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June 5, 2019
WebEx Broadcast

New England External Transaction Tool (NEXTT)

Overview of NEXTT Web Services



Presentation updated **12/19/2024**. Impacted slides are noted.
Deleted slides related to NEXTT project implementation.

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Operations Analysis & Integration



Acronyms

Acronym	Description
CAMS	Customer Asset Management System
CSO	Capacity Supply Obligation
DAM	day-ahead market
MP	Market Participant
REST	Representational state transfer
RTM	Real-time market
SS	Self Schedule
XML	eXtensible Markup Language
XSD	XML Schema Definition

Objectives

After this, you will have what you need to:

- Create a file upload process to
 - Submit new transactions
 - Modify existing transactions
- Recognize transaction issues and error messages
- Prepare your files for testing in the Sandbox



Slide updated on 12/19/2024.

Tips on Business Rules and Validations

- A. Timing of RTM validation results
- B. eTag status for ISO automated validation
- C. Granularity of validation
- D. eTag and OASIS required when submitting a transaction
- E. eTag MW comparison
- F. RTM modifications after the initial submittal
- G. Modifying header data
- H. Market deadline enforcement



A. Timing of RTM Validation Results

- All RTM transaction validations are performed upon submittal, returning the final state of the transaction to the customer
- You can compare the eTag and OASIS data on the GUI that may be preventing approval



B. eTag Status for ISO Automated Validation

- A RTM transaction status will only be set to APPROVED if the referenced eTag has a status of Confirmed
 - If eTag status is Pending, and all other validations are successful, transaction will be set to PENDING ACTION
 - Every 5 minutes, an automatic process re-evaluates transactions set to PENDING ACTION, monitoring for a change in eTag status



C. Granularity of Validation

- Transaction submittal can include a single date range covering multiple days/hours
 - Each hour of the RTM transaction is evaluated separately
 - Each hour of the RTM transaction has its own status



D. eTag and OASIS Required at Submittal

- If a transaction requires an eTag or OASIS reservation, you must include that data upon submitting the transaction
 - Validations are performed on the data that is provided
 - You can modify the data up to the earliest self-schedule market deadline on the transaction for both priced and self-scheduled RTM transactions



E. eTag Validation

- The submitted MW on a RTM External Transaction must be less than or equal to the eTag MW for each hour compared (**they do not need to be equal for all hours**)
 - Changes to transactions that decrease the MW value do not require customer to modify eTag to match the transaction
 - ISO-NE will issue a curtailment to the submitted MW after the market closes for each hour



F. RTM Modifications after Initial Submittal

- After initial submittal, if the MW/price for any interval is re-submitted, the re-submitted data overwrites the previous data

Example for an interval:

Original submittal status = **APPROVED**

Re-submittal results in status = **PENDING ACTION**

Status of **PENDING ACTION** *replaces* **APPROVED**

The interval with the status = **APPROVED** no longer exists

- If **PENDING ACTION** is not updated to **APPROVED** before the market deadline, nothing will be scheduled in RT for that hour

G. Modifying Header Data

Transaction header data, OASIS data and market options can be modified until the earliest SS market deadline

Header data that can be modified includes:

- eTag ID
- Outside Reference ID
- Outside Reference Name
- Import Resource
- Subaccount



