



# Single Electricity Market

**MARKET PARTICIPANT UPDATE DOCUMENT**

**MARKET INTERFACE VOLUME 1:**

***TRADING AND REGISTRATION***

**SEM R2.5.0**

**V1.0**

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**Document History**

Version	Date	Author	Comment
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**Distribution List**

Name	Organisation
Market Participants	

**Source / Reference Documents**

Document Name	Version
MPUD Overarching Volume	1.0
MPUD Market Interface Volume 1 Trading & Registration	1.0
MPUD Market Interface Volume 2 Reporting	1.0
MPUD Technical Volume	1.0

## 1 DISCLAIMER AND CONTENT INFORMATION

This document has been prepared to provide Market Participants with sufficient information in order to develop their own systems to interface with the SEM.

The following disclaimers relate to the content of this document and associated volumes and any use by Market Participants of the information provided therein.

1. SEMO accepts no responsibility for decisions made or actions taken by Market Participants as a result of the information presented in this document or associated documents. Furthermore, SEMO does not indemnify any commercial or organisational decisions made by Market Participants in relation to the information herein.
2. This document represents the most up-to-date information on the Central Market Systems (CMS) as they have been developed. With this in mind, it is not appropriate simply to compare the document against an issued version of the Trading and Settlement Code (T&SC). Instead, it is a combination of Version 15.0 of the T&SC and subsequently agreed Change Requests.
3. The information provided in this document is based entirely on documentation and information provided by the software vendor. Although SEMO has made all reasonable efforts to ensure that the information presented is correct, it cannot guarantee the information provided.
4. The Code references presented in this document are intended to guide Market Participants to relevant sections of the market rules. It is not a one-to-one mapping, as this would be impossible due to the inherent differences between market rules and the requirements of trading systems.
5. Further changes to the processes described or schema elements presented may result as new information comes to light during future phases of the market development. To mitigate the impact of such changes, SEMO will be issuing planned updates to this document and associated documents (where appropriate). Updates to this document will be consistent with ***Agreed Procedure 11 – Market System Operation, Test, Upgrading and Support.***

## 2 INTRODUCTION

The Market Participant Update Document (MPUD) exists across a number of volumes to assist Market Participants in building their systems to interface with the SEM Central Market Systems (CMS).

This document is one of two volumes which address the **functional aspects** of the Market Interface (MI) which is available for Market Participants to communicate with the CMS. This volume covers all aspects of the Market Participant Interface (MPI) with the exception of reporting. The Reporting aspects of the MI are addressed in the companion volume ***MPUD Market Interface Volume 2 Reporting - SEM R2.5.0***.

The focus of this document is on the Type 3 Communication Channel, i.e. submission and retrieval of SEM Data Transactions via Web Services. In addition, some of the introductory sections also refer to the Type 2 Communication Channel (i.e. data submission and retrieval using the MPI).



### 3 MARKET INTERFACE - REGISTRATION

#### 3.1 DESCRIPTION

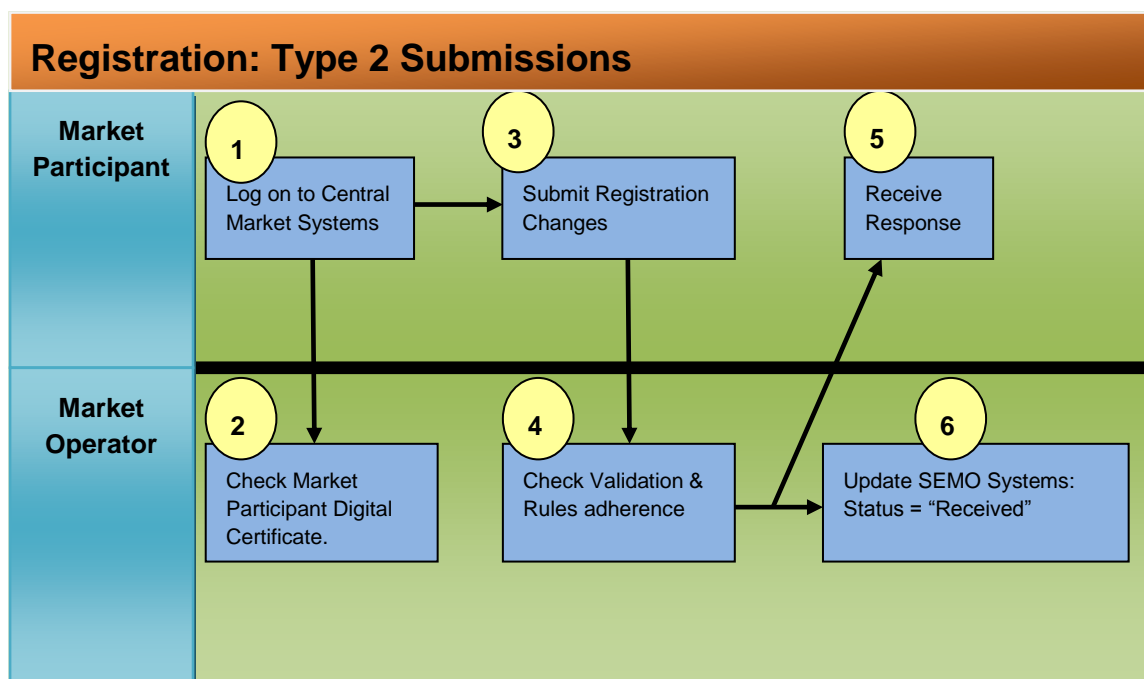
The Transactions covered in this section are:

- Submit Transactions:
  - Application;
  - Contacts Data;
  - Users Data;
  - Bank Details;
  - Generator Parameters; and
  - Demand Parameters.
- Registration Query.

**Important Note:** While it is possible to submit or change Registration data as described in the following sections, Market Participants must ensure they follow the correct business process. This involves the Participant informing the Market Operator of the change by completing the appropriate form which can be downloaded from the SEMO website. The form shall then be provided to the relevant System Operator and shall be validated in accordance with provisions of the Code.

#### 3.2 TYPE 2 QUERY & SUBMISSIONS

##### 3.2.1 AUTOMATED PROCESSING



**Figure 1: Registration Type 2 Flow**

**Stage 1:** Market Participants log on to the CMS using the Digital Certificate as supplied to them by SEMO.

**Stage 2:** The CMS verifies that the Digital Certificate is correct and logs the Market Participant into the CMS.

**Stage 3:** The Market Participant can view and edit their registration details. They must click on the 'Submit' button to save any changes that they have made.

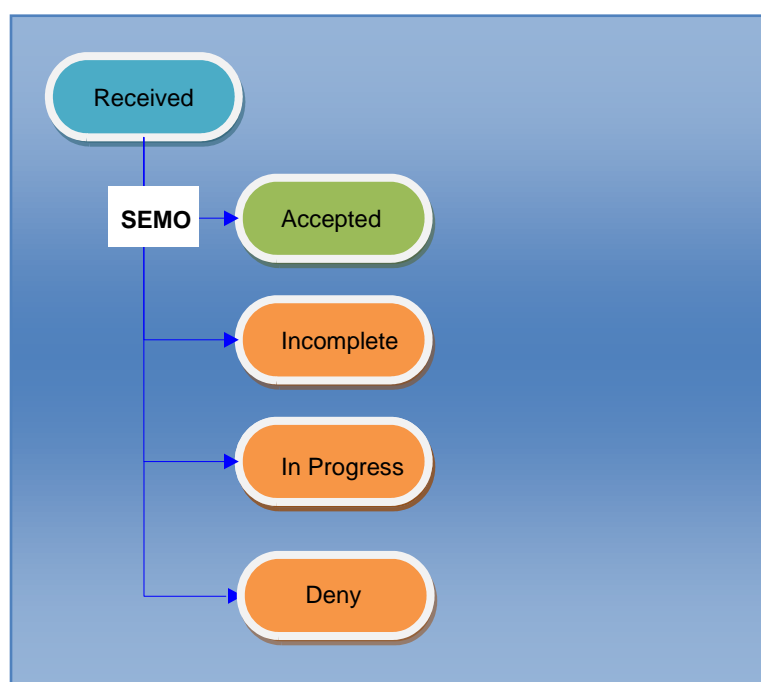
**Stage 4:** The CMS ensures the changes made are valid and adhere to the market rules.

**Stage 5:** The Market Participant receives a response from the CMS which indicates if the change has been successful or not.

**Stage 6:** If the change has been successful, then the CMS updates the record to a status of 'Received'. See below for the manual process which is followed next.

### 3.2.2 MANUAL PROCESSING

**Note:** The details below are provided for reference only.



**Figure 2: Registration Data – Status Updates**

- The Market Operator reviews all changes received through the Registration system. Other applicable Parties (e.g. System Operator) will be contacted by the Market Operator if necessary.
- Based on the review, the Market Operator can update the status to Accepted, Incomplete, In Progress or Deny. The Market Operator may also change the status to Cancel (from Accepted and Received).
- Market Participants may update any data, subject to acceptance by the Market Operator and if submitted within the applicable timescale.

