Congestion Reduction Proposal

The intent in tomorrow's MSWG meeting is to review the BIC approved Congestion Reduction Proposal, review potential changes that may improve it, and develop a revised proposal with as high a consensus approval as possible to bring back to BIC. By Friday, January 18, a "finalized" proposal should be sent to BIC members based on this consensus.

Listed below are several Congestion Reduction objectives. While they may compliment each other in combinations, each is intended to be discussed and implemented independently if needed. The proposed implementation for Objective 1 always resides within the 11/15/2001 BIC approved proposal, while the implementation of Objective 2a represents a revision in the BIC approved proposal. All other Objectives (2b, 3, 4, 5, 6 and 7) represent additions to the BIC approved proposal.

***Objective 1*:** Focus outage congestion cost responsibility more closely on the TO capable of affecting the outage – particularly significant outrages – thereby providing stronger incentives for a TO to reduce congestion caused by its significant outages.

Objective 2: Continue to fully fund TCCs with the stipulation that a realistic set of TCCs will be auctioned such that they correspond to the total expected energy that can physically flow. This should apply to:

- ***a.*** Specific significant outages that can be forecast prior to a TCC auction
- ***b.*** Outages that can not be forecast specifically, but that can be anticipated to occur based upon historical averages.

Objective 3: Provide a more accurate approximation to correct inequities in existing Congestion Rent Surplus and Shortfall cost allocations from miscellaneous sources and causes that can not be ascribed to a specific TO.

Objective 4: Provide a mechanism for TOs to optionally smooth out their individual TSC and/or NTAC rates.

Objective 5: Provide a mechanism in which a TO can temporarily change transmission facility limits to take advantage of ambient conditions that are more favorable than those assumed in the TCC Auction.

Objective 6: Provide a mechanism for TOs to hedge against the risk of their TCC full funding obligation.

Objective 7: Provide a reward mechanism (i.e., “a carrot”) for a TO whose congestion reduction performance is better than expected thereby contributing to overall improved market efficiency provided: (a) reasonable safeguards against gaming by the TO are incorporated, and (b) incremental costs associated with the reward are allocated to those that benefit.

***Objective 1*:** Focus outage congestion cost responsibility more closely on the TO capable of affecting the outage – particularly significant outrages – thereby providing stronger incentives for a TO to reduce congestion caused by its significant outages.

Proposed Implementation of Objective 1: Counter-Flow TCCs will be assigned to a TO that takes a "Significant Transmission Facility Outage" so it would make that TO (i.e., the TO responsible for maintenance of a transmission facility) directly responsible for any Congestion Rent Shortfalls caused by that outage.

A "**Significant Transmission Facility Outage"** is a transmission facility outage (including a deration which is essentially a partial outage) scheduled in SCUC that is forecast to or actually has a "significant" impact on Congestion Rent Shortfall. The definition of "significant" impact could be subsequently adjusted, but initially would be any full or partial outage of a facility that has an impact on Congestion Rent Shortfall during a six month TCC auction period of **$250,000** or greater.

Thus, when a TO schedules a Significant Transmission Facility Outage** in SCUC, it will be assigned a Counter-Flow TCC for the duration of the outage (in full day increments but not necessarily continuous days). The "counter-flow" would represent a TCC opposite to the prevailing direction of TCCs sold in the auction as necessary to maintain simultaneous feasibility with the outage modeled. The Counter-Flow TCC for the scheduled outage would be modeled bus-to-bus from the Point-of-Injection to the Point-of-Withdrawal using the electrically closest appropriate Generator buses.

Comment: *The assigned Counter-Flow TCC would provide a direct incentive to the TO to: (a) minimize total outage time on a scheduled outage, and/or (b) schedule outages during times of zero or very low anticipated congestion. Either would help reduce overall congestion. Alternately, the Counter-Flow TCC would provide a disincentive to: (a) extend outage times, and/or (b) schedule outages during times of high anticipated congestion.*

Comment: *A mechanism similar to a Counter-Flow TCC already exists under current market rules to allocate Congestion Rent Shortfall costs. However, it is more dispersed (i.e., spread among TOs) and therefore less effective in providing an incentive to a specific TO to reduce congestion resulting from a planned outage.*