H. Market Deadline Enforcement

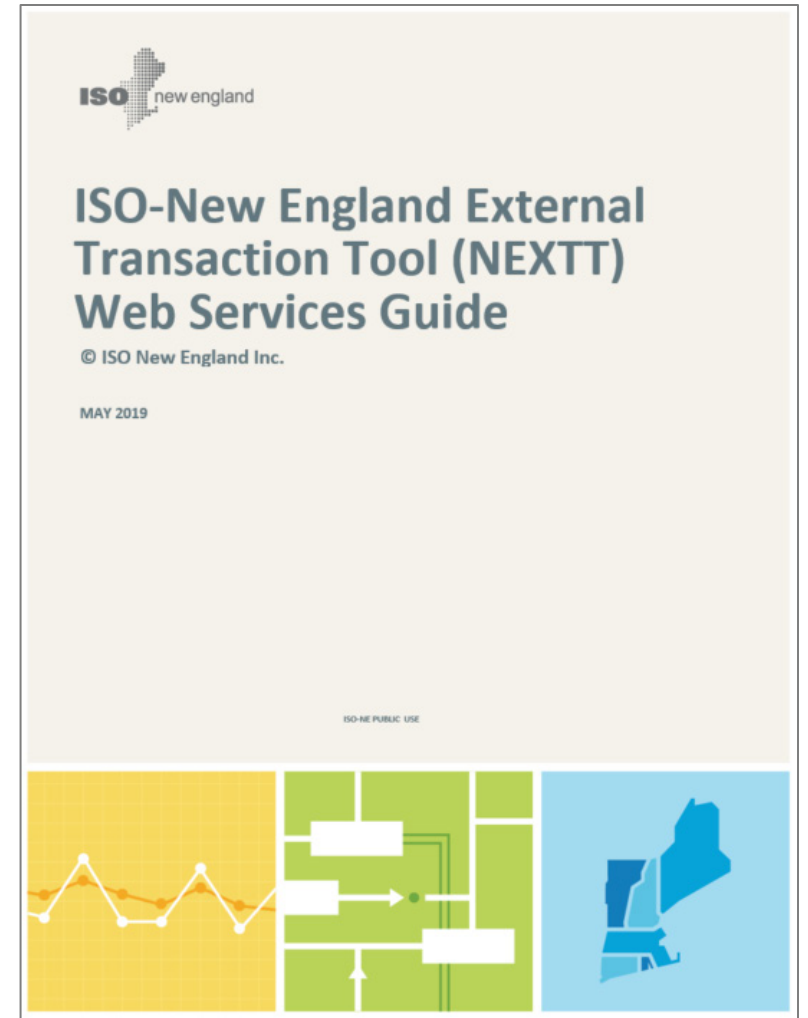
- Only RTM transactions with a status of APPROVED at the market submittal deadline will be considered in RTM scheduling
 - The status of the referenced eTag must be Confirmed ***before the market deadline***
 - Any interval of a RTM transaction not APPROVED by the market deadline will be denied
 - Only the interval that violates the market deadline will be DENIED
 - All other future intervals not yet APPROVED will be automatically re-evaluated every 5 minutes
- All RTM transactions with a status of APPROVED will be revalidated at the market submittal deadline
 - If the eTag Mw is less than the Bid MW the status will be changed to DENIED



Slide updated on 12/19/2024.

Implementing the XSD

Reviewing content and layout of data



The NEXTT Web Services Guide

This document contains:

- Details on the structure and use of the Extensible Markup Language (XML) format to upload and download transactions
- Web services available to upload and download transactions without using a user interface.

Users should be familiar with Extensible Markup Language (XML), Web Services, HTTP/HTTPS protocols.



Summary of XSD

A single XSD includes information for uploading transactions, downloading transactions, and upload responses

- All the data in the file upload are present in the download
- Additional fields are present in the file download that cannot be included in the file upload
- Each file upload can contain only one transaction



Transaction Submittals and Modifications

Tips for Success

```
<?xml version="1.0" encoding="UTF-8"?>
<TRANSACTION>
  <OUTSIDE_REFERENCE_NAME/>
  <OUTSIDE_REFERENCE_ID> </OUTSIDE_REFERENCE_ID>
  <RESPONSIBLE_CUSTOMER_ID> </RESPONSIBLE_CUSTOMER_ID>
  <DIRECTION> </DIRECTION>
  <SOURCE_INTERFACE_PNODE_NAME> </SOURCE_INTERFACE_PNODE_NAME>
  <SINK_INTERFACE_PNODE_NAME/>
  <ETAG_ID> </ETAG_ID>
  <IMPORT_RESOURCE_ID> </IMPORT_RESOURCE_ID>
  <SUBACCOUNT_ID> </SUBACCOUNT_ID>

  <DA_DETAIL>
    [...]
  </DA_DETAIL>

  <RT_DETAIL>
    [...]
  </RT_DETAIL>
</TRANSACTION>
```

- Elements must be presented in the order shown in the schema
- **<TAGS>** are case sensitive
- The customer referenced in the file must align with the certificate being used

