Award of Benefits for a Transmission Expansion

1. Introduction

The primary benefit of a Transmission Expansion (Expansion) to the Transmission Expander (Expander) is an increase in reliability and/or the payment of lower Locational Based Marginal Prices (LBMPs) by its load customers, and if an Expander operates generation, through the receipt of higher LBMP revenues. In addition, the Expander expects to realize the acquisition of Transmission Congestion Contracts (TCCs) for the increased system transfer capability made available by the Expansion.

The process, described below, awards TCCs to the Expander, called Expansion TCCs, which represent the primary system transfer capability benefits. These Expansion TCCs will be awarded for a duration of twenty (20) years, upon commercial operation of the facility.

The process commences with the submittal of an application by the Expander to the New York Independent System Operator (ISO) which will include sufficient information for the ISO to make the required analyses, and a justification for the Expansion TCCs requested. Following approval of the application, the ISO will perform an analysis to determine the quantity (non-binding) of Expansion TCCs which are made possible by the Expansion. The final award of Expansion TCCs will not occur until commercial operation of the Expansion. At that time, the ISO will perform an analysis based upon the results of the last Centralized Auction (ie: not a monthly reconfiguration auction?) prior to commercial operation to make this final determination of the Expansion TCCs.

2. The Transmission Expansion Application

The procedure to be followed by a Market Participant for submittal of a Transmission Expansion Application (Application) is described in the NYISO Manual on Transmission Expansion. Some of the

information requested in the Application is necessary to perform the required analyses for awarding Expansion TCCs.

The potential Expander must have met all of the ISO's requirements related to the Expansion's impact on the system, prior to the ISO beginning the award benefits process. At that time, the ISO will consider the potential Expansion a legitimate candidate and will commence the process.

2.1 Technical Data Requirements

The award benefits process requires some of the technical information submitted with the Application. This information includes a description of the project, technical parameters of the facilities to be erected and a justification for the Expansion TCCs requested.

The project description would include the equipment to be installed and the location(s) or point(s) of interconnection of this equipment with the New York Transmission System. The locations and points of interconnection must be specified by substation and kV level.

Technical parameters must be of sufficient detail to model the facilities associated with the Expansion in an Optimal Power Flow (OPF) program.

The justification of the Expansion TCCs requested would include the locations of the single point of injection (POI), point of withdrawal (POW) and the quantity of TCCs. The single POI/POW must correspond, in general, to the locations and points of interconnection of the equipment installed for the primary Expansion path. The quantity of Expansion TCCs is required only for comparison purposes, since the ISO will determine the final award.

2.2 NYISO Review of Technical Data Requirements

The ISO will review the justification provided by the Expander for Expansion TCCs. The project

description and technical parameters already have met ISO standards for this information, since it is necessary in the evaluation made by the ISO in its system impact studies. If the ISO rejects the justification for Expansion TCCs made by the Expander, then the Expander may resubmit the justification portion of the Application only.

2.3 Insufficient Justification for Expansion TCCs

The justification of the Expansion TCCs will be rejected if, the POI/POW of the requested Expansion TCCs are unrelated to the primary Expansion path.

If the engineering studies, which are part of the Application, show increased system transfer capability across an interface, then the single POI/POW of the Expansion TCCs should reside in the zones which abut that interface or one zone removed. If the engineering studies show increased system transfer capability across consecutive interfaces, then the POI/POW must span the entire portion of the transmission system which was reinforced. Expansion TCCs will not be awarded as a number of segments, each segment of which crosses just one interface.

2.4 Initial Non-Binding Estimate of Expansion TCCs

The initial non-binding estimate of Expansion TCCs will be determined separately for Summer and Winter Capability Periods. At the time the estimate is to be made, the results of the last Summer Capability Period Auction will be used to estimate the Expansion TCCs for the Summer Capability Period and, similarly, the results of the last Winter Capability Period Auction will be used to estimate the Expansion TCCs for the Winter Capability Period. If intervening Expansions have occurred between those Auctions and the time at which the estimate is to be made, then these Expansions and their awarded Expansion TCCs will be added to these Auction results.