Counter-Flow TCC Example: Assume a TO plans a six week outage on Line #101 which will reduce the capability of Interface X-Y by 300 MW that is expected to have an impact on Congestion Rent Shortfall of $400,000 (i.e., greater than the $250,000 threshold). It submits a six-week planned outage on Line #101 from March 1 through March 14 and from April 1 through April 28. If prevailing flows in the TCC auction on the Interface were from X to Y, the TO would receive a 300 MW TCC from Y to X during the period of the scheduled outage. Then, the outage would be modeled in SCUC as scheduled, and anytime during that period that Day-Ahead congestion occurred from X to Y, the TO would be charged for 300 MW of Congestion Rent.

Objective 2: Continue to fully fund TCCs with the stipulation that a realistic set of TCCs will be auctioned such that they correspond to the total expected energy that can physically flow. This should apply to: (a) specific significant outages that can be forecast prior to a TCC auction, and (b) outages that can not be forecast specifically, but that can be anticipated to occur based upon historical averages.

To meet the intent of TCC full funding, that transmission availability should be adjusted for use in the TCC auction to match anticipated levels. These adjustments would be similar to the UCAP concept so that a TO with a transmission facility with reduced expected availability would sell a lower more realistic level of capability in the TCC Auction. Separate implementations would deal with conditions a and b above.

Discussion: The intent of TCC "full funding" was that TO's would only sell a realistic set of TCCs that can be physically supported. In this regard, the TCC Auction is conducted in a manner such that simultaneous feasibility must be maintained for all TCCs sold for the transmission configuration assumed. However, the TCC Auction evaluation presumes an "all-lines-in" transmission configuration, which then can lead to Congestion Rent Shortfall whenever transmission is unavailable. By assuming that transmission is 100% available, current practices essentially guarantee Congestion Rent Shortfalls.

Under existing rules, some allowance is currently made (albeit coarse) for planned significant outages as follows:

> A 3 month, 1 day or longer forecast outage is modeled as a 6 month outage in the TCC auction, thereby decreasing the amount of TCCs offered in the TCC Auction. This results in reduced TCC Auction Residual Revenue for the TO that scheduled the outage, and it also reduces exposure to TOs for Congestion Rent Shortfall charges when the line is out. And it increases expected Congestion Rent Surplus payments to other TOs when the line is not out even though it was modeled as being out of service for the full six months. However, the lack of variability in the amount that can be withheld results in a less accurate and likely under-estimated portrayal of transmission capability actually available.
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> Alternately, a 2 month, 29 day or shorter forecast outage is modeled as no outage in the TCC auction, thereby not changing the amount of TCCs offered in the TCC Auction. This results in no change in TCC Auction Residual Revenue or in Congestion Rent Surplus payments to TOs. However, it increases exposure to TOs for Congestion Rent Shortfall charges when the line is out, and virtually guarantees a Congestion Rent Shortfall.

Thus, the NYISO has within its purview the ability to adjust the level of TCCs that can be sold in the TCC auction to account for changes in the expected availability of transmission. However, for significant outages, the existing method is relatively inflexible and likely inaccurate. Additionally, an adjustment method does not currently exist for outages that can not be forecast specifically, but that can be anticipated to occur based upon historical averages.

Proposed Implementation of Objective 2a: For a specific significant transmission facility outage that can be forecast prior to a TCC auction, the TO responsible for operating and maintaining that facility can submit a forecast of that planned outage to the NYISO. The forecast would be due with sufficient lead time prior to the TCC auction, and would be submitted as a duration in full day increments for that upcoming TCC auction period (nominally 6 months). The total outage would not necessarily need to be continuous nor would the dates need to be scheduled specifically then. Only the expected total *duration* for the outage over the TCC auction period, the estimated Congestion Rent Shortfall expected to result, and a justification for the outage would need to be submitted at that time.

Example: For the upcoming Summer Capability Period, the TO that operates and maintains Line #101 forecasts that line will be out-of-service for 42 days, and will incur an estimated $550,000 in Congestion Rent Shortfall; it therefore is forecast as a "significant transmission facility outage".

