*4/30/2010*

# Subject: Generator and Transaction Upload/download Template Changes

The NYISO is currently working with stakeholder to implement functionality that will require modifications to several upload/download templates used to submit/review bids and schedules. The functionality described in this document is dependent on approval of various tariff amendments by stakeholders, the NYISO Board of Directors, and FERC.

Some Market Participants have their own software that interacts with the NYISO Upload/Download templates. The purpose of this document is to give those Market Participants details of the upload/download template changes so they can make the necessary modifications to their software in advance of the NYISO deployments.

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1. *Overview of Changes*

   a. *Generator Bids and Schedules: Fuel Type and Fuel Cost*
   The NYISO is introducing the ability for Generators to submit updated Fuel Type and Fuel Cost applicable to a particular bidding interval.

   b. *Transaction Bids and Schedules: Addition of bid schedule type, 11 point bid curve, bid duration, and multiple schedules throughout the hour.*
   The NYISO is introducing new bidding flexibility for external transaction bidding.

2. *Affected Upload/Download Templates*

   The affected upload/download templates are:

**Table 1 –Impacted Templates**

| Area | Name | Query/Bid Type | Deployment date |
|---|---|---|---|
| Generator | Submit generator bids | GEN_BID | Sept 2010 |
| Generator | Delete generator bids | DELETE_GEN_BID | Sept 2010 |
| Generator | Generator bids and schedules | GEN_SCH | Sept 2010 |
| Generator | RTD schedules | GEN_RTD | Sept 2010 |
| Transaction | Submit transaction bids (internal bilaterals) | TRAN_BID | Q1 2011 |
| Transaction | Submit external transaction bids [1] | EXT_TRAN_BID | Q1 2011 |
| Transaction | Delete transaction bids | DELETE_TRAN_BID | Q1 2011 |
| Transaction | Transaction bids and schedules (internal bilaterals) | TRAN_SCH | Q1 2011 |
| Transaction | External transaction bids and schedules [1] | EXT_TRAN_SCH | Q1 2011 |
| Transaction | Submit MHBT [2] | MHBT_BID | Q1 2011 |

[1] New template
[2] Template is being removed

*3. Details of new functionality*

*a. Generator Bids and Schedules:*
Generators that are authorized to submit Fuel Type and Fuel Cost information for reference level updates may provide this data in their Generator Bidding upload files. Fuel Type and Fuel Cost are optional fields.

i. Fuel Type data may be submitted with DAM or HAM bids, and will be validated as follows upon submittal:
- Fuel Type ID must be a whole number greater than or equal to zero, or null.
- Fuel Type ID must be one of the valid IDs in the Reference Level Software (RLS) system. For a complete listing of the currently valid fuel type IDs, see Appendix B.
- An error message will be returned if the fuel type data does not pass these validation checks.

Note: At each market close, RLS will validate that the submitted fuel types are valid for the given generators. Generator-specific lists of approved Fuel Type IDs and the corresponding Fuel Type descriptions can be found within RLS.

ii. Fuel Cost data may be submitted (in $/mmBtu) with HAM bids, and will be validated as follows upon submittal:
- Fuel Cost must be a numeric greater than or equal to zero, or null.
- Maximum value for Fuel Cost is $99.99
- An error message will be returned if the fuel cost data does not pass the validation checks.

*b. Transaction Bids and Schedules:*
Market Participants that schedule external transaction bids will now be able to specify how their transaction bid should be scheduled in real-time. All external proxy buses/gens currently accommodate hourly transaction scheduling. Over the next several years, the NYISO will be configuring various proxy buses/gens to further accommodate intra-hour scheduling on either a 5-minute or 15-minute basis. In addition to these new scheduling frequency options, external transaction bids will also now accommodate an eleven point bid curve, similar to internal generator bidding interfaces.

i. Transaction Bid Schedule Type must be submitted with both DAM and HAM external transaction bids, although it only has implications to the scheduling treatment of the bid when it is evaluated in the HAM. Valid values for Transaction Bid Schedule Type are:
- 7 - indicates that the bid should be scheduled hourly in real-time
- 8 - indicates that the bid should be scheduled on an intra-hour basis in real-time. The actual intra-hour schedule frequency (5-minutes or 15-minutes) is not a bid option, but rather it is defined on the proxy bus/gen.

