

**DRAFT**  
**TRANSMISSION**  
**CONGESTION**  
**CONTRACTS**  
**MANUAL**  
**REDLINE**

**DRAFT**  
**Transmission Congestion Contracts Manual**

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**Please Note:**

The information contained in this Draft TCC Manual comes from a number of sources, including the NYISO Tariffs, the Transmission Services Manual, and Technical Bulletins. This Manual is a working draft, and may not yet include the most current information on the topics discussed. Until this Manual is complete, please refer to the NYISO web site for the most current information on the topics discussed herein.

***Disclaimer***

The information contained within this manual, along with the other NYISO manuals, is intended to be used for informational purposes and is subject to change. The NYISO is not responsible for the user's reliance on these publications or for any erroneous or misleading material.

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- Attachment A - Binding Agreement To Sell
- Attachment B - Binding Agreement To Purchase
- Attachment C - Initial Spring 2003 TCC Auction Time Line
- Attachment D - Points of Injection and Withdrawal
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- Attachment F - Bidding Rules for using the HQ Proxy Bus as a POI or POW
- Attachment G - Auction Example
- Attachment H – NYISO Zone Map

[Source Key](#)

**Black – Rules Document**

**Blue – Transmission Services Manual, including Attachment D**

**Green – Attachment M, OATT**

**Purple – New**

**Tan – Tech Bulletin #57**

**Red - Changes**

## Revision History Page

Revision	Date	Changes
XXC	XX	
Initial Release	XX	Add Rev history text here.

## 1. INTRODUCTION

The New York Independent System Operator’s Transmission Congestion Contract Auction ~~Manual~~ (the “Manual”) contains the rules, procedures and guidelines that will be followed by the New York Independent System Operator (the “ISO”) and its Customers with regard to the TCC auctions administered by the ISO pursuant to the ISO Services Tariff. TCC Auction provisions are discussed generally in attachment M of the NYISO Open Access Transmission Tariff (“ISO OATT”) effective September 1, 2000, and amended thereafter.

A TCC represents the right to collect, or the obligation to pay, the Day-Ahead Congestion Rents associated with one (1) megawatt (“MW”) of transmission between a specified Point of Injection (“POI”) and specified Point of Withdrawal (“POW”). The Day-Ahead Congestion Rents are determined by the difference in the Congestion Component of the Day-Ahead LBMP at the POW of the TCC and the Congestion Component of the Day-Ahead LBMP at the POI of the TCC, for each hour of the Effective Period.

The purposes of the Initial Auction and the Reconfiguration Auction are to create a market for the sale and purchase of TCCs.

### 1.1. Scope

The intent of this document is to identify rules, procedures and guidelines with respect to TCC Auctions. Other TCC issues are addressed by other ISO documents including, but not limited to those identified in the “References” section of this manual.

All capitalized terms used in these Rules that are not otherwise defined herein shall have the meanings ascribed to such terms in the ISO OATT.

For the purposes of the discussion below, a primary market purchase of TCCs is one in which TCCs are purchased in the Initial Auction or through a bilateral sale where the purchaser qualifies as a Primary Holder. A secondary market purchase of TCCs is one in which TCCs are purchased through a bilateral sale where the purchaser does not qualify as a Primary Holder or elects not to become a Primary Holder. The NYISO will not track secondary market trading of TCCs.

## 1.2. Purpose

~~This Manual has these "Rules, Procedures and Guidelines for the Initial Auction and Reconfiguration Auctions of TCCs Autumn 2002" ("Rules") have~~ been established to:

- a) govern the proceedings of Initial Auctions conducted by the New York Independent System Operator ("NYISO"), whereby holders of Transmission Congestion Contracts ("TCCs") may release those TCCs for sale and other auction participants may bid to purchase TCCs; and,
- b) govern the proceedings of monthly auctions to be conducted by the NYISO, whereby holders of TCCs may release those TCCs for sale and other auction participants may bid to purchase TCCs ("Reconfiguration Auction") (also, Initial Auction and Reconfiguration Auction referred to, collectively, as "Auctions").
- c) establish procedures and guidelines required in the process of performing TCC Auctions and Optimum Power Flow ("OPF") analysis by the NYISO.

## 2. Overview

TCCs are financial instruments that can be used to hedge costs resulting from transmission system congestion. Primary Holders of TCCs will be able to hedge congestion costs associated with transmitting 1 MW of power between ~~the buses specified in the a specified -TCCs. The p~~ Payments made to Primary Holders will be primarily funded using congestion rents, which are revenues that the ISO will collect when there is transmission congestion on the system. Congestion Rents are created as a result of ~~due to differences caused by that congestion~~ between the LBMPs at locations where the ISO pays for energy produced and the LBMPs at locations where the ISO charges loads for energy consumed.

Because the congestion rents that the ISO collects are limited by the physical limitations of the transmission system, the number of TCCs that can be awarded to market participants will also be limited by ~~these~~ constraints. The test that the ISO will use to ensure that it has ~~not~~ awarded the correct amount of too many TCCs involves the construction of a power flow model that corresponds to the set of TCCs (and Grandfathered Rights) that have been awarded. This is done -by determining the amount of power that would flow over each transmission facility if 1 MW of power were to be injected simultaneously at the injection location specified in each TCC or Grandfathered Right, and 1 MW were to be withdrawn at the withdrawal location specified in each TCC or



Grandfathered Right. If this power flow does not violate any security constraints, then in most circumstances the ISO will be able to fund all payments to TCC holders using only congestion rents. Consequently, the procedures that the ISO will use to award TCCs will ensure that this power flow does not violate any security constraints.

Since there are many feasible combinations of injections and withdrawals that do not violate any security constraints, as can be seen through observing hour-to-hour variations in the dispatch of the system, there are many feasible sets of TCCs and Grandfathered Rights. The Auction is one mechanism for determining which set of TCCs and Grandfathered Rights will be allocated to market participants. It allows Market Participants to determine which set will be awarded through their bidding preferences. For this reason, it generally will not be possible for the ISO to quantify in advance the number of TCCs that can be awarded in the Auction, because it will not know which bids will be made into the Auction, and those bids will determine which of the many possible sets of TCCs will be awarded.

In addition, advance quantification of the number of TCCs available in the Auction will not be possible because the number of TCCs that will be made available for sale in the Auction will not be known in advance. A number of TCCs and Grandfathered Rights have been assigned prior to implementation of the restructured electricity market administered by the ISO. Some of these TCCs or Grandfathered Rights are assigned to recipients of service under currently existing transmission agreements. Additional TCCs (Residual TCCs) have been allocated to the Transmission Owners after accounting for Existing Transmission Capacity for Native Load (ETCNL). Some of the ETCNL may be allocated to retail access customers as TCCs with the unused capacity released into the Auction. Each Primary Holder of one of these TCCs will be permitted to sell that TCC in the Auction, and the number of TCCs that can be purchased in the Auction will be affected by the number of TCCs that are offered for sale in the Auction. The TCCs which are released for sale in the Auction, no longer exist for the Auction Period, however, the system transfer capability required to support those TCCs is released to support TCCs purchased in the Auction.

Each TCC that is not released for sale in the Auction and each Grandfathered Right will be modeled as a fixed injection and withdrawal at the appropriate locations in the power flow. The injection and withdrawal corresponding to each of these TCCs or Grandfathered Rights will produce flows through every transmission facility in the system (with the possible exception of some lines that are radially connected to the rest of the system). The flows over these facilities that result from the simultaneous injections and withdrawals corresponding to each of these TCCs or Grandfathered Rights will utilize part of the system transfer capability. We will refer to this as the portion of the system transfer capability required to support those TCCs and Grandfathered Rights. The system transfer capability that remains can be used to support TCCs purchased in the Auction.

Market participants may bid on TCCs between the same locations as TCCs that were released for sale in the Auction, but they also may bid for TCCs between other locations on the transmission system, depending on their preferences. If the set of TCCs awarded in the Auction differs from the

set of TCCs released for sale into the Auction (i.e., if the system transfer capability that had previously been used to support the TCCs released for sale in the Auction is used to support a different set of TCCs sold in the Auction), then we will say that the set of TCCs released for sale was reconfigured into another set of TCCs, which Auction participants prefer to the TCCs that had originally been released for sale.

As stated in Attachment M to the NYISO OATT, the Centralized TCC Auction (Auction) format will change with time leading to an end-state auction format. This manual will not describe these auction formats, but instead will describe the auction process currently in use. In particular, this manual will describe the auction functions common to all auction formats, such as, bid submittal and validation, the Optimal Power Flow (OPF) analysis, and auction result and informational postings. Finally, the power flow assumptions to be used in the OPF analysis will be described. As the rules, procedures and guidelines are developed for new auction formats they will be provided as attachments to the Transmission Services manual.

### 3. References

- • “New York Independent System Operator, Inc., FERC Electric Tariff, Original Volume No. 1, Open Access Transmission Tariff”, including Attachments K, L M and N
- • “New York Independent System Operator, Inc. FERC Electric Tariff Original Volume No. 2, ISO Market Administration And Control Area Services Tariff”
- • NYISO Accounting & Billing Manual”
- • The NYISO Web Site ([www.NYISO.com](http://www.NYISO.com), “The Markets”, “Transmission Congestion Contracts – TCC”) for timelines, ~~announcements~~announcements, and auction related postings
- • New York Independent System Operator Technical Bulletin #21 “Grandfathered Transmission Rights Transactions in the NYISO MIS”
- • New York Independent System Operator Technical Bulletin #57 “Unbundling Transmission Congestion Contracts”
- • NYISO Customer Registration Packet

## 4. Auction Rules and Guidelines

### 4.1. Determination of TCCs Available For Sale

#### 4.1.1. Initial Auction

The total number of TCCs sold in the Initial Auction will be the sum of (a) Existing Transmission Capacity for Native Load (“ETCNL”) allocated to the Transmission Owners, (b) Residual TCCs allocated to the Transmission Owners prior to the formation of the NYISO that have not been sold in a direct sale prior to the Initial

Auction, (c) any Grandfathered TCCs that were offered for sale in the Initial Auction, and (d) any system transfer capacity in excess of that claimed by ETCNL, Existing Transmission Agreements and Residual TCCs, but for Five-Year TCCs sold in the Initial Autumn 2000 Auction, Two-Year TCCs sold in the Initial Autumn 2001 Auction, One Year TCCs sold in the Initial Autumn 2002 Auction by valid Electronic Offer made or amended and timely received in accordance with the Rules, and Attachment M of the ISO OATT (collectively the “Available TCCs”). The Available TCCs will be sold in two Classes: One-Year TCCs and Six-Month TCCs. The NYISO will sell 29 percent of the Available TCCs as One-Year TCCs and 71.79 percent of the Available TCCs as Six-Month TCCs.

#### **4.1.2. Reconfiguration Auctions**

In the reconfiguration auction rounds, One-Year TCCs and Six-Month TCCs will be sold. In these reconfiguration auction rounds, the available TCCs will consist of those TCCs offered for the round. The total number of TCCs sold in the Reconfiguration Auction will be the sum of (a) any TCCs sold in the Initial Auction that were offered for sale in the Reconfiguration Auction, (b) any Grandfathered TCCs that were offered for sale in the Reconfiguration Auction, and (c) any system transfer capacity in excess of that claimed by ETCNL, Existing Transmission Agreements, Residual TCCs and TCCs sold in the Initial Auction (collectively the “Available Reconfiguration Auction TCCs”).

The Available Reconfiguration Auction TCCs will be sold as One Month TCCs. The NYISO will sell 100 percent of the Available Reconfiguration Auction TCCs as One Month TCCs. All TCCs sold through the Reconfiguration Auction are valid for all hours of each day of the duration of that TCC (“Effective Period”).

#### **4.2. Effective Periods of TCCs Purchased in the Initial Auction or Reconfiguration Auction**

All TCCs sold through the Initial Auction are valid for all hours of each day of the duration of that TCC (“Effective Period”).

a) One-Year TCCs sold in the Initial Auction will be valid for the period commencing on May 1, 2003 (beginning 12:00 midnight) (all times referenced in these Rules shall be according to Eastern Time) and ending on April 30, 2004 (ending at 11:59:59 PM). This period shall constitute the Effective Period of One-Year TCCs sold in the Initial Auction.

b) Six-Month TCCs sold in the Initial Auction will be valid for the period commencing on May 1, 2003 (beginning 12:00 midnight) and ending on October 31, 2003 (ending at 11:59:59 PM). This period shall constitute the Effective Period of Six-Month TCCs sold in the Initial Auction.

c) One Month TCCs sold in a Reconfiguration Auction will be valid for the period commencing on the first day of the relevant month (beginning 12:00 midnight) (all times referenced in these Rules shall be according to Eastern Time) and ending on the last day of the relevant month (ending at 11:59:59 PM). This period shall constitute the Effective Period of One Month TCCs sold in the Reconfiguration Auction. |

#### **4.3.** [Classes, Stages, and Rounds for the Initial Auction](#)

##### **4.3.1. Classes**

The Initial Auction will be conducted according to Attachment M of the ISO OATT. Two classes of TCCs (each a “Class”) will be sold in the Initial Auction: a One-Year Class of TCCs and a Six-Month Class of TCCs. Each Class of TCCs will be auctioned in two stages: Stage 1 and Stage 2.

##### **4.3.2. Rounds and Stages**

###### a) One Year Class

For the One-Year Class of TCCs sold, Stage 1 of the Initial Auction will consist of four rounds.

###### b) Six Month Class

For the Six-Month Class of TCCs sold, Stage 1 of the Initial Auction will consist of four rounds.

###### d) Stage 2 Rounds

For each Class of TCCs sold, Stage 2 of the Initial Auction will consist of one round in which Primary Holders with TCCs in effect for the entire Effective Period of the TCCs being sold. Buyers who were awarded TCCs in Stage 1 may submit offers to sell some or all of those TCCs in Stage 2 and other auction participants may bid to purchase those TCCs.

#### **4.4.** [Initial and Reconfiguration Auction Time Lines](#)

Time lines for the Initial Auction and Reconfiguration Auctions are provided in Attachment C of these Rules.

#### **4.5.** [Rules for Offers to Sell TCCs](#)

##### **4.5.1. Eligibility**

To be eligible to submit offers to sell TCCs in the Initial Auction and the Reconfiguration Auctions, the Primary Holder offering TCCs for sale (“Seller”) must:

- a) satisfy the creditworthiness criteria as set forth in the ISO OATT and the NYISO Financial Assurance Policy; and,
- b) complete and submit the Binding Agreement to Sell Transmission Congestion Contracts ("Sale Agreement") (copy attached as Attachment A) to the Auctioneer listed below.

"Auctioneer":

TCC Auctioneer  
c/o New York Independent System Operator Albany  
290 Washington Avenue Extension  
Albany, NY 12203

#### **4.5.2. Sales Agreements**

Sale Agreements must be received by the NYISO via an overnight mail service or a delivery service requiring the signature of the addressee, delivered to the NYISO according to the schedule established by these Rules. All Sale Agreements must be delivered by 5:00 PM on the scheduled dates established by these Rules. A Sale Agreement submitted in advance of any Autumn 2003 Reconfiguration Auction will be valid for all subsequent TCC Auctions.

#### **4.5.3. Registrant Name**

Upon receipt of a completed Sale Agreement, the NYISO will designate a "registrant name" for the Seller for purposes of the Initial Auction and/or the Reconfiguration Auctions.

#### **4.5.4. Communicating an Offer to Sell**

After the Seller has received a "registrant name," it may offer to sell TCCs by transmitting a properly formatted offer, by e-mail, to the NYISO at <selltccs@nyiso.com> ("Electronic Offer"). The form for Electronic Offers will be provided by the NYISO in Microsoft Excel and Lotus 123 software formats. The NYISO will transmit an automatic return receipt to the Seller indicating the date and time the Electronic Offer was received by the NYISO for purposes of determining whether the Electronic Offer was timely received. The NYISO will validate all information provided in the Electronic Offer subject to the conditions listed in this Article 4.