Transaction Submittal: Header Data

Data in the header is applicable to all aspects of the transaction

```
<?xml version="1.0" encoding="UTF-8"?>
<TRANSACTION xmlns="http://www.iso-ne.com/2018/nextt" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <OUTSIDE_REFERENCE_NAME xsi:nil="true"/>
  <OUTSIDE_REFERENCE_ID>Outside ID 12345</OUTSIDE_REFERENCE_ID>
  <RESPONSIBLE_CUSTOMER_ID>50051</RESPONSIBLE_CUSTOMER_ID>
  <DIRECTION>IMPORT</DIRECTION>
  <SOURCE_INTERFACE_PNODE_NAME>.I.HQ_P1_P2345 5</SOURCE_INTERFACE_PNODE_NAME>
  <SINK_INTERFACE_PNODE_NAME xsi:nil="true"/>
  <ETAG_ID>ISNE_ABCDE033456_NBSO</ETAG_ID>
  <IMPORT_RESOURCE_ID>12345</IMPORT_RESOURCE_ID>
  <SUBACCOUNT_ID>1111</SUBACCOUNT_ID>
```

```
<DA_DETAIL>
  [...]
</DA_DETAIL>
```

```
<RT_DETAIL>
  [...]
</RT_DETAIL>
```

```
</TRANSACTION>
```

This sample shows all fields that can exist in the header

Transaction Submittal Header: <IMPORT_RESOURCE_ID>

```
<?xml version="1.0" encoding="UTF-8"?>
<TRANSACTION xmlns="http://www.iso-ne.com/2018/nextt" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <OUTSIDE_REFERENCE_NAME xsi:nil="true"/>
  <OUTSIDE_REFERENCE_ID>Outside ID 12345</OUTSIDE_REFERENCE_ID>
  <RESPONSIBLE_CUSTOMER_ID>50051</RESPONSIBLE_CUSTOMER_ID>
  <DIRECTION>IMPORT</DIRECTION>
  <SOURCE_INTERFACE_PNODE_NAME>.I.HQ_P1_P2345 5</SOURCE_INTERFACE_PNODE_NAME>
  <SINK_INTERFACE_PNODE_NAME xsi:nil="true"/>
  <ETAG_ID>ISNE_ABCDEF023456_NBSO</ETAG_ID>
  <IMPORT_RESOURCE_ID> 12345</IMPORT_RESOURCE_ID>
  <SUBACCOUNT_ID>1111</SUBACCOUNT_ID>
  <DA_DETAIL>
    [...]
  </DA_DETAIL>
  <RT_DETAIL>
    [...]
  </RT_DETAIL>
</TRANSACTION>
```

Import Resource ID market rule changes provide increased flexibility

- Transactions referencing Import Resource ID can now be any combination of: DA only, RT only or both DA and RT
- No validation occurs comparing MP submitting transaction with the MP having capacity obligation

NEXTT validations that are unchanged:

- Import Resource ID must exist for the month of the transaction
- Total of RT MW for all transactions referencing Import Resource ID must not exceed the CSO

