

Scheduling External Transactions:
A Reservation-Based Alternative
to Current NYISO Practice

Prepared by

Scott Englander, Tabors Caramanis & Associates

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Problems with External Scheduling Procedures Currently Used by NYISO

[TO BE DEVELOPED]

Reservation-Based Scheduling: The Proposal

The solution proposed here as a remedy to the difficulties transmission customers currently experience in doing interregional transactions between the New York control area (NYCA) and its neighbors is the adoption of a reservation-based scheduling approach and business rules for external transactions that more closely conform to those of its neighbors. In the near term, the approach would be implemented unilaterally by NYISO and would exist in parallel to reservation and scheduling procedures used by New York's neighbors. Despite the fact that the procedures used on each side of a boundary would still be separate, we believe they would be much more compatible with each other than those in place today. In the longer term, we envision that the parallel sets of procedures on each side of a boundary would be replaced by a single set of procedures—or eliminated, in the event the boundary is eliminated through RTO aggregation.

The set of procedures that a transmission customer would need to perform (with respect to the control area on each side of the boundary) to bring an interregional transaction to delivery is twofold. First, the customer would need to reserve transmission service in advance. Next, the customer would need to schedule the energy transaction, making use of its reservation. At a high level, these general mechanisms are the same currently used by New York's neighbors (i.e., those with open access—PJM and New England) for interregional transactions. Through this approach, a transmission customer would be able to acquire and use (with certainty) long-term firm transmission service on the ties, making it possible for the customer to enter into long-term transactions whose source or sink is in New York.¹ As more of these transactions happen, the notably wide bid-ask spread in the New York forward market should narrow considerably, making it easier and less expensive for customers to manage their own risk.

Overview of the Proposal

Reservation. Under this proposal, transmission customers reserve transmission capacity on the ties through an allocation process. Here we propose two alternatives for the allocation, each of which have advantages and disadvantages relative to the other. One approach, used in PJM and in New England, is the approach laid out by the FERC in its *pro forma* tariff. The alternative approach would make use of periodic auctions to allocate transmission capacity to transmission customers based on their bids in the auctions. Both of these alternatives are discussed in greater detail below.

Scheduling. Once a transmission customer has reserved transmission capacity, the customer must schedule a transaction in order for it to flow. The scheduling process proposed here is very much like that used in PJM, which has a successful track record. This process occurs in two time frames: day ahead and on an hourly basis. For this type of

¹ This is made possible because parties to such a transaction will be able to enter into the transaction with long or short positions knowing that firm transmission into or out of New York will enable them to liquidate a long position in a neighboring market, or fill a short position using energy imported from a neighboring market.

scheduling process to be feasible, a procedure for reserving ramp space like that employed in PJM would likely be required. Under this scheduling approach, the BME would be used only for reliability purposes with regard to the use of the ties. That is, BME would no longer be used to schedule an external transaction. The scheduling approach proposed here would also be available in and prior to the day-ahead scheduling process. In the day-ahead process, customers would have a choice whether to have their transaction scheduled by SCUC on the basis of price, or to self-schedule. Customers whose transactions deviate in real time from the day-ahead scheduled levels will settle those deviations at real-time prices.

Reserving Transmission Service

Transmission capacity reservations would be required for exports from or wheels through New York, but not for imports to New York, which will require scheduling only. Once acquired, reservations would be tradable. Reserving capacity on the ties would not entitle the transmission customer to receive TCCs. In fact, the adoption of the approach proposed here would require no changes to the existing methods used in the settlement of congestion costs. Transmission customers would be able to reserve capacity up to the total transfer capability (TTC) of the path, adjusted by the transmission reliability margin, i.e., up to $TTC - TRM$.²

Under either of the alternatives for the reservation of transmission service presented below, the scheduling process would be the same.

Pro-forma Approach

This approach, which has been used widely throughout the U.S. (notably in PJM and New England) since the FERC issued its Order No. 888, is the simplest of the two alternatives presented here. This protocol provides for the deadlines for requesting, granting, confirmation, and withdrawal of service, rules for handling competing requests (based on duration and firmness of service, etc.), and handling of requests for secondary service. The aspects of this type of approach relevant to point-to-point service would be adopted for use under this proposal. Because many potential models for the details of pro-forma-type reservation allocation exist, the details will not be developed here. The basics of such an approach applied to New York would be as follows:

- The paths available for reservation would be those in use now:
 - NY to NE, PJM, Ontario, and HQ
 - NE, PJM, Ontario, and HQ to NY
 - Each of the external areas to another external area (except perhaps between HQ and Ontario)
- Capacity types available would be firm, non-firm (full, on-peak, and off-peak), and secondary.
- Valid points of receipt and points of delivery would be NY, NE, PJM, Ontario, and HQ

² This would require NYISO to calculate and publish TTC for paths leaving and through NYCA. Although required by the FERC to do this, NYISO currently publishes TTC only for paths entering NYCA.