#### **4.5.5. Information Required**

All Individual Offers to sell TCCs must specify in the Electronic Offer the following:

- a) TCC Point of Injection (POI) - This may be any single bus, the Reference Bus, neighboring control area proxy bus or Zone listed in Attachment D of these Rules for

which a Locational Based Marginal Price is posted for the Day-Ahead Market. The POI must be referenced on the Purchase Form with a PTID number.

b) TCC Point of Withdrawal (POW) - This may be any single bus, the Reference Bus, neighboring control area proxy bus or Zone listed in Attachment D of these Rules for which a Locational Based Marginal Price is posted for the Day-Ahead Market. The POW must be referenced on the Purchase Form with a PTID number.

c) Number of TCCs offered - This identifies the MW amount of certain TCCs offered for sale. The number of TCCs must be specified in a whole number and must be greater than zero. All TCCs offered for sale will be sold.

d) TCC Contract # - This is the TCC Contract Number listed in the current Summary of Transmission Contracts provided on the NYISO web-site. From the NYISO home page, select *The Markets*, then select *Transmission Congestion Contracts - TCC Market* and then select *General TCC Auction Information*.

e) Class of TCC (for the Initial Auction) – The class of TCC corresponds to the duration of the offered TCC for the TCC Contract Number listed in the Summary of Transmission Contracts.

f) Minimum Offer Price (\$/TCC) – The minimum price (\$/TCC) that the Seller is willing to accept for the offered TCC (OPTIONAL). The minimum price must be specified to two decimal points (i.e., to the nearest \$0.01). A minimum price of exactly \$0.00 will be treated as \$-0.001 during the OPF Analysis to avoid ambiguity.

#### **4.5.6. Additional or Revised Offers**

Additional or revised offers to sell TCCs will be accepted if submitted in a valid Electronic Offer during the Offering Period. Each valid Electronic Offer provided by a Seller shall operate as a complete revocation of any Electronic Offer previously submitted by that Seller during that Bidding Period. The last valid Electronic Offer timely received, as indicated by the date and time stamp of the Electronic Offer, shall constitute the Seller's only valid and binding offer to sell TCCs.

#### **4.5.7. Market Clearing Prices for Sales**

All TCCs offered for sale in the Auctions will be sold at the market-clearing price. The Seller of TCCs released in the Auctions will be paid the market-clearing price for each TCC released. This market-clearing price may be positive, negative, or zero. A positive market-clearing price indicates that the NYISO must pay the Seller for the release of the TCCs into the Auctions. A negative market-clearing price indicates that the Seller must pay the NYISO for the release of the TCCs into the Auctions.

#### **4.5.8. Buying and Selling the Same TCC**

The Seller may submit a bid to purchase the same TCCs it offered for sale by submitting a Purchase Agreement (as defined below) and an Electronic Bid (as defined below). If the Seller bids for the TCCs it released for sale and the market-clearing price for these TCCs is less than the bid price submitted by the Seller, the Seller will be awarded the TCCs.

#### **4.5.9. Effective Period of TCCs being Offered**

A Seller can offer for sale any number of TCCs in the Initial Auction and/or the Reconfiguration Auction where the TCCs are valid for the entire Effective Period and the Seller is the Primary Holder of the TCCs for the entire Effective Period.

#### **4.5.10. Selling Part of a TCC**

If a Seller owns more than one TCC that is effective between a POI and a POW, such Seller may offer any portion of the TCCs it holds between a POI and POW.

#### **4.5.11. Offers**

A Seller must make a separate offer to sell TCCs for each POI and POW (“Individual Offer”). All of a Seller’s Individual Offers must be contained in one Electronic Offer per stage.

#### **4.5.12. Awards**

Once a valid offer to sell TCCs has been submitted for inclusion in the Initial Auction or the Reconfiguration Auction, the TCCs may be reconfigured by the NYISO or its designee from the original form into TCCs with different POIs and/or POWs according to the results of an optimum power flow analysis (“OPF Analysis”) performed by the NYISO. The OPF Analysis will be conducted prior to the final settlement of TCCs to determine the simultaneously feasible set of TCCs that will be awarded in the Initial Auction or any subsequent Reconfiguration Auction.

#### **4.5.13. Overall Offer Validation**

The Electronic Offer will be invalidated for any of the following reasons:

- a) the Electronic Offer is received by the Auctioneer outside the Offering Period;
- b) the Electronic Offer does not contain all information required by the Electronic Offer form;
- c) the Electronic Offer contains an incorrect registrant name;

- d) the Electronic Offer has been modified, amended, or changed other than to provide required information;
- e) the Electronic Offer was not password-protected using the password provided to the Seller by the NYISO; or
- f) the Electronic Offer is submitted with a date and time stamp identical to any other Electronic Offer submitted by the Seller.

#### **4.5.14. Individual Offer Validation**

An Individual Offer to sell TCCs will be invalidated for any of the following reasons:

- a) the POI and POW do not correspond to the POI and POW for which the Seller holds TCCs;
- b) the quantity of TCCs offered for a POI and POW is greater than the quantity held by the Seller for that POI and POW;
- c) the Seller makes multiple Individual Offers to sell TCCs for the same POI and POW;
- d) for the Initial Auction, the Class of TCCs offered for sale is not specified;
- e) the quantity of TCCs offered for sale is not a whole number;
- f) the Price, if specified, is not specified to two decimal points or
- g) the TCC Contract # was not provided, except for TCCs awarded in previous rounds of the Initial Auction.

#### **4.6. Rules for Bids to Purchase TCCs**

##### **4.6.1. ~~Eligibility~~Eligibility**

To be eligible to submit bids to purchase TCCs in the Initial Auction and the Reconfiguration Auctions, the potential purchaser of a TCC (“Buyer”) must:

satisfy the creditworthiness criteria as set forth in the ISO OATT and the NYISO Financial Assurance Policy; and,

complete and submit a Binding Agreement to Purchase Transmission Congestion Contracts ("Purchase Agreement") (copy attached as Attachment B) to the Auctioneer listed below.



"Auctioneer":

TCC Auctioneer  
c/o New York Independent System Operator Albany  
290 Washington Avenue Extension  
Albany, NY 12203

Purchase Agreements must be received by to the NYISO via an overnight mail service or a delivery service requiring the signature of the addressee, delivered to the NYISO according to the schedule established by these Rules. All Purchase Agreements must be delivered by 5:00 PM on the scheduled dates established by these Rules. A Purchase Agreement submitted in advance of any Autumn 2003 Reconfiguration Auction will be valid for all subsequent TCC Auctions.

#### **4.6.2. Registrant Name**

Upon receipt of a completed Purchase Agreement, the NYISO will designate a “registrant name” for the Buyer for purposes of the Initial Auction and/or the Reconfiguration Auction.

#### **4.6.3. Communicating an Offer to Sell**

After a Buyer has received a “registrant name,” it may bid to purchase TCCs by transmitting a properly formatted bid, by email, to the NYISO at <buytccs@nyiso.com> (“Electronic Bid”). The form for Electronic Bids will be provided by the NYISO in Microsoft Excel and Lotus 123 software formats. The NYISO will transmit an automatic return receipt to the Buyer indicating the date and time the Electronic Bid was received by the NYISO for purposes of determining whether the Electronic Bid was timely received. The NYISO will validate information provided in the Electronic Bid subject to the conditions listed below.

#### **4.6.4. Information Required**

All Individual Bids to purchase TCCs must specify in the Electronic Bid the following:

- a) TCC Point of Injection (POI) - This may be any single bus, the Reference Bus, neighboring control area proxy bus or Zone listed in Attachment D of these Rules for which a Locational Based Marginal Price is posted for the Day-Ahead Market. The POI must be referenced on the Purchase Form with a PTID number.
  
- b) TCC Point of Withdrawal (POW) - This may be any single bus, the Reference Bus, neighboring control area proxy bus or Zone listed in Attachment D of these Rules for which a Locational Based Marginal Price is posted for the Day-Ahead Market. The POW must be referenced on the Purchase Form with a PTID number.

c) Number of TCCs desired - This identifies the MW amount of certain TCCs desired to be purchased. The number of TCCs must be specified in a whole number and must be greater than zero. TCC MW values are treated as up-to bids in the Initial Auction analysis, meaning that a successful bid may be cleared at a MW amount that is anywhere from zero MW to the full bid MW value, in whole MWs.

d) Bid Price - This identifies the dollar amount of the bid, specified in dollars per TCC for the Effective Period. The price identified must be specified to two decimal points (i.e., to the nearest \$0.01). A bid price of exactly \$0.00 will be treated as \$-0.001 during the OPF Analysis to avoid ambiguity.

#### **4.6.5. Additional or Revised Offers**

Additional or revised bids will be accepted, if submitted in a valid Electronic Bid during the Bidding Period. Each valid Electronic Bid provided by a Buyer shall operate as a complete revocation of any Electronic Bid previously submitted by the Buyer during that Bidding Period. The last, valid Electronic Bid timely received, as indicated by the date and time stamp of the Electronic Bid, shall constitute the Buyer's only valid and binding offer to purchase TCCs.

#### **4.6.6. Permitted PTIDs**

Buyers of TCCs in an Initial Auction and/or a Reconfiguration Auction may submit bids between any POI and POW listed in Attachment D of these Rules except those grouped together in Attachment E or Attachment F of these Rules. Buyers who submit bids utilizing the HQ Proxy Bus PTIDs as a POI or POW must conform to the rules for their use specified in Attachment G of these Rules.

#### **4.6.7. Bid Price**

Buyers of TCCs in the Initial Auction and/or the Reconfiguration Auction may submit positive, negative, or zero dollar bids. A negative dollar bid indicates that the Buyer is willing to accept TCCs only if the market clearing price is less than or equal to the negative dollar bid offered. A price of exactly \$0.00 will be treated as \$-0.001 during the OPF Analysis to avoid ambiguity.

#### **4.6.8. Market Clearing Price**

In the Initial Auction or any Reconfiguration Auction, the winning Buyer will be obligated to pay or entitled to receive the market clearing price, which may be less than or equal to the Bid Price.

#### **4.6.9. Bids**

A Buyer must make a separate and distinct bid to purchase TCCs for each POI and POW ("Individual Bid"). All Individual Bids must be contained in one Electronic Bid.

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#### 4.6.10. Overall Bid Validation

The entire Electronic Bid will be invalidated for any of the following conditions:

- a) the Electronic Bid is received by the Auctioneer outside the Bidding Period;
- b) the Electronic Bid does not contain all information required by the Electronic Bid form;
- c) the Electronic Bid contains an incorrect registrant name;
- d) the Electronic Bid has been modified, ~~amended~~amended, or changed other than to provide required information;
- e) the Electronic Bid was not password-protected using the password provided to the Seller by the NYISO;
- f) for the Initial Auction, the Electronic Bid applies to a Class of TCCs not being offered in the round for which the Electronic Bid has been submitted; or
- g) the Electronic Bid contains more than 500 individual bids.

#### 4.6.11. Individual Bid Validation

Individual Bids for TCCs will be invalidated for any of the following reasons:

- a) the POI and/or POW does not correspond to a location for which the NYISO posts an LBMP from the Day-Ahead Market results listed in Attachment D of these Rules;
- b) the POI and POW are both within the same group of POIs and POWs listed in Attachment E or Attachment F of these Rules; the Individual Bid utilizes the HQ Proxy Bus PTIDs as a POI or POW and does not conform to the rules for their use specified in Attachment G of these Rules;
- c) the number of TCCs for which a bid is made is not made a whole number;
- d) the number of TCCs for which a bid has been made is less than or equal to zero;
- e) two or more Individual Bids for a given POI and POW are entered at the same Price; or
- f) the Price is not specified to two decimal points.

#### **4.7. Posting of the Final Results of the Auctions**

The NYISO will post the final results of the Initial Auction and the Reconfiguration Auctions on the NYISO web site at <<http://www.nyiso.com>> no later than 8:00 AM on the first day of the Effective Period. For each Class of TCCs sold, this posting will include the following information for each round in Stage 1 and for Stage 2:

- a) A list of binding transmission constraints encountered in the Initial Auction or the Reconfiguration Auction;
- b) Prices at each bus, Reference Bus, neighboring control area proxy bus, and Zone;
- c) All TCCs sold in the Initial Auction or the Reconfiguration Auction, including identity of the Seller, POI and POW, number of TCCs and market clearing price; and,
- d) All TCCs awarded in the Initial Auction or the Reconfiguration Auction, including identity of the Buyer, POI and POW, number of TCCs, and market clearing price.

#### **4.8. Technical Information Concerning Auction Model**

##### **4.8.1. Existing Transmission Agreements**

Each Existing Transmission Agreement, where the Transmission Customer has elected to retain the transmission rights in such agreement, will be modeled in the OPF Analysis as a fixed injection-withdrawal pair.

##### **4.8.2. Existing Transmission TCCs**

Each transmission pathway represented by a TCC that is not offered for sale into the Initial Auction or the Reconfiguration Auction will be modeled in the OPF Analysis as a fixed injection-withdrawal pair.

##### **4.8.3. Initial Optimum Power Flow (OPF)**

The NYISO will initialize the OPF Analysis using the transmission system representation (including transmission limits) and uncompensated parallel flows used in the NYISO model for the "Security Constrained Unit Commitment." The NYISO will then adjust the modeled uncompensated parallel flows to account for forecast conditions of the transmission system.

##### **4.8.4. Existing Generators**

All existing generators will be modeled as synchronous condensers.

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#### **4.8.5. Phase Angle Regulators**

Flows through phase angle regulators will be set at contractual levels where such contractual levels apply. All other phase angle regulators will be scheduled to maximize the bid-based value of the bids submitted.

#### **4.8.6. Model Optimization**

The NYISO will model the OPF Analysis to maximize the bid-based value of the bids submitted into the Initial Auction or the Reconfiguration Auction, while maintaining flows and voltage on transmission facilities within acceptable NYISO limits.

#### **4.8.7. Scheduled Transmission Outages**

Where the individual outages are for the majority of the Effective Period, the NYISO will schedule these outages during the entire Effective Period in the OPF Analysis.

#### **4.8.8. Astoria 3, 4 and 5 Units**

The Astoria 3 (PTID # 23516), Astoria 4 (PTID # 23517) and Astoria 5 (PTID # 23518) generators are capable of being connected for purposes of establishing Day-Ahead prices to either the Astoria East 138 kV substation or the Astoria West 138 kV substation. Each generator can be connected to only one of these substations at a time. The connection point for each of these generators in the Day-Ahead modeling changes from time to time in response to operational considerations at that time.

### **4.9. Accounting Issues**

#### **4.9.1. Award Reconciliation**

Each Buyer who is awarded TCCs or successful Seller in the Auctions will be obligated to pay or entitled to receive the product of the relevant market-clearing price(s) multiplied by the number of TCCs awarded (i.e., the Total Purchase Price or Total Selling Price as defined in the Award Notice).

#### **4.9.2. Revenue Distribution**

All Auction revenues will be distributed as follows: (i) each Seller will be paid the market clearing price for each TCC released into the Initial Auction or the Reconfiguration Auction where the market clearing price is positive; (ii) each purchasing auction participant will be paid the market clearing price for each TCC received in the Initial Auction or the Reconfiguration Auction where the market clearing price is negative, and (iii) for the Initial Auction only, each Transmission Owner will be paid the market clearing price for each TCC released into the Initial Auction as a Residual TCC or as ETCNL, where the market clearing price is positive. For all Auctions, any remaining

Auction revenues will be distributed to the Transmission Owners based on the Interface MW-Mile Methodology as described in the "NYISO Transmission Services Manual".

#### **4.9.3. Firm Commitment**

All offers to sell and bids to buy TCCs in the Auctions represent firm commitments to the NYISO by the Sellers and Buyers.

#### **4.9.4. Primary Holder**

Each Buyer that is awarded a TCC in the Auctions becomes the Primary Holder of that TCC for the Effective Period.

#### **4.9.5. TCC Purchase Award Notice**

Within five (5) business days from the end of any Auction, the NYISO will provide an Award Notice to each Buyer awarded TCCs in the Initial Auction or the Reconfiguration Auction. This Award Notice will include the market-clearing price, POI and POW for each TCC awarded, the total purchase price for the TCCs.