### 3.3 TYPE 3 QUERY & SUBMISSIONS

#### 3.3.1 AUTOMATED PROCESSING

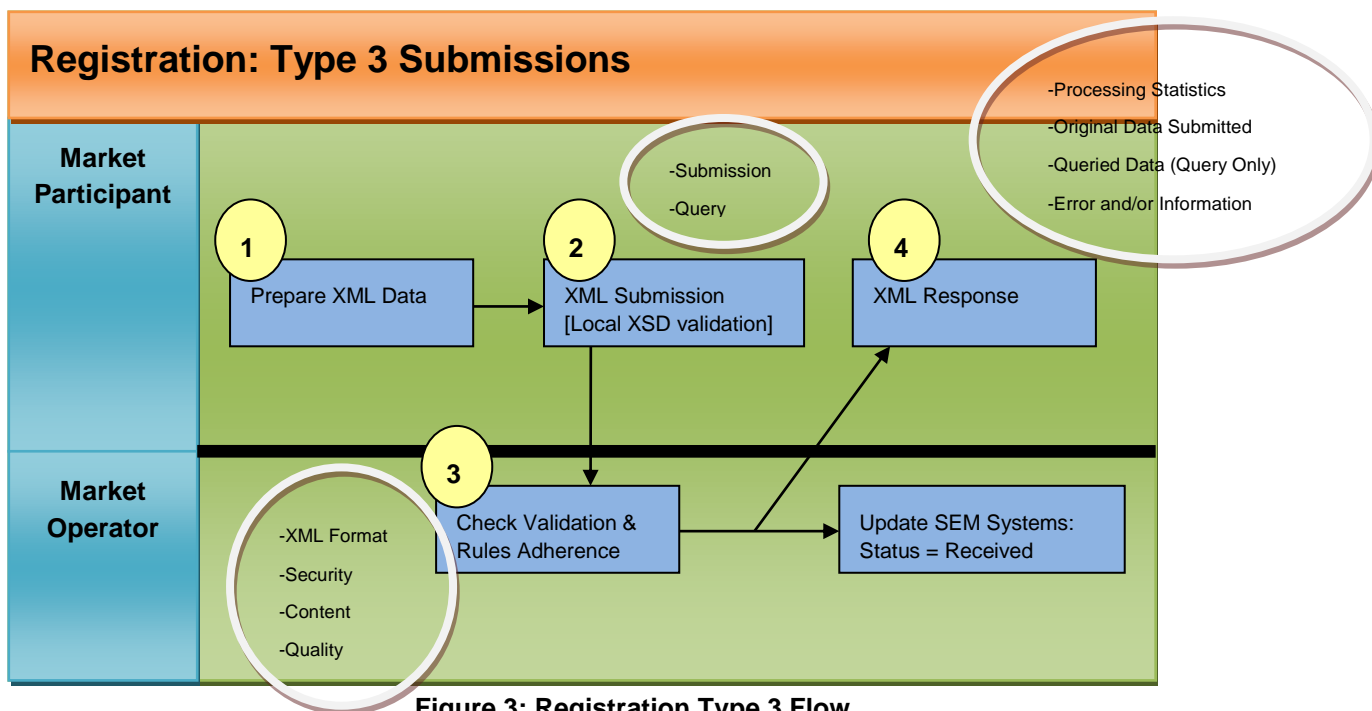
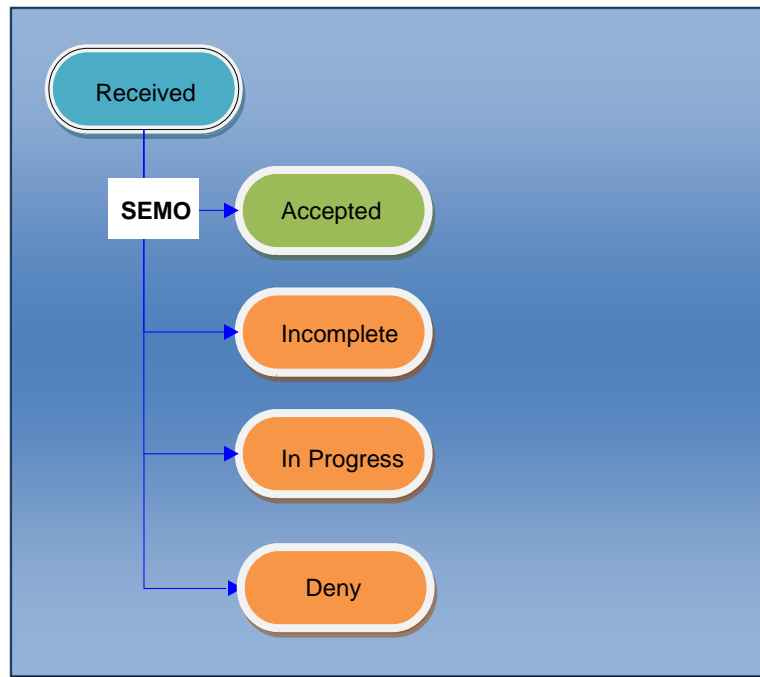


Figure 3: Registration Type 3 Flow

- **Stage 1:** Market Participants prepare the XML Data. (Details on how this needs to be packaged, in terms of SOAP, WSDL, etc. are covered in the Market Participant Interfaces User Guide and the Market Participant Web Services Client Toolkit).
- **Stage 2:** Data in this category can either be submitted (updated) or queried and is typically validated on the client (Market Participant) system to ensure compliance with the XML Schema rules.
- **Stage 3:** The Transaction is received by the CMS and validation checks, including business rules, are applied – see section 3.4 for details of the specific validations and sample XML for each transaction. At a generic level the following apply:
  - The user must have access to the Registration system, with read-only access limited to Query data, which read-write users can Submit, Query, or Cancel data.
  - However, once manually notified, submissions may be made up to five minutes before Gate Closure. In these scenarios, the Market Operator will use best endeavours to ensure that the data is approved in time for Gate Closure.
- **Stage 4:** If the Stage 3 tests are passed then the CMS are updated as appropriate (with a status of Received) and an XML response is issued to the Market Participant. If the tests are unsuccessful, a response is issued detailing the error(s).
- For queries, the latest data set that qualifies for the range of Market Participant provided dates will be returned to the Market Participant User. This will include the Status of the data (see 3.3.2 – Manual Processing section below).

### 3.3.2 MANUAL PROCESSING

**Note:** The details below are provided for reference only.



**Figure 4: Registration Data – Status Updates**

- The Market Operator reviews all changes received through the Registration system. Other applicable Parties (e.g. System Operator) will be contacted by the Market Operator if necessary.
- Based on the review, the Market Operator can update the status to Accepted, Incomplete, In Progress or Deny. The Market Operator may also change the status to Cancel (from Accepted and Received).
- Market Participants may update any data, subject to acceptance by the Market Operator and if submitted within the applicable timescale.

### 3.4 VALIDATION & XML SAMPLES

The validation applicable to each message type is presented in the following sections.

#### 3.4.1 APPLICATION ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory / Optional
NAME	VARCHAR2 (50)	Must be a STRING (<=50 Characters).	Mandatory
SHORT_NAME	VARCHAR2 (12)	Must be a STRING (<=12 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
BUS_PRESIDENT	VARCHAR2(20)	Must be a STRING (<=20 Characters).	Mandatory
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
ADDRESS	VARCHAR2 (128)	Must be a STRING (<=128 Characters).	Mandatory
ADDRESS2	VARCHAR2 (128)	Must be a STRING (<=128 Characters).	Optional
CITY	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Mandatory
COUNTY	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Mandatory
POSTAL_CODE	VARCHAR2 (15)	Must be a STRING (<=15 Characters).	Mandatory
BILLING_ADDRESS	VARCHAR2 (128)	Must be a STRING (<=128 Characters).	Optional
BILLING_ADDRESS2	VARCHAR2 (128)	Must be a STRING (<=128 Characters).	Optional
BILLING_CITY	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Optional
BILLING_COUNTY	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Optional
BILLING_POSTAL_CODE	VARCHAR2 (15)	Must be a STRING (<=15 Characters).	Optional
COUNTRY	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Mandatory
PHONE	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Mandatory
FAX	VARCHAR2 (20)	Must be a STRING (<=20 Characters).	Mandatory
EMAIL	VARCHAR2 (50)	Must be a STRING (<=50 Characters).	Mandatory
URL	VARCHAR2 (100)	Must be a STRING (<=100 Characters).	Optional
REPRESENT_PARTY	VARCHAR2(32)	Must be a STRING (<=32 Characters).	Optional
VAT_JURISDICTION	VARCHAR2(4)	Must be "ROI" or "NI".	Mandatory
VAT_NUMBER	VARCHAR2(32)	Must be a STRING (<=32 Characters).	Mandatory
VAT_STATUS	NUMBER(1)	Must be "Non-Exempt" or "Exempt". <ul style="list-style-type: none"> <li>0 - Non-Exempt</li> <li>1 - Exempt</li> </ul>	Mandatory
PARTICIPANT_VAT_JURISDICTION	VARCHAR2(6)	Must be "UK", "ROI", "EU", "NON-EU"	Mandatory
NOTIFICATION_COMMENT	VARCHAR2(250)	Must be a STRING (<=250 Characters).	Optional