- Note: A value of 8 (intra-hour schedule) will only be accepted for DAM/HAM imports or exports at proxy buses or gens configured to accommodate intra-hour scheduling of external transactions. It is not available for any wheel-through transaction bids, any bids at proxy bus/gens that are not configured to accommodate intra-hour transaction scheduling, or any Non-Firm transaction bids.

ii. Transaction Bid Duration is a new parameter that must be submitted with both DAM and HAM external transaction bids. It represents the number of operating hours the bid covers, from the start date/hr. The purpose of this feature is to allow an MP to reduce the amount of data they must submit. For example, a transaction bid upload file with one record containing a duration of 24 hours will result in 24 transaction bids being persisted to the NYISO systems for evaluation. Prior to the implementation of this feature, MPs needed to submit a single bid per hour, even if the data on each bid was identical except for the date/hr.

iii. Transaction Bid Curves will now be the structure used to submit the economic scheduling preference associated with an external transaction bid. This will be an eleven point bid curve that shall be used with all external transaction bids (imports, exports, wheels) for all transaction scheduling frequencies, both hourly and intra-hour.

**Bid Curve - Imports and Wheels**

- The values on the transaction bid curve for Imports and Wheels represent the number of MWs the transaction bidder is willing to sell at various price points. The table below provides an example

| **Bid Curve Point** | **1** | **2** | **3** |
|---|---|---|---|
| MW | 27 | 61 | 111 |
| $/MW | 46 | 55 | 58 |

- This table represents a Transaction bid curve for an Import Transaction with 3 curve points. The curve will be evaluated as follows:
  - If the LBMP is below Bid Curve $/MW 1 then 0 MWs may be sold
  - If the LBMP is between Bid Curve $/MW 1 and Bid Curve $/MW 2 then up to the Bid Curve MW 1 value may be sold
  - If the LBMP is between Bid Curve $/MW 2 and Bid Curve $/MW 3 then up to the Bid Curve MW 2 value may be sold
  - If the LBMP is equal to or greater than Bid Curve $/MW 3 then up to Bid Curve MW 3 value may be sold
- As a result, the following is true:
  - If the LBMP is less than $46.00, 0 MWs may be sold
  - If the LBMP is between $46.00 and $54.99, then up to 27 MWs may be sold
  - If the LBMP is between $55.00 and $57.99, then up to 61 MW may be sold

- If the LBMP is $58.00 or greater, up to 111 MWs may be sold

Validations for the bid curve provided on an import/wheel through transaction:

- MWs must be ascending from point 1 through the last supplied point
- $/MW must be ascending from point 1 through the last supplied point
- Last MW value on the bid curve must be equal to or greater than the Energy Profile MW of the bid.
- All bid curve points must be contiguous (example: cannot provide data in point 1 and point 3 without also providing data in point 2).
- Bid curve point 1 must have data.
- Bid curve MW values must be whole numbers.

**Bid Curve - Exports**

- The MW amounts on the transaction bid curve for Exports represent the desired increments above the previous bid curve point that the transaction bidder is willing to purchase at various price points. The MW amount of each point will be summed with the MW amounts of subsequent points on the curve to determine the total MW amount to be purchased, based on the associated prices. The table below provides an example

| **Bid Curve Point** | **1** | **2** | **3** |
|---|---|---|---|
| MW | 50 | 34 | 27 |
| $/MW | 46 | 55 | 58 |

- This table represents a transaction bid curve for an Export transaction with 3 curve points. The curve will be evaluated as follows:
  - If the LBMP is below Bid Curve $/MW 1 then the MW sum for Bid Curve MW 1-3 may be purchased
  - If the LBMP is between Bid Curve $/MW 1 and Bid Curve $/MW 2 then up to the MW sum for Bid Curve MW 2 and 3 may be purchased
  - If the LBMP is between Bid Curve $/MW 2 and Bid Curve $/MW 3 then up to the Bid Curve MW 3 value may be purchased
  - If the LBMP is above Bid Curve $/MW 3 then no MWs may be
  - Purchased

- As a result, the following is true
  - If the LBMP less than or equal to $46.00, then up to 111 MW (i.e. 50 +34+27) may be purchased
  - If the LBMP is between $46.01 and $55.00, then up to 61 MW (i.e. 34 +27) may be purchased
  - If the LBMP is between $55.01 and $58.00, then up to 27 MW may be purchased
  - If the LBMP is $58.01 or greater, 0 MWs may be purchased