#### **4.9.6. TCC Sale Award Notice**

Within five (5) business days from the end of any Auction, the NYISO will provide an Award Notice to each Seller who sold TCCs in the Initial Auction or the Reconfiguration Auction. This Award Notice will include the market clearing price, POI and POW for each TCC sold, and the total selling price for the TCCs.

#### **4.9.7. Payment From Market Participant Due Date**

All payments are due to the NYISO within three (3) business days from the date of the Award Notice. Such payments include payments for TCCs awarded where the market-clearing price is positive and payments for TCCs offered where the market-clearing price of the TCCs offered is negative.

#### **4.9.8. Payment From NYISO**

The NYISO will make payments within six (6) business days from the date of the Award Notice. Such payments include payments for TCCs offered for sale where the market-clearing price is positive and payments for TCCs awarded where the market-clearing price is negative.

#### **4.9.9. Obligations and Entitlements**

All TCCs awarded in an Auction entitle the Buyer to collect (or obligates it to pay), the difference in the Congestion Component of the Day-Ahead LBMP at the POW of the TCC and the Congestion

Component of the Day-Ahead LBMP at the POI of the TCC, for each TCC awarded, for each hour of the Effective Period.

#### **4.9.10. Payment To Transmission Owners**

Revenues owed to the Transmission Owners, that were determined using the Interface MW-Mile Methodology for the sale of residual transmission capability, will be distributed to the Transmission Owners within fifteen (15) days of the start of the Effective Period. Revenues owed to the Transmission Owners for their release of Residual TCCs and ETCNLs into the Initial Auction will also be distributed to the Transmission Owners within fifteen (15) days of the start of the Effective Period.

#### **4.10. Credit Requirements**

In order to be eligible to submit offers to sell, or bids to purchase, TCCs in a TCC auction, the respective selling and purchasing auction participants must satisfy the criteria set forth in the OATT, Article 11, as well as the NYISO Financial Assurance Policy. [\(other requirements?\)](#) The NYISO Financial Assurance Policy is [available for reference purposes on the NYISO web site at: outlined as part of the NYISO Customer Registration Packet.](#) (<http://www.nyiso.com/services/relations/registration/index.html>)(place link here)

#### **4.10.1. General Requirements**

A financial assurance base, unrelated to the energy market and the ICAP auction, will be specified by the auction participant. This amount will establish the maximum amount the participant may bid in that auction.

The auction participant must provide a financial assurance instrument which is (i) equal to the financial assurance base, and (ii) separate from the financial assurance instruments provided by the participant for the Energy Market and the ICAP auction.

The deadline for receipt of the financial assurance instrument required by the NYISO, via registered mail, shall be five business days before bidding in the TCC auction begins.

The financial assurance instrument shall be maintained throughout the effective period of the TCC auction including five business days after the payment is due for the final settlement of the Effective Period. ~~The effective Period for the first TCC auction shall commence with the start-up of the ISO and ending April 30, 2000(ending at 12 midnight, Eastern Prevailing Time).~~ The Effective Period for subsequent TCC auctions shall be defined in the rules, procedures, and guidelines for those auctions.

The NYISO will not pay the winner until their credit support has been received and accepted. Accepted means that the credit instrument has passed the NYISO's legal review.

#### 4.10.2. Credit Requirements to Bid

Credit required for a qualified bidder will be based on the maximum credit exposure based on the bids supplied by the bidder. Negative \$/TCC bids do not require credit support. Maximum credit exposure is determined by review the range of bids on the same POI and POWs. This is best demonstrated by reviewing the following example:

Bid No.	No. TCCs	\$/TCC	POI	POW	Accum. TCCs	Total Credit @ MCP
1	2	\$5	12345	23456	5	\$10
2	5	\$5	12345	34567	5	\$25
3	5	\$4	12345	34567	10	\$40
4	5	\$3	12345	34567	15	\$45
5	5	\$2	12345	34567	20	\$40
6	10	\$10	23456	23457	10	\$100
7	3	-\$7	23456	23451	3	\$0

In this example bids number 1 and 6 are between unique PTIDs, so the maximum credit exposure for those bids stand at \$10 and \$100 respectively. Bid number 7 requires no credit support. Bids 2 through 5, however all relate to a POI of 12345 and a POW of 34567. If the MCP for those PTIDs ended up being \$5, the bidder would be awarded 5 TCCs, so the credit exposure for those PTIDs would be \$25. If the MCP dropped to \$4, however the bidder would be awarded 10 TCCs and the credit exposure would now become \$40. By looking over the range of possibilities it can be seen that the worst case for credit exposure occurs at the MCP of \$3. In that case the total cost is \$45. As a result the overall credit exposure for the seven bids is \$10 + \$45 + \$100, for a total credit exposure of \$155.

#### 4.10.3. Credit Requirements for Bidders awarded TCCs

After a specific auction has been conducted and awards have been determined, the bidder's credit line will no longer be reduced by their collateral requirement for bidding, but instead will be reduced based on TCCs awarded. This will be determined by the maximum of either the collateral required to hold those TCCs based on calculation A below or the actual price of the TCCs, whichever is greater. Once the purchaser has settled with the NYISO for the purchase, the collateral requirement is determined by the "Credit Requirements for Holders of TCCs" identified below.

#### 4.10.4. Credit Requirements for Holders of TCCs

~~(EXISTING) Qualified bidders who have been awarded TCCs will be required to maintain collateral based on the awards for the entire effective period of the contract. For awards with positive MCPs, the bidder will be required to support full award amount based on the MCP (i.e. 10 TCCs with a MCP of \$50 will require to maintain collateral of \$500 for that award.) For awards with negative MCPs, the bidder will be required to provide collateral based on the absolute value of their bid (i.e. 10 TCCs with a MCP of -\$50 and an initial bid of -\$25 will be required to maintain collateral of \$250).~~

~~(PENDING FERC APPROVAL) Qualified bidders who have been awarded TCCs will be required to maintain collateral for the entire effective period of the contract. This collateral requirement will~~



initially be based on the clearing prices and the duration of the TCC as described in “A” below. Ongoing collateral requirements for TCCs will be the greater of either A or B.

- A) The primary Holder’s total portfolio collateral required based on the clearing prices of each TCC in the portfolio adjusted by the following factors:
  - 100% of the absolute value of the clearing price of a TCC with a negative clearing price
  - 100 % of the clearing price of a one month TCC with a positive clearing price
  - 50% of the clearing price of a six month TCC with a positive clearing price
  - 25% of the clearing price of a twelve month or longer TCC with a positive clearing price

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, based on the total net amount of congestion rents (positive or negative) between PTID pairs. For each unexpired TCC, a prior three month average will be used to extrapolate congestion rent for the remaining life of each.

**4.10.5. Offsetting Credit Policy**

If a Market Participant ~~ends up holding offsetting~~ contracts that can effectively be used to offset each other (same PTIDs, same remaining effective period and with quantities of TCCs that can be combined in such a way to allow cancellation), the NYISO may cancel contracts on behalf of a primary TCC holder to reduce that holders collateral obligation. For example a primary holder who holds two contracts for 5 TCCs each between POI of 12345 and POW of 23456, expiring April 30, 2003 requiring \$500 of collateral for each; and is awarded a six month contract starting November 1, 2002 for 10 TCCs between POI of 23456 and POW of 12345 that expires April 30, 2003. In that case, rather than being obliged to post additional collateral, the TCCs fully offset each other and the primary holder may request to have the three contracts cancelled.

**4.10.6. Sale of Unbundled Components**

The unbundling of TCCs will affect the credit support required for the TCCs awarded. The NYISO will perform a “maximum exposure” calculation to determine the credit support required for the unbundled TCCs. The “maximum exposure” calculation will find that combination of unbundled TCCs which produces the maximum credit support requirement when its individual credit support requirements are summed. The credit support required for an awarded TCC that remains bundled will remain unchanged.

The following example illustrates the “maximum exposure” calculation.

TCC	MCP (\$/TCC)	Credit Support
Bundled Award: 1 TCC from POI A to POW D	\$10	\$10
Unbundled Award:		

1 TCC from POI A to Zone POI	\$6	\$6
1 TCC from Zone POI to Zone POW	\$5	\$5
1 TCC from Zone POW to POW D	(\$1)	\$1

Credit support will be determined for each of the seven possible combinations of the three unbundled TCCs that the purchaser holds.

Combination Number	POI/POW Component	Credit for Component	Total Credit
1	PI A to Zone POI	\$6	\$6
2	Zone POI to Zone POW	\$5	\$5
3	Zone POW to POW D	\$1	\$1
4	POI A to Zone POI Zone POI to Zone POW	\$6 \$5	\$11
5	POI A to Zone POI Zone POW to POW D	\$6 \$1	\$7
6	Zone POI to Zone POW Zone POW to POW D	\$5 \$1	\$6
7	POI A to Zone POI Zone POI to Zone POW Zone POW to POW D	\$6 \$5 \$1	\$12

Combination 7) requires the maximum credit support. Thus, the required credit support for the awarded TCC from POI A to POW B is \$12.

The ISO will not issue unbundled TCCs until the maximum credit support requirement related to such TCCs has been met. Upon the request of a Primary Holder of a bundled TCC, ISO staff will calculate the maximum credit support requirement.

## 5. THE AUCTION PROCESS

### 5.1. Introduction

The Initial Auction will consist of a series of sub-auctions. These sub-auctions will be conducted in two stages, with each stage including several rounds. The transmission capacity that has been offered for sale in Stage 1 will be auctioned in not less than four (4) rounds, unless the Transmission Owners unanimously consent to fewer rounds. A portion of that capacity will be auctioned in each of those rounds. In Stage 1, the TCCs available for sale in the Auction will include the Residual TCCs and ETCNL initially allocated to the Transmission Owners (but not sold through a Direct Sale) and any other TCCs offered for sale by a Primary Holder. In Stage 2, holders of TCCs may indicate whether they wish to sell those TCCs into a given round before that round begins. All of the TCCs that have been offered for sale in each round of Stage 2 will be auctioned in that round. Each Primary Owner, purchaser of a TCC in a previous round of the Auction, or purchaser of a TCC in a

Direct Sale (if it meets the ISO's creditworthiness standards) may offer its TCCs for sale in any round of Stage 2. No one will be required to offer TCCs for sale in Stage 2.

The ISO shall hire an auditor to audit the TCC auction process. The ISO will run a security constrained Power Flow to determine the simultaneous feasibility of TCCs to be auctioned. The Power Flow model will treat all Grandfathered Rights and all Grandfathered TCCs (that have not been offered for sale in the Auction) and all Residual TCCs sold through a Direct Sale (that have not been offered for sale in the Auction) as fixed injections and withdrawals corresponding to the Points of Injection and Withdrawal for each of those Grandfathered Rights or Grandfathered TCCs, or Residual TCCs. As each ETA terminates, the Grandfathered Rights or TCCs associated with the ETA shall be released for sale into the Auction. The revenues associated with the Auction of these TCCs shall be allocated among the Transmission Owners according to the Interface MW-Mile Methodology, as described in Attachment N.

In the Auction, bidders will place Bids specifying the maximum amount they are willing to pay for the TCCs they wish to purchase. The objective of the Auction will be to maximize the value of the TCCs awarded to the bidders, as valued by their Bids, subject to the Constraint that the set of all outstanding TCCs and Grandfathered Rights must correspond to a simultaneously feasible security-constrained Power Flow in each time period.

The Auction will determine prices for feasible TCCs. All bidders awarded TCCs in a round of the Auction will pay or be paid the Market Clearing Price in that round for those TCCs. Similarly, all TCC holders selling TCCs through the Auction will be paid or pay the Market Clearing Price in that round for those TCCs.

Following the Initial Auction, the ISO will conduct Reconfiguration Auctions on a monthly basis. At the discretion of the ISO, Reconfiguration Auctions may be conducted prior to the Initial Auction. Primary Holders of TCCs that are valid for the next month will be permitted to offer those TCCs for sale in the Reconfiguration Auction for that month. Winning bidders in a Reconfiguration Auction will be awarded TCCs that will be valid for the next month.

## 5.2. Overview

The Auction process consists of four steps.

In Step 1, the NYISO posts information relating to the auction. This information will include Auction rules, procedures and guidelines, pertinent historical data including congestion, and power flow assumptions. Please refer to Section 5.3 for additional posting information. ~~In addition, the NYISO will review creditworthiness of potential auction participants in the Auction and may request a letter of credit from certain auction participants to participate in the Auction.~~

In Step 2, using Internet-based software (Software), offers to sell TCCs and bids to purchase TCCs ~~are will be~~ validated. As part of the validation process, each bid offer is measured against the respective customer's available credit (verify if should include "in the TCC Markets") with the NYISO. Bids exceeding available credit are rejected. In addition, checks will be made to compare credit limits to bids submitted. In a second task, the offer and bid information will be processed and passed off to the OPF analysis step.

In Step 3, input for the OPF is prepared, the OPF is executed, TCCs are awarded, Market Clearing Prices are determined, Auction revenues are allocated and results are passed for posting.

In Step 4, the NYISO will post information related to TCCs awarded and sold and pricing information.

### **5.3. Informational Posting Prior to an Auction**

Approximately, two weeks prior to the start of an Auction, the NYISO shall post the following information:

- a) The rules, procedures and guidelines to be followed for the auction;
- b) The documents to be used for submitting Offers to purchase and sell TCCs;
- c) The type of auction to be conducted (i.e., reconfiguration, multi-round)
  
- d) If a multi-round auction, the number of rounds to be conducted in Stage 1;
- e) The proportion of the system transfer capability available to support TCCs to be purchased in
- f) Stage 1 that will be available to support TCCs purchased in each round of Stage 1;
  
- g) Non-simultaneous closed interface transfer limits as determined by the NYISO for the upcoming Capability Period;
  
- h) Total nodal congestion per MW calculated from Day-Ahead Market results over agreed to periods.
  
- i) Any special rules or conditions which may apply to this Auction. This posting may include Auction assumptions (e.g., transmission facility outages, phase angle regulator parameters and Transmission Reliability Margin).

Approximately, one week prior to an auction, after the Direct Sales of TCCs has been completed, the NYISO will post the following information on its OASIS:

- a) The Residual TCCs and ETCNL , which will be released for sale including:
  - Contract number;
  - TCCs or MWs released;

- POI and POW;
- Identity of Transmission Owner releasing the TCCs or MWs; and
- The duration of the sale;

b) Existing Transmission Agreements, which will expire prior to the effective period of the next auction.

#### **5.4. Conducting Individual Rounds In Stage 1 of a Multi-Stage Auction**

The rules, procedures and guidelines (Rules) for each auction will specify a time line to be followed for the auction. Each round in Stage 1 of a multi-stage auction or each round of a multi-round auction will consist of the following steps:

- a) Bid Submittal and Validation; and
- b) Power Flow Analysis and Posting.

In a multi-round auction these two steps will be followed for each round of the auction.

##### **5.4.1. Bid Submittal and Validation**

The bid submittal and validation step will follow the time line set by the rules for the auction. Bidders shall submit bid information through the Software used for the auction. Only credit qualified market participants (Qualified Customers) may participate in the Auction. The Software will include checks to ensure that only Qualified Customers have access to the bid submittal process. Bids to purchase TCCs will follow the procedures defined in the Rules document.

### **Required Bid Submittal Information**

The following information shall be submitted for each TCC bid:

- a) The identity of the bidder (this information will be determined by the NYISO);
- b) The Point of Injection and Point of Withdrawal;
- c) The desired number of TCCs to be purchased; and
- d) The dollar amount of the bid provided in \$/TCC/Auction Period.

### **Points of Injection and Withdrawal**

Each TCC bid must include a Point of Injection and a Point of Withdrawal that correspond to locations where the NYISO calculates an LBMP. The current list of locations where the NYISO will calculate LBMPs may be found on the NYISO Web-site at [www.nyiso.com](http://www.nyiso.com).

### **Credit Support Review**

As Qualified Customers submit bids, the Software will calculate the following:

- a) The amounts paid to purchase TCCs through Direct Sales or in previous rounds of the Auction;
- b) Minus the revenues received from the sale of any TCCs in previous rounds of the Auction;  
plus
- c) The sum of the accumulated bids made by the Qualified Customer in the upcoming Auction round.

