market, if appropriate.

The method used by the ISO to calculate the Energy Deviation will permit Suppliers a certain period of time to respond to AGC Base Point Signals. Initially this time period will be thirty (30) seconds, although the ISO will have the authority to change its length. If the Supplier's output at any point in time is between the largest and the smallest of the AGC Base Points sent to that Supplier within the preceding thirty (30) seconds (or such other time period

length as the ISO may define), the Supplier's Energy Deviation at that point in time will be zero. Otherwise, the Supplier may have a positive Energy Deviation. However, in cases in which responding to the AGC Base Point within that time period would require a Supplier to change output at a rate exceeding the amount of Regulation it has been scheduled to provide, the Supplier will have a zero Energy Deviation if it changes output at the rate equal to the amount of Regulation it is scheduled to provide.

9.0 Temporary Suspension of Regulation Service Markets During Reserve Pick-Ups

During any period in which the ISO has activated RTD-CAM software and is operating in reserve pickup mode as described in Article 4.4.4(A) of this ISO Services Tariff, the ISO will stop sending AGC Base Point Signals and will suspend the real-time Regulation Service market. The ISO will not procure any Regulation Service and will establish a real-time Regulation Service Market-Clearing Price of zero for settlement purposes. The ISO will resume sending AGC Base Point Signals and restore the real-time Regulation Service market as soon as possible after the end of a reserve pickup event.

Rate Schedule "3-A"

Charges Applicable to Suppliers That Are Not Providing Regulation Service

1.0 Persistent Undergeneration Charges

A Supplier that is not providing Regulation Service and that persistently operates at a level below its schedule shall pay a persistent undergeneration charge to the ISO, unless its operation is within a tolerance described below. Persistent undergeneration charges for Self-Committed Fixed Suppliers shall be calculated as follows:

Persistent undergeneration charge = Energy Difference x MCP_{reg} x Length of Interval/60 Minutes

Where:

Energy Difference in (MW) is determined by subtracting the actual Energy provided by the Supplier from its RTD Base Point for the dispatch interval; and

MCP_{reg} is the Market-Clearing Price ($/MW) which applies to the dispatch interval for which Regulation Service in the Real-Time Market, or, if applicable, the Day-Ahead Market.

2.0 Restoration of Performance Charges

The persistent undergeneration charges described in Section 1.0 above shall be suspended in the event that the ISO re-institutes Regulation performance charges pursuant to Section ~~7~~8.0 of Rate Schedule 3 of this Services Tariff. If the ISO re-institutes performance charges then Suppliers that sell Energy through the LBMP Markets or that supply Bilateral Transactions that serve Load in the NYCA, but that do not provide Regulation Service, shall pay a performance charge to the ISO as follows:

Performance Charge = Energy Difference x MCP_{reg} x Length of Interval/60 minutes

Where:

Energy Difference (in MW) is the absolute difference between the actual Energy supplied by the Supplier and the Energy it is directed to produce by its RTD Base Point Signals, whether positive or negative, averaged over each RTD interval; and

MCP_{reg} is the Market Clearing Price ($/MW) which applies to the interval for which Regulation Service was provided in the Real-Time Market, or, if appropriate, the Day-Ahead Market.

In cases in which the Energy Difference that would be calculated using the procedure described above is less than the tolerance set forth in the ISO Procedures, the ISO shall set the Energy Difference for that interval equal to zero.

3.0 Exemptions

The following types of Generator shall not be subject to persistent undergeneration charges, or, if they are restored by the ISO, to performance charges:

(i) Generators providing Energy under contracts (including PURPA contracts), executed and effective on or before November 18, 1999, in which the power purchaser does not control the operation of the supply source but would be responsible for payment of the persistent undergeneration or performance charge;

(ii) Existing topping turbine Generators and extraction turbine Generators producing electric Energy resulting from the supply of steam to the district steam system in operation on or before November 18, 1999 and/or topping or extraction turbine Generators utilized in replacing or repowering existing steam supplies from such units (in accordance with good engineering and economic design) that cannot follow schedules, up to a maximum total of 365 MW of such units;

(iii) Existing intermittent (*i.e.,* non-schedulable) renewable resource Generators within the NYCA in operation on or before November 18, 1999, plus up to an additional 500 MW of such Generators; and

(iv) Capacity Limited Resources and Energy Limited Resources to the extent that their real-time Energy injections are equal to or greater than their bid-in upper operating limits but are less than their Real-Time Scheduled Energy Injections.