Validations for the bid curve provided on an export transaction:

- $/MW must be ascending from point 1 through the last supplied point
- The sum of MWs across all bid curve points must be equal to or greater than the Energy Profile MW of the bid.
- All bid curve points must be contiguous (example: cannot provide data in point 1 and point 3 without also providing data in point 2).
- Bid curve point 1 must have data.
- Bid curve MW values must be whole numbers.

| # | Affected Templates | Modification Type | Modified behaviour | Deployment Date |
|---|---|---|---|---|
| 1. | Submit Generator Bids | New optional fields in submittal and response file | When submitting a "GEN_BID" request, the template now contains two optional fields for an MP to provide updated fuel type and fuel cost for a bidding interval. The corresponding response file now includes these two pieces of data if supplied. This optional data will be supplied via two previously unused spare fields in both the submittal and response templates. | Sept 2010 |
| 2. | Delete Generator Bids | New optional fields in response file | When submitting a "DELETE_GEN_BID" request, the corresponding response file now includes the optional fuel type and fuel cost data, if it had been supplied when the bid was submitted. This optional data will be supplied via two previously unused spare fields in the response templates. | Sept 2010 |
| 3. | Download Generator Schedules | New optional fields in download file | When submitting a "GEN_SCH" download request, the download file now includes the optional fuel type and fuel cost data, if it had been supplied when the bid was submitted. This optional data will be supplied via two previously unused spare fields in the download template. | Sept 2010 |
| 4. | Download Generator RTD Schedules | New optional fields in download file | When submitting a "GEN_RTD" download request, the download file now includes the optional fuel type and fuel cost data, if it had been supplied when the bid was submitted. This optional data will be supplied via two previously unused spare fields in the download template. | Sept 2010 |
| 5. | Submit Transaction Bid upload | Will be restricted to internal bilaterals; Unneeded fields converted to spare fields. | Since this template will now only be applicable to internal bilateral transactions, fields that are not applicable to these types of transactions will be converted to spare, and if supplied in an upload request, will be ignored. | Q1 2011 |
| 6. | Submit External Transaction Bid upload | New template specific to external transaction bids | New template for submitting all external transactions, including Multi-hour Block Transactions. | Q1 2011 |
| 7. | Delete Transaction Bid | Unneeded response file fields converted to spares. | The response file that is echoed back after submitting a DELETE_TRAN_BID file will have some values converted to spares. This template is still being used to delete all types of internal and external transaction bids. | Q1 2011 |
| 8. | Download Transaction Bids and Schedules | Will be restricted to internal bilaterals; Unneeded fields converted to spare fields. | Since this template will now only be applicable to internal bilateral transactions, fields that are not applicable to these types of transactions will be converted to spares. | Q1 2011 |
| 9. | Download external Transaction Bids and Schedules | New template specific to external transaction bids | New template for downloading bids and schedules associated with external transactions. External transactions may now have varying schedules in real-time depending on how it was bid. | Q1 2011 |
| 10. | Submit MHBT | Template is being removed | MHBTs will use the new Submit External Transaction Bid upload template. | Q1 2011 |

# Appendix A – Template Structure [3]

1. Generator Templates

Data Dictionary for new generator parameters (see Market Participant User Guide for definitions of all existing parameters)

| Parameter | Data Type | Description | Submission/ Response |
|---|---|---|---|
| Fuel Type ID | NUM (4) | NYISO identifier for the fuel type that the unit is using. | S,R |
| Fuel Cost | NUM(4,2) | Generator's per unit cost of fuel. | S,R |

a. Submit Generator Bids

i. Header Parameters
No changes.

ii. Data Row Parameters
**generator name, date & time, duration, market,** expiration, **upper operating limit,** emergency upper operating limit, fuel type id, fuel cost ($), **start-up cost ($)- (**Self Committed bids require null**), bid schedule type id,** self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, **fixed min. gen. MW (GTs still enter "O"), fixed min. gen. cost ($)- (**Self Committed bids enter null or, if GT, "O"**),** dispatch curve MW(1-11),dispatch curve $/MW(1-11), 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation MWs, regulation cost

iii. Response Data
Generator name, Generator PTID, date & time, market, expiration, upper operating limit, emergency upper operating limit, fuel type id, fuel cost ($), start-up cost ($), bid schedule type id, self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, fixed min gen (MW), fixed min gen cost ($), dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation MWs, regulation cost, bid id, bid status, message

b. Delete Generator Bids

i. Header Parameters
No changes

[3] Parameters highlighted in bold throughout the appendix are required for the particular template.