If the accumulations of these revenues and expenses identified above exceed the credit limit established by the NYISO for this Qualified Customer, then the NYISO will notify the Qualified Customer that the Qualified Customer's bids for the upcoming round are rejected for this reason. If time permits, the Qualified Customer whose bids were rejected may submit revised bids for the upcoming round.

An exception to the above rule will be made for Qualified Customers who are at their NYISO-established credit limit, but who are releasing TCCs into the upcoming round of the Auction. These Qualified Customers will be permitted to bid on TCCs, but they will only be permitted to bid on TCCs with the same points of injection and points of withdrawal as the TCCs they have released for sale in the upcoming round, and they will not be permitted to offer to purchase more TCCs between a particular point of injection and point of withdrawal than they released for sale into that round. This requirement is the only way to ensure that the revenues that a Qualified Customer receives for the TCCs it releases for sale into the auction will at least be equal to the charges it incurs for the TCCs it purchases in the Auction, since the value of each TCC is not known until the conclusion of each Auction round.

A Qualified Customer who wishes to release TCCs for sale in the Auction, but who does not wish to sell those TCCs for less than a threshold value, may offer to pay up to that threshold value to purchase TCCs between the same point of injection and point of withdrawal as the TCCs it is releasing for sale. If the Market Clearing Price in that round of the Auction is less than the Qualified Customer's bid for those TCCs, the Qualified Customer will be awarded those TCCs in the Auction. It will be charged the Market Clearing Price determined in that round for those TCCs, but it will also be paid that Market Clearing Price because it released precisely the same TCCs for sale into the Auction. The payment the Qualified Customer receives and the payment it makes will offset each other, and the Qualified Customer will have the same TCCs at the conclusion of the round that it released for sale at the beginning of the round. But if the Market Clearing Price in that round of the Auction exceeds the Qualified Customer's bid for those TCCs, the Qualified Customer will not be awarded those TCCs in the Auction. Instead, it will receive the market-clearing price determined in that round for the TCCs it released for sale into the Auction--which exceeds the threshold value it placed upon those TCCs.

The NYISO shall ensure that all bids remain confidential, except for that information which will be posted at the conclusion of each round of the Auction.

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#### **5.4.2. Power Flow Analysis and Posting**

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The Power Flow analysis and posting step shall commence when the bid submittal and validation process ends. This step will follow the time line defined in the Rules. During this step, the following tasks will be performed:

- a) Prepare input for the OPF program;
- b) Execute the OPF program;
- c) Determine the TCCs awarded for the round;
- d) Determine the Market Clearing Prices for those TCCs;
- e) Allocate Auction revenues for the round; and
- f) Post the results of the round on the NYISO Web Site.

### **OPF Input Preparation**

The Power Flow data produced by the NYISO will be the starting point input to the Optimal Power Flow (OPF) program. A simultaneously feasible set of ETCNL will be determined from this Power Flow data. This simultaneously feasible set of ETCNL will be released for sale in the auction.

A single OPF execution provides the results for each round of the Auction. These results include a set of simultaneously feasible TCCs and Market Clearing Prices for each TCC.

### ***TCCs Not Released For Sale And Grandfathered Rights***

Each TCC not released for sale, and each Grandfathered Right, will be input to the Power Flow model as a fixed 1 MW injection at the Point of Injection specified for that TCC or Grandfathered Right and a 1 MW withdrawal at the Point of Withdrawal specified for that TCC or Grandfathered Right. The list of the number of outstanding TCCs and Grandfathered Rights, and the Points of Injection and Withdrawal for each, will be compiled and updated by the NYISO. The TCCs not released for sale will include:

- a) All Grandfathered Rights which will not expire prior to the upcoming Auction Period;
- b) All Grandfathered TCCs which will not expire prior to the upcoming Auction Period and which have not been released for sale;
- c) All other TCCs which have not been released for sale in this round; and
- d) If Stage 1, all other TCCs awarded in previous rounds of Stage 1.

The fixed injections and withdrawals described above, and injections and withdrawals corresponding to bids to purchase TCCs submitted into the Auction, are the only generation and load represented in the Power Flow model relating to the New York Control Area (NYCA), with the exception that all generation required to serve losses within the NYCA will be injected at the Reference Bus. In addition to the fixed injections and withdrawals relating to the NYCA, injections and withdrawals in areas outside the NYCA will be modeled, which represent the dispatch of those systems to meet loads in those areas. These injections and withdrawals provide

the basis for the assumptions regarding the effect of unbilled parallel flows (loop flow) on the NYCA transmission system. All assumptions relating to parallel flows must be approved by the NYISO before being included in the power flow model used in the Auction.

### *Scaling Factor*

In a multi-stage, multi-round auction, only a portion of the system transfer capability of the transmission system will be used to support TCCs available for purchase in any round of Stage 1, the NYISO must determine a scaling factor to be applied to each bid in the round. The following example illustrates why the scaling factor is necessary:

Suppose that 25% of the system transfer capability available to support TCCs to be purchased in Stage 1 of the Auction has been designated for use in supporting TCCs purchased in the first round of Stage 1. It is quite possible that without using the scaling factor, the NYISO would receive enough bids for round 1 to sell TCCs corresponding to all of the system transfer capability that is available in Round 1. In addition, it is possible, depending on the ~~bids, that~~ bids ~~that~~ very few bidders--possibly only one bidder--would be awarded all the TCCs purchased in Stage 1.

Using a scaling factor ensures that only TCCs that can be supported using the specified percentage of the system transfer capability will be sold in a given round. In each round, the NYISO will multiply the number of TCCs that each bidder offers to purchase by that round's scaling factor. The Power Flow model then will be executed. The TCCs that are awarded as a result of using these bids could require use of all of the system's transfer capability. Consequently, these awards must be scaled down by multiplying them by the inverse of the scaling factor, thus ensuring that only TCCs that can be supported using the system transfer capability allocated to that round have been sold.

The scaling factor for any round of Stage 1 is calculated as the ratio of (i) the percentage of the system transfer capability available to support TCCs sold in Stage 1 that will be available to support TCCs sold in all remaining rounds of Stage 1, including the current round, to (ii) the percentage of the system transfer capability available to support TCCs sold in Stage 1 that will be available to support TCCs sold in that round.

For example, suppose that Stage 1 consists of four rounds, and that 10% of the system transfer capability available to support TCCs purchased in Stage 1 has been allocated to Round 1; 20% of that capability has been allocated to Round 2; and 30% and 40% of that capability have been allocated to Rounds 3 and 4, respectively. Then the following scaling factors would be calculated for each round:

Round 1:  $100\% / 10\% = 10$



- Round 2:  $(100\% - 10\%) / 20\% = 4.5$
- Round 3:  $(100\% - 10\% - 20\%) / 30\% = 2.333$
- Round 4:  $(100\% - 10\% - 20\% - 30\%) / 40\% = 1.0$

Refer to the “Example” Attachment for an additional example of the use of the scaling factor.

### ***Modeling of TCCs Released For Sale***

For round 1 of Stage 1, the Power Flow data will model each Grandfathered Right and Grandfathered TCC as a 1 MW injection specified for the Grandfathered Right or Grandfathered TCC and a 1 MW withdrawal at the Point of Withdrawal specified for the Grandfathered Right or Grandfathered TCC. From this model, the NYISO will remove injections and withdrawals corresponding to each TCC released for sale in Stage 1. In subsequent rounds of Stage 1, the NYISO will add 1 MW injections and withdrawals corresponding to each TCC sold in that round to the Power Flow model employed in the previous round.

Each bid will be modeled as follows in the Power Flow model. A generator will be located at the Point of Injection specified in the bid with a cost of \$0/MWh and a maximum capacity set equal to the product of the number of TCCs that the bid offers to purchase and the scaling factor. A dispatchable load consuming the same number of TCCs will be located at the Point of Withdrawal specified in the bid. The dollar amount bid will be converted to \$/MWh. If the price at the Point of Withdrawal is less than the Bid, then the load associated with that bid will be equal to the product of the number of TCCs that the bidder offers to purchase and the scaling factor. A side constraint in the OPF program will ensure that the amount produced by each generator shall equal the amount consumed by each dispatchable load, for the generator/load pair associated with each bid.

### **Objective Function**

In order to define the objective function for the Auction, it is helpful to define  $NI_j$ , the net injection at each bus  $j$  in the power flow corresponding to the set of all outstanding TCCs as of

$$NI_j = \sum_{i \in T} A_i L_i X_{ij} + NI_j^o,$$

the conclusion of this round of the Auction, as follows:  
where:

- T** is the set of bids for TCCs submitted in the Auction;
- A<sub>i</sub>** is the proportion of Bid  $i$  that is awarded in the Auction;
- L<sub>i</sub>** is the number of TCCs that the bidder submitting Bid  $i$  offers to purchase in that bid;
- X<sub>ij</sub>** = 1, if bus  $j$  is the injection bus specified in the Bid  $i$ ,

-1, if bus  $j$  is the withdrawal bus specified in Bid  $i$ ,  
 0, otherwise; and

$NI_j^0$  is the net injection at bus  $j$  in the power flow corresponding to the set of all TCCs not released for sale in this round of the Auction, calculated by summing the number of TCCs not released for sale in this round of the Auction that specify bus  $j$  as an injection point, and subtracting the number of TCCs not offered for sale in this round of the Auction that specify bus  $j$  as a withdrawal point.

Then the objective function for the Auction is to:

$$\text{MAX} \sum_{i \in T} A_i L_i B_i ,$$

where:

$A_i$  and  $L_i$  are as previously defined; and

$B_i$  is the amount that the bidder submitting Bid  $i$  offers to pay for TCCs in that bid;

$$0 \leq A_i \leq 1 \text{ for all } i \in T$$

subject to the constraint that:

and also subject to the constraint that the set of net injections  $NI_j$  must be able to be accommodated using a simultaneously feasible contingency-constrained power flow.

This objective function determines the proportion of each bid that is awarded, with the objective of maximizing the benefit to purchasers of TCCs, subject to the constraint that injections and withdrawals corresponding to all TCCs that have been awarded, either in this round of the Auction or preceding this round of the Auction, must be simultaneously feasible.

In determining the feasible set of TCCs from a TCC Auction, the OPF analysis employs an objective function that maximizes the bidder's value of the TCCs awarded. Due to the non-linear nature of the transmission network, the final result may be a local maximum and not the global maximum. The path taken by the OPF analysis to arrive at this maximum will be driven by the decisions made in each iteration of the load flow program used in the solution process. This path may at times lead to a solution near but not at the global maximum.

### 5.4.3. Executing OPF

The Power Flow model as modified above, the transmission system limits (thermal, voltage and stability) as determined by the NYISO and the objective function are input into the OPF program for execution.

The OPF program will produce a simultaneously feasible set of TCCs. The NYISO will review the results of the OPF execution to check for simultaneous feasibility of all Grandfathered Rights, Grandfathered TCCs, and the awarded set of TCCs. A set of injections<sup>1</sup> and withdrawals shall be judged simultaneously feasible if it would not cause any thermal, voltage, or stability violations within the NYCA for base case conditions or any criteria contingencies monitored by the NYISO.

#### **5.4.4. Determine TCCs Awarded For a Round**

To determine the TCCs awarded in the round, the NYISO will multiply the TCCs determined in Task 2 by the inverse of the scaling factor. These scaled down TCCs will be those awarded in this round of the Auction.

#### **5.4.5. Determine Market Clearing Prices ~~For~~ TCCs Awarded**

Another result of the OPF execution is locational marginal prices at each node in the transmission system model. These locational marginal prices are akin to the LBMPs calculated by the NYISO. However, due to the assumptions made in modeling TCCs in the OPF program (i.e., the injection portion of the TCC is modeled at \$0/MWh and the withdrawal portion of the TCC is modeled at a \$/MWh reflecting the dollar amount of the TCC bid), only the Congestion component of the locational marginal price is produced.

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<sup>1</sup>This set of injections include those injections required to serve losses.

As a consequence of the modeling used in the OPF execution, as described above, the Market Clearing Prices for each TCC awarded and for each TCC released for sale in the round are calculated as the locational marginal price at the Point of Withdrawal less the locational marginal price at the Point of Injection.

The NYISO will use these Market Clearing Prices to determine the settlement price for each buyer or seller of a TCC in the round.

The amount charged for each TCC awarded is calculated as the product of (a) the number of TCCs awarded; and (b) the Market Clearing Price for the TCC. The total amount charged or paid to each Qualified Customer for the Auction round will be calculated as the sum of the amounts charged for each TCC awarded to that Qualified Customer.

The NYISO will maintain a list of Auction round expenses paid by each Qualified Customer for use in the bid validation (credit limit check) in subsequent rounds of the Auction.

#### 5.4.6. Unbundling of TCCs

Each TCC has a specific POI and POW. POI and POW may be a generator bus, a NYCA Zone, the NYISO Reference Bus, or an external proxy bus. This creates great diversity in the TCCs that can be formulated, and because of that, makes trading TCCs somewhat limited. With such diversity in TCCs there is less chance that one party (seller) will have the exact TCCs that another party (buyer) desires. The concept of “unbundling” addresses the diversity issue by unbundling a TCC into standard components, each of which is a TCC. Because there is less diversity in the standard components, many believe that standard component, or unbundled, TCCs will be easier to trade, thus increasing the liquidity of the TCC market.

### TCC Unbundling Mechanism

The standard components of a TCC are:

- POI to the Zone containing the POI (POI Zone)
- POI Zone to the Zone containing the POW (POW Zone)
- POW Zone to POW

The NYISO Reference Bus is treated as a POI or POW. An external Proxy bus is treated as a Zone. When a TCC is unbundled into standard components, the original TCC is replaced by up to three TCCs as illustrated in the examples below.

Example 1: Original TCC, when unbundled, produces three components. Original TCC was for 40 MW between Generator buses in different Zones.

Original TCC	Unbundled TCC
POI: 40 MW into the Indian Point 2 generator bus in the Millwood Zone	POI: 40 MW into the Indian Point 2 generator bus
POW: 40 MW out of the Ravenswood 1	POW: 40 MW out of the Millwood Zone

generator in the N.Y.C. Zone	POI: 40 MW into the Millwood Zone POW: 40 MW out of the N.Y.C. Zone  POI: 40 MW into <del>the</del> the N.Y.C. Zone POW: 40 MW out of the Ravenswood 1 generator bus
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Example 2: Original TCC, when unbundled, produces two components. Original TCC was for 25 MW between two Generator buses in the same Zone.

Original TCC	Unbundled TCC
POI: 25 MW into the Arthur Kill 3 Generator bus in the N.Y.C. Zone POW: 25 MW out of Arthur Kill 2 Generator bus in the N.Y.C. Zone	POI: 25 MW into Arthur Kill 3 Generator bus POW: 25 MW out of N.Y.C. Zone  POI: 25 MW into N.Y.C. Zone POW: 25 MW out of Arthur Kill 2 Generator Bus

Example 3: Original TCC, when unbundled, produces two components. Original TCC was for 18 MW between an external Proxy bus and a Generator bus within the NY control Area.

Original TCC	Unbundled TCC
POI: 18 MW into the PJM Proxy Bus POW: 18 MW out of East Canada Mohawk hydro generator bus in the Capital Zone	POI: 18 MW into the PJM Proxy Bus POW: 18 MW out of Capital Zone  POI: 18 MW into Capital Zone POW: 18 MW out of the East Canada Mohawk hydro generator bus

## Requirements and Restrictions

The Primary Holder of a TCC may make a one-time, irrevocable election to unbundle the TCC into the appropriate standard components, [provided that maximum credit support requirements, as discussed in section 4.10.5, has been met.](#) If unbundled, the full capacity (MW) of the TCC will be unbundled simultaneously. That is, all TCCs with the same TCC Contract number will be unbundled. Following such an election, the NYISO will replace the original TCC with two or three TCCs, as appropriate, which can be separately traded. The new TCCs will have the same capacity as the original but will have new TCC Contract numbers. If the unbundling would have resulted in an identical TCC, no substitution will be made and no new TCC Contract number will be assigned. *Once unbundled, the component TCCs cannot be rebundled to form the original TCC or any other bundled TCC.*

TCCs produced by the conversion of Grandfathered Rights may be unbundled, as may any other TCC. Because the election to unbundle is irrevocable, once unbundled, the resulting TCCs cannot be rebundled and converted back to Grandfathered Rights.