Name	Data Type	Validation	Mandatory / Optional
WAS_MP_FLG	CHAR (1)	Must be "Yes" or "No". ('Y' or 'N')	Optional
OLD_MP_NAME	VARCHAR2 (12)	Must be a STRING (<=12 Characters).	Optional
OLD_MP_DATE	DATE	Must be YYYY-MM-DD.	Optional
ACCOUNT_MANAGER	VARCHAR2 (50)	Must be a STRING (<=50 Characters).	Mandatory
DOC_SIGNATORY_TRACKING	VARCHAR2(50)	Must be a STRING (<=50 Characters).	Mandatory
INITIAL_CREDIT_COVER	NUMBER(15,2)	Must be a decimal (max=999999.99).	Optional
CREDIT_COVER_TYPE	CHAR(1)	Must be "Letter of Credit" or "Credit". <ul style="list-style-type: none"> <li>L = Letter of Credit</li> <li>C = Cash</li> </ul>	Mandatory
DATA_XCHG_TEST	CHAR(1)	Must be "Pass" or "Fail". <ul style="list-style-type: none"> <li>P=Pass</li> <li>F=Fail</li> </ul>	Optional but do not use
INTCON_FLAG	CHAR(1)	Must be "Yes" or "No". ('Y', 'N').	Optional
CLASS_TYPE	VARCHAR2(50)	Must be "System Operator", "Trading Participant", "Non-Trading Participant", "Regulator", or "Interconnector Administrator".	Mandatory
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
CODE_PARTICIPANT_NAME	VARCHAR2(50)	Must be left blank for submission. If submitted by the Market Participant, the submission will be rejected.	Optional

TABLE 1: APPLICATION ELEMENT DETAILS

## 3.4.2 CONTACT ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory /Optional
NAME	VARCHAR2 (50)	Must be a STRING (<= 50 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
ADDRESS	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Mandatory
ADDRESS2	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Optional
CITY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
COUNTY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
POSTAL_CODE	VARCHAR2 (15)	Must be a STRING (<= 15 Characters).	Mandatory
COUNTRY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory

Name	Data Type	Validation	Mandatory /Optional
PHONE	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
FAX	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
EMAIL	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Mandatory
MOBILE	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
PAGER	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
URL	VARCHAR2 (100)	Must be a STRING (<= 100 Characters).	Optional
NOTIFICATION_COMMENT	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
POSITION	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Mandatory
CONTACT_TYPE	VARCHAR2 (20)	Must be "Full Access Contact", "Main Organisation Contact", "Invoicing and Banking Contact", "Settlement Statements Contact", "Trading Contact" or "Other".	Mandatory
COMMENTS	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional

**TABLE 2: CONTACT ELEMENT DETAILS**

### 3.4.3 USER ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory /Optional
LOGIN_ID	VARCHAR2 (12)	Must be a STRING (<= 12 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
NAME	VARCHAR2 (50)	Must be a STRING (<= 50 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
ADDRESS	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Mandatory
ADDRESS2	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Optional
CITY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
COUNTY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
POSTAL_CODE	VARCHAR2 (15)	Must be a STRING (<= 15 Characters).	Mandatory
COUNTRY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
PHONE	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory

Name	Data Type	Validation	Mandatory /Optional
FAX	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
EMAIL	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Mandatory
MOBILE	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
PAGER	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
URL	VARCHAR2 (100)	Must be a STRING (<= 100 Characters).	Optional
NOTIFICATION_COMMENT	VARCHAR2(250)	Must be a STRING (<= 250 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
POSITION	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Mandatory
USER_TYPE	VARCHAR2 (20)	Must be "Full Access User", "Trading User", "Registration User", "Invoicing User", "Settlement Statements User", "Main Organisation User", or "Other User Type".	Mandatory
DATA_XCHG_TEST	CHAR(1)	Must be "Pass" or "Fail". • P=Pass • F=Fail	Optional but do not use
COMMENTS	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional

TABLE 3: USER ELEMENT DETAILS

## 3.4.4 BANK ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory /Optional
BANK_NAME	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Mandatory
BANK_NUM	NUMBER (20)	Must be a NUMBER (<= 20 Digits).	Mandatory
BANK_ACCOUNT_NAME	VARCHAR2 (30)	Must be a STRING (<= 30 Characters).	Mandatory
BANK_ACCOUNT_NUM	VARCHAR2 (30)	Must be a STRING (<= 30 Characters).	Mandatory
BANK_ACCOUNT_DESCRIPTION	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Mandatory
BANK_BRANCH_TYPE	VARCHAR2 (15)	Must be a STRING (<= 15 Characters).	Mandatory
BANK_BRANCH_NAME	VARCHAR2 (30)	Must be a STRING (<= 30 Characters).	Mandatory
BANK_BRANCH_NUM	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Mandatory
BANK_BRANCH_DESCRIPTION	VARCHAR2 (50)	Must be a STRING (<= 50 Characters).	Optional



Name	Data Type	Validation	Mandatory /Optional
BANK_BRANCH_ADDRESS	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Optional
BANK_BRANCH_ADDRESS2	VARCHAR2 (128)	Must be a STRING (<= 128 Characters).	Optional
BANK_BRANCH_CITY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Optional
BANK_BRANCH_COUNTY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Optional
BANK_BRANCH_POSTAL_CODE	VARCHAR2 (15)	Must be a STRING (<= 15 Characters).	Optional
BANK_BRANCH_COUNTRY	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Optional
BANK_BRANCH_PHONE	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Optional
BANK_BRANCH_FAX	VARCHAR2 (20)	Must be a STRING (<= 20 Characters).	Optional
SWIFT_BIC	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Mandatory
IBAN	VARCHAR2 (30)	Must be a STRING (<= 30 Characters).	Mandatory
JURISDICTION	VARCHAR2(4)	Must be "ROI" or "NI".	Optional
NOTIFICATION_COMMENT	VARCHAR2(250)	Must be a STRING (<= 250 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional

**TABLE 4: BANK ELEMENT DETAILS**

### 3.4.5 GENERATOR PARAMETERS ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory /Optional
RES_TYPE	VARCHAR2 (12)	Must be one of the following PRED_PR_MAKER_GEN; (PPMG) PRED_PR_TAKER_GEN; (PPTG) VAR_PR_MAKER_GEN; (VPMG) VAR_PR_TAKER_GEN; (VPTG) AUTO_PR_TAKER_GEN. (APTG)	Mandatory
RES_NAME	VARCHAR2 (32)	Must be STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
IM_RES_NAME	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_POINT	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_TYPE	VARCHAR2(4)	Must be TRNS or DIST. Must be STRING (<= 4 Characters).	Optional
CONNECTION_AGREEMENT_XREF	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory

Name	Data Type	Validation	Mandatory /Optional
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
FUEL_TYPE	VARCHAR2(5)	Fuel Type: <ul style="list-style-type: none"> <li>Oil (OIL)</li> <li>Gas (GAS)</li> <li>Coal (COAL)</li> <li>Multiple Fuel (MULTI)</li> <li>Wind (WIND)</li> <li>Hydro (HYDRO)</li> <li>Biomass (BIO)</li> <li>Combined Heat and Power (CHP)</li> <li>Pumped Storage (PUMP)</li> <li>Peat (PEAT)</li> <li>Distillate (DISTL)</li> <li>Nuclear (NUCLR)</li> <li>Not Applicable (NA)</li> </ul>	Mandatory
DUAL_FUEL_FLAG	CHAR(1)	Must be "Yes" or "No". ('Y', 'N')	Mandatory
SECONDARY_FUEL_TYPE	VARCHAR2(5)	Secondary Fuel Type: <ul style="list-style-type: none"> <li>Oil (OIL)</li> <li>Gas (GAS)</li> <li>Coal (COAL)</li> <li>Multiple Fuel (MULTI)</li> <li>Wind (WIND)</li> <li>Hydro (HYDRO)</li> <li>Biomass (BIO)</li> <li>Combined Heat and Power (CHP)</li> <li>Pumped Storage (PUMP)</li> <li>Peat (PEAT)</li> <li>Distillate (DISTL)</li> <li>Nuclear (NUCLR)</li> <li>Not Applicable (NA)</li> </ul>	Mandatory where DUAL_FUEL_FLAG = 'Y'
MIN_GEN_CAP	NUMBER (15,3)	Must be a NUMBER (min - 99999.999 - max 0).	Mandatory
MAX_GEN_CAP	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
ELAPSE_SYNC_COLD	NUMBER(8,2)	Must be a NUMBER (min 0 - max 99999.99).	Mandatory, but not used by the CMS
ELAPSE_SYNC_WARM	NUMBER(8,2)	Must be a NUMBER (min 0 - max 99999.99).	Mandatory, but not used by the CMS
ELAPSE_SYNC_HOT	NUMBER(8,2)	Must be a NUMBER (min 0 - max 99999.99).	Mandatory, but not used by the CMS
PUMP_STORAGE_FLAG	CHAR(1)	Must be Yes or No. ('Y' or 'N')	Mandatory
ENERGY_LIMIT_FLAG	CHAR(1)	Must be Yes or No. ('Y' or 'N')	Mandatory
NETTING_GEN_FLAG	CHAR(1)	Must be Yes or No. Only applicable to PPMG; PPTG; VPMG; VPTG; APTG. It is a Y/N/Null field. Null for Supplier, Demand and Interconnector.	Mandatory
FIXED_UNIT_LOAD	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
UNIT_LOAD_SCALAR	NUMBER(5,4)	Must be between 0 and 1. 4 decimal places.	Mandatory