The NYISO would make a TCC Availability Adjustment by creating an "Outage TCC"* equivalent to the levelized reduction in transmission capability accruing from the significant outage over the duration of the TCC Auction Period.

***Note:** *The concept of the "Outage TCC" has changed. In the 12/15/2001 BIC approved Congestion Reduction Proposal, an Outage TCC was sold in the TCC Auction, but up to 100% of the revenue was reserved for the TO taking the outage. In this proposal, the Outage TCC is reserved for the TO taking the outage and not sold in the TCC Auction. Thus, for the TO taking the outage, the TCC revenue is reduced, exposure to Congestion Rent Shortfall is reduced, and it accrues Congestion Rent Surplus when the facility is in service.*

The Outage TCC for a significant outage would be modeled bus-to-bus from the Point-of-Injection to the Point-of-Withdrawal using the electrically closest appropriate Generator buses. The direction of the outage TCC would be the same as the prevailing flow of TCCs sold in the auction.

This methodology would need to include an accommodation to account for the impact of TCC auctions that are longer term than six months.

The amount of the Outage TCC (as necessary to maintain simultaneous feasibility with the outage modeled) would be determined in one of several ways:

a. **Direct Interface Impact** – For cases in which a significant transmission facility outage is forecast that has a direct impact on an interface's rating, an Outage TCC would be created. This would represent a TCC reserved for the applicable TO and withheld from the TCC Auction. Consequently, that TO's TCC Auction Residual Revenue would be reduced accordingly. Its amount would be equal to the interface's capability decrease (on a levelized basis) determined for the outage. In some instances, this may involve TCCs on more than one interface. Any remaining

TCC Auction Residual Revenue would be allocated as usual.

Example: Assume that an outage of Line #101 results in a capability decrease of 300 MW on Interface X-Y. If a TO forecasts the Line #101 to be out for 6 weeks, an Outage TCC would be created such that 69 MW TCC from X to Y is reserved from the TCC Auction. The 69 MW is 300 MW levelized over 6 months: 69 MW = (6 weeks/26 weeks) x 300 MW.

b. **Indirect or Less Obvious Interface Impact** – For cases in which a forecast outage of a transmission facility has an indirect or less obvious impact on a specific interface's rating (i.e., the impact of the outage varies based upon the actual TCCs being bid in the TCC Auction), an Outage TCC would be created in an amount equal to the interface's capability decrease as determined in the TCC auction using the levelized decrease in the facility's capability. As above, this may involve TCCs on more than one interface; and any remaining TCC Auction Residual Revenue would be allocated as usual.

   Example: Assume that the outage of Line #101 – with a thermal rating of 100 MW – does not have a direct or obvious impact on the capability of an interface. If a TO forecasts the Line #101 to be out for 6 weeks, the rating of Line #101 will be reduced by a levelized amount of 23 MW = (6 weeks/26 weeks) x 100 MW for the OPF model used in the 6 month TCC Auction. This, in turn, will be used to determine how the outage would affect an interface's capability based upon the actual TCCs bid in the TCC Auction.

   Further assume that the outage of Line #101 (with a levelized rating reduction of 23 MW) results in a capability decrease on Interface X-Y of 50 MW based upon the specific TCC auction held. In this case, an Outage TCC would be created such that a 50 MW TCC from X to Y is reserved from the TCC Auction.

c. **Insufficient TCC Auction Residual Revenue Available** – For cases in which an interface is heavily subscribed with existing transmission commitments, insufficient or even zero TCC Auction Residual Revenue may be generated by that interface. Under these circumstances, an Outage TCC associated with a significant outage would be created using the methods of Items a or b above, but proportionately reduced to account for the insufficient TCC Auction Residual Revenue. In the extreme case in which no TCC Auction Residual Revenue is generated by that interface, no Outage TCC would be created.