To determine the estimate of Expansion TCCs for each Capability Period, a two-step procedure will be followed. First, the ISO will determine if any portion of the requested Expansion TCCs are feasible

without the Expansion. The second step will determine the quantity of Expansion TCCs with the Expansion in-service disallowing any Expansion TCCs which were feasible without the Expansion.

2.4.1 Expansion TCCs Feasible Without the Expansion

The ISO will employ the OPF to determine whether any portion of the single POI/POW of the requested Expansion TCCs are feasible without the Expansion. The model used for this analysis will begin with the OPF results from the last Centralized Auction. To this model will be added the requested Expansion TCCs and all intervening Expansions and their associated Expansion TCCs. All TCCs awarded in the last Centralized Auction and all Expansion TCCs awarded for intervening Expansions will be modeled as fixed injections and withdrawals. The requested Expansion TCCs for the current analysis will be modeled as a generator with zero price at the POI of the Expansion TCCs and a load represented by a linear demand function at the POW of the Expansion TCCs. If any portion of the Expansion TCCs are feasible without the Expansion, then this quantity of TCCs will not be allowed as part of the estimate to be provided for the Expansion TCCs.

Depending upon the configuration of the Expansion, the Expansion TCCs may be split into segments to determine if any portion of the Expansion TCCs are feasible without the Expansion. The straightforward situation is one in which the single POI and POW of the requested Expansion TCCs are within the zones of the terminal connections of the primary Expansion path, then the ISO will evaluate the Expansion TCCs as requested.

If the primary Expansion path includes facilities at a single substation, such as a capacitor bank, then the Expansion TCCs will be split into two segments. These segments will be defined as follows:

i) from the POI to the substation; and

ii) from the substation to the POW.

Other situations may occur where the POI or POW or both are not located in the zones of the

terminal connections of the primary Expansion path, then the Expansion TCCs will be split into multiple segments between the POI and POW. Each segmented TCC will be modeled with a magnitude equal to the magnitude of the original Expansion TCCs.

The segmentation process for the three scenarios which arise from these assumptions relating to the POI and POW are described below.

1) If the POI is not located in the zone of the terminal connection of the primary Expansion path, then the Expansion TCCs will be split into two segments. These segments will be defined along the path of the primary Expansion as follows:

   i) from the POI to the terminal connection of the Expansion in the zone closest to the POI; and
   ii) from the terminal connection closest to the POI to the POW.

2) If the POW is not located in the zone of the terminal connection of the primary Expansion path, then the Expansion TCCs will be split into two segments. These segments will be defined along the path of the primary Expansion as follows:

   i) from the POI to the terminal connection of the Expansion in the zone closest to the POW; and
   ii) from the terminal connection closest to the POW to the POW.

3) If the POI and POW are not located in the zones of the terminal connections of the primary Expansion path, then the Expansion TCCs will be split into three segments. These segments will be defined along the path of the primary Expansion as follows:

   i) from the POI to the terminal connection of the Expansion in the zone closest to the POI;

ii) from the terminal connection closest to the POI to the terminal connection closest to the POW; and

iii) from the terminal connection of the Expansion in the zone closest to the POW to the POW.

The OPF execution to determine the Expansion TCCs feasible without the Expansion would proceed with each segmented TCC represented as a generator and load as described above, with each load price represented by the identical linear demand function. The result of this execution is the quantity of TCCs for each segment of the Expansion TCCs which are feasible without the Expansion.

2.4.2 Expansion TCCs Feasible With the Expansion

In the second step OPF execution, the ISO will modify the results of the OPF execution used to determine the feasible Expansion TCCs without the Expansion as follows. If the Expansion TCCs were represented as a single segment in the first step, then the quantity of Expansion TCCs, determined to be feasible from the OPF execution in the first step, will be modeled as a fixed injection and withdrawal at the POI/POW of the Expansion TCCs. If the Expansion TCCs were segmented in the first step, then the quantity of each segmented TCC, determined to be feasible from the OPF execution in the first step, will be modeled as a fixed injection and withdrawal at the appropriate POI/POW.