Except for those TCCs acquired in a TCC auction (see below), the election to unbundle a TCC is made by submitting the TCC Unbundling Request Form, Section A, via FAX, to the NYISO. The TCC Unbundling Request Form is posted on the NYISO web site under: **Markets/TCC Market/General Information**.

The effective date of the unbundled TCCs will be five business days after receipt by the NYISO of the request, provided that maximum credit support requirements, as discussed in section 4.10.5, have been met.

All TCCs awarded through a TCC auction will be unbundled by the NYISO unless the Primary Holder notifies the NYISO that its TCCs are not to be unbundled. The submittal of the TCC Unbundling Request Form, Section B to the NYISO via FAX is required. Primary Holders of TCCs that have purchased TCCs through a TCC ~~Auction~~, Auction must submit the TCC Unbundling Request Form, Section B to the NYISO via FAX by 5:00 PM, on the last business day prior to the auction.

~~Primary Holders of bundled TCCs, acquired in TCC auctions, retain their one time irrevocable right to unbundle the TCCs, provided that maximum credit support requirements, as discussed in section 4.10.5, have been met.~~

#### **5.4.7. Allocate Auction Revenues ~~For~~for the Round**

Auction revenues received by Qualified Customers will be determined in each round of the Auction. These revenues fall into two categories: (1) revenues received for TCCs released for sale by that Qualified Customer in that round; and (2) residual revenues.

The revenue received by Qualified Customers who released TCCs for sale in the round are calculated as the product of (a) the number of TCCs and (b) the Market Clearing Price for the TCC. The total revenues received by each Qualified Customer for the Auction round will be calculated as the sum of the revenues received for each TCC released for sale by the Qualified Customer.

Residual revenues occur when the revenues the NYISO collects for the TCCs awarded in the round exceed the amounts paid by the NYISO for TCCs released for sale in the round. The Auction allows Qualified Customers to bid on TCCs that they consider most valuable, which produces a set of simultaneously feasible TCCs that maximizes the value of these TCCs to the bidders. The result of this process is that the TCCs released for sale may be reconfigured

during the round. The ISO may collect residual revenues as the result of such a reconfiguration.

In the Auction, the ISO will always collect sufficient revenue to fund all payments to TCC holders who release TCCs for sale into the Auction. This statement can be simply proven as follows. If the TCCs released for sale were the most valuable, then those TCCs would be sold in Auction. Since the set of TCCs released for sale were the same as the set of TCCs purchased, the revenues produced by the award of this set of TCCs would equal the amount paid to those who released the TCCs for sale. If bidders place a higher value on TCCs which are different than those TCCs released for sale, then the revenues which will be produced from this higher-valued set of TCCs will exceed the revenues which would have been produced for the set of TCCs released for sale. Thus, the revenues received from bidders must be greater than or equal to the payments to TCC holders who release TCCs into the Auction.

The residual revenues will be paid to the Transmission Owners based on the Interface MW-Mile Methodology described in Appendix A of this manual.

The NYISO will maintain a list of Auction round revenues received by each Qualified Customer for use in the bid validation (credit limit check) in subsequent rounds of the Auction.

#### **5.4.8. Post Auction Results**

The Qualified Customers awarded TCCs for the round will be announced at the end of the round through the Software used to conduct the auction. The NYISO shall post in that announcement the following information:

- a) For each TCC awarded:
  - The Point of Injection and Point of Withdrawal;
  - The number of TCCs;
  - The Market Clearing Price (\$/MWh); and
- b) The locational marginal price (\$/MWh), as calculated by the OPF program, at each location where the NYISO will calculate an LBMP.

Upon posting of this announcement the round is ended. Subsequent rounds will begin immediately.

#### **5.5. Conducting Stage 2 of a Multi-Stage Auction**

Stage 2 of a multi-stage auction will commence after the conclusion of Stage 1 following the time line for the auction. The number of rounds in Stage 2 is not predetermined; however, the NYISO may place a limit on the number of rounds so that the Auction terminates in the time

allotted. Also, Stage 2 of the Auction will terminate (i) if no Qualified Customer holding TCCs releases for sale any of those TCCs in a round, or (ii) if no TCCs are awarded or sold in two (2) consecutive rounds, or (iii) upon the satisfaction of other criteria defined by the NYISO.

#### **5.5.1. TCCs Qualified For Sale**

Any Qualified Customer holding TCCs at the time beginning any round in Stage 2 may release those TCCs for sale in that round. These Qualified Customers include (i) Primary Owners who did not release their TCCs in a Direct Sale or in an earlier round of the Auction; (ii) Purchasers of TCCs in previous rounds of the Auction who have not released those TCCs in a subsequent round of the Auction; and (iii) Purchasers of TCCs through a Direct Sale who are Qualified Customers and have not released those TCCs in an earlier round of the Auction or through a Direct Sale. No one is required to release TCCs for sale in Stage 2.

#### **5.5.2. Individual Rounds**

Each round in Stage 2 will follow the time line set forth in the Rules for the auction and will consist of the following steps:

- a) Validation of TCCs released for sale;
- b) Bid Submittal and Validation; and
- c) Power Flow Analysis and Posting.

A step has been added to each round of Stage 2 to allow each Qualified Customer who holds TCCs sufficient time to consider whether to release TCCs for sale in the upcoming round.

#### **5.5.3. Validation of TCCs Offered for Sale**

Following the time line set forth in the Rules for the auction, Qualified Customers may release TCCs for sale in the upcoming round of Stage 2. As TCCs are released for sale, the NYISO will verify the offer per sections 5.5.13 and 5.5.14 – *Overall Offer Validation and Individual Offer Validation* of this document. The Qualified Customer will be notified through the Software used for the auction, if these are not met.

#### **5.5.4. Bid Submittal and Validation**

Refer to Section ~~1.2.1 Step 1~~ 5.6- *Rules for Bids to Purchase TCCs* of this manual for the responsibilities of the bidders and NYISO during this step.

#### **5.5.5. Power Flow Analysis and Posting**



The Power Flow analysis and posting step will follow the time line for the auction. During this step, the NYISO shall perform the same tasks as described in Section 6.4.2- *Power Flow Analysis and Posting* of this manual, with the following exceptions, which relate to the preparation of input to the Power Flow model.

For the first round of Stage 2, the NYISO will add a 1 MW injection at the Point of Injection specified for each TCC awarded in the last round of Stage 1, and a 1 MW withdrawal at the Point of Withdrawal specified for each such TCC, to the Power Flow model employed in the last round of Stage 1. The NYISO also will remove from this model a 1 MW injection at the Point of Injection specified for each TCC released for sale in this round, and a 1 MW withdrawal at the Point of Withdrawal specified for each such TCC.

In subsequent rounds of Stage 2, the NYISO will add a 1 MW injection at the Point of Injection specified for each TCC awarded in the previous round, and a 1 MW withdrawal at the Point of Withdrawal specified for each such TCC, to the Power Flow model employed in the previous round. The NYISO also will remove from this model a 1 MW injection at the Point of Injection specified for each TCC released for sale in that round, and a 1 MW withdrawal at the Point of Withdrawal specified for each such TCC.

The Power Flow model as modified above will be provided as input to the OPF program for execution.

In any round of Stage 2, all of the system transfer capability, except for that reserved for TCCs that have not been released for sale, will be available to support TCCs purchased in that round. Therefore, the scaling factor for all rounds of Stage 2 shall equal 1.0.

#### **5.5.6. Published Information Following the Auction**

Approximately two days prior to the effective period of the TCCs awarded in the auction, the NYISO will provide the following information to the NYISO for each TCC purchased in the Auction:

- a) The identity of the Qualified Customer;
- b) The Point of Injection and Point of Withdrawal;
- c) The number of TCCs; and
- d) The duration of the sale.

The above information will be posted on the NYISO Web-site.

At a minimum, the NYISO shall post the above information for each TCC and Grandfathered Right held by a Primary Owner prior to the commencement of each effective period.

## 5.6. Power Flows

This section will discuss the Power Flow modeling assumptions to be used in the Auction and the procedures for changing these assumptions.

### 5.6.1. Operating Assumptions

The NYISO will have the sole responsibility for establishing the operating assumptions modeled in the Power Flows to be used in the Auctions. The NYISO will have to balance the desire of Market Participants to purchase as many TCCs as possible and the requirement to maintain a reasonable margin for uncertainties in operating conditions to ensure revenue adequacy. Revenue adequacy refers to the NYISO's ability, in the Day-Ahead Market, to fund its obligations to the Primary Holders of TCCs using only the Congestion Rents it collects.

Revenue adequacy is ensured in the Day-Ahead Market, if the set of all Grandfathered Rights and all TCCs held at the end of the Auction are simultaneously feasible and actual transmission outages and parallel flows remain as modeled in the Auction. If operating conditions change from the assumptions made in the Auction, parallel flows increase or additional transmission outages occur, revenue inadequacy may occur.

In addition, the amount of TCCs available for sale and thus revenue ~~adequacy~~ adequacy will be affected by the transmission limits the NYISO sets in order to maintain system reliability. ~~The transmission limits to be used in the OPF program for the Auction will be consistent with those used in Security Constrained Dispatch (SCD) and Security Constrained Unit Commitment (SCUC).~~

As described below, many other assumptions will affect the amount of TCCs available for sale and the revenue adequacy of the NYISO.

#### 5.6.1.1 Transmission Line Ratings

Transmission line ratings provided by the ISO's Operations Department are used in the OPF analysis.

### **5.6.1.2 Transmission Lines In Service**

Scheduled transmission outages, where the outage is for the majority of the Effective Period, will be scheduled as transmission outages during the entire Effective Period in the OPF Analysis. Otherwise, all transmission line facilities are considered in service.

### **5.6.1.3 Generator Operation**

The reactive power capability of existing generators will be modeled as synchronous condensers.

### **5.6.1.4 Phase Angle Regulators (PARs)**

The modeling of phase angle regulators will vary across the NYS Transmission System. The following discussion provides a starting point for establishing criteria for PAR operation in the Auction.

A number of phase angle regulators exist both within the NYCA and on its boundaries with its neighbors. Normal PAR operation can significantly change the pattern of power flows throughout the network. This has implications for the Auction because the set of TCCs which can be awarded depend on the pattern of power flows through the network and thus on the modeling assumptions used for the PARs. The majority of PARs are installed within the current members' systems to control the power flows on the lower voltage transmission and sub-transmission systems. The following modeling is used in the OPF analysis for the internal PARs and those on the external boundaries.

#### **Inghams PAR**

The Inghams PAR controls the flow on the 115 kV circuit connecting NMPC's Central and Eastern Divisions. It is one of the branches comprising the Central East interface. This PAR is allowed to be optimized in the OPF analysis in order to maximize the value of the TCC bids awarded in the auction and provide adequate protection to the underlying 115 kV facilities during both normal and contingency conditions.

#### **LIPA PARs**

The Barrett, Northport, and Pilgrim 138 kV PARs are used to control loads on LIPA's transmission system. These PARs are allowed to be optimized in the OPF analysis in order to maximize the value of TCC bids awarded in the auction and provide adequate protection to LIPA's 138 kV and 69 kV transmission facilities during both normal and contingency conditions.

#### **Internal Con Edison PARs**

The Dunwoodie, Parkchester, Corona, East River, Freshkills, and Gowanus PARs are used to control loadings on Con Edison's transmission system. These PARs are allowed to be optimized in the OPF analysis in order to maximize the value of TCC bids awarded in the auction and provide adequate protection to Con Edison's internal transmission system.

#### **Con Edison-LIPA PARs**

The PARs at Lake Success and Valley Stream control the flows on the 138 kV ties from these stations to Con Edison's Jamaica substation. The PARs are modeled with fixed schedules chosen to support the Grandfathered Rights/TCCs associated with these two lines.

#### **Northport - Norwalk Harbor PAR**

The Northport - Norwalk Harbor PAR controls the flow between New England and LIPA on the Northport - Norwalk Harbor 138 kV tie. This PAR is modeled with a fixed schedule chosen to support the Grandfathered Rights/TCCs associated with this tie.

#### **East Garden City PARs**

The East Garden City PARs control the flow on the Sprainbrook - East Garden City 345 kV ties (Y49). These PARs are modeled with fixed schedules chosen to support the Grandfathered Rights/TCCs associated with this tie.

#### **Plattsburgh PAR**

The Plattsburgh PAR controls the flow between NYCA and New England (Vermont) on the PV20 tie line. This PAR is modeled with a fixed schedule chosen to support the Grandfathered Rights/TCCs associated with this tie.

#### **St. Lawrence PARs**

The St. Lawrence PARs control the flow between Ontario Hydro and NYCA on the L33P and L34P 230 kV ties. These PARs are modeled with fixed schedules of 0 MW.

#### **Farragut, Goethals, and Waldwick PARs**

The Farragut, Goethals and Waldwick PARs control the flows between Public Service Electric & Gas and Con Edison on their direct tie lines. They currently are operated to maintain a contractual wheel of up to 1000 MW between PSE&G and Con Edison. These PARs are modeled in the OPF analysis with fixed ~~schedules~~ schedules up to 1000MW consistent with recent historical schedules to maintain this wheel.

#### **Ramapo PARs**

The Ramapo PARs control the flow between PJM and NYCA on the Branchburg-Ramapo 500 kV tie. These PARs are currently operated to control circulation (loop flow) between the NYCA and PJM systems. These PARs are modeled in the OPF analysis with fixed schedules set to the maximum allowable base flow between PJM and NYCA which does not cause overuse of the PJM system. This is ordinarily 15% of the available capacity at the Homer City generating station.

### 5.6.1.5 Capacity Benefit Margin

The NYISO will not reserve any Capacity Benefit Margin during the Auction.

### 5.6.1.6 Transmission Reliability Margin

Transmission Reliability Margin (TRM) is defined as the amount of transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions. TRM accounts for the inherent uncertainty in system conditions and their associated effects on the Total Transfer Capability of the system and the need for operating flexibility to ensure reliable system operation as system conditions change.

The NYISO will sell TCCs up to the limits of the transmission system, except for some estimate of TRM, which the NYISO will observe in actual system operation. The ISO's Operations Department will reflect the TRM in the transmission line limits provided for the OPF analysis. Therefore, the TRM provides some margin of error to the NYISO when selling TCCs and thus, some level of confidence that revenue adequacy will be maintained.

### 5.6.1.7 Monitored Facilities and Contingencies

The NYISO will compile a list of facilities and contingencies that are monitored for security analysis in SCD and SCUC. These same monitored facilities and contingencies will be modeled in the OPF analysis. Additional potential ~~constraints~~constraints will be added to maintain the integrity of the lower voltage system not controlled by the NYISO. These additional potential constraints consist of transmission line ratings on the lower voltage system. Also, certain controls are allowed to be optimized in the OPF analysis to maintain voltage profiles at acceptable levels.

### 5.6.1.8 Reliability requirements

Reliability requirements are normally translated into MW limits for thermal, voltage and stability for use in the security analysis, which will be included in the OPF analysis. Also, the NYISO will establish pre and post contingency kV voltage limits based on NYISO criteria for facilities, which will be recognized in the OPF analysis.

At times, the OPF may not produce a feasible solution. This situation will occur when a particular constraint on the transmission system cannot be reduced to its limit. Due to the

nature of the infeasibility, the NYISO may find that invoking a local reliability rule will produce a feasible solution. If the local reliability rule involves the injection or the withdrawal of energy at a particular node, then the Transmission Owner which established the requirement for this rule will be required to purchase a TCC to cover this obligation. It is not the NYISO's responsibility to undertake TCC obligations required for local reliability rules.

Prior to the Auction, each Transmission Owner that has established reliability rules that require the injection or withdrawal of real power, must provide the NYISO with a TCC to cover the obligation, if the local reliability rule is invoked in the OPF analysis.