Name	Data Type	Validation	Mandatory /Optional
STARTUP_END_PT	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
DROOP	NUMBER(7,4)	Must be a NUMBER (min 0 - max 9999.9999).	Mandatory
NUMBER_OF_STARTS	NUMBER(4)	Must be an INTEGER (max 9999).	Mandatory
NUMBER_OF_RUN_HRS	NUMBER(4)	Must be an INTEGER (max 9999).	Mandatory
MIN_RESERVOIR_CAP	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
MAX_RESERVOIR_CAP	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
MODE_OF_OPERATION	NUMBER(1)	Must be 1, 2, 3 or 4. Must be INTEGER (max 9).	Mandatory
UNIT_LOCATION_ID	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Mandatory
PHYSICAL_LOCATION_ID	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Mandatory
STATION_NAME	VARCHAR2(8)	Must be a STRING (<= 8 Characters, restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
STATION_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
STATION_ADDRESS	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
STATION_ADDRESS2	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
REGISTERED_FIRM_CAP	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
NON_FIRM_ACC_QUANTITY	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Mandatory
COMMISSION_TEST_CERT	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Mandatory
OLD_FLAG	CHAR (1)	Must be Yes or No. ('Y' or 'N')	Optional
OLD_RESNAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Optional
OLD_MPNAME	VARCHAR2 (12)	Must be a STRING (<= 12 Characters).	Optional
PRIORITY_DISPATCH_FLAG	CHAR(1)	Must be Yes or No. ('Y' or 'N')	Mandatory
QUALIFIED_COMM_CH	VARCHAR2(32)	Must be "NOT_QUALIFIED", "BROWSER", "WEBSERVICE", or "BROWSER_AND_WEBSERVICE".	Optional
JURISDICTION	VARCHAR2(4)	Must be "ROI" or "NI".	Optional
NOTIFICATION_COMMENT	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
TRADING_SITE_NAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*").	Optional
METER_REGISTRATION_ID	VARCHAR2(32)	Must be STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*"). MUST equal RES_NAME value.	Mandatory

Name	Data Type	Validation	Mandatory /Optional
DATA_XCHG_TEST	CHAR(1)	Must be "Pass" or "Fail". • P=Pass • F=Fail	Optional but do not use
EB_LICENSE	VARCHAR2 (24)	Must be a STRING (<= 24 Characters).	Optional
EB_EFF_DATE	DATE	Must be YYYY-MM-DD.	Optional
EB_EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
DEFAULT_DATA_SUBMISSION	CHAR(1)	Must be Yes or No. ('Y' or 'N')	Optional

**TABLE 5: GENERATOR PARAMETER ELEMENTS****3.4.6 DEMAND PARAMETERS ELEMENT DATA: SUBMISSION**

Name	Data Type	Validation	Mandatory /Optional
RES_TYPE	VARCHAR2 (12)	Resource Type: • Demand Unit(DU)	Mandatory
RES_NAME	VARCHAR2 (32)	Must be STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*")	Mandatory
IM_RES_NAME	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_POINT	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_TYPE	VARCHAR2(4)	Must be TRNS or DIST. Must be STRING (<= 4 Characters).	Optional
CONNECTION_AGREEMENT_XREF	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
DISP_CAPACITY	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Optional
NON_DISP_CAPACITY	NUMBER (15,3)	Must be a NUMBER (min 0 - max 99999.999).	Optional
FUEL_TYPE	VARCHAR2 (5)	Must be "DEM".	Optional
TRADINGSITE_SUPPLIER_FLAG	CHAR(1)	Must be Yes, No, or NULL.	Optional
TRADING_SITE_NAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*"). Maximum occurrences = 100.	Mandatory
METER_REGISTRATION_ID	VARCHAR2(32)	Must be STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*"). MUST equal RES_NAME value.	Optional
OLD_FLAG	CHAR (1)	Must be Yes or No.	Optional

Name	Data Type	Validation	Mandatory /Optional
OLD_RESNAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Optional
OLD_MPNAME	VARCHAR2 (12)	Must be a STRING (<= 12 Characters).	Optional
QUALIFIED_COMM_CH	VARCHAR2(32)	Must be "NOT_QUALIFIED", "BROWSER", "WEBSERVICE", or "BROWSER_AND_WEBSE RVICE".	Optional
JURISDICTION	VARCHAR2(4)	Must be "ROI" or "NI".	Optional
NOTIFICATION_COMMENT	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
DATA_XCHG_TEST	CHAR(1)	Must be "Pass" or "Fail". • P=Pass • F=Fail	Optional
EB_LICENSE	VARCHAR2 (24)	Must be a STRING (<= 24 Characters).	Optional
EB_EFF_DATE	DATE	Must be YYYY-MM-DD.	Optional
EB_EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
STATION_NAME	VARCHAR2(8)	Must be a STRING (<= 8 Characters, restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
STATION_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
STATION_ADDRESS	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
STATION_ADDRESS2	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
DEFAULT_DATA_SUBMISSION	CHAR(1)	Must be Yes or No.	Optional

TABLE 6: LOAD PARAMETER ELEMENTS

## 3.4.7 NETTING GENERATOR PARAMETERS ELEMENT DATA: SUBMISSION

Name	Data Type	Validation	Mandatory /Optional
RES_TYPE	VARCHAR2 (12)	Must be one of the following: Autonomous Price Taker Generator Unit: APTG "AUTO_PR_TAKER_GEN"	Mandatory
RES_NAME	VARCHAR2 (32)	Must be STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
IM_RES_NAME	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_POINT	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
CONNECTION_TYPE	VARCHAR2(4)	Must be TRNS or DIST. Must be STRING (<= 4 Characters).	Optional
CONNECTION_AGREEMENT_XREF	VARCHAR2(32)	Must be STRING (<= 32 Characters).	Optional
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory
EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional

Name	Data Type	Validation	Mandatory /Optional
FUEL_TYPE	VARCHAR2(5)	Must be Not Applicable (NA)	Mandatory
PUMP_STORAGE_FLAG	CHAR(1)	Must be "No". (N)	Mandatory
ENERGY_LIMIT_FLAG	CHAR(1)	Must be "No". (N)	Mandatory
NETTING_GEN_FLAG	CHAR(1)	Must be "No". (N)	Mandatory
STATION_NAME	VARCHAR2(8)	Must be a STRING (<= 8 Characters, restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
STATION_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
STATION_ADDRESS	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
STATION_ADDRESS2	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
OLD_FLAG	CHAR (1)	Must be Yes or No. (Y or N)	Optional
OLD_RESNAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters).	Optional
OLD_MPNAME	VARCHAR2 (12)	Must be a STRING (<= 12 Characters).	Optional
QUALIFIED_COMM_CH	VARCHAR2(32)	Must be "NOT_QUALIFIED", "BROWSER", "WEBSERVICE", or "BROWSER_AND_WEBSE RVICE".	Optional
JURISDICTION	VARCHAR2(4)	Must be "ROI" or "NI".	Optional
NOTIFICATION_COMMENT	VARCHAR2 (250)	Must be a STRING (<= 250 Characters).	Optional
TRADING_SITE_NAME	VARCHAR2 (32)	Must be a STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
METER_REGISTRATION_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters restricted to "[a-zA-Z_0-9 \-]*". MUST equal RES_NAME value.	Optional
DATA_XCHG_TEST	CHAR(1)	Must be "Pass" or "Fail". • P=Pass • F=Fail	Optional
EB_LICENSE	VARCHAR2 (24)	Must be a STRING (<= 24 Characters).	Optional
EB_EFF_DATE	DATE	Must be YYYY-MM-DD.	Optional
EB_EXP_DATE	DATE	Must be YYYY-MM-DD.	Optional
STATION_NAME	VARCHAR2(8)	Must be a STRING (<= 8 Characters, restricted to "[a-zA-Z_0-9 \-]*").	Mandatory
STATION_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional
STATION_ADDRESS	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
STATION_ADDRESS2	VARCHAR2(128)	Must be a STRING (<= 128 Characters).	Optional
EXTERNAL_ID	VARCHAR2(32)	Must be a STRING (<= 32 Characters).	Optional

TABLE 7: NETTING GENERATOR PARAMETER ELEMENTS

### 3.4.8 FACILITY TRANSFER PARAMETERS ELEMENT DATA: SUBMISSION

This template is used to allow a transfer of Facilities between Market Participants.

A De-registration request is to be submitted from the Market Participant transferring the Facility, while a Facility Transfer request is to be submitted from the Market Participant acquiring the Facility.

The Effective Date from the Facility Transfer request must be greater than or equal to the De-registration date for the Unit from the Market Participant transferring the Facility.