Comment: *The TCC Availability Adjustment with its accompanying Outage TCC reserved from the TCC Auction would provide a direct incentive for a TO to reduce congestion since an improvement in transmission availability would increase Congestion Rent Surpluses and/or decrease Congestion Rent Shortfalls for that TO individually in the short term; and it could lead to increased TCC revenue in the longer term.*

Implementation of TCC Availability Adjustments and Outage TCCs (Objective 2a) as proposed above supersede Outage TCCs as originally proposed in the 11/15/2001 BIC approved Congestion Reduction Proposal. Therefore, this revised proposal would eliminate four sections in the BIC approved proposal as follows:

a. Eliminate Item 4: *Forecast of Significant Outages* – this is subsumed by the TCC Availability Adjustment defined above.

b. Eliminate Item 5: *Verification of Significant Outage Forecast* – this step will no longer be needed since a TO will be automatically discouraged from submitting an unrealistically lengthy forecast for an outage because that TO would unnecessarily lose potential TCC Auction revenue in the process.

c. Eliminate Item 6: *Creation of Outage TCCs* – Outage TCCs are redefined with the TCC Availability Adjustments described above.

d. Eliminate Item 8: *Outage TCC Revenue Allocation* – no longer needed since Outage TCCs would no longer represent revenue reserved for a TO.

Proposed Implementation of Objective 2b: For outages that can not be forecast specifically, but that can be anticipated to occur based upon historical averages, a TCC Availability Adjustment methodology will be developed by BIC (and/or a designated working group) in collaboration with NYISO Staff. Its intent will be to provide an accurate forecast of transmission availability (as it impacts congestion) considering historical outages resulting from miscellaneous/reoccurring causes and infrequent catastrophic outages, but excluding significant planned outages that can be forecast prior to the TCC Auction.

Presumably the TCC Availability Adjustment for these expected outages would also be accommodated with Outage TCCs as described for Objective 2a above. The overall intent of the TCC Availability Adjustments would be for each TO to individually net all congestion rent shortfalls and surpluses accruing to that TO to zero (excluding shortfalls from infrequent and random catastrophic outages and from planned significant outages).

Also, the NYISO would need to monitor results to prevent continuing large Congestion Rent Surpluses by any TO, and may need to re-evaluate the applicable TCC Availability Adjustments. As with 2a above: (a) the methodology would need accommodate TCC auctions that are longer term than six months; (b) Grandfathered TCCs would not be eligible for availability adjustments.

Note: *If non-fully subscribed interfaces are not anticipated to have significant unavailabilities, yet fully subscribed interfaces (which will be ineligible for this proposal) are anticipated to have significant unavailabilities, the need for fulfilling Objective 2b may be negated.*

Objective 3: Provide a more accurate approximation to correct inequities in existing Congestion Rent Surplus and Shortfall cost allocations from miscellaneous sources and causes that can not be ascribed to a specific TO.

Discussion: Currently, all Congestion Rent Surplus owed to a TO and Congestion Rent Shortfall owed by a TO is allocated on the basis of a TO's share of total TCC Auction Residual Revenue. While this method is fairly simple, it is not an accurate portrayal of cost responsibility. This is both inequitable and inefficient.

Proposed Implementation of Objective 3: Develop a new relatively simple cost allocation method (probably static over a six month TCC Auction period) that more accurately assigns cost responsibility for miscellaneous Congestion Rent Surplus and Shortfall. Since causes are not necessarily similar, the methods and/or parameters used for allocating surpluses and shortfalls need not necessarily be identical (as they are now).

Objective 4: Provide a mechanism for TOs to optionally smooth out their individual TSC and/or NTAC rates.

Proposed Implementation of Objective 4: For each TO that opts to do so, a formal individual TO Congestion Rent Reserve Fund would be set up to provide a mechanism to recover congestion rent shortfalls associated with anticipated and unanticipated outages and miscellaneous congestion rent shortfalls. The fund would be designed such that it would not necessarily clear at the end of each month if a net surplus resulted. This would provide an offset for shortfalls to help smooth out TSC and NTAC rates. Additionally, Congestion Rent Surpluses and Shortfalls from miscellaneous sources and causes would flow into this fund. Any contributions or withdrawals by a TO would be passed through as part of the applicable TSC or NTAC. TOs that opt not to participate in the fund would clear costs and revenues each month and pass them through as part of the applicable TSC or NTAC (as is currently done).