Changes coincide with NEXTT implementation

Transaction Submittal: DAM Data

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<TRANSACTION>
```

```
<OUTSIDE_REFER
```

```
<OUTSIDE_REFER
```

```
<RESPONSIBLE_O
```

```
<DIRECTION> </D
```

```
<SOURCE_INTERF
```

```
<SINK_INTERFAC
```

```
<ETAG_ID> </ETA
```

```
<IMPORT_RESOU
```

```
<SUBACCOUNT_I
```

```
<DA_DETAIL>
```

```
[...]
```

```
</DA_DETAIL>
```

```
<RT_DETAIL>
```

```
[...]
```

```
</RT_DETAIL>
```

```
</TRANSACTION>
```

```
<DA_DETAIL>
```

```
<DA_TRANSACTION_TYPE>UPTO CONGESTION</DA_TRANSACTION_TYPE>
```

```
<UP_TO_CONGESTION_LOCATION_NAME>.Z.NEMASSBOST</UP_TO_CONGESTION_LOCATION_NAME>
```

```
<DA_INTERVALS>
```

```
<DA_INTERVAL>
```

```
<INTERVAL_BEGIN>2019-05-02T18:00:00Z</INTERVAL_BEGIN>
```

```
<INTERVAL_END>2019-05-03T20:00:00Z</INTERVAL_END>
```

```
<BID_MW>5</BID_MW>
```

```
<BID_PRICE>2.25</BID_PRICE>
```

```
</DA_INTERVAL>
```

```
</DA_INTERVALS>
```

```
</DA_DETAIL>
```

*This section is only included
if the transaction is being
submitted to the **DAM***

This sample shows an Upto Congestion transaction

Transaction Submittal: RTM Data

<?xml version="1.0">
<TRANSACTION>
 <OUTSIDE_REFER...>
 <OUTSIDE_REFER...>
 <RESPONSIBLE_O...>
 <DIRECTION> </D...>
 <SOURCE_INTERF...>
 <SINK_INTERFAC...>
 <ETAG_ID> </ETA...>
 <IMPORT_RESOU...>
 <SUBACCOUNT_I...>

 <DA_DETAIL>
 [...]
 </DA_DETAIL>

 <RT_DETAIL>
 [...]
 </RT_DETAIL>

</TRANSACTION>

<RT_DETAIL>
 <RT_TRANSACTION_TYPE>SELF SCHEDULED</RT_TRANSACTION_TYPE>
 <RT_INTERVALS>
 <RT_INTERVAL>
 <INTERVAL_BEGIN>2019-05-02T18:00:00Z</INTERVAL_BEGIN>
 <INTERVAL_END>2019-05-03T00:00:00Z</INTERVAL_END>
 <BID_MW>100</BID_MW>
 <BID_PRICE xsi:nil="true"/>
 </RT_INTERVAL>
 </RT_INTERVALS>
 <OASIS_RESERVATIONS>
 <OASIS_RESERVATION_ID>1234567</OASIS_RESERVATION_ID>
 </OASIS_RESERVATIONS>
 <RT_OPTIONS>
 <GIS_ID>NY43567</GIS_ID>
 </RT_OPTIONS>
</RT_DETAIL>

This section is only included
if the transaction is being
submitted to the **RTM**

This sample shows a Self Scheduled transaction

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Important Note: Null Versus Empty

Generally, to set tag to null you must either:

- Not include that element
- Use xsi:nil="true" attributes

Examples where tag must be null if included:

- Price field must be null if the type is self-scheduled
- ISO-NE ID must be null for new submittals

Tags where null data is always required:

- Source must be null if Direction = Export
- Sink must be null if Direction = Import



Important Note: Time Format Options

| Time format | Resulting time |
|---------------------------|---|
| 2018-05-12T04:00:00Z | 4:00 am on May 12, 2018 UTC
<i>(query responses will be returned in UTC format)</i> |
| 2018-05-12T04:00:00-05:00 | 4:00 am on May 12, 2018 Eastern Standard Time |
| 2018-05-12T04:00:00 | 4:00 am on May 12, 2018 Eastern Prevailing Time
(does not support data changing over the time change during the 25 hour day) |



Modifying Header Data

Certain header data must be present in every submittal

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<TRANSACTION xmlns="http://www.iso-ne.com/2018/nextt" xmlns:xsi="http://www
```

```
<OUT
```

```
<OUT
```

```
<RESP
```

```
<DIRE
```

```
<SOU
```

```
<SINK
```

```
<ETAG
```

```
<IMPO
```

```
<SUBA
```

```
<DA_I
```

```
[...
```

```
</DA_I
```

```
<RT_D
```

```
[...
```

```
</RT_DETAIL>
```

```
</TRANSACTION>
```

```
<OUTSIDE_REFERENCE_NAME xsi:nil="true"/>
```

```
<OUTSIDE_REFERENCE_ID>Outside ID 12345</OUTSIDE_REFERENCE_ID>
```

```
<RESPONSIBLE_CUSTOMER_ID>50051</RESPONSIBLE_CUSTOMER_ID>
```

```
<DIRECTION>IMPORT</DIRECTION>
```

```
<SOURCE_INTERFACE_PNODE_NAME>.I.HQ_P1_P2345 5</SOURCE_INTERFACE_PNODE_NAME>
```

```
<SINK_INTERFACE_PNODE_NAME xsi:nil="true"/>
```

```
<ETAG_ID>ISNE_ABCDE033456_NBSO</ETAG_ID>
```

```
<IMPORT_RESOURCE_ID>12345</IMPORT_RESOURCE_ID>
```

```
<SUBACCOUNT_ID>1111</SUBACCOUNT_ID>
```