ii. Data row parameters
No changes

iii. Response data
Generator name, Generator PTID, date & time, market, expiration, upper operating limit, emergency upper operating limit, fuel type id, fuel cost ($), start-up cost ($), bid schedule type id, self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, fixed min gen (MW), fixed min gen cost ($), dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation MWs, regulation cost, bid id, bid status, message

c. Download Generator Bids and Schedules and Download Generator RTD Schedules

i. Header Parameters
No changes

ii. Response data
Generator name, Generator PTID, date & time, market, expiration, upper operating limit, emergency upper operating limit, fuel type id, fuel cost ($), start-up cost ($), bid schedule type id, self committed MWs 00, self committed MWs 15, self committed MWs 30, self committed MWs 45, fixed min gen (MW), fixed min gen cost ($), dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, 10 min non-synch cost, 10 min spinning cost, 30 min non-synch cost, 30 min spinning cost, regulation MWs, regulation cost, bid id, scheduled energy, scheduled 10-minute non-synch, scheduled 10-minute spinning, scheduled 30-minute non-synch, scheduled 30-minute spinning, scheduled regulations, forecasted reserve, spare, spare, spare, spare, bid status, message, current advisory schedules flag

2. Transaction Templates

Data Dictionary for new/modified transaction parameters (see Market Participant User Guide for definitions of all existing parameters)

| Parameter | Data Type | Description | Submission/Response |
|---|---|---|---|
| Bid Schedule Type ID | NUM | A number indicating the bid type. Valid Bid Types are:<br>• 7 – Hourly<br>• 8 – Intra-hour | S,R |

| Parameter | Data Type | Description | Submission/Response |
|---|---|---|---|
| Energy Profile MW | NUM(5) | Maximum energy MW that can be scheduled against the bid. | S,R |
| Duration | NUM(3) | Number of operating hours (from the start date) that the bid covers. | S |
| Dispatch Curve MW (1-11) | NUM(5) | 1-11 MW points to a dispatch curve. | S/R |
| Dispatch Curve $/MW (1-11) | NUM(6,2) | 1-11 $/MW points to a dispatch curve. | S/R |
| MHBT | CHAR | Header parameter for the Submit External Transaction Bid template indicating whether all the bids in the file are MHBT or are all non-MHBT. This is an optional header parameter for the file that, if not provided, is treated as if the value was "N". Valid values:<br>• Y – bids in the file are MHBTs<br>• N – bids in the file are not MHBTs. | S |
| Schedule Start Time | DATE | Start Time for interval in which bid data will be evaluated. | R |
| Schedules | CHAR | If the MARKET chosen in the download header indicates HAM, this optional Schedule Type header parameter further restricts the resulting schedules to either RTC schedules only or RTD schedules only. If this parameter is not specified, both RTC and RTD schedules will be provided in the download. Valid values for this header parameter:<br>• RTC<br>• RTD | S |

a. Submit Transaction Bids (for internal bilaterals only)

i. Header Parameters
No changes

ii. Data row parameters
**date & time**, **source**, **sink**, **market**, spare, spare, spare, spare, spare, nerc priority, **User reference**, spare, **bid energy MW**, spare, spare, spare, spare

iii. Response data
date & time, source name, source PTID, sink name, sink PTID, market, spare, spare, spare, spare, spare, NERC priority, User reference, spare, bid energy MW, spare, spare, bid id, transaction id, frp confirm status, seller confirm status, buyer confirm status, sched energy, spare, spare, bid status, message

b. Submit External Transaction Bids (new template for all external transactions, including MHBTs)

i. Header Parameters

**BID_TYPE=EXT_TRAN_BID&**
**USERID=testupld&**
**PASSWORD=testupld&**
MHBT=N&
**DATA_ROWS=4&**

ii. Data row parameters

**date & time, source, sink, market, sending control area, pse, pse number**, spare, **receiving control area, nerc priority, user reference**, spare, **energy profile MW**, spare, spare, minimum run time, optional HAM bid price, **bid schedule type id, duration**, dispatch curve MW(1-11),dispatch curve $/MW(1-11)