- Priorities would be as follows: long-term firm service (one year or longer), short-term firm service (monthly, weekly, daily), non-firm service (monthly, weekly, daily, hourly). Within a class, reservations would be granted on a first-come first-served basis, and granted pro-rata to requests of the same class deemed to have been submitted simultaneously. One way of handling new competing requests for firm service of different classes would be for reservation holders to have a right of first refusal to match competing requests of a higher priority.
- Non-firm service could be handled in a number of ways. For example,
 - Non-firm requests willing to buy through congestion could be allocated up to the level of requests (i.e., not limited to ATC), and non-firm requests not willing to buy through congestion would be limited to remaining ATC. This is the approach used by PJM, and consistent with a concept of non-firm service advocated by some market participants in New York.
 - Non-firm requests would be allocated up to remaining ATC. This is more consistent with the current concept of non-firm service in NYISO.
- The transmission customer would pay the TSC rate for firm service reserved, non-firm service could be discounted (e.g., \$0.67/MWh rate in PJM). Simplifications of external TSCs currently under consideration would, if adopted, be incorporated here.
- Standard OASIS software could be used to implement the process. Alternatively, this software and process would be integrated with the software and process used for scheduling energy transactions.
- A secondary exchange for capacity reservations could be outsourced or left to develop on its own. The exchange would facilitate use of reservations by transmission customers valuing them most highly.

Periodic Auction Approach

This more involved approach would directly allocate transmission capacity on the ties to those transmission customers who valued them most highly. This would be accomplished through the use of periodic auctions of capacity. Auctions could be conducted for varying terms of service (e.g., long-term, seasonal, monthly, weekly, weekday, weekend), much in the way that TCCs are auctioned, except that the quantities to be auctioned would be established prior to each auction. Under this approach, the transmission customer would pay the auction clearing price in addition to or instead of a TSC;³ auction revenues could be allocated in the same fashion used to allocate TSCs to transmission owners.

Non-firm service could be auctioned, or sold at a flat discounted rate. The same options for how to define non-firm service exist with this allocation approach as described above under the pro-forma approach.

The auctions could be strictly primary or could allow for resale as well. The auction function could be outsourced or performed internally by NYISO. As with the pro-

³ Clearly, if auction revenues can take the place of TSC charges, pancaking would be reduced.

forma approach, a secondary exchange could be outsourced or left to develop on its own. Although detailed auction mechanics are not included in this draft of the proposal, schemes for the auction of capacity reservations that allow for price discovery *within* the auction (rather than after the fact, as in the current TCC auctions) have been developed and could be adopted here.⁴

Reserving Transmission Service: Other Considerations

In addition to the reservation allocation mechanism, a number of other considerations regarding transmission reservations are noteworthy.

Imports. Imports to a control area require scheduling, but not a reservation of service in that control area. For example, PJM-NY and NY-PJM transactions would require transaction schedules with both ISOs, but a PJM-NY transaction would require a reservation only in PJM, and a NY-PJM transaction would require a reservation only with NYISO. The same is true for scheduling transactions between NY-NE and NE-NY.

LBMP market transactions. Market participants intending to make day-ahead LBMP market purchases or sales at external proxy buses (as opposed to bilateral transactions) wouldn't need a transmission reservation to engage in such transactions, as they could be considered to be "financial only" (as they are in PJM)⁵ and would therefore not require transmission capacity. Physical LBMP market imports, like all imports, would not require reservations.

Determining TTC and ATC. Ideally, NYISO would agree with its neighbors on the quantity of TTC or maximum firm ATC to be allocated in each direction; alternatively, NYISO could limit the maximum firm ATC for export to no more than what the importing control area is consistently willing to schedule (i.e., choose the "lower of" this quantity or the quantity calculated by NYISO). Similar processes could be used to quantify ATC on paths through New York. In all cases, we propose that the impact of circulation would be deducted from firm capacity to be allocated, and furthermore that firm counterflows would not be used to create firm capacity (as they might disappear).

Scheduling External Transactions

External energy transactions (except LBMP market transactions, considered to be financial, as discussed above) would be scheduled as described below.

