

## **31.7 Appendices**

### **APPENDIX A - REPORTING OF HISTORIC AND PROJECTED CONGESTION**

#### **1.0 General**

As part of its CSPP, the ISO will prepare summaries and detailed analysis of historic and projected congestion across the NYS Transmission System. This will include analysis to identify the significant causes of historic congestion in an effort to help Market Participants and other interested parties distinguish persistent and addressable congestion from congestion that results from one time events or transient adjustments in operating procedures that may or may not recur. This information will assist Market Participants and other stakeholders to make appropriately informed decisions.

#### **2.0 Definition of Cost of Congestion**

The ISO will report the cost of congestion as the change in bid production costs that results from transmission congestion. The following elements of congestion-related costs also will be reported: (i) impact on load payments; (ii) impact on generator payments; and (iii) hedged and unhedged congestion payments.

The determination of the change in bid production costs and the other elements of congestion will be based upon the difference in costs between the actual constrained system prices computed in the ISO's Day-Ahead Market and a simulation of an unconstrained system. The simulation shall be developed by the use of the PROBE model approved by the ISO Operating Committee on January 22, 2004 or by such other software as may provide the required congestion information.

### **3.0 Analysis**

Each RNA will include the ISO's summaries and detailed analysis of the prior year's congestion across the NYS Transmission System. The ISO's analysis will identify the significant causes of the historic congestion.

Each study of projected congestion for economic planning will include the results of the ISO's analysis conducted in accordance with Section 31.3.1 of this Attachment Y. The ISO's analysis will identify the significant causes of the projected congestion.

### **4.0 Detailed Cause Analysis for Unusual Events**

The ISO will perform an analysis to identify unusual events causing significant congestion levels. Such analysis will include the following elements: (i) identification of major transmission or generation outages; and (ii) quantification of the market impact of relieving historic constraints.

Some of the information necessary to this analysis may constitute critical energy infrastructure information and will need to be handled with appropriate confidentiality limitations to protect national security interests.

### **5.0 Summary Reports**

The ISO will prepare various reports of historic and projected congestion costs. Historic congestion reports will be based upon the actual congestion data from the ISO Day-Ahead Market, and will include summaries, aggregated by month and calendar year, such as: (i) NYCA; (ii) by zone; (iii) by contingency in rank order; (iv) by constraint in rank order; (v) total dollars; and (vi) number of hours. Results of projected congestion studies conducted pursuant to Section 31.3.1 of this Attachment Y will include summaries of selected additional metrics and scenarios.

These reports will be based upon the foregoing definitions of congestion.

## **APPENDIX B - PROCEDURE FOR FORECASTING THE NET REDUCTIONS IN TCC REVENUES THAT WOULD RESULT FROM A PROPOSED PROJECT**

For the purpose of determining the allocation of costs associated with a proposed project as described in Section 31.5.4.4 of this Attachment Y, the ISO shall use the procedure described herein to forecast the net reductions in TCC revenues allocated to Load in each Load Zone as a result of a proposed project.

### **Definitions**

The following definitions will apply to this appendix:

**Pre-CARIS Centralized TCC Auction:** The last Centralized TCC Auction that had been completed as of the date the input assumptions were determined for the CARIS in which the Project was identified as a candidate for development under the provisions of this Attachment Y.

**Project:** The proposed transmission project for which the evaluation of the net benefits forecasted for Load in each Load Zone, as described in Section 31.5.4.4.2 of this Attachment Y, is being performed.

**TCC Revenue Factor:** A factor that is intended to reflect the expected ratio of (1) revenue realized in the TCC auction from the sale of a TCC to (2) the Congestion Rents that a purchaser of that TCC would expect to realize. The value to be used for the TCC Revenue Factor shall be stated in the ISO Procedures.

### **Steps 1 Through 6 of the Procedure**

For each Project, the ISO will perform Steps 1 through 6 of this procedure twice for each of the ten (10) years following the proposed commercial operation date of the Project: once under the assumption that the Project is in place in each of those years, and once under the assumption that the Project is not in place in each of those years.

### ***Forecasting the Value of Grandfathered TCCs and TCC Auction Revenue***

**Step 1.** The ISO shall forecast Congestion Rents collected on the New York electricity system in each year, which shall be equal to:

(a) the product of:

(i) the forecasted Congestion Component of the Day-Ahead LBMP for each hour at each Load Zone or Proxy Generator Bus and

(ii) forecasted withdrawals scheduled in that hour in that Load Zone or Proxy Generator Bus,

summed over all locations and over all hours in that year, minus:

(b) the product of:

(i) the forecasted Congestion Component of the Day-Ahead LBMP for each hour at each Generator bus or Proxy Generator Bus and

(ii) forecasted injections scheduled in that hour at that Generator bus or Proxy Generator Bus,

summed over all locations and over all hours in that year.