The Expansion is then added to the OPF model, the single POI/POW of the requested Expansion TCCs are represented with a linear demand curve and the OPF is executed. The Expansion TCCs which are feasible from this OPF execution are the non-binding estimate of Expansion TCCs to be provided to the Expander.

2.5 Future Requests for Non-Binding Estimates of Expansion TCCs

The Expander, from time to time, may request that the ISO prepare new non-binding estimates for its Expansion. This request may be made without resubmitting the Application for the Expansion. For a

fee, which will cover the ISO's costs to perform the analysis, the ISO will provide a revised non-binding estimate. The Expander at these times may provide the ISO with a revised schedule of expected system additions from the list of approved ISO projects. The Expander may at this same time change the POI/POW of the requested Expansion TCCs. The single POI/POW of the Expansion TCCs to be used to determine the award of the Expansion TCCs must be provided to the ISO prior to commercial operation of the Expansion.

2.6 Multiple Requests for Expansion TCCs

An Expander may submit multiple requests for Expansion TCCs within one Application, if the Expansion can be split into noncontinuous segments. The ISO will determine the Expansion TCCs associated with each segment in the order in which the segments will be installed on the system. The procedures, as described above, will be followed for each segment. Each segment will be evaluated with the preceding segment(s) assumed in-service.

3.0 Award of Benefits

The final award of the Expansion TCCs for each Capability Period will be determined just prior to the commercial operation of the Expansion. At this time, the Expander must provide the ISO with the single POI/POW of the requested Expansion TCCs to be used in the final award process. Using the results of the last Centralized Auctions, prior to commercial operation of the Expansion, and including any intervening expansions and their awarded Expansion TCCs, the ISO will award Expansion TCCs to the Expander for a duration of twenty (20) years from commercial operation of the Expansion. Upon commercial operation of the Expansion, the Expander will receive the Expansion TCCs and will begin collecting and/or paying the Congestion Rents in the Day-Ahead Market associated with those TCCs.

3.1 Grandfathered versus Expansion TCCs

Prior to the next Centralized Auction, the ISO will determine whether the Grandfathered TCCs, Residual TCCs and Existing Transmission Capacity for Native Load ("ETCNL") are feasible. If the set of TCCs and ETCNL are determined to be infeasible, then the ISO will reduce only the ETCNL, until a feasible set is found. In this process any Expansion TCCs which have been awarded will be included in the subset of Grandfathered TCCs which excludes the ETCNL. Therefore, Expansion TCCs will not be reduced as part of the reduction process to ensure feasibility.

3.2 Award of Expansion TCCs

The results of the last Centralized Auction prior to commercial operation of the Expansion will be modified to include any intervening expansions which have been awarded Expansion TCCs and their associated Expansion TCCs. All TCCs which were awarded in the last Centralized Auctions and all Expansion TCCs awarded to intervening expansions will be included in the OPF model as fixed injections and withdrawals at the appropriate POI/POW of each TCC. Also, the system representations of all intervening expansions will be included in the OPF model.

The modeling of the requested Expansion TCCs and the awarding of the Expansion TCCs will follow the identical process, as described in Section 2.4 *Initial Non-Binding Estimate of Expansion TCCs.*

3.2.1 NYISO's and Auctioneer's Responsibilities

The ISO is responsible for determining the quantity of Expansion TCCs to be awarded to the Expander. The ISO will make this determination without requiring knowledge of the TCC bids from the last Centralized Auctions. The bid curves required by the OPF execution used to determine the Expansion TCCs are arbitrary.

The Auctioneer's role in this determination is limited to providing the ISO with the results of the last Centralized Auctions. These results will include the final OPF solution but no TCC bid information. The

final results of these Auctions will be preserved, since the awarded TCCs from the Auctions will become fixed injections and withdrawals in the process for awarding Expansion TCCs.

3.3 Multiple Expansions

At times the ISO may have multiple Expansions becoming commercially operational within the same Centralized TCC Auction Period. In these situations, the ISO will determine Expansion TCCs based on the commercial operation date of the Expansions. Each Expansion studied will assume all prior Expansions in-service for its analysis.