iii. Response data

date & time, source name, source PTID, sink name, sink PTID, market, sending control area, PSE, PSE number, spare, receiving control area, NERC priority, User reference, spare, energy profile MW, spare, spare, bid id, transaction id, frp confirm status, seller confirm status, buyer confirm status, scheduled energy mw, minimum run time, optional HAM bid price, bid schedule type id, dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, schedule start time, bid status, message

c. Delete Transaction Bids

i. Header Parameters

No changes

ii. Data row parameters

No changes

iii. Response data

date & time, source name, source PTID, sink name, sink PTID, market, spare, spare, spare, spare, spare, NERC priority, User reference, spare, spare, spare, spare, bid id, transaction id, spare**,** spare, spare, spare, spare, spare, bid status, message

d. Download Transaction Bids and Schedules (for internal bilaterals only)

i. Header Parameters

Remove the following unnecessary header parameters: BID_ID, SENDING_CONTROL_AREA, PSE, PSE_NUMBER, RECEIVING_CONTROL_AREA, NERC_PRIORITY

ii. Data row parameters
No changes

iii. Response data
date & time, source name, source PTID, sink name, sink PTID, market, spare, spare, spare, spare, spare, NERC priority, User reference, spare, bid energy MW, spare, spare, bid id, transaction id, frp confirm status, seller confirm status, buyer confirm status, sched energy, spare, spare, bid status, message

e. Download External Transaction Bids and Schedules (new template for all external transactions, including MHBTs)

i. Header Parameters

**USERID=testupld&**
**PASSWORD=testupld&**
**QUERY_TYPE=EXT_TRAN_SCH&**
**DATE=08/08/2009 00:00&**
**MARKET_TYPE=HAM&**
TRANSACTION_ID=1234581&
SOURCE=323555&
SINK= 10231045&
USER_REFFERENCE=A12399Q40&
STATUS=BID ACCEPTED&
NUM_HOURS=4&
MODIFIED_DATE=08/06/2009 15:00&
BID_SCHEDULE_TYPE_ID=8&
SCHEDULES=RTD&

ii. Data row parameters
No changes

iii. Response data
date & time, source name, source PTID, sink name, sink PTID, market, sending control area, PSE, PSE number, spare, receiving control area, NERC priority, User reference, spare, energy profile MW, spare, spare, bid id, transaction id, frp confirm status, seller confirm status, buyer confirm status, sched energy, minimum runtime, optional HAM bid price, bid schedule type id, dispatch curve MW 1, dispatch curve MW 2, dispatch curve MW 3, dispatch curve MW 4, dispatch curve MW 5, dispatch curve MW 6, dispatch curve MW 7, dispatch curve MW 8, dispatch curve MW 9, dispatch curve MW 10, dispatch curve MW 11, dispatch curve MW 12, dispatch curve $/MW 1, dispatch curve $/MW 2, dispatch curve $/MW 3, dispatch curve $/MW 4, dispatch curve $/MW 5, dispatch curve $/MW 6, dispatch curve $/MW 7, dispatch curve $/MW 8, dispatch curve $/MW 9, dispatch curve $/MW 10, dispatch curve $/MW 11, dispatch curve $/MW 12, bid status, message

# Appendix B – Valid Fuel Type IDs

| FUEL TYPE ID | FUEL TYPE DESCRIPTION | SOURCE |
|---|---|---|
| 1 | OIL #6 PRICE INDEX | Argus data feed |
| 2 | NG TRANSCO Z6NY | Argus data feed |
| 3 | AVG KEROSENE | Argus data feed |
| 4 | AVG FUEL OIL #2 | Argus data feed |
| 13 | COAL ANTHRACITE | |
| 14 | COAL BIT | |
| 19 | COAL COKE | |
| 22 | HYDRO | |
| 23 | NUCLEAR | |
| 28 | REFUSE | |
| 30 | DIESEL | |
| 31 | NG ALGONQUIN | Argus data feed |
| 32 | NG IROQUOIS | Argus data feed |
| 33 | WIND | |
| 34 | OTHER | |
| 37 | NG DOMINION SP | Argus data feed |
| 38 | NG DOMINION NP | Argus data feed |
| 39 | NG LANDFILL | |
| 40 | WOOD | |
| 41 | TIRES | |
| 42 | BIOMASS | |
| 43 | NG NIAGARA | Argus data feed |
| 44 | NG TEXAS EAST M3 | Argus data feed |
| 45 | NG COLUMBIA | Argus data feed |