Customer, Direction, Source and/or Sink are required fields, so they must be present with every submittal

eTag ID must be present with every submittal when required

Modifying Header Data

- When data in the header is modified, EVERY interval on the transaction is re-validated
- If a field is present in the original and not present in the update, that data will be assumed removed from the transaction

```
<OUTSIDE_REFERENCE_NAME xsi:nil="true"/>
<OUTSIDE_REFERENCE_ID>Outside ID 12345</OUTSIDE_REFERENCE_ID>
<RESPONSIBLE_CUSTOMER_ID>50051</RESPONSIBLE_CUSTOMER_ID>
<DIRECTION>IMPORT</DIRECTION>
<SOURCE_INTERFACE_PNODE_NAME>.I.HQ_P1_P2345 5</SOURCE_INTERFACE_PNODE_NAME>
<SINK_INTERFACE_PNODE_NAME xsi:nil="true"/>
<ETAG_ID>ISNE_ABCDE033456_NBSO</ETAG_ID>
<IMPORT_RESOURCE_ID>12345</IMPORT_RESOURCE_ID>
<SUBACCOUNT_ID>1111</SUBACCOUNT_ID>
```


Modifying DAM or RTM Interval Data

- Any new data replaces the previously submitted data in its entirety
- All intervals included will be validated
 - Intervals for which the market deadline has passed cannot be included
 - Any intervals not included will be unchanged
- The following **must** be included if they were in the original submittal and data in that section is changing
 - <DA_TRANSACTION_TYPE>
 - <UP_TO_CONGESTION_LOCATION_NAME>
 - <RT_TRANSACTION_TYPE>

Modifying Options and OASIS Data

The following rules apply to both the Option and OASIS data

If the section is:

- Not present

No change is made to the data

- Present with the same data

The system will recognize data was not changed

- Present with different data

Results in revalidation of ALL intervals in the transaction

- Data cannot be changed after deadline for earliest start

- Present but no details are included

This removes all Options/OASIS data from the transaction

```
|.....  
      </RT_INTERVALS>  
      <RT_OPTIONS>  
      </RT_OPTIONS>  
    </RT_DETAIL>  
</TRANSACTION>
```

Transaction Submittal Responses

Sample of a Single File Upload in User Interface

File Upload Results

You successfully uploaded file 'generic test.txt'

ISO-NE ID	Submission Status
4013068	ACCEPTED WITH ERROR

eTag ID	Outside Name	Outside Id	Source	Sink
ISNE_ABCDE033456_NBSO				.I.SALBRYNB345 1

Transaction Issues

Type	Message
ERROR	eTag ID referenced does not exist at OATi

Interval Issues

No Interval Issues were found

Issues will display
the issue type and
message



Transaction Submittal Status Indicators and Descriptions

Submittal status indicates the overall result of the process

Submittal Status	Description
SUCCESS	No issues were identified <ul style="list-style-type: none">• If DAM, transaction is accepted• If RTM, all intervals have RTM status = APPROVED
ACCEPTED WITH ERROR	The file upload was accepted but issues were found with one or more RTM intervals <ul style="list-style-type: none">• If RTM, all intervals have RTM status = PENDING ACTION
REJECTED	Issues were identified that prevented the file upload from being processed

Transaction Issues

- This section provides errors that apply to ALL intervals of the transactions
- Each issue includes a severity level and additional detail of the issue identified
- If there are no Transaction Issues this section is not included

Severity	Description	Submittal Status
WARNING	Minor issues were identified that did not impact the final status of the transaction	SUCCESS
ERROR	Issues were identified that prevented the RTM transaction from being approved	ACCEPTED WITH ERROR
FATAL	Evaluation of the file upload is terminated	REJECTED

Interval Issues

- This section provides errors that are associated with a specific interval
 - Only occurs if there are no FATAL errors in the overall transaction validation
 - It is possible that every interval is impacted by the same issue; where that error will be repeated for each affected interval
- Each issue includes a severity level and additional detail of the issue identified
- If there are no Interval Issues this section is not included

Severity	Description	Submittal Status
WARNING	Minor issues were identified that did not impact the final status of the transaction	SUCCESS
ERROR	Issues were identified that prevented the RTM transaction from being approved	ACCEPTED WITH ERROR
FATAL	Evaluation of the file upload is terminated	REJECTED

Programmatic Processes

Programmatic Uploads: General Information

- RESTful web services are used for data transmission
- There are four request messages:

Message functionality	REST Method	Response Message Content
Submit new transaction	POST	Summary of results
Submit modification to transaction	PUT	Summary of results
Query single transaction	GET	All detail for the selected transaction ^{1,2}
Query transactions by criteria	GET	Details for ALL selected transactions ^{1,2}

- 1. Data cannot be queried for CTS interface bids submitted to NYISO JESS*
- 2. Response will contain both DAM and RTM results whenever available*