**Step 2.** The ISO shall forecast:

(a) payments in each year associated with any Incremental TCCs that the ISO projects would be awarded in conjunction with that Project (which will be zero for the calculation that is performed under the assumption that the Project is not in place);

(b) payments in each year associated with any Incremental TCCs that the ISO has awarded, or that the ISO projects it would award, in conjunction with other projects that have entered commercial operation or are expected to enter commercial operation before the Project enters commercial operation; and

(c) payments that would be made to holders of Grandfathered Rights and imputed payments that would be made to the Primary Holders of Grandfathered TCCs that would be in effect in each year, under the following assumptions:

(i) all Grandfathered Rights and Grandfathered TCCs expire at their stated expiration dates;

(ii) imputed payments to holders of Grandfathered Rights are equal to the payments that would be made to the Primary Holder of a TCC with the same Point of Injection and Point of Withdrawal as that Grandfathered Right; and

(iii) in cases where a Grandfathered TCC is listed in Table 1 of Attachment M of the ISO OATT, the number of those TCCs held by their Primary Holders shall be set to the number of such TCCs remaining at the conclusion of the ETCNL reduction procedure conducted before the Pre-CARIS Centralized TCC Auction.

**Step 3.** The ISO shall forecast TCC auction revenues for each year by subtracting:

(a) the forecasted payments calculated for that year in Steps 2(a), 2(b) and 2(c) of this procedure

from:

(b) the forecasted Congestion Rents calculated for that year in Step 1 of this procedure, and multiplying the difference by the TCC Revenue Factor.

***Forecasting the Allocation of TCC Auction Revenues Among the Transmission Owners***

**Step 4.** The ISO shall forecast the following:

- (a) payments in each year to the Primary Holders of Original Residual TCCs and
- (b) payments in each year to the Primary Holders of TCCs that correspond to the amount of ETCNL remaining at the conclusion of the ETCNL reduction procedure conducted before the Pre-CARIS Centralized TCC Auction,

and multiply each by the TCC Revenue Factor to determine the forecasted payments to the Primary Holders of Original Residual TCCs and the Transmission Owners that have been allocated ETCNL.

**Step 5.** The ISO shall forecast residual auction revenues for each year by subtracting:

- (a) the sum of the forecasted payments for each year to the Primary Holders of Original Residual TCCs and the Transmission Owners that have been allocated ETCNL, calculated in Step 4 of this procedure

from:

- (b) forecasted TCC auction revenues for that year calculated in Step 3 of this procedure.

**Step 6.** The ISO shall forecast each Transmission Owner's share of residual auction revenue for each year by multiplying:

- (a) the forecast of residual auction revenue calculated in Step 5 of this procedure and
- (b) the ratio of:
  - (i) the amount of residual auction revenue allocated to that Transmission Owner in the Pre-CARIS Centralized TCC Auction to
  - (ii) the total amount of residual auction revenue allocated in the Pre-CARIS Centralized TCC Auction.

**Steps 7 Through 10 of the Procedure**

The ISO will perform Steps 7 through 10 of this procedure once for each of the ten (10) years following the proposed commercial operation date of the Project, using the results of the preceding calculations performed both under the assumption that the Project is in place in each of those years, and under the assumption that the Project is not in place in each of those years.

***Forecasting the Impact of the Project on TSC Offsets and the NTAC Offset***

**Step 7.** The ISO shall calculate the forecasted net impact of the Project on the TSC offset for each megawatt-hour of electricity consumed by Load in each Transmission District (other than the NYPA Transmission District) in each year by:

(a) summing the following, each forecasted for that Transmission District for that year under the assumption that the Project is in place:

(i) forecasted Congestion Rents associated with any Incremental TCCs that the ISO has awarded, or that the ISO projects it would award, as calculated in Step 2(b) of this procedure, in conjunction with other projects that have entered commercial operation or are expected to enter commercial operation before the Project enters commercial operation, if those Congestion Rents would affect the TSC for that Transmission District;

(ii) forecasted Congestion Rents associated with any Grandfathered TCCs and forecasted imputed Congestion Rents associated with any Grandfathered Rights held by the Transmission Owner serving that Transmission District that would be paid to that Transmission Owner for that year, as calculated in Step 2(c) of this procedure, if those Congestion Rents would affect the TSC for that Transmission District;

(iii) the payments that are forecasted to be made for that year to the Primary Holders of Original Residual TCCs and ETCNL that have been allocated to the Transmission Owner serving that Transmission District, as calculated in Step 4 of this procedure; and

(iv) that Transmission District's forecasted share of residual auction revenues for that year, as calculated in Step 6 of this procedure for the Transmission Owner serving that Transmission District;

(b) subtracting the sum of items (i) through (iv) above, each forecasted for that Transmission District for that year under the assumption that the Project is not in place; and

(c) dividing this difference by the amount of Load forecasted to be served in that Transmission District in that year, stated in terms of megawatt-hours, net of any Load served by municipally owned utilities that is not subject to the TSC.