### **5.6.1.9 Reference bus location**

The Reference Bus location has been selected as the Marcy 345 kV substation, located near Utica, New York. This bus was selected for three primary reasons. First, the Marcy bus has no generators located there, thus, generators' bids will not directly affect the system marginal energy price, which is calculated relative to the Reference Bus. Second, there are many major transmission lines entering and leaving the Marcy bus, thus, the effect of the loss of any of these facilities on the system marginal energy price is reduced. Third, the selection of the reference bus has a significant impact on the three components of the LBMP. To achieve appropriate weighting of these three components, the reference bus for both delivery factors and generation shift factors should be the same, and that reference bus should be at or near the "electrical center" of the system (in this case, the center of the NYCA).

### **5.6.1.10 Losses**

TCCs are lossless quantities which requires that the injection MW amount equals the withdrawal MW. However, on a transmission system, to deliver power from one location to another location, a MW injection different than the MW withdrawal must occur. The difference is losses.

In the OPF analysis, to attempt to identify where generation will be produced to serve losses, when the injection location of a TCC may not be a physical generator, appears to be ambiguous. To circumvent the potential problem, all generation to serve losses will be produced at the Reference Bus.

The assumption that all generation to serve losses will be produced at the Reference Bus, results in TCCs from the Reference Bus to all locations where losses are served. These TCCs are not explicitly defined or awarded, but are a necessary part of the simultaneous feasibility test. Professor Hogan in his affidavit (Appendix B, Page 13-14) to the NYISO Tariff filed on January 31, 1997 states that revenue adequacy is maintained for the case including losses.

#### **5.6.1.11 Parallel Flows**

A significant assumption to be made for the OPF analysis is that for parallel flows (loop flow). Parallel flows occur because of the dispatch of generation to serve load in areas external to the NYCA. This dispatch produces flows on transmission facilities throughout the transmission network, including all transmission facilities within the NYCA and on all ties between the NYCA and neighboring control areas.

Depending on the direction of the parallel flow, the system transfer capability may be greater or less than the system transfer capability assumed in the OPF analysis. If changes in the NYISO's parallel flow assumptions cause the system transfer capability used in the Day-Ahead Market to be lower than the system transfer capability assumed in the OPF analysis, then the congestion rents collected by the NYISO in the Day-Ahead Market may not be sufficient to pay the NYISO's obligations to Primary Holders of TCCs, causing the NYISO to be revenue inadequate. Alternatively, if the system transfer capability used in the Day-Ahead Market exceeds the system transfer capability used in the Auction, the NYISO may collect excess congestion rents as a result.

~~The parallel~~The parallel flow assumptions used in the OPF analysis are those provided by the Operations Department.

#### **5.6.1.12 Storm watch**

Storm Watch requires that the NYISO invoke certain contingencies in its security analysis, in addition to the set of monitored facilities and contingencies employed for normal operation of the transmission system. These additional contingencies lower the transfer capability of the transmission system into southeastern New York by approximately 1000 MW. This is a situation that occurs several hundred hours a year.

Assuming that these lower transfer limits are applicable in the OPF analysis may significantly reduce the TCCs available for purchase to this part of the transmission system. Also, these events are unscheduled and may occur at times when the transmission system is not stressed. The NYISO would rarely consider invoking Storm Watch in SCUC for the Day-Ahead Market, since Storm Watch events are normally in-day occurrences.

Since Congestion Rent payments to (or collections from) TCC holders occur in the First Settlement (i.e., Day-Ahead), the OPF analysis will assume only the set of monitored facilities and contingencies employed for normal operation of the transmission system.



### 5.6.1.13 Rules concerning infeasible conditions

## 6. Allocation of Revenues from ETCNL and Residual TCCs Allocated Prior to the Start-up of the NYISO

ETCNL and Residual TCCs allocated to the Transmission Owners prior to the start-up of the NYISO provide a means to allocate Auction revenues to the Transmission Owners. This allocation was not intended to incur a cost to any Transmission Owner. Therefore, if in the calculation of the revenue to be allocated to each MW of ETCNL and Residual TCC becomes a cost to the Transmission Owner because of a negative Market Clearing Price, ~~the then the~~ cost will ~~then~~ be set to zero. If this should occur, the total revenue to be allocated to the remaining MWs of ETCNL and Residual TCCs will be greater than the amount that should be allocated to this capacity. In recognition of this situation, the revenues to be allocated to the remaining MWs of ETCNL and Residual TCCs will be proportionately reduced.

The NYISO will collect all revenues from the sale of TCCs in the Auction.

### 6.1. Revenue Allocation by the MW-Mile Methodology

The NYISO will allocate the revenues associated with ETCNL and Residual TCCs as follows:

- Revenues associated with ETCNL and Residual TCCs allocated ~~Prior~~prior to the Start-up of the NYISO will be distributed to each Transmission Owner.
- Revenues associated with all other Residual TCCs, including Residual TCCs determined during the Auction and TCCs released from ETAs when they are terminated, will be allocated to the Transmission Owners using the Interface MW-Mile Methodology.

The revenue allocated to each MW of ETCNL and Residual TCC will be the Market Clearing Price of the MWs of ETCNL and Residual TCCs, unless the Market Clearing Price is negative. In this case the following procedure will be followed.

Step1: The total revenue (A) to be allocated to all the MWs of ETCNL and Residual TCCs will be the sum those revenues calculated as described in the preceding paragraph including those MWs of ETCNL and Residual TCCs with negative Market Clearing Prices. Residual TCCs sold through a Direct Sale will be included in this calculation.

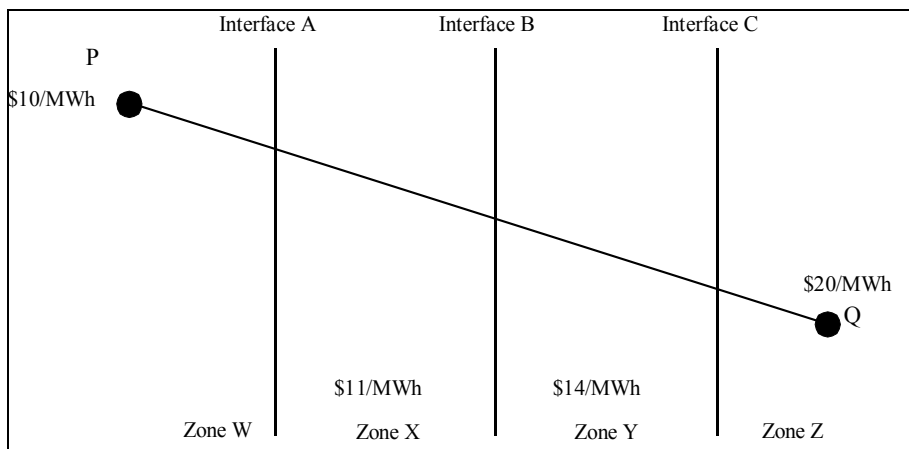
Step 2: Any MW of ETCNL and Residual TCC with a negative Market Clearing Price will be set to zero. The sum of the revenue to be allocated to all the MWs of ETCNL and Residual TCCs after applying a zero value to all negative Market Clearing Prices will produce a total revenue (B) that is greater than A.

Step 3: The revenue to be allocated to each MW of ETCNL and Residual TCC as calculated from Step 2 above will be proportionately reduced by the ratio of A/B. Auction revenues will not be allocated for residual TCCs sold through a Direct Sale.

## 6.2. Allocation of Residual Revenues from the Auction

The Interface MW-Mile Methodology will be used to distribute Auction revenues from the sale of Residual TCCs not allocated prior to the start-up of the ISO (Residual Revenues). The example below shows how the revenue realized from the sale of a TCC is allocated to the affected interfaces.

Example: The following information is given:



- Auctioned a single 100MW TCC from P to Q
- TCC Revenues =  $(\$20/\text{MWh} - \$10/\text{MWh}) * 100 \text{ MWh} = \$1000$
- Three Interfaces: A, B, C, B, C
- Four Zones: W, X, Y, Z, X, Y, Z
- Generation in Zone W
- Load in Zone Z (Losses are ignored)
- LBMP \$/MWh: P = \$10, Zone-X = \$11, Zone-Y = \$14, and Q = \$20

The revenue allocated to each interface is calculated as follows:

Interface A:  $(\$11/\text{MWh} - \$10/\text{MWh}) * 100 \text{ MWh} = \$100$   
 Interface B:  $(\$14/\text{MWh} - \$11/\text{MWh}) * 100 \text{ MWh} = \$300$   
 Interface C:  $(\$20/\text{MWh} - \$14/\text{MWh}) * 100 \text{ MWh} = \$600$

The Residual Revenue to be allocated to the Transmission Owners is the total revenue from the Auction less revenue distributed to holders of TCCs releasing TCCs into the Auction and revenues to holders of ETCNL and Residual TCCs allocated prior to the start-up of the ISO. Due to reconfiguration of the TCCs released into the Auction, the Residual Revenue due the Transmission Owners can be calculated for the affected interfaces using the following procedure:

Step 1: The revenue collected for each TCC awarded in the Auction will be allocated to the interfaces as shown for the above example.

Step 2: For the example shown above, a reduction will be made in the revenue allocated to the affected interfaces for each TCC released in the Auction, ETCNL, and Residual TCC allocated to the Transmission Owners prior to the start-up of the NYISO. As a result of these reductions the interface revenues will be correct. The sum of these interface revenues is the Residual Revenue (A).

Step 3: If any interface has a negative revenue allocation, this negative allocation will be set to zero. The sum of the interface allocations with the negatives set to zero is (B).

Step 4: If any interface allocation was set to zero in Step 3, then each interface allocation will be proportionately reduced by the ratio of A/B.

The interface allocations developed in Step 3 or Step 4 above ~~are~~ is called the Congestion Components of the Interface MW-Mile Methodology.

The Interface MW-Mile Methodology will be used to allocate the interface revenues calculated above to the Transmission Owners.

Application of Interface MW-Mile Methodology:

Where the Interface MW-Mile Methodology applies, the NYISO will allocate an amount equivalent to the product of:

- the IMWM(i) coefficient, as calculated below
- the Residual Revenue from the Auction.

Interface MW-Mile Methodology Calculations:

The IMWM(i) coefficient is calculated as follows:

$$\text{IMWM}(i) = \sum_{k=1}^{10} [A_k \times B_k]$$

$$A_k = \text{MWmile}_{ik} / \left[ \sum_{m=1}^{\text{TO}} \text{MWmile}_{mk} \right]$$

$$B_k = CC_k / \left[ \sum_{p=1}^{10} CC_p \right]$$

Where:

i = index variable for Transmission ~~Owner~~ Owner for which the coefficient is calculated

k = index variable for interface for which the coefficient is calculated

m = index variable for Transmission Owner

p = index variable for interfaces

TO = Number of Transmission Owners

MWmile<sub>ik</sub> = Total of the megawatts times miles of circuits in zones associated with Interface k for Transmission Owners i

CC<sub>k</sub> = Residual Revenue associated with Interface k

CC<sub>p</sub> = Residual Revenue associated with Interface p

The first term “A<sub>k</sub>” of the above equation is referred to as the MW-mile component and the second term “B<sub>k</sub>” of the above equation is referred to as the Congestion Component. When calculating the IMWM(i) coefficient for distribution of revenues from the Auction, the NYISO will determine the Congestion Component across Interfaces using the Power Flow used in the same Auction in which the TCCs were sold.

Example of IMWM(i) Coefficient Calculation:

The following information is given:

- Exhibit 5.1:
- |         |  |
|---------|--|
| Example | <ul style="list-style-type: none"> <li>• Auctioned revenues allocated to:</li> <li>• Interface A        \$100</li> <li>• Interface B        \$300</li> <li>• Interface C        \$600</li> <li>• Auction Revenue   \$1000</li> </ul> |
|---------|--|

Exhibit 5.2:  
Example  
Data

Zone	Company	MW - Miles
W	1	100
W	2	100

Zone	Company	MW - Miles
X	1	200
X	2	400
Y	1	100
Y	2	100
Z	1	200
Z	2	600

The IMWM(i) coefficient is calculated as follows:

Company 1:

$$\begin{aligned}
 \text{IMWM}(1) &= ((100 + 200)/800) \times (100/1000) \implies \text{Interface A: Zone W,X} \\
 &+ ((200 + 100)/800) \times (300/1000) \implies \text{Interface B: Zone X,Y} \\
 &+ ((100 + 200)/1000) \times (600/1000) \implies \text{Interface C: Zone Y,Z} \\
 &= 0.0375 + 0.1125 + 0.1125 + 0.18 = 0.33
 \end{aligned}$$

Company 2:

$$\begin{aligned}
 \text{IMWM}(2) &= ((100+400)/800) \times (100/1000) \implies \text{Interface A: Zone W,X} \\
 &+ ((400+100)/800) \times (300/1000) \implies \text{Interface B: Zone X,Y} \\
 &+ ((100+600)/1000) \times (600/1000) \implies \text{Interface C: Zone Y,Z} \\
 &= 0.0625 + 0.1875 + 0.42 = 0.67
 \end{aligned}$$

$$\text{Revenues for Company 1} = 0.33 \times \$1000 = \$330$$

$$\text{Revenues for Company 2} = 0.67 \times \$1000 = \$670$$

# Attachments

**Attachment A**

**BINDING AGREEMENT TO SELL  
TRANSMISSION CONGESTION CONTRACTS  
IN THE INITIAL AUTUMN 2002 TCC AUCTION  
AND THE WINTER 2002/2003 TCC RECONFIGURATION AUCTIONS**

THIS BINDING AGREEMENT TO SELL TRANSMISSION CONGESTION CONTRACTS (the "Sale Agreement"), dated as of this \_\_\_\_\_ day of \_\_\_\_\_, 2002, is given by \_\_\_\_\_, having a principal business address at \_\_\_\_\_ (the "Seller").

Time of Day of this submission: \_\_\_\_\_ (AM/PM)

**RECITALS**

WHEREAS, pursuant to the terms of the New York Independent System Operator Open Access Transmission Tariff (the "ISO OATT"), the New York Independent System Operator, Inc. ("NYISO") will conduct an Initial Autumn 2002 Auction ("Initial Auction") and subsequent Winter 2002/2003 monthly Reconfiguration Auctions ("Reconfiguration Auction")(collectively, the "Auctions") as described in Attachment M of the ISO OATT, in which holders of Transmission Congestion Contracts ("TCCs") may sell TCCs and persons wishing to acquire TCCs may buy them;

WHEREAS, all capitalized terms used herein without definition shall have the meaning ascribed thereto in the ISO OATT and/or the Independent System Operator Agreement (the "ISO Agreement");

WHEREAS, a TCC represents the right to collect, or the obligation to pay, the Day-Ahead Congestion Rents associated with one (1) megawatt of transmission between a specified Point of Injection ("POI") and a specified Point of Withdrawal ("POW") for all hours of each day during the relevant period; and

WHEREAS, Seller has been designated a registrant name for purposes of the Auctions and intends that the submission of this Sale Agreement, coupled with the submission of a properly formatted offer by electronic mail ("Electronic Offer") (together "Offer Package"), shall constitute an official offer for purposes of the Initial Auction and any Reconfiguration Auction and that the Offer Package will be recorded and objectively analyzed pursuant to those certain "Rules, Procedures and Guidelines for the Initial Auction and Reconfiguration Auctions of TCCs Autumn 2002" ("Rules") and Attachment M of the ISO OATT, copies of which have been delivered to and reviewed by the Seller.