- Appendix C of the NEXTT Web Services Guide contains a sample implementation

Submit New Transaction

URL: <https://smd.iso-ne.com/nextt/api/transactions/>

Method: POST

Sample syntax:

```
java -jar nextt-client-jar-with-dependencies.jar POST https://smd.iso-ne.com/nextt/api/transactions filename.xml
```

Notes:

File can only contain data for one transaction



Submit Modification to Transaction

URL: <https://smd.iso-ne.com/nextt/api/transactions/{isonetid}>

Method: PUT

Sample syntax:

```
java -jar nextt-client-jar-with-dependencies.jar PUT https://smd.iso-ne.com/nextt/api/transactions/123456 filename.xml
```

Notes:

isonetid in request must match isoneid in file



Query a Single Transaction

URL: <https://smd.iso-ne.com/nextt/api/transactions/{isoneld}>

Method: GET

Sample syntax:

```
java -jar nextt-client-jar-with-dependencies.jar GET https://smd.iso-ne.com/nextt/api/transactions/123456
```

Notes:

- This request provides all detail available for a single transaction
- Every interval of the transaction will be provided separately
- DAM and RTM results will be included where they are available



Query Transaction by Criteria

URL: <https://smd.iso-ne.com/nextt/api/transactions/>

Method: GET (request is limited to 200 transactions)

- This request provides the detail for the transaction satisfying the specified criteria
- Required fields:
 - startdate=[Date] in format of yyyyMMdd
 - enddate=[Date] in format of yyyyMMdd
- To request data for a single day, the startdate and enddate must be the same

Query Transaction by Criteria: Optional Fields

Field	Possible values	Default if not specified
markettype	DA, RT	Results will include both RT and DA data
rtstatus	APPROVED, DENIED, ISOREVIEW, PENDING, WITHDRAWN	<ul style="list-style-type: none">Results will include all RT statusesOnly one rtstatus can be identified
applydaterestrictions	true, false	Defaults to true

- If **applydaterestrictions = true** (default), results will only contain data for the selected days even if the transaction is longer than the selected date range
 - For example, if user requests one day, 5/10/18, and there is a month long transaction from 5/1/18-6/1/18, only data for the selected date, 5/10/18, will be provided
- If **applydaterestrictions = false**, results will include all data for all transactions that exist within selected date range
 - For example, if user requests only one day but there is a month long transaction that exists on that day, ALL data for ALL days of that transaction will be provided

Sample Queries

<https://smd.iso-ne.com/nextt/api/transactions/?startdate=20180201&enddate=20180201>

- For each transaction that has intervals within this date range, this would present the user with only the intervals between these dates.

<https://smd.iso-ne.com/nextt/api/transactions/>

[?startdate=20180201&enddate=20180201&markettype=RT&rtstatus=APPROVED](https://smd.iso-ne.com/nextt/api/transactions/?startdate=20180201&enddate=20180201&markettype=RT&rtstatus=APPROVED)

- For each transaction that has intervals within this date range, this would present the user with only the RT intervals with a status of APPROVED between these dates.

<https://smd.iso-ne.com/nextt/api/transactions/>

[?startdate=20180201&enddate=20180201&applydaterestrictions=false](https://smd.iso-ne.com/nextt/api/transactions/?startdate=20180201&enddate=20180201&applydaterestrictions=false)

- For each transaction that has intervals within this date range, this would present the user with ALL DA and RT intervals between these dates.

References

Name	Link
NEXTT User Guide	https://www.iso-ne.com/static-assets/documents/2019/07/nextt_user_guide.pdf
NEXTT Web Services Guide, a technical guide describing the NEXTT data exchange formats and requirements	https://www.iso-ne.com/static-assets/documents/2019/05/nextt-web-services-guide.docx
NEXTT Web Services.XSD	https://www.iso-ne.com/static-assets/documents/2019/05/nextt-web-services-v1.xsd

Customer Support Information

Methods for Contacting Customer Support

[Ask ISO](#) (preferred)

- Self-service interface for submitting inquiries
- Recommended browsers are Google Chrome and Mozilla Firefox
- For more information, see the [Ask ISO User Guide](#)



Email custserv@iso-ne.com

Phone

- (413) 540-4220
- (833) 248-4220

Inquiries will be responded to during business hours (Monday through Friday; 8:00 a.m. to 5:00 p.m.)

Outside of regular business hours, the pager (877) 226-4814 may be used for emergency inquiries