Name	Data Type	Validation	Mandatory /Optional
OLD_RESOURCE_NAME	VARCHAR2 (32)	Must be STRING (<= 32 Characters).	Mandatory
OLD_MARKET_PARTICIPANT_NAME	VARCHAR2 (12)	Must be STRING (<= 12 Characters).	Mandatory
EFF_DATE	DATE	Must be YYYY-MM-DD.	Mandatory

**TABLE 8: FACILITY TRANSFER PARAMETERS**

### 3.4.9 REGISTRATION QUERY

Name	Validation	Mandatory /Optional
START_DATE	YYYY-MM-DD Must be <= END_DATE.	Mandatory
END_DATE	YYYY-MM-DD Must be >= START_DATE.	Mandatory
APPLICATION	Must be "true" or "false".	Optional
BANK	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional
CONTACT	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional
RESOURCE	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional
USER	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional
TRADINGSITE	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional
INTERCONNECTOR	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional, but not for Market Participant use
METER_REGISTRATION	Must be "true" or "false" (indicates whether the element data should be returned by the query).	Optional, but not for Market Participant use

**TABLE 9: REGISTRATION QUERY DETAILS**

## 4 MARKET INTERFACE - TRADING

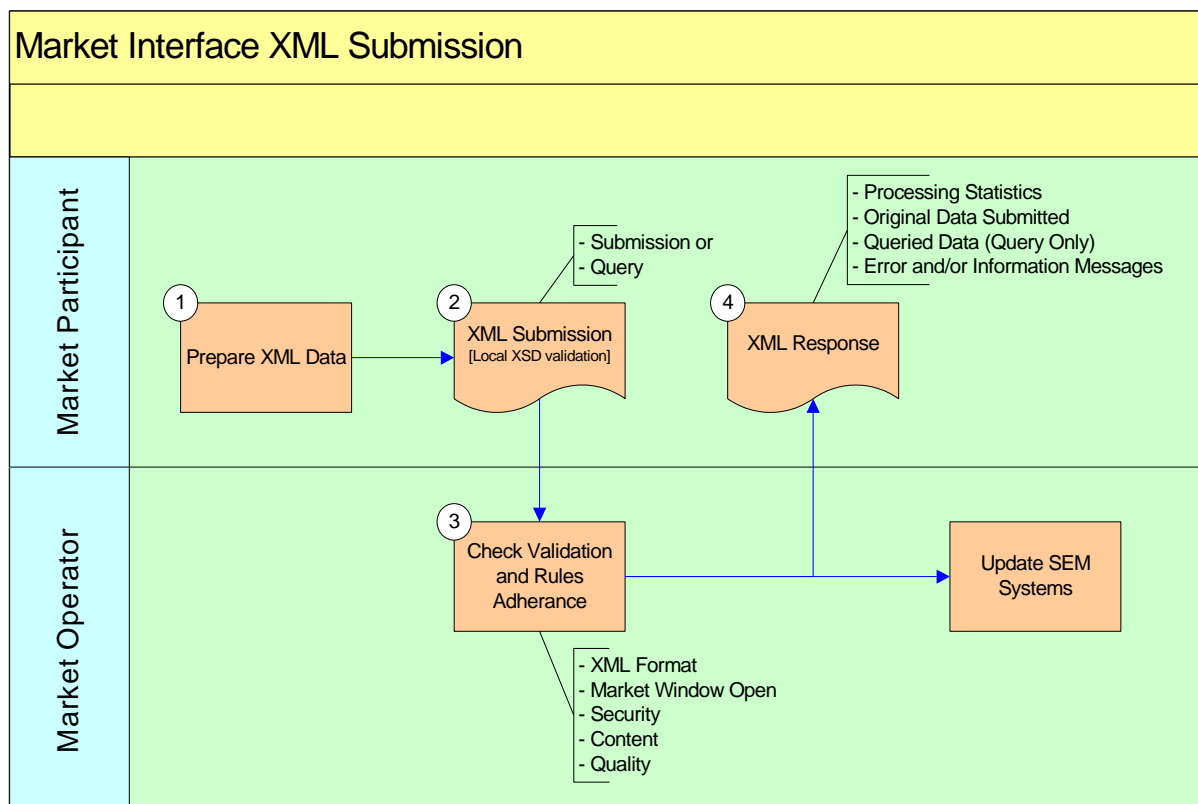
### 4.1 DESCRIPTION

The transactions covered in this section are:

- Settlement Reallocation;
- Trading Data:
  - ❖ Generator Commercial Offer Data (COD);
  - ❖ Demand COD; and
  - ❖ Interconnector COD.
- Generator and Demand Technical Offer Sets;
- Generator and Demand Technical Offer Set Choice and
- Unit Under Test

This section describes the submission and retrieval of Market Trading Offers through the MPI Displays. The Market Participant (MP) logs into the CMS through the internet using their Digital Certificate. The MP may submit Energy Market data for the defined data types pertaining to multiple trading intervals for a single Trading Day. Each submission will receive a response, which will give information messages on the success or failure of the submission. Market Trading provides functionality to submit; revise and query (retrieve) trading data. Trading data can be classified into Default (standing) offers and Normal Daily Offers.

### 4.2 MARKET INTERFACE DATA SUBMISSION PROCESS



**Figure 5: Market Interface Data Processing Overview**

**Stage 1:** Market Participants prepare the XML Data. (Details on how this needs to be packaged, in terms of SOAP, WSDL, etc. are covered in the MPUD Technical Volume);



**Stage 2:** Data in this category can either be submitted (updated) or queried and are typically be validated on the client (Market Participant) system to ensure compliance with the XML Schema rules;

**Stage 3:** The Transaction is received by the CMS and validation checks, including business rules, are applied – see section 3 of this document for details of the validations and sample XML;

**Stage 4:** If the Stage 3 tests are passed then the CMS are updated as appropriate and an XML response is issued to the Market Participant. If the tests are unsuccessful, a response is issued detailing the errors.

Notes on this process:

- There can be multiple Requests in a single Transaction. An example of this is provided in section 4.4.11.
- There are 3 “Ex-Ante” Trading Windows to which Market Participants can submit bids and offers. EA, EA2 and WD1.
- Each “Ex-Ante” Trading Window (EA, EA2 and WD1) shall be associated with a corresponding Gate Window. This Gate Window will be opened and closed as outlined in the Table below.
- When a Gate Window is opened, this signifies the start of the period of time within which the Participant may submit data to be accepted and used in the associated Trading Window.
- When a Gate Window is closed, this signifies the start of the period of time after which any Participant Data submissions relating to the associated Trading Window shall be prevented.
- The Gate Windows during which Transactions can be submitted are outlined in the table below:

Transactions	Description	EA	EA2	WD1
<b>Gate Window Open:</b>	Gate Window Opening to allow submission of Commercial Offer Trading Data for the associated Trading Window	10:00 on TD-29	09:30 on TD-1	11:30 on TD-1
<b>Gate Window Close:</b>	Gate Window Closure after which no further submission of Commercial Offer Trading Data is allowed for the associated Trading Window.	09:30 on TD-1	11:30 on TD-1	08:00 on TD
<b>Data Query:</b>	Query on Trading Data previously submitted.	As Available until 23:59 on TD+7	As Available until 23:59 on TD+7	As Available until 23:59 on TD+7
<b>SRA Submission: Open</b>	Submission of Settlement Re-allocation: Gate Open  The Settlement Re-allocation data submission window opens as above and closes one day before the issue of the invoice on which the reallocation is to be included (Billing Period/Capacity Period plus 4 working days)	Open: 06:00 on TD-29 (GC -28)		
<b>SRA Submission: Close</b>	Submission of Settlement Re-allocation: Gate Closure	10:00AM on Invoice Day -1		
<b>Submission of Standing Data</b>	The submission of standing data window is always open – albeit only to be used for Market Submission Windows to be opened in the future	N/A	N/A	N/A

Transactions	Description	EA	EA2	WD1
<b>Technical Offer Choice: Gate Open</b>	Gate Window Opening to allow submissions of Technical Offer Set Choice for the associated Trading Window.	10:00 on TD-29	09:30 on TD-1	N/A
<b>Technical Offer Choice: Gate Closed</b>	Gate Window Closure after which no further submissions of Technical Offer Set Choice are allowed for the associated Trading Window.  VTOD set selection may not be submitted for the WD1 Gate Window.	09:20 on TD-1	11:20 on TD-1	N/A

**TABLE 10: MARKET INTERFACE – MARKET WINDOWS**

#### 4.2.1 DEFAULT AND TRADING DAY COMMERCIAL OFFER DATA

The following details outline how Default Data, as defined in the Code, is supported in the CMS through a combination of functionality called Standing Data and Trading Day Data.

Standing Data and Trading Day Data apply to Trading Data.

##### **Standing Data**

Standing Data gets converted to Trading Day Data at the time of EA Gate Window opening. This conversion process populates the operational COD tables with the Standing Data for the Trading Day 29 days in the future. Market Participants can update these values until the Gate Window closes (timings specified above). The following notes apply to Standing Data:

- Standing Data can be created at any time.
- As part of Unit Registration, one set of data is manually submitted and is entered by the Market Operator onto the system with a parameter of "ALL" (i.e. valid for all days). There is no expiration date for this, as Default Data (see below) is always required for use by the CMS.
- Interconnector Units do not have Standing Data.
- After Communication Channel Qualification – i.e. once access to the system is granted – Market Participants may update the Standing Data (type "ALL").
- Market Participants may also submit Standing Data for specific day types (SUN, MON, ..., SAT). These have an optional expiration date.
- If an expiration date is used, the data will be used daily and up until the expiration date (inclusive)
- If no expiration date is given, the data will be used indefinitely, or until the Market Participant supersedes the specific day type data.
- Updated Standing Data will be used in the next EA Gate Window opening.
- During EA Gate Window opening for a given Trading Day, if there is Standing Data for both "specific day type" and "ALL", the system will use the "specific day type" rather than the "ALL" type.