The fund would be set up for a TO as follows:

a. The fund would carry a net surplus up to a pre-defined limit. If the limit is exceeded, the surplus would be partially cleared each month. The fund would clear each month that a negative balance occurred. However in subsequent months, the utility would have the option of clearing the fund to zero to make up for the negative balance.

b. If the fund consistently carries a net surplus, the NYISO will re-evaluate the applicable TCC Availability Adjustments (as defined in Objective 3b above) to determine if a change is needed.

c. Congestion Rent Surplus owed to the TO from TCCs withheld to account for TCC Availability Adjustments (as defined in Item 3 above) would be allocated to that TO's Reserve Fund.

d. Congestion Rent Shortfalls owed by a TO resulting from assigned Counter-Flow TCCs would be allocated directly to that TO's Reserve Fund.

e. Congestion Rent Surpluses and/or non-performance Shortfalls resulting from Two-Day Ahead Dynamic Ratings of transmission facilities (if this program, as described further below, is implemented) would accrue to the specific TO engaging in the dynamic rating.

Objective 5: Provide a mechanism in which a TO can temporarily change transmission facility limits to take advantage of ambient conditions that are more favorable than those assumed in the TCC Auction.

Discussion: The proposed Dynamic Rating Program would therefore provide an increased value to the market because a TO would have an incentive to make additional transmission capability available during peak congestion periods by relying on more current information rather than using more conservative static information.

Proposed Implementation of Objective 5: Develop and implement a Two-Day-Ahead Dynamic Rating Program in which a TO can temporarily upgrade and downgrade transmission facility limits (downgrading is already allowed) – on an hourly basis if practical – to take advantage of ambient conditions that are more favorable than those assumed in TCC Auction as follows:

a. **Allocation of Day-Ahead Revenues from Program** – Congestion Surpluses and Shortfalls resulting from the Dynamic Rating program will accrue individually to the applicable TO Reserve Funds. The base point for establishing the Dynamic Rating Program revenues and shortfalls would be the Interface rating without adjustments for forced or planned outages (i.e., “All-Lines-In” rating).

b. **Allocation of Real-Time Revenues from Program** – To the degree a TOs Real-Time performance in the Dynamic Rating Program is worse than the Day-Ahead commitment, the associated Real-Time Congestion Rents Shortfalls will be allocated to the TO implementing the Dynamic Rating Program. To the degree a TO’s Real-Time performance in the Dynamic Rating Program is better than the Day-Ahead commitment, the excess revenues could be used to offset that TO’s Real-Time Shortfalls.

Objective 6: Provide a mechanism for TOs to hedge against the risk of their TCC full funding obligation.

Proposed Implementation of Objective 6: This can be addressed by a risk sharing program entered into by TOs and/or by implementation of a Virtual TCC market in which Market Participants with adequate credit-worthiness offer financially based TCCs (i.e., not physically supported) into the TCC Auction.

One proposal, to account for the fact that interfaces which are fully subscribed with grandfathered TCCs will not be eligible for Outage TCCs is as follows:

> For the Y-49 and Y-50 Facilities (Con Ed to LI cables) that were fully subscribed by grandfathered TCCs that were in effect at the beginning of the NYISO operation, Congestion Rent Shortfalls caused by scheduled annual required preventive maintenance outages on these facilities would be cost allocated to TOs in the same way miscellaneous congestion rent shortfalls are allocated. The amount of Congestion Rent Shortfalls recovered in this manner shall be capped at $6 million per year, and no more than $16 million for any consecutive four-calendar-year period. This allowance shall be allocated in proportion to the MW rating of the ownership share of the facilities. To the degree that planned preventive maintenance results in Congestion Rent Shortfalls that exceed the above allowances, the remaining costs would be recovered through assigned Counter-Flow TCCs (as described under Objective 1). Each TO eligible for this cost recovery, shall first subtract from such Congestion Rent Shortfalls any net positive Congestion Rent Surplus accumulated during the affected six month TCC Auction Period prior to the determination of the net Shortfall to be recovered.

Objective 7: Provide a reward mechanism (i.e., “a carrot”) for a TO whose congestion reduction performance is better than expected thereby contributing to overall improved market efficiency provided: (a) reasonable safeguards against gaming by the TO are incorporated, and (b) incremental costs associated with the reward are allocated to those that benefit.

Proposed Implementation of Objective 7: This methodology will be developed by BIC (and/or a designated working group) in collaboration with NYISO Staff.