**Step 8.** The ISO shall calculate the forecasted net impact of the Project on the NTAC offset for each megawatt-hour of electricity consumed by Load in each year by:

(a) summing the following, each forecasted for that year under the assumption that the Project is in place:

(i) forecasted Congestion Rents associated with any Incremental TCCs that the ISO has awarded, or that the ISO projects it would award, as calculated in Step 2(b) of this procedure, in conjunction with other projects that have entered commercial operation

or are expected to enter commercial operation before the Project enters commercial operation, if those Congestion Rents would affect the NTAC;

(ii) forecasted Congestion Rents associated with any Grandfathered TCCs and forecasted imputed Congestion Rents associated with any Grandfathered Rights held by NYPA that would be paid to NYPA for that year, as calculated in Step 2(c) of this procedure, if those Congestion Rents would affect the NTAC;

(iii) the payments that are forecasted to be made for that year to NYPA in association with Original Residual TCCs allocated to NYPA, as calculated in Step 4 of this procedure; and

(iv) NYPA's forecasted share of residual auction revenues for that year, as calculated in Step 6 of this procedure;

(b) subtracting the sum of items (i) through (iv) above, each forecasted for that year under the assumption that the Project is not in place; and

(c) dividing this difference by the amount of Load expected to be served in the NYCA in that year, stated in terms of megawatt-hours, net of any Load served by municipally owned utilities that is not subject to the NTAC.

### ***Forecasting the Net Impact of the Project on TCC Revenues Allocated to Load in Each Zone***

**Step 9.** The ISO shall calculate the forecasted net impact of the Project in each year in each Load Zone on payments made in conjunction with TCCs and Grandfathered Rights that benefit Load but which do not affect TSCs or the NTAC, which shall be the sum of:

(a) Forecasted Congestion Rents paid or imputed to municipally owned utilities serving Load in that Load Zone that own Grandfathered Rights or Grandfathered TCCs that were not included in the calculation of the TSC offset in Step 7(a)(ii) of this procedure or the NTAC offset in Step 8(a)(ii) of this procedure, which the ISO shall calculate by:

(i) summing forecasted Congestion Rents that any such municipally owned utilities serving Load in that Load Zone would be paid for that year in association with any such Grandfathered TCCs and any forecasted imputed Congestion Rents that such a municipally owned utility would be paid for that year in association with any such Grandfathered Rights, as calculated in Step 2(c) of this procedure under the assumption that the Project is in place; and

(ii) subtracting forecasted Congestion Rents that any such municipally owned utilities would be paid for that year in association with any such Grandfathered TCCs, and any forecasted imputed Congestion Rents that such a municipally owned utility would be paid for that year in association with any such Grandfathered Rights, as calculated in Step 2(c) of this procedure under the assumption that the Project is not in place.

(b) Forecasted Congestion Rents collected from Incremental TCCs awarded in conjunction with projects that were previously funded through this procedure, if those Congestion Rents are used to reduce the amount that Load in that Load Zone must pay to fund such projects, which the ISO shall calculate by:

(i) summing forecasted Congestion Rents that would be collected for that year in association with any such Incremental TCCs, as calculated in Step 2(b) of this procedure under the assumption that the Project is in place; and

(ii) subtracting forecasted Congestion Rents that would be collected for that year in association with any such Incremental TCCs, as calculated in Step 2(b) of this procedure under the assumption that the Project is not in place.

**Step 10.** The ISO shall calculate the forecasted net reductions in TCC revenues allocated to Load in each Load Zone as a result of a proposed Project by summing the following:

(a) the product of:

(i) the forecasted net impact of the Project on the TSC offset for each megawatt-hour of electricity consumed by Load, as calculated for each Transmission District (other than the NYPA Transmission District) in Step 7 of this procedure; and

(ii) the number of megawatt-hours of energy that are forecasted to be consumed by Load in that year, in the portion of that Transmission District that is in that Load Zone, for Load that is subject to the TSC;

summed over all Transmission Districts;

(b) the product of:

(i) the forecasted net impact of the Project on the NTAC offset for each megawatt-hour of electricity consumed by Load, as calculated in Step 8 of this procedure; and

(ii) the number of megawatt-hours of energy that are forecasted to be consumed by Load in that year in that Load Zone, for Load that is subject to the NTAC; and

(c) the forecasted net impact of the Project on payments and imputed payments made in conjunction with TCCs and Grandfathered Rights that benefit Load but which do not affect TSCs or the NTAC, as calculated in Step 9 of this procedure.

### **Additional Notes Concerning the Procedure**

For the purposes of Steps 2(c) and 4(b) of this procedure, the ISO will utilize the currently effective version of Attachment L of the ISO OATT to identify Existing Transmission Agreements and Existing Transmission Capacity for Native Load.



Each Transmission Owner, other than NYPA, will inform the ISO of any Grandfathered Rights and Grandfathered TCCs it holds whose Congestion Rents should be taken into account in Step 7 of this procedure because those Congestion Rents affect its TSC.

NYPA will inform the ISO of any Grandfathered Rights and Grandfathered TCCs it holds whose Congestion Rents should be taken into account in Step 8 of this procedure because those Congestion Rents affect the NTAC.