Wheels or exports. Firm service on a path would be scheduled up to the MW quantity of firm reservations on the path, subject to applicable ramp constraints. Transactions would be scheduled on a first-come, first-served basis by reservation holders. Non-firm service would be scheduled up to the MW quantity of non-firm reservations on the path, also subject to applicable ramp constraints, and reflecting congestion in accordance with the definition of non-firm service.

⁴ One such proposal, developed by Richard Tabors and Robert Wilson, is described in "Auctionable Working Paper 101-0499-224, Revised June 1999, <http://www.tca-us.com>.

⁵ In PJM, such bids to buy from or offers to sell to the spot market are called "incs" and "decs."

Imports. Firm service on import paths would be scheduled on a first-come, first-served basis up to either quantities agreed upon by NYISO and its neighbors, or the “lower of” the quantities used by NYISO and a neighbor if these differ, as described above.

Frequency of schedule changes. Currently, NYISO requires that transactions begin and end on the hour, in contrast to its neighbor PJM, which allows transactions to start and stop each quarter hour, and to ramp in over two or more 15-minute intervals.⁶ Such additional flexibility would be desirable under this proposal, as it would greatly facilitate meeting ramp constraints, and would therefore allow fuller utilization of the ties. It would also bring NYISO’s business practices closer in line with its neighbors.

Scheduling up to the day-ahead deadline. In this time frame, which goes out as far as transmission reservations are allowed (or for imports, as far as the external control area operator can confirm), transactions can be scheduled but schedules are considered to be non-binding until the day-ahead deadline.⁷ In this time frame, several types of transactions may be scheduled:

- **Fixed transactions:** These are scheduled without regard to price (i.e., self-scheduled), and can be either day-ahead or pre-scheduled real-time transactions. Pre-scheduled real-time transactions are not considered in the bid load pass of SCUC.
- **Day-ahead dispatchable transactions:** These are scheduled if economic in the day-ahead analysis (based on decremental bid, price-capped load bid, or “up-to” congestion bid (if implemented))

Scheduling hourly transactions. After the day-ahead deadline, all schedules for the day of operation must be scheduled on an hourly basis. In this process, day-ahead schedules are considered fixed, i.e., even day-ahead dispatchable transactions are considered to be non-dispatchable at their day-ahead scheduled levels. In addition, new fixed (i.e., non-dispatchable) hourly transactions can be scheduled for any future hour of the day of operation, up to the hourly scheduling deadline.⁸

Ramp space. Ramp space is allocated on a first-come, first-served basis as part of the scheduling process; it is reserved or queued (if not yet available) when the schedule is submitted. For dispatchable day-ahead transactions, excess ramp above that needed for the portion of transaction that is scheduled (if marginal) is released.

Non-firm queue. Depending on the design attributes of non-firm service, it may be possible that less non-firm service would be available than is requested. In this case it may be desirable for transmission customers to be able to queue requests for non-firm service if none is available at the time of request. This queuing process could be either first-come first-served, or auction-based.

Software and user interface. This type of scheduling approach would require something like PJM’s Enhanced Energy Scheduler (EES) application.

⁶ While ISO-NE generally allows schedule changes only on the hour, ISO-NE staff have expressed interest in allowing changes to be more frequent, provided this could be arranged with its neighbors.

⁷ Changing NYISO’s day-ahead scheduling deadline to conform with those of its neighbors (12 noon) would facilitate this process and remove a barrier currently faced by inter-regional transactions.

⁸ In PJM, new transactions must be submitted up to 45 minutes prior to start. Changes may be submitted up to 30 minutes prior to start.

Transaction curtailment After non-firm transactions are curtailed, firm transactions would be curtailed on a pro-rata basis.

Additional Concerns

Hoarding of Reservations

While hoarding is strictly speaking possible (absent market monitoring and mitigation) under this proposal, there are a number of factors that would make it unprofitable (unless perpetrated by an entity that otherwise has market power). Under the pro-forma approach, because TSCs would be based on reserved (not scheduled) capacity, they would act as a disincentive to reserve capacity but not schedule a transaction or sell the reservation. Under either approach described in this proposal, because scheduling is first-come, first-served, reservation holders have an incentive to either schedule or sell their reservation early. Capacity not scheduled by the day ahead deadline would become hourly non-firm capacity available for reservation and scheduling by others (i.e., the reservation is “use it or lose it”).

nit would monitor for patterns of reservation hoarding in case these incentives are insufficient to deter hoarding.

Advantages of a Reservation-Based Scheduling Approach

[TO BE DEVELOPED]

Future Evolution of the Approach Presented Here

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