ConOp

Multi-Hour Block Transactions

Concept of Operation

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Revision History

Date   **Additions, deletions, modifications**

Date	Additions, deletions, modifications
January 8, 2001	Initial Creation
January 26,2001	Development (v1.2)
April 4, 2001	Additional issues. MSWG (3/8/01) resolutions. (v1.3)
April 6, 2001	Updated per MSWG (4/6/01) resolutions. (v1.4)
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Purpose & Limitations
of this Document

The Concept of Operations (COO) is the first document in the lifecycle of a software system implementation or enhancement. The COO generally describes the proposed functionality in plain terms (a.k.a. White Paper). It does not attempt to provide detailed explanations of requirements or implementation details, but rather explains the functionality in conceptual terms for discussion prior to detailed design.

*Changes to the functionality or appearance of software that is described in the COO may be introduced in subsequent design, implementation, testing or maintenance phases. In addition, the software system or enhancement may evolve over time as other software systems and enhancements are introduced. The COO is not updated to reflect these changes. That is, the COO is not intended to document the software system or enhancement "as built." Other documents, specifically **Technical Bulletins** and **Manuals**, describe the "as built" software system or enhancement. In short, the COO will become obsolete at some point during the lifecycle of a software system implementation or enhancement.*

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Introduction

External transaction bids supplied by market participants are currently evaluated in SCUC on an hourly basis through an assessment of bid prices versus system costs. The transactions are scheduled for the particular hours when their bid prices are economically attractive and no physical constraints would preclude them. The evaluation of a transaction for a particular hour does not depend on whether that transaction will be scheduled in any preceding or subsequent hour. Additionally, the software allows the transaction schedule to be fully dispatchable allowing the system to take advantage of all available transfer capacity while scheduling interchange up to the transfer limits.

Financially this may represents an optimal situation, as the cost of replacing the transaction's energy will be less than the transaction's NY bid costs. However, this benefit will be mitigated by any additional costs incurred by the market participant to restructure their deals. Other options for the market participant may be limited due to the notifications times.

The scheduling practice is not effective at meeting the needs of the market participants who are forced to address the mismatch between actual schedules and desired schedules in the neighboring control areas. Responding to the requests of market participants engaged in the scheduling of external transaction, the multi-hour block transaction project will attach a user specified minimum run time characteristic to external transactions in the SCUC. This characteristic will ensure that, when selected, the transaction will obtain a schedule for the full requested MW and time frame. The selection of transaction in SCUC will then take this minimum run time characteristic into account in the least production cost evaluation over the day.

Business Need

The development of a minimum run time characteristic for external transactions is in direct response to repeated requests from market participants. The use of the existing ISO system may complicate the scheduling of multi-hour transaction to those market participants engaged in establishing interchange schedules that are feasible to New York, the neighboring control areas and the parties of the transaction. Additionally, the process may ultimately result in financial harm to the scheduling parties as they reconcile the schedules with all parties. The development of a transaction minimum run time would alleviate these issues.

Resolving outstanding issues associated with inter-regional commerce will draw increased participation into the NY market and enhance overall competition. The ability to simultaneously offer fixed block schedules at biddable prices offers an advanced feature not currently available in other parts of the Northeast region.

Functional Description

Functionality impacted by this project and characteristics of a multi-hour block transaction include:

1. Existing bidding capabilities enhanced to incorporate a user specified minimum run time parameter. The transaction bid will consist of a constant MW and bid cost over the entire minimum run time period. A bid may also be supplied to indicate the price the transaction is to be evaluated at in the Hour-Ahead Market (HAM), if accepted in the Day-Ahead Market (DAM.) This allows a Market Participant (MP) to pre-specify their intentions for transaction scheduling.
2. SCUC will evaluate each transaction on a total production cost basis over the day in determining whether to schedule the transaction. Inherent to the minimum run time characteristic is the recognition that the transactions requests to be scheduled at their full bid amount and not at a partial schedule. Multi-hour block transaction will not be given a schedule at other than zero or full bid amount in the DAM. The scheduling of multi-hour block transaction will only occur during the commitment passes of SCUC (Pass

1 – 3.) The dispatch passes are not able to take full account of the total production costing and as such will not modify multi-hour transaction schedules.