**Trading Day Data**

- As Standing Data will be converted to Trading Day Data at EA Gate Window opening, submissions of Trading Day Data will always be an update to this data.
- The use of Trading Day Data, pre-populated by Standing Data, ensures that there is always valid (or Default) data available for a unit.
- This may be updated with revised Trading Day Data while the Gate Window is open.
- Trading Day Data submissions will be validated and processed upon receipt, and the Market Participant will be informed of the results of validation and processing.
- The communication mechanism during data submission is synchronous, that is the Market Participant submits the data and waits for the response from the Web Server.
- Participants have the ability to revise Trading Day Data as many times as necessary within the appropriate Gate Window.
- For Day-Ahead Market (EA and EA2), if the Trading Day is a normal day, then interval data should span all 24 hours. If the Trading Day is a short day (when Daylight Saving Time starts), then interval data should span 23 hours (start/end hour 2 should be skipped). If the Trading Day is a long day (when Daylight Saving Time ends), then interval data should span 25 hours (hour 25 should be used for the extra hour). Note that this does not apply to Settlement Reallocation submissions. Settlement Reallocations can only be submitted for one interval at a time.
- For Within-Day Market (WD1), the interval data should span the relevant Trading Window (i.e. all corresponding trading periods that fall within the Trading Window). The interval data that are outside the relevant Trading Window will not be utilised.
- Interconnector users shall be permitted to submit Commercial Offer Data for each EA, EA2 and WD1 Trading Window.

**Starting Gate Window Data**

Starting Gate Window Data defines the data that will be used in the event that required Commercial Offer Data and/or Technical Offer Data is not accepted within the relevant Gate Window.

In the following definitions, the term “*Accepted and Utilised*” refers to data which was accepted in the systems and used in the associated MSP software run.

**Starting Gate Window Data: EA**

- The Starting Gate Window Data for the EA run shall be Standing Data converted to Trading Day Data at the EA Gate Window Opening.
- This Standing Data shall be used and considered accepted at the EA Gate Closure unless it is superseded by a valid and accepted submission within the EA Gate Window.

**Starting Gate Window Data: EA2**

- The Starting Gate Window Data for EA2 shall be the Accepted and Utilised Data from the EA Gate Window Closure.
- This data will be used and considered accepted at the EA2 Gate Window Closure unless it is superseded by a valid and accepted submission prior to the EA2 Gate Window Closure.

**Starting Gate Window Data: WD1**

- If the EA2 run has NOT been cancelled:
  - The Starting Gate Window Data for WD1 shall be the Accepted and Utilised data from the EA2 Gate Window Closure.
- If the EA2 run HAS been cancelled:

- The Starting Gate Window Data for WD1 shall be the Accepted and Utilised data from the EA Gate Window Closure.

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#### 4.2.2 DEFAULT AND TRADING DAY TECHNICAL OFFER DATA

For Technical Offer Data (TOD), the same default rules used for Commercial Offer Data are applied, unless otherwise specified in the Code, in order to ensure that valid data will be available at Gate Closure. The Validated TOD (VTOD) set number one is used as the default TOD data. This means that VTOD set number one will be used as Trading Day TOD, unless another Validated TOD set is chosen to be used on that Trade Date.

- Each Generator Unit and Demand Side Unit can have up to six pre-approved VTOD sets.
- VTOD sets are identified by their respective set numbers.
- Up to 10 minutes prior to Gate Closure for EA and EA2, Participants will be able to choose a pre-approved VTOD set to be effective on a given Trading Day.
- If Participants do not submit a VTOD set choice for a given Trading Day, the default set (VTOD set number 1) will be used.
- Changes to data within a VTOD set require approval from the Market Operator and the System Operator.
- Trading Day VTOD set choice can be revised for the EA Trading Window while the EA Trading Window is open for the relevant Trading Day.
- Trading Day VTOD set choice can be revised for the EA2 Trading Window while the EA2 Trading Window is open for the relevant Trading Day.
- The latest accepted VTOD set choice will be used at gate closure.
- No VTOD Set Selection Data Transaction may be submitted to the WD1 Gate Window.
- Once the EA2 VTOD Gate Window is closed any further Participant VTOD set selection data transaction submissions shall be prevented for the associated Trading Day.
- MPR TOD (i.e. TOD which does not comprise a VTOD set selection) may only be submitted to the EA Gate Window.

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#### 4.2.3 SETTLEMENT REALLOCATION

- Only one SRA Request is allowed per Transaction.
- Ten SRAs are permitted per Trading Day per market. This is enforced by a system validation.
- SRA Cancellation is handled via an internal Business Process.
- An SRA Cancellation Report will be published for viewing by Participants that are affected by the cancellations. This shall include both the debited and credited Participants.
- This report shall be automatically published once an RCC Report is published.
- No SRA Cancellation report will be issued to a Participant unless they have SRAs that have been cancelled.

---

#### 4.2.4 UNIT UNDER TEST

- A user can Submit, Query or Cancel a Unit Under Test request.
- The option for 'Unit Under Test' Submissions, Queries or Cancellations is available via type 2 communications and type 3 communications.
- A Unit under Test submission can have a status of 'Received', 'Approved' or 'Denied'.
- When a Unit Under Test submission is made by a Market Participant, it will get a status of 'Received'.
- The Market Operator will then 'Approve' or 'Deny' this as appropriate.

#### UNIT UNDER TEST – USABILITY

Note: When submitting offers via the MPI spanning multiple trading days, please note the following if that unit is going under test throughout the duration of that time frame.

Units going under test take the form and characteristics of Predictable Price Takers for the duration they are under test. The MPI does not automatically refresh the Unit Under Test Flag from 'N' to 'Y'. With this flag not refreshing, the resource type will therefore not refresh resulting in the potential for incorrect data submissions.

Example below:

- A PPMG going under test from 8<sup>th</sup> – 10<sup>th</sup> February
- User submits offers for 7<sup>th</sup>. Unit is still a PPMG.

**Generation Offers** Reset Save Input Save Results To File: Upload...

Select Action : ☒ Submit ☐ Query Submit

Trade Date: ☒ 06/02/2014 External ID:  Gate Window: ☒ EA ☐ EA2 ☐ WD1 Standing: ☒ No ☐ Yes

Refresh List Select Resource:  Resource Type: PRED\_PR\_MAKER\_GEN Pump Storage: N Energy Limited: N Under Test: **N**

**OFFER DETAILS**

Resource Name:

**Forecast Details**

**Details** Add **Interval Ranges**

Start Hr:  Start Int:  End Hr:  End Int:   
 Avail Profile:  Min Stable:  Min Profile:   
 [ Interval Range ]: ( : - : )

**Fuel Use Details**

**Details** Add **Interval Ranges**

Start Hr:  Start Int:  End Hr:  End Int:   
 Type:   
 [ Interval Range ]: ( : - : )

**Price Maker Details**

**Start Up Costs**

Hot:  Warm:  Cold:

**No Load Costs**

No Load Cost:

**Price Quantity Curve**

Add Step

Price  Quantity

Note: Such PPMG characteristics such as Start up Costs, No Load Costs & PQ Pairs are present.

- User then changes the trade date to the 8<sup>th</sup> February – Note the Under Test Flag is incorrectly at 'N'

**Generation Offers** Reset Save Input Save Results To File: Upload...

Select Action : ☒ Submit ☐ Query Submit

Trade Date: ☒ 08/02/2014 External ID:  Gate Window: ☒ EA ☐ EA2 ☐ WD1 Standing: ☒ No ☐ Yes

Refresh List Select Resource:  Resource Type: PRED\_PR\_MAKER\_GEN Pump Storage: N Energy Limited: N Under Test: **N**

- Before submitting the offers for the 8<sup>th</sup> the user must select 'Refresh List' and select the appropriate unit again.