NOW, THEREFORE, in consideration of the NYISO including Seller's Offer Package in the Initial Auction or any of the Reconfiguration Auctions, which Seller acknowledges and agrees is adequate consideration for its obligations hereunder, Seller hereby agrees to the

following:

**1. Offer to Sell TCCs.**

- (a) The Seller agrees to sell TCCs pursuant to the Auctions, provided that the selling price for each TCC shall be the Market Clearing Price established in the Auctions (as determined by the ~~NYISO~~, NYISO or its designee) and that the TCCs to be sold shall not exceed the number of TCCs set forth in the Electronic Offer.
- (b) The Seller acknowledges and understands that the Seller's submission of a valid Offer Package represents a binding obligation of the Seller to sell the TCCs.
- (c) The Seller acknowledges and understands that the Auctions shall be conducted in accordance with the "Rules, Procedures and Guidelines for the Initial Auction and Reconfiguration Auctions of TCCs Autumn 2002" ("Rules").
- (d) The Seller acknowledges and understands that the Market Clearing Price for the TCCs offered in this Sale Agreement could be positive, negative or zero.
- (e) The Seller acknowledges that its statements made in any Electronic Offer may be amended by the Seller at any time during the period to offer TCCs for sale in the Auctions ("Offering Period") by submitting a new Electronic Offer which must be received in accordance with this Section, the Rules, and Attachment M of the ISO OATT. If an amendment is timely, correctly, and completely submitted by the Seller as provided herein, the most recently received Electronic Offer, as indicated by the date and time stamp of the Electronic Offer, will supercede any previous Electronic Offer(s) and any previous Electronic Offer(s) will have no further force or effect.
- (f) The Seller acknowledges that this Sale Agreement form must be submitted to the address referenced in the Rules via an overnight mail or delivery service that requires the signature of the addressee as a record of the date and time of delivery. The Seller hereby acknowledges that a Sale Agreement submitted via an overnight mail or delivery service to the address referenced in the Rules shall be evidenced as being submitted in a timely manner only by the signature of the NYISO, or its designated recipient, upon delivery made in accordance with the schedule established by these Rules.



- (g) The Seller acknowledges that to complete the Offer Package, the Seller must submit, in addition to a Sale Agreement, a properly formatted Electronic Offer to the NYISO at <selltccs@nyiso.com> prior to close of the Offering Period. The Seller further acknowledges that the Electronic Offer must be submitted in the format provided by the NYISO in Microsoft Excel or Lotus 123 software format, that the Seller must provide all information required on the Electronic Offer, that the Seller must password-protect the form before transmitting it to the NYISO, and that the time of submission for all Electronic Offers will be determined by the automatic return receipt transmitted by the NYISO to the Seller upon receipt of the Electronic Bid.
- (h) The Seller acknowledges that the timely delivery of an Offer Package does not guarantee that the Offer Package is valid for inclusion in any Auction, and that an Offer Package that has not been completed in conformity with the Rules, in the NYISO's sole judgment, shall be invalid and shall be rejected.
- (i) The Seller acknowledges that the Seller bears the sole responsibility for submitting a correct and complete Offer Package in accordance with the Rules.

## **2. Payment Procedures for Sale of TCCs**

- (a) The NYISO, or its designee, shall distribute written notice to Seller (the "Award Notice") according to the schedule established by these Rules, which notice shall specify the number of TCCs that the Seller has sold in any Auction, the Market Clearing Price for each TCC, and the Total Selling Price (the product of the number of TCCs to be sold and the Market Clearing Price for such TCCs, "Total Selling Price").
- (b) Upon receipt of the Award Notice, Seller shall transfer to the NYISO, or its designee, that number of TCCs set forth in the Award Notice, and shall take all steps reasonably necessary to effect such transfer.
- (c) If the Total Selling Price is greater than zero, within six (6) business days of Seller's receipt of the Award Notice, Seller shall give wiring instructions to the NYISO, or its designee, designating the account(s) to which funds generated from any Auction will be disbursed and allocated by the NYISO pursuant to the Rules and Attachment M of the ISO OATT.
- (d) If the Total Selling Price is less than zero, within three (3) business days of Seller's receipt of the Award Notice, the Seller shall cause funds to be wired, to the accounts specified in writing by the NYISO, or its designee, in an amount that would satisfy Seller's obligation to pay the Total Selling Price.

- (e) Within two (2) business days after receipt of an Award Notice to the Seller, to the extent that the Seller disputes the calculation of the Total Selling Price due and payable, the Seller shall give written notice to the NYISO, or its designee, setting forth in reasonable detail the basis for any such disagreement ("Dispute"). If the Seller does not give written notice within the two (2) business day period, the Seller shall be deemed to have irrevocably accepted the Total Selling Price in the manner specified in the Award Notice as delivered to the Seller by the NYISO, or its designee.
- (f) If a timely filed written notice of Dispute is given, the Seller and the NYISO, or its designee, shall promptly commence good faith negotiations with a view to resolving the Dispute(s) within five (5) business days of the NYISO's receipt of such notice. If the Dispute is not resolved within the five (5) business day period, then the Dispute shall thereafter be referred by either the Seller or the NYISO, or its designee, to Richard L. Miles, Director, of the FERC Office of Dispute Resolution Service, or his successor in office (the "Director") for a resolution of such Dispute in accordance with this Sale Agreement and the Rules. The resolution of the Dispute shall be conducted in the following manner:
- (i) Within three (3) business days after being notified of a Dispute, the Director shall identify and create a list of five (5) arbitrators, who must be knowledgeable regarding businesses engaged in the energy industry, to be delivered to the Seller and the NYISO, or its designee.
- (ii) Within five (5) business days of receipt of such list from the Director, the Seller and the NYISO, or its designee, separately, shall select three (3) arbitrators from the Director's list and resubmit their selections to the Director.
- (iii) Within two (2) business days of the Director's receipt of the resubmitted list of arbitrators from the Seller and the NYISO, or its designee, the Director shall select in its sole discretion one arbitrator (the "Arbitrator") to resolve the Dispute in accordance with the terms and conditions of this Sale Agreement and the Rules. The decision and resolution of the Arbitrator shall be rendered within twenty (20) business days after referral of the Dispute to the Arbitrator and shall be final and binding upon the parties. During this twenty (20)-business day period, the Seller and the NYISO, or its designee, will be allowed to make written and oral presentations to the Arbitrator. The Seller and the NYISO, or its designee, shall use their best efforts to cause the Arbitrator to render its decision within the twenty (20) business day period described above, and each shall cooperate with the Arbitrator and provide the Arbitrator with access to the books, records and representatives of each as the Arbitrator may require in order to render its determination. All of the fees and expenses of any Arbitrator retained pursuant to this Section shall be paid by the party who does not prevail in the Dispute.

- (g) To the extent that the Seller disputes the calculation of the Total Selling Price due and payable, the Seller or the NYISO, depending on which is the obligated party, shall remain obligated to make payment in full for the TCCs as indicated in the Award Notice. However, if it is later determined, in accordance with this Section 2 that an overpayment or underpayment has been made, the NYISO shall refund that overpayment or underpayment, including interest calculated from the date that the overpayment or underpayment was made in accordance with the methodology specified for interest on refunds in the FERC regulations at 18 C.F.R. § 35.19a(a)(2)(iii).
- (h) If a mistake is discovered in the calculation of information provided in an Award Notice after its delivery, the NYISO reserves the right to revise the Award Notice and the information therein, and the Seller acknowledges that it will be obligated to make arrangement for payment or receipt of payment in accordance with the revised Award Notice.

### **3. Representation and Warranties of the Seller.**

- (a) The Seller hereby represents and warrants to the NYISO as follows:
  - (i) Seller is an Eligible Customer and the sale or purchase of Transmission Congestion Contracts is done as part of Seller's business;
  - (ii) Seller has full power and authority to execute and deliver the Offer Package and to perform its obligations thereunder. The Offer Package constitutes a valid and legally binding obligation of the Seller.
  - (iii) The execution and delivery of the Offer Package and the consummation of the transactions contemplated thereby have been duly and validly approved by all requisite action, corporate or otherwise, on the part of Seller, and no other proceedings, corporate or other, on the part of Seller are necessary to approve and submit the Offer Package and to consummate the transactions contemplated hereby.
  - (iv) Seller is the Primary Holder of the TCCs being offered pursuant to this Sale Agreement free and clear of any restrictions on transfer (other than imposed under the ISO OATT and the Rules.), taxes, security interests, options, warrants, purchase rights, contracts, commitments, equities, claims or demands.
  - (v) Seller has received and reviewed a copy of the ISO OATT and the Rules and understands the terms and conditions contained in each.
  - (vi) Seller shall hold, use, and transfer any TCCs offered in the Auctions in accordance with the terms and conditions set forth in the ISO OATT and the Rules.
  - (vii) Other than providing the information as required by this Agreement, Seller has not amended or changed this Sale Agreement in any way to make it different from the "Sale Agreement", found at Attachment A to the Rules.
- (b) All representations and warranties contained herein shall apply to each purchase and sale of TCCs in all Auctions contemplated in this Sale Agreement.

- (c) It is understood and agreed by the Seller that if it is found to be in breach of Section 3(a)(iv), then the NYISO be entitled, in addition to such other remedies, damages, and relief as may be available under applicable law, to revoke any TCCs that may be awarded hereunder and to seek equitable relief, including an injunction prohibiting the Seller from using any awarded TCC, and the Seller shall not resist such application for relief on the basis that the NYISO has an adequate remedy at law.

**4. Indemnification; Release of Liability.**

- (a) Seller agrees to indemnify and save and hold harmless the NYISO, and all of its respective officers, directors, employees, and agents, from and against any and all losses, damages, expenses, liabilities, claims or demands, including attorney's fees, (collectively, the "Damages") whatsoever suffered or incurred by such parties resulting, arising from or relating to Seller's breach of any of its agreements, covenants, representations, or warranties contained herein, except for those Damages resulting from the NYISO's gross negligence or willful misconduct.
- (b) Seller hereby releases the NYISO, and all of its officers, directors, employees and agents, from any and all liability arising from or relating to the Initial Auction, except with respect to any gross negligence or willful misconduct on the part of the NYISO, its officers, directors, employees or agents.

**5. Miscellaneous.**

- (a) All inquires, notices and communications can be given by the NYISO to the Seller as follows:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

- (b) All representation, warranties, covenants, and obligations of this Sale Agreement shall survive the sale of the TCCs by the Seller.

- (c) It is understood and agreed that the provisions of this Sale Agreement are intended for the benefit of the Seller and the NYISO and may be enforced directly by the NYISO against Seller or by the Seller against the NYISO.
  
- (d) This Sale Agreement shall be governed by and construed in accordance with the laws of the State of New York without giving effect to its conflict of law provisions.

IN WITNESS WHEREOF, this Sale Agreement has been respectfully submitted as of the date first above written.

NAME OF SELLER:

By: \_\_\_\_\_

Name: \_\_\_\_\_ (please print clearly or type)

Title: \_\_\_\_\_

**Attachment B**

**BINDING AGREEMENT TO PURCHASE  
TRANSMISSION CONGESTION CONTRACTS  
IN THE INITIAL AUTUMN 2002 TCC AUCTION  
AND THE WINTER 2002/2003 TCC RECONFIGURATION AUCTIONS**

THIS BINDING AGREEMENT TO PURCHASE TRANSMISSION CONGESTION CONTRACTS (the "Purchase Agreement"), dated as of this \_\_\_\_\_ day of \_\_\_\_\_, 2002, is given by \_\_\_\_\_, having a principal business address at \_\_\_\_\_ (the "Buyer").

Time of Day of this submission: \_\_\_\_\_ (AM/PM)

**RECITALS**

WHEREAS, pursuant to the terms of the New York Independent System Operator Open Access Transmission Tariff (the "ISO OATT"), the New York Independent System Operator, Inc. ("NYISO") will conduct an Initial Autumn 2002 Auction ("Initial Auction") and subsequent Winter 2002/2003 monthly Reconfiguration Auctions ("Reconfiguration Auctions")(collectively, the "Auctions") as described in Attachment M of the ISO OATT, in which holders of Transmission Congestion Contracts ("TCCs") may sell TCCs and persons wishing to acquire TCCs may buy them;

WHEREAS, all capitalized terms used herein without definition shall have the meaning ascribed thereto in the ISO OATT and/or the Independent System Operator Agreement (the "ISO Agreement");

WHEREAS, a TCC represents to the right to collect, or the obligation to pay, the Day-Ahead Congestion Rents associated with one (1) megawatt of transmission between a specified Point of Injection ("POI") and specified Point of Withdrawal ("POW") for all hours of each day during the relevant period; and

WHEREAS, Buyer has been designated a registrant name for purposes of the Auctions and intends that the submission of this Purchase Agreement, coupled with the submission of a properly formatted bid by electronic mail ("Electronic Bid") (together "Bid Package"), shall constitute an official bid for purposes of the Initial Auction and any Reconfiguration Auction and that the Bid Package shall be recorded and objectively analyzed pursuant to the "Rules, Procedures and Guidelines for the Initial Auction and Reconfiguration Auctions of TCCs Autumn 2002" ("Rules") and Attachment M of the ISO OATT, copies of which have been delivered to and reviewed by the Buyer.

NOW THEREFORE, in consideration of the NYISO including Buyer's Bid Package in the Initial Auction or any of the Reconfiguration Auctions, which Buyer acknowledges and

agrees is adequate consideration for its obligations hereunder, Buyer hereby agrees to the following:

### 1. Bids to Purchase TCCs.

**(a) The Buyer agrees to purchase TCCs in a quantity to be determined by the NYISO, or its designee, pursuant to the Auctions, provided that the TCCs to be purchased shall not exceed the number of TCCs set forth in the Electronic Bid, that the purchase price for each TCC shall be the Market Clearing Price established in the Auctions (as determined by the NYISO, or its designee), and the Market Clearing Price for each TCC awarded shall not exceed the Bid Price set forth in the Electronic Bid as described in the Rules.**

- (b) The Buyer acknowledges that the Bid Package may be accepted in whole or in part and that the Buyer's submission of a valid Bid Package represents a firm commitment of the Buyer to pay for the number of TCCs designated by the NYISO pursuant to the terms hereof. The Buyer further acknowledges that the submission of a Bid Package does not obligate the NYISO to accept the Bid Package, in whole or in part, nor does the submission of a Bid Package grant any right to the Buyer to purchase any TCCs.
- (c) The Buyer acknowledges and understands that the Auctions shall be conducted in accordance with the "Rules, ~~Procedures~~Procedures, and Guidelines for the Initial Auction and Reconfiguration Auctions of TCCs Autumn 2002" ("Rules").
- (d) The Buyer acknowledges that its statements made in any Electronic Bid may be amended by the Buyer at any time during the period during which bids are accepted (the "Bidding Period") by submitting a new Electronic Bid, which must be received in accordance with this Section, the Rules, and Attachment M of the ISO OATT. If an amendment is timely, correctly, and completely submitted by the Buyer as provided herein, the most recently received Electronic Bid, as indicated by the date and time stamp of the Electronic Bid, will supercede any previous Electronic Bid(s) and any previous Electronic Bid(s) will have no further force or effect.
- (e) The Buyer hereby acknowledges that if it is qualified to be a Primary Holder, all TCCs awarded to it, if any, will entitle the Buyer to collect (or obligate the Buyer to pay) the difference in the Congestion Component of the Day-Ahead LBMP at the POW of the TCC and the Congestion Component of the Day-Ahead LBMP at the POI of the TCC, for each TCC awarded, for each hour of the effective period of validity of such TCCs.
- (f) The Buyer hereby acknowledges that this Purchase Agreement must be submitted to the address referenced in the Rules via an overnight mail or delivery service

that requires the signature of the addressee as a record of the date and time of delivery.

- (g) The Buyer acknowledges that the timely delivery of a Bid Package does not guarantee that the Bid Package is valid for inclusion in any Auction, and that a Bid Package that has not been completed in conformity with the Rules, in the NYISO's sole judgment, shall be invalid and shall be rejected.
- (h) The Buyer acknowledges that the Buyer bears the sole responsibility for submitting a correct and complete Bid Package in accordance with the Rules.