3. Multi-hour block transaction will not set LBMP prices. Inherent to the minimum run time characteristics is the recognition that the transaction wants to be scheduled at their bid level on a total production costs basis over the full period of operating times, and not hourly based on LBMP prices. This approach resembles a block loaded steam unit. The cost recovery mechanisms would still ensure that the transaction is guaranteed a payment equal to its bid production cost.[1]

4. Transaction minimum run times will only be honored within a commitment day, which currently ends at midnight. The minimum run time will not be recognized beyond this period. The existing software structure only recognizes the cost of resources up to the end of its evaluation period. The costs beyond that period are unknown and uncontrollable. Without a proper evaluation of those costs, the honoring of run times into those periods cannot be recognized. This treatment of external transactions minimum run times over midnight would be consistent with all other resources evaluated in the day-ahead market.[2]

5. Multi-hour block transactions scheduled by the commitment software will not be subject to pro-rata scheduling in the event multiple marginal transactions exist. Multi-hour transactions are committed based on costs over the entire commitment period recognizing a full schedule. Pro-rata scheduling would disrupt the optimization logic and be counter to the intent of the project. In the event multiple marginal cost transactions existed at a constrained location, the SCUC optimization algorithm would arbitrarily accept and schedule one of the transactions.

6. A bilateral import transaction not scheduled due to minimum run time constraints will be removed from the physical market, but not the financial market. Releasing a market participant from their financial position if an import bilateral transaction is not physically scheduled is not accommodated within the existing market structure as the load is still served regardless of the import schedule. The use of multi-hour block transactions is not intended to change the existing financial market, only the physical market and the ability to ensure multiple hour selected together.

7. The checkout procedures for the day-ahead market will confirm each hour of a multi-hour block transaction independently. Modifications and removal of individual hours will be accommodated. Any financial obligations will remain according to the SCUC produced DAM schedules.

8. Minimum run time obligations will not be recognized in the hourly market. The HAM only provides schedules for one hour at a time. Minimum run time obligations are not recognized by the software and are the responsibility of the bidding organization to bid to get the desired commitment through time. This modeling would be consistent with all other resources evaluated in the hour-ahead market.

9. Transaction schedules made in the DAM will be economically evaluated within the BME software based upon market participant supplied bid criteria. Within the HAM, equal cost transactions will be pro-rata scheduled to resolve any binding constraints.

10. Curtailment of schedules in real-time operation will be based on the bid parameters utilized in the HAM. Real-time curtailments are in response to adverse system operating conditions and must have all resources available to resolve the problems. All transactions scheduled for the hour will be available for curtailment based upon their relative bids. The curtailment of a multi-hour transaction will only impact the constrained hours. All other hours of the multi-hour transaction will remain intact.

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[1] Subject to limitations as per agreement on constraining of Bid Production Cost Guarantee gaming opportunities

[2] The issue of minimum run times extending beyond midnight is a point of discussion within the working groups. Any work conducted in those groups to modify the existing market capability will also need to evaluate the ability to extend that capability to transactions.

Preliminary Software Impact

MIS		
Bid & Schedule Data	1. Modify database to incorporate minimum run time characteristic. 2. Automate pricing of accepted day-ahead transactions.	
Pre & Post SCUC/BME	1. Modify interface to transfer additional information.	
IS+	1. Facilitate checkout of multi-hour transactions. 2. Recognize pricing of accepted day-ahead transactions.	
Outages & Derates		
Downloads/Updates	1. Modify template to reflect modeling changes	
Other		

BAS		
Billing	1. Potential modification to BPCG.	

Mainframe		
SCD		
RTSA		
93 Day Audit		
Host Data Exchange		
Other		

SPIDER		
SCUC	1. Augment modeling to incorporate minimum run time on load modeling. 2. Expand data interface to incorporate additional information. 3. Remove multi-hour transaction from pro-rata scheduling.	
BME	1. Expand data interface to incorporate additional information.	
PTS		
Host Data Exchange		
Other		

Other		
Tariff	1. Bid tables. 2. Pro-rata scheduling requirements. 3. Potential modification to BPCG.	
Technical Bulletin		
Training – Internal		
Training – External	1. Use of new capabilities, including minimum run time and advanced HAM bidding feature.	

Unresolved Issues

In most SCUC evaluations, transaction, generation and load schedules will be determined in a competitive environment. Under adverse system conditions, such as high load periods or reserve deficiencies, the SCUC algorithm will attempt to resolve the system conditions regardless of the cost. During these times, transactions with very high hourly costs and long minimum run times may be accepted to resolve a problem that only exists in a few hours. Under the current tariff, external LBMP import transactions scheduled in SCUC may recover a portion of their as bid production costs through Bid Production Cost Guarantees (BPCG). If the current BPCG were applied to Multi-Hour Block transactions, the effective cost of energy scheduled in a particular shortage hour could considerably exceed the $1000/MW-hr bid cap. Aside from circumventing the bid cap, this outcome would

reward market participants offering inflexible schedules for external transactions with higher revenues than market participants offering the same energy with flexible schedules. In addition, because the $1000/MWhr bid cap would be applicable in the determination of real-time imbalance prices, application of a bid production cost guarantee to multi-hour block transactions would entail payments for day-ahead schedules that could considerably exceed the financial consequences of failing to deliver that power in real-time. A means for addressing the BPCG gaming opportunities still remains to be agreed to.