HEADER	
Trade Date: <input checked="" type="checkbox"/> 08/02/2014	External ID: <input type="text"/> Gate Window: <input checked="" type="radio"/> EA <input type="radio"/> EA2 <input type="radio"/> WD1 Standing: <input checked="" type="radio"/> No <input type="radio"/> Yes
Refresh List	Select Resource: <input type="text" value="GU_400181"/> Resource Type: PRED_PR_MAKER_GEN Pump Storage: N Energy Limited: N Under Test: <input checked="" type="radio"/> Y
OFFER DETAILS	
Resource Name: <input type="text" value="GU_400181"/>	
Forecast Details	
<div> <div>Details</div> <div> Start Hr: <input type="text"/> Start Int: <input type="text"/> End Hr: <input type="text"/> End Int: <input type="text"/>  Avail Profile: <input type="text"/> Min Stable: <input type="text"/> Min Profile: <input type="text"/> </div> </div> <div> Add Interval Ranges  Interval Range: ( : - : ) </div>	
Fuel Use Details	
<div> <div>Details</div> <div> Start Hr: <input type="text"/> Start Int: <input type="text"/> End Hr: <input type="text"/> End Int: <input type="text"/>  Type: <input type="text"/> </div> </div> <div> Add Interval Ranges  Interval Range: ( : - : ) </div>	
Price Taker Details	
<div> <div>Nomination Profile</div> <div> Start Hour: <input type="text"/> Start Int: <input type="text"/> End Hour: <input type="text"/> End Int: <input type="text"/> Nomination Profile(MW) <input type="text"/> </div> </div> <div> Add Interval Ranges  Interval Range: ( : - : ) </div>	
<div> <div>Decremental Prices</div> <div> Start Hour: <input type="text"/> Start Int: <input type="text"/> End Hour: <input type="text"/> End Int: <input type="text"/> Decremental Price(€) <input type="text"/> </div> </div> <div> Add Interval Ranges  Interval Range: ( : - : ) </div>	

- On refreshing the list, the resource takes the form of a PPTG as the Under Test flag is correctly set to 'Y'

#### 4.3 CANCELLATION OF MSP SOFTWARE RUNS

Given the proximity of the EA2 and WD1 Trading Windows to the EA Trading Window, there are certain conditions where either an EA2 or a WD1 Market Scheduling and Pricing (MSP) Software Run can be cancelled. The conditions for cancelling an MSP Software Run are set out in the Code. The following notes are also applicable:

- No EA MSP Software Run may be cancelled at any stage. Only EA2 or WD1 runs may be cancelled by the Market Operator.
- In the event that the EA2 MSP Software Run is cancelled and the subsequent WD1 MSP Software Run goes ahead, all Technical Offer Data (TOD) for the WD1 run for which there is no resubmission requirement in the WD1 Gate Window shall be as Accepted and Utilised in the last completed MSP Software Run that includes the end of the Trading Day.
- In the event that the EA2 MSP Software Run is cancelled and the subsequent WD1 MSP Software Run goes ahead, all Commercial Offer Data (COD) for the WD1 Starting Overlap Optimisation Period shall be as Accepted and Utilised in the last completed MSP Software Run that includes the end of the Trading Day.
- In the event that the WD1 MSP Software Run is cancelled, the Initial conditions (i.e. default data) for the following EA and EA2 MSP Software Runs shall be taken from the last completed MSP Software Run that includes the end of the Trading Day.
- Once the Market Operator has confirmed the cancellation of an MSP Software Run, the Commercial Offer Data items Accepted within the Gate Window associated with the cancelled MSP Software Run shall be tagged as "Cancelled". This data shall be considered "Not Utilised".
- Once the Market Operator has confirmed the cancellation of an MSP Software Run, the Technical Offer Data items Accepted within the Gate Window associated with the cancelled MSP Software Run shall be tagged as "Cancelled". This data shall be considered "Not Utilised".

- Once the Market Operator has confirmed the cancellation of an MSP Software Run, all relevant reports associated with the completion of an MSP Software Run shall **not** be produced or published.
- Once the Market Operator has confirmed the cancellation of an MSP Software Run, an MSP Cancellation Report shall immediately be produced and published.

#### 4.4 MESSAGE VALIDATION AND SAMPLE XML

In following sections, the validation applicable to each message type and the messages received are specified. Also included are sample XML files of Submit and Query Requests and Responses.

Once Market Participants have successfully completed Communication Channel Qualification, they will then be given the ability to access the CMS.

**Notes:**

- In the Validation Message column, variables to be included in the message are represented by {0}, {1}, {2}, etc.
- The last two columns indicate whether the field is relevant for a Submission or Query and, if relevant, whether the field is mandatory, optional or not applicable.

##### 4.4.1 COMMON ELEMENT (APPLIES TO ALL MARKET INTERFACE SUBMIT/QUERY TRANSACTIONS)

Name	Validation	Validation Message	Submission	Query
APPLICATION_TYPE	Specific application request type. Must be "DAM".		Mandatory	Mandatory
TRADING_DATE	YYYY-MM-DD There are different validation rules based on the message type, which are detailed in each individual message section below.		Mandatory	Mandatory
STANDING_FLAG	Indicates if the bid request is for a normal or for a standing bid. Must be TRUE or FALSE There are different validation rules based on the message type, which are detailed in each individual message section below.		**See details below for each individual message section.	**See details below for each individual message section.
PARTICIPANT_NAME	Must be STRING. Must be valid in combination with USER_NAME. Must have system privileges to allow Market Trading.	Invalid combination of participant_name {0} and user_name {1} for trading_date {2}.  The user_name {0} for participant_name {1} does not have system access privileges to participate in Market Trading for trading_date {2}.	Mandatory	Mandatory



Name	Validation	Validation Message	Submission	Query
USER_NAME	Must be STRING		Mandatory	Mandatory
	Must be valid in combination with PARTICIPANT_NAME.	Invalid combination of participant_name {0} and user_name {1} for trading_date {2}		
	Must have system privileges to allow Market Trading.	The user_name {0} for participant_name {1} does not have system access privileges to participate in Market Trading for trading_date {2}.		
VERSION_NO	The current version of the template.		Mandatory	Mandatory
	Must be "1.0".			
MODE	Must be NORMAL.		Mandatory	Mandatory

**TABLE 11: COMMON ELEMENTS**

#### 4.4.2 DESCRIPTION OF HOURS AND INTERVALS ELEMENTS

The CMS are designed to be able to receive data on a Trading Period basis, allowing Market Participants to enter data such as Nomination Profiles. For each submission that relates to a specific Trading Period, the Market Participant must specify an hour (START\_HR and END\_HR) and interval (START\_INT and END\_INT) to which the data relates. Within various elements submitted as part of submissions, data with corresponding Trading Period information must be provided, including:

- Forecast Element for Generator Unit (Generator Offer) and Demand Side Unit (Demand Bid);
- Price Quantity Pairs for Interconnector Units;
- Settlement Reallocation; and
- Energy Limit definition.

The remainder of this section describes how Trading Period data can be submitted correctly to the CMS for submissions and queries.

Here is an example of the Forecast element:

Name	Validation
FORECAST_START_HR:	Start trading hour will be an integer between 1 and 25.
FORECAST_START_INT:	Start trading interval will be an integer 1 or 2.
FORECAST_END_HR:	End trading hour will be an integer between 1 and 25.
FORECAST_END_INT:	End trading interval will be an integer 1 or 2.
FORECAST_START_HR, FORECAST_END_HR:	Start hour must be less than or equal to End hour.
FORECAST_START_INT, FORECAST_END_INT:	Start interval must be less than or equal to End interval, if the Start hour equal to the End hour.
Hours and Interval in all the elements:	Range of hours and intervals in all elements present must match.

**TABLE 12: SAMPLE OF HOURS AND INTERVALS (APPLICABLE TO FORECAST)**

As above, when submitting and covering periods of more than 1 hour the start hour (START\_HR) must be less than the end hour (END\_HR). This means that:

- 1:1 to 24:2 is valid in order to cover an entire normal Trading Day but
- 7:1 to 6:2 is not allowed as 7 is greater than 6, even though 7:1 to 6:2 would be chronological as it is covering a Calendar day 1 and then Calendar Day 2.

In this instance, the Market Participant submits 7:1 to 24:2 (Calendar Day 1) and then 1:1 to 6:2 (Calendar Day 2).

For a normal Trading Day, the Market Participant could submit 1 element covering all 48 elements as follows:

- 1:1 to 24:2; or
- Up to 48 different elements covering all 48 periods independently, e.g. 1:1 to 1:1; 1:2 to 1:2; 2:1 to 2:1;...; 24:2 to 24:2.

**Submission of Standing bids of type “ALL”** must include all trading periods – including those extra periods for the long day (hour 25 intervals 1 & 2).

This can be submitted in any number of ways provided the start hour is always less than the end hour:

#### 4.4.2.1 NORMAL BID SUBMISSION FOR THE LONG DAY.

Valid – all 50 trading periods covered	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="25" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
Invalid – start hour greater than end hour	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="7" start_int="1" end_hr="6" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>

Valid – two forecast elements present – all 50 trading periods covered	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="7" start_int="1" end_hr="25" end_int="2" maximum_mw="150" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="6" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>

**TABLE 13: NORMAL BID SUBMISSIONS (LONG DAY)**

#### 4.4.2.2 NORMAL BID SUBMISSION FOR THE SHORT DAY

For a short Trading Day (when Daylight Saving Time starts), it is not currently possible to submit just one forecast element, as this would include hour 2 intervals 1 and 2, which do not exist on the short day:

Invalid – 48 periods covered	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="24" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
Valid – only 46 periods covered	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="7" start_int="1" end_hr="24" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="1" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="3" start_int="1" end_hr="6" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>

**TABLE 14: NORMAL BID SUBMISSIONS (SHORT DAY)**

#### 4.4.2.3 NORMAL BID SUBMISSION FOR THE REGULAR DAY

For a normal Trading Day it is possible to submit just one forecast element covering the entire Trading Day:

Valid – covers all 48 periods	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="24" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
-------------------------------	---

Valid –multiple forecast element submission covers all 48 periods	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="1" start_int="1" end_hr="25" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="7" start_int="1" end_hr="12" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>
	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;forecast start_hr="13" start_int="1" end_hr="24" end_int="2" maximum_mw="100" minimum_mw="40" minimum_output_mw="0"/&gt;</pre>

**TABLE 15: NORMAL BID SUBMISSIONS (NORMAL DAY)**

## 4.4.2.4 VALIDATION RULES APPLICABLE FOR START / END HOUR / INTERVAL

The tables below outline the validation rules and associated message(s) for Hours and Intervals in all the elements per Market Interface.