## **2. Billing and Payment of TCCs Awarded**

- (a) The NYISO, or its designee, shall distribute written notice to Buyer (the "Award Notice"), according to the schedule established by these Rules, which notice shall specify the number of TCCs, if any, that the Buyer shall be required to purchase ("Awarded TCCs"), the Market Clearing Price of each Awarded TCC, the POI and the POW, the Total Purchase Price (the product of the number of Awarded TCCs to be purchased and the Market Clearing Price of the Awarded TCCs, "Total Purchase Price") and wiring instructions for paying the Total Purchase Price for the TCCs.
- (b) If the Total Purchase Price is greater than zero, within three (3) business days of Buyer's receipt of the Award Notice, Buyer shall cause funds to be wired to the accounts specified in the Award Notice in an amount equal to the Total Purchase Price as set forth in the Award Notice.
- (c) If the Total Purchase Price is less than zero, within six (6) business days of Buyer's receipt of the Award Notice, Buyer shall give wiring instructions to the NYISO, or its designee, designating the account(s) to which funds generated from any Auction will be disbursed and allocated by the NYISO pursuant to the Rules and Attachment M of the ISO OATT.
- (d) Within two (2) business days after receipt of an Award Notice to the Buyer, to the extent that the Buyer disagrees with the calculation of the Total Purchase Price due and payable, the Buyer shall give written notice to the NYISO, or its designee, setting forth in reasonable detail the basis for any such disagreement ("Dispute"). If the Buyer does not give written notice within the two (2) business day period, the Buyer shall be deemed to have irrevocably accepted the Total Purchase Price in the manner specified in the Award Notice as delivered to the Buyer by the NYISO, or its designee.
- (e) If a timely filed written notice of Dispute is given, the Buyer and the NYISO, or its designee, shall promptly commence good faith negotiations with a view to



resolving the Dispute(s) within five (5) business days of the NYISO's receipt of such notice. If a Dispute is not resolved within the five (5) business day period, then the Dispute shall thereafter be referred by either the Buyer or the NYISO, or its designee, to Richard L. Miles, Director, of the FERC's Office of Dispute Resolution Service, or his successor in office (the "Director") for a resolution of such Dispute in accordance with this Purchase Agreement and the Rules. The resolution of the Dispute shall be conducted in the following manner:

- (i) Within three (3) business days after being notified of a Dispute, the Director shall identify and create a list of five (5) arbitrators, who must be knowledgeable regarding businesses engaged in the energy industry, to be delivered to the Buyer and the NYISO, or its designee.
- (ii) Within five (5) business days of receipt of such list from the Director, the Buyer and the NYISO, or its designee, separately, shall select three (3) arbitrators from the Director's list and resubmit their selections to the Director.
- (iii) Within two (2) business days of the Director's receipt of the resubmitted list of arbitrators from the Buyer and the NYISO, or its designee, the Director shall select in its sole discretion one arbitrator (the "Arbitrator") to resolve the Dispute in accordance with the terms and conditions of this Purchase Agreement and the Rules. The decision and resolution of the Arbitrator shall be rendered within twenty (20) business days after referral of the Dispute to the Arbitrator and shall be final and binding upon the parties. During this twenty (20)-business day period, the Buyer and the NYISO, or its designee, shall be allowed to make written and oral presentations to the Arbitrator. The Buyer and the NYISO, or its designee, shall use their best efforts to cause the Arbitrator to render its decision within the twenty (20) business day period described above, and each shall cooperate with the Arbitrator and provide the Arbitrator with access to the books, records, and representatives of each as the Arbitrator may require in order to render a determination. All of the fees and expenses of any Arbitrator retained pursuant to this Section shall be paid by the party who does not prevail in the Dispute.
- (iv) To the extent that the Buyer disputes the calculation of the Total Purchase Price due and payable, the Buyer or the NYISO, depending on which is the obligated party, shall remain obligated to make payment in full for the TCCs, as indicated in the Award Notice. However, if it is later determined, in accordance with this Section 2, that an overpayment or underpayment has been made, the NYISO shall refund that overpayment or underpayment, including interest calculated from the date that the overpayment or underpayment was made, in accordance with the

methodology specified for interest on refunds in the FERC regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

- (f) If a mistake is discovered in the calculation of information provided in an Award Notice after its delivery, the NYISO reserves the right to revise the Award Notice and the information therein, and the Buyer acknowledges that it will be obligated to make arrangement for payment or receipt of payment in accordance with the revised Award Notice.

### **3. Representations and Warranties of the Buyer.**

(a) The Buyer hereby represents and warrants to the NYISO as follows:

- (i) Buyer is an Eligible Customer and the sale or purchase of Transmission Congestion Contracts is done as part of Buyer's business;
- (ii) Buyer has full power and authority to execute and deliver the Bid Package and to perform its obligations thereunder. The Bid Package constitutes a valid and legally binding obligation of the Buyer.
- (iii) The execution and delivery of the Bid Package and the consummation of the transactions contemplated thereby have been duly and validly approved by all requisite action, corporate or otherwise, on the part of Buyer, and no other proceedings, corporate or other, on the part of Buyer are necessary to approve and submit the Bid Package and to consummate the transactions contemplated thereby.
- (iv) Buyer is qualified to purchase the TCCs in accordance with the Rules and the ISO OATT and has sufficient funds to purchase the TCCs as contemplated herein.
- (v) Buyer has received and reviewed a copy of the ISO OATT and the Rules and understands the terms and conditions contained in each.
- (vi) Buyer shall hold, use, and transfer any TCCs purchased pursuant to the Auctions in accordance with the terms and conditions set forth in the ISO OATT and the Rules.
- (vii) Buyer holds all licenses, franchises, permits and authorizations in compliance with any applicable laws, rules and regulations that are necessary for the lawful ownership and use of the TCCs.
- (viii) Other than providing the information required by this Agreement, Buyer has not amended or changed this Purchase Agreement in any way to make

it different from the "Purchase Agreement," found at Attachment B to the Rules.

- (b) All representations and warranties contained herein shall apply to each purchase and sale of TCCs in all Auctions contemplated in this Purchase Agreement.
- (c) It is understood and agreed by the Buyer that if the Buyer is found to be in breach of Section 3(a)(vii), then the NYISO shall be entitled, in addition to such other remedies, damages, and relief as may be available under applicable law, to revoke any TCCs that may be awarded hereunder and to seek equitable relief, including an injunction prohibiting the Buyer from using any awarded TCC, and the Buyer shall not resist such application for relief on the basis that the NYISO has an adequate remedy at law.

**4. Indemnification; Release of Liability.**

- (a) Buyer agrees to indemnify and save and hold harmless the NYISO, and all of its respective officers, directors, employees, and agents, from and against any and all losses, damages, expenses, liabilities, claims, or demands, including attorney's fees, (collectively, the "Damages") whatsoever suffered or incurred by such parties resulting, arising from or relating to Buyer's breach of any of its agreements, covenants, representations, or warranties contained herein, except for those Damages resulting from NYISO's gross negligence or willful misconduct.
- (b) Buyer hereby releases the NYISO, and all of its officers, directors, employees and agents, from any and all liability arising from or relating to the Auctions, except with respect to any gross negligence or willful misconduct on the part of the NYISO, its officers, directors, employees, or agents.

**5. Miscellaneous.**

- (a) All inquires, notices and communications can be given to the Buyer as follows:

**Name:** \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

**Phone:** \_\_\_\_\_

Fax: \_\_\_\_\_

**E-mail:** \_\_\_\_\_

- (b) All representations, warranties, covenants, and obligations of this Purchase Agreement shall survive the purchase of the TCCs by the Buyer.
- (c) It is understood and agreed that the provisions of this Purchase Agreement are intended for the benefit of the Buyer and the NYISO and may be enforced directly by the NYISO against Buyer or by the Buyer against the NYISO.
- (d) This Purchase Agreement and all Electronic Bids shall be governed by and construed in accordance with the laws of the State of New York without giving effect to its conflict of law provisions.

IN WITNESS WHEREOF, this Purchase Agreement has been submitted as of the date first above written.

NAME OF BUYER:

By: \_\_\_\_\_

Name: \_\_\_\_\_ (please print clearly or type)

Title: \_\_\_\_\_

## Attachment C - Initial Spring 2003 TCC Auction Time Line

## Attachment D - Points of Injection and Withdrawal



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## Attachment E - Prohibited Groups of Points of Injection and Withdrawal (Include Kensico-Dunwoodie from Attachment F)

## Attachment F - Bidding Rules for using the HQ Proxy Bus as a POI or POW



## Attachment G - Auction Example

The following example is for purposes of illustration. For this example, assume that the Transmission Owners have decided that Stage 1 will consist of four rounds, and that one-fourth of the system transfer capability that is available to support TCCs purchased in Stage 1 of the Auction will be used to support TCCs purchased in each of those rounds.

### Round 1

In the first round of Stage 1 (round 1), suppose that 100 Residual TCCs from location X to location Y are available for sale in Stage 1 of the Auction, and four (4) Bids have been received by the NYISO for TCCs from location X to location Y, as follows:

- Company A Bids for 50 TCCs @ \$5.00/TCC
- Company B Bids for 50 TCCs @ \$4.00/TCC
- Company C Bids for 20 TCCs @ \$2.00/TCC
- Company D Bids for 10 TCCs @ \$1.00/TCC

For the sake of simplicity, assume in this example that 100 TCCs from location X to location Y will actually be allocated in Stage 1 of the Auction, although in practice, the number of TCCs that would be available between those locations in Stage 1 would depend on the number of TCCs that were allocated between other locations on the transmission system, and could actually change from round to round within Stage 1.

Since one-fourth of the system transfer capability that can be used to support TCCs purchased in Stage 1 is available to support TCCs purchased in round 1, the number of TCCs specified in each of the Bids above is multiplied by a scaling factor of four:

Company	Scaled TCCs	Bid Price
A	200	\$5/TCC
B	200	\$4/TCC

C	80	\$2/TCC
D	40	\$1/TCC

Since 100 TCCs are available from location X to location Y, Company A would be the only company that would receive TCCs in the current round, because its Bid is the highest Bid, in \$/TCC terms, and its scaled Bid for 200 TCCs exceeds the 100 TCCs available. Company A would be the winning bidder and the Market Clearing Price for TCCs in this round would be Company A’s Bid of \$5/TCC.

However, Company A would not actually be awarded 100 TCCs. Each winning Bid in each Stage 1 round will be divided by the scaling factor used for that round to determine the number of TCCs that would be awarded to each winning bidder. Thus, Company A’s winning Bid for 100 scaled TCC would be converted into an actual award of  $100 \text{ TCC} / 4 = 25 \text{ TCC}$ . Company A would be awarded 25 TCCs at the conclusion of round 1, at a price of \$5/TCC.

**Round 2**

Three-fourths of the system transfer capability that can be used to support TCCs purchased in Stage 1 will still be available to support TCCs purchased after round 1. So, if one-fourth of all the system transfer capability that can be used to support TCCs purchased in Stage 1 is to be available to support TCCs purchased in the second round of Stage 1 (round 2), then one-third of the system transfer capability that is still available following round 1 must be available to support TCCs purchased in round 2 (since  $(1/4) / (3/4) = 1/3$ ). Consequently, the scaling factor for round 2 would be three. We have assumed that 75 TCCs will now be available from location X to location Y in round 2, once the 25 TCCs awarded to Company A in round 1 have been taken into account. Bids (including scaled Bids) into round 2 for TCCs between these locations are given below.

Company	TCC Bid	Scaled TCC Bid	Bid Price
A	30	90	\$6/TCC
B	50	150	\$5/TCC

C	20	60	\$3/TCC
D	10	30	\$2/TCC

Since 75 TCCs are available from location X to location Y, Company A again would be the only company that would receive TCCs in this round, because its Bid is the highest Bid, in \$/TCC terms, and its scaled Bid for 90 TCCs exceeds the 75 TCCs available. Company A would be the winning bidder, and the Market Clearing Price for TCCs in this round would be Company A’s Bid, which has increased to \$6/TCC in this round.

However, Company A’s winning Bid for 75 scaled TCCs would be converted into an actual award of  $75 \text{ TCCs} / 3 = 25 \text{ TCCs}$ . Company A would be awarded 25 TCCs at the conclusion of round 2, at a price of \$6/TCC.

### Round 3

Half of the system transfer capability that is available to support TCCs purchased in Stage 1 remains available after rounds 1 and 2. Therefore, if one-fourth of all of the system transfer capability that can be used to support TCCs purchased in Stage 1 is to be available to support TCCs purchased in the third round of Stage 1 (round 3), then one-half of the system transfer capability that is still available following round 2 must be available to support TCCs purchased in round 3 (since  $(1/4) / (1/2) = 1/2$ ), making the scaling factor for round 3 equal to two. We have assumed that 50 TCCs now will be available from location X to location Y in round 3, once the 50 TCCs awarded to Company A in rounds 1 and 2 have been taken into account. Bids (including scaled bids) into round 3 for TCCs between these locations are given below.

Company	TCC Bid	Scaled TCC Bid	Bid Price
A	10	20	\$5/TCC
B	40	80	\$6/TCC
C	10	40	\$2/TCC

D	10	20	\$7/TCC
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Since 50 TCCs are available between these locations, Company D, which now has the highest Bid, would be awarded 20 scaled TCCs, and Company B, which now has the second highest Bid, would receive the next 30 scaled TCCs. The Market Clearing Price for TCCs in this round would be \$6/TCC, Company B’s Bid.

However, the winning bids would be converted into actual awards of  $20 \text{ TCCs} / 2 = 10 \text{ TCCs}$  to Company D, and  $30 \text{ TCCs} / 2 = 15 \text{ TCCs}$  to Company B, each at a price of \$6/TCC.

**Round 4**

All of the system transfer capability available to support TCCs purchased in Stage 1 that has not been previously used to support TCCs purchased in rounds 1, 2 and 3 will be available to support TCCs purchased in the fourth round of Stage 1 (round 4), so the scaling factor for round 4 would be one. In other words, there would be no scaling in round 4. We have assumed that 25 TCCs now will be available from location X to location Y in round 2, once the 75 TCCs awarded in rounds 1, 2 and 3 have been taken into account. Bids into round 4 for TCCs between these locations are given below. (Note that Companies A and D have dropped out of the Auction at this point and Company E has entered the Auction, illustrating that there is no requirement for bidders in earlier rounds to Bid into later rounds or for bidders in later rounds to Bid into earlier rounds.)

Company	TCC Bid	Bid Price
B	30	\$5/TCC
C	20	\$5/TCC
E	20	\$10/TCC

Since 25 TCCs are available between these locations, Company E, which now has the highest Bid, would be awarded 20 TCCs, and Companies B and C, are tied for the second highest Bid.

In this case the remaining award of 5 TCCs would be split between Companies B and C in proportion to the number of TCCs they bid for. As a result Company B would be awarded 3 TCCs and Company C would be awarded 2 TCCs. The Market Clearing Price for TCCs in this round would be \$5/TCC, Company B’s Bid.

**Stage 1 Summary**

TCCs awarded from location X to location Y in Stage 1 and the prices paid for those TCCs are as follows:

Company	Round	TCCs Awarded	Price
A	1	25	\$5/TCC
A	2	25	\$6/TCC
B	3	15	\$6/TCC
B	4	3	\$5/TCC
C	4	2	\$5/TCC
D	3	10	\$6/TCC
E	4	20	\$5/TCC

In this example, all revenues from this Auction would be paid to the holders of the 100 Residual TCCs from location X to location Y that released those TCCs for sale into Stage 1 of the Auction.

**Stage 2**

In the first round of Stage 2 (round 5), assume that Company F, which holds 50 TCCs from location X to location Y (that it received as a result of a Grandfathered transmission agreement) releases those TCCs for sale into the Auction. In addition, suppose that Company E releases the 20 TCCs from location X to location Y that it purchased in Stage 1 for sale into

round 5 of the Auction, so that a total of 70 TCCs from location X to location Y have been released for sale into round 5. Although it is possible that more or fewer than 70 TCCs from location X to location Y will actually be sold, depending on Bids made for TCCs between other locations, assume for purposes of the example that only 70 TCCs between these two locations are actually sold in round 5.

Bids into round 5 are as follows:

Company	TCC Bid	Bid Price
B	40	\$5/TCC
C	40	\$/TCC
G	40	\$9/TCC

Company G, the highest bidder, would be awarded 40 TCCs, and Company B, the second highest bidder, would be awarded the remaining 30 TCCs. The Market Clearing Price in round 5 would be Company B's Bid, \$5/TCC, so the winning bidders in round 5 would pay \$5/TCC for the TCCs they are awarded in round 5. Companies E and F would be paid \$5/TCC for each TCC from location X to location Y that they released for sale into the Auction.

Subsequent rounds in Stage 2 would proceed in the same manner as round 5.

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Since 25 TCCs are available between these locations, Company E, which now has the highest Bid, would be awarded 20 TCCs, and Company B, which has the second highest Bid, would receive the last 5 TCCs. The Market Clearing Price for TCCs in this round would be \$5/TCC, Company B's Bid.

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## Attachment H – NYISO Zone Map