Name	Validation	Message	Settlement Reallocation		Generator Offer		Demand Bid Offer		Interconnector Offer	
			Applicable for Submit	Applicable for Query	Applicable for Submit	Applicable for Query	Applicable for Submit	Applicable for Query	Applicable for Submit	Applicable for Query
START_HR	Start trading hour.		Y	Y	Y	Y	Y	Y	Y	Y
	It will be an integer between 1 and 25.		Y	Y	Y	Y	Y	Y	Y	Y
START_INT	Start trading interval.		Y	Y	Y	Y	Y	Y	Y	Y
	It will be an integer 1 or 2.		Y	Y	Y	Y	Y	Y	Y	Y
END_HR	End trading hour.		Y	Y	Y	Y	Y	Y	Y	Y
	It will be an integer between 1 and 25.		Y	Y	Y	Y	Y	Y	Y	Y
END_INT	End trading interval.		Y	Y	Y	Y	Y	Y	Y	Y
	It will be an integer 1 or 2.		Y	Y	Y	Y	Y	Y	Y	Y
START_HR, END_HR START_INT, END_INT	The hours and intervals must cover the entire Trading Day.	Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Window from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}	N	Y	N	Y	N	Y	N	Y
	A Warning message will be given if the hours & Intervals are outside the Trading Window.	The hour {0} and interval {1} in {2} element will not be utilized because they are outside the relevant Trading Window from start_hr {3}, start_int {4} to end_hr {5}, and end_int {6}.	N	N	Y	N	Y	N	Y	N

START_HR, END_HR	Start hour must be less than or equal to End hour.	The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element	N Different message - Refer to Settlement Reallocation section.	N	Y	N	Y	N	Y	N
START_INT, END_INT	Start Interval must be less than or equal to End Interval, if the start hour is equal to the end hour.	The start_int of {0} must be less than or equal to the end_int of {1} in {2} element	N Different message - Refer to Settlement Reallocation section.	N	Y	N	Y	N	Y	N

**TABLE 16: VALIDATION RULES APPLICABLE FOR START / END HOUR / INTERVAL**

Validation	Validation Message	Settlement Reallocation		Generator Offer		Demand Bid Offer		Interconnector Offer	
		Submission	Query	Submission	Query	Submission	Query	Submission	Query
Hours and Intervals in all above elements must cover the entire Trading Day.	Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day	Not Applicable	Not Applicable	Mandatory	Optional	Mandatory	Optional	Mandatory	Optional
For normal bid, if it is normal day or short day, hours in all above elements cannot submit hour 25.	Could not submit hour {0} and interval {1} in {2} element for {3} {4}	Mandatory	Optional	Mandatory	Optional	Mandatory	Optional	Mandatory	Optional
For normal bid, if it is short day, hours in all above elements must skip hour 2.		Mandatory	Optional	Mandatory	Optional	Mandatory	Optional	Mandatory	Optional
The hours or intervals for the same element cannot overlap.	The hours and intervals are overlapping for {0} in following {1}	Not Applicable	Not Applicable	Mandatory	Optional	Mandatory	Optional	Mandatory	Optional
For standing bid with day type as "ALL", hours in all above elements submitted must be from 1 to 25.	Missing hour {0} and interval {1} in {2} element. In standing bid submission: the hours must be from 1 to 25 with day type as ALL, the hour 25 is optional in other day types. The submission must cover the entire Trading Day	Not Applicable	Not Applicable	Mandatory	Optional	Mandatory	Optional	Not Applicable	Not Applicable
The standing bid with day type as SUN, MON, TUE, WED, THU, FRI, or SAT, hours in all above elements submitted may be from 1 to 24 or 1 to 25. The hours and intervals in all elements must match.	Missing hour {0} and interval {1} in {2} element. In standing bid submission: the hours must be from 1 to 25 with day type as ALL, the hour 25 is optional in other day types. The submission must cover the entire Trading Day	Not Applicable	Not Applicable	Mandatory	Optional	Mandatory	Optional	Not Applicable	Not Applicable
	The following Hours and Intervals did not match between the {0} element and the {1} element: {2}	Not Applicable	Not Applicable	Mandatory	Optional	Mandatory	Optional	Not Applicable	Not Applicable.

**TABLE 17: VALIDATION RULES FOR HOURS AND INTERVAL APPLICABLE PER MESSAGE TYPE**

**Note:** In reference to a long day, all of the information below applies but the Market Participant must ensure that they also cover 25:1 and 25:2, which represents the repeat of 1AM to 2AM.



4.4.3 SETTLEMENT REALLOCATION

4.4.3.1 SETTLEMENT REALLOCATION ELEMENTS

Market Interface: Settlement Reallocation	
Element	Requirement
“SemSttlReallocSubmit”	Mandatory if submit request.
“SemSttlReallocQuery”	Mandatory if query request.
“SemSttlReallocCancel”	Mandatory if cancel request.
“identifier” [external_id]	Optional
“reallocation_detail”	Mandatory if submit request.

TABLE 18: SETTLEMENT REALLOCATION ELEMENTS

The table above gives details of the XML elements of the transactions, and specifies whether they are mandatory or optional.

## 4.4.3.2 SETTLEMENT REALLOCATION VALIDATIONS

Name	Validation	Validation Message	Submission	Query	Cancel
<b>SemSttlReallocSubmit / SemSttlReallocQuery/ SemSttlReallocCancel Element</b> (mandatory, depending on transaction)					
trading_date	The Trading Date is valid as long as the date is less than or equal to 40 days in the past and less than or equal to 29 days in the future.  System Date - 40<= Trading Date <= System Date + 29.	<i>Invalid trading_date {0}. The trading_date must be between {1} and {2} for Settlement Reallocation Submission.</i>	Mandatory	Not Applicable	Mandatory
	When the standing_flag is false, the trading date must be for past 7 days, current date and future 28 days.	<i>The trading_date {0} is invalid. It must fall within the past {1} days and future {2} days</i>	Not Applicable	Mandatory	Mandatory
standing_flag	Must be "FALSE".	<i>Could not {0} a standing bid for settlement reallocation.</i>  <i>The Standing Element could not be presented in settlement reallocation {0}.</i>	Optional	Optional	Optional
	Only one instance of this element is allowed per submission.	<i>Only one {0} element is allowed per submission</i>			
credited_participant_name	Must be STRING		Mandatory	Mandatory	Mandatory
	Must be valid Participant..	<i>Invalid participant_name {0} in sem_settlement_reallocation element</i>			
	Only one instance of this element is allowed per submission.	<i>Only one {0} element is allowed per submission</i>			
	The participant name cannot use the same name with credited participant name.	<i>The participant_name {0} in {1} element can not be the same as the participant_name in market_submit element</i>			
reallocation_type	Must be ENERGY_PAYMENTS or CAPACITY_PAYMENTS.		Mandatory	Mandatory	Mandatory
	Only one instance of this element is allowed per submission.	<i>Only one {0} element is allowed per submission</i>			
participant_name, credited_participant_name, trading_date, reallocation_type, agreement_name	After SEM R2.1.0 'cutover', these values must be unique.	<i>"An identical SRA already exists for Participant &lt;participant_name&gt;, Credit Participant &lt;credited participant name&gt;, Trading Day &lt;trading_day&gt;, Type &lt;Type&gt; and Agreement Name &lt;realloc_agreement_name&gt;. Please modify SRA and re-submit"</i>	Mandatory	Not Applicable	Mandatory

Name	Validation	Validation Message	Submission	Query	Cancel
Identifier Element (optional)					
external_id	Must be STRING.		Optional	Not Applicable	Optional
	Only one instance of this element is allowed per submission.	Only one {0} element is allowed per submission			
Reallocation_Detail Element (mandatory)					
start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.				Not Applicable
	Start hour must equal to End hour.	The start_hr of {0} must be equal to the end_hr of {1} in {2} element	Mandatory	Not Applicable	
		The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element	Not Applicable	Optional	
end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages				Not Applicable
	Start hour must equal to End hour.	The start_hr of {0} must be equal to the end_hr of {1} in {2} element	Mandatory	Not Applicable	
		The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element	Not Applicable	Optional	
start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.				Not Applicable
	Start interval must equal to End interval.	The start_int of {0} must be equal to the end_int of {1} in {2} element	Mandatory	Not Applicable	
		The start_int of {0} must be less than or equal to the end_int of {1} in {2} element	Not Applicable	Optional	
end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.				Not Applicable
	Start interval must equal to End interval.	The start_int of {0} must be equal to the end_int of {1} in {2} element	Mandatory	Not Applicable	
		The start_int of {0} must be less than or equal to the end_int of {1} in {2} element	Not Applicable	Optional	
agreement_name	Only one instance of this element is allowed per submission.	Only one {0} element is allowed per submission	Mandatory	Not Applicable	Mandatory
monetary_value	Must be > 0.	The {0} value of {1} must be greater than 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}	Mandatory	Not Applicable	Not Applicable

TABLE 19: SETTLEMENT REALLOCATION VALIDATIONS

#### 4.4.3.1 SETTLEMENT REALLOCATION XML TEMPLATES

The following template specifies the Settlement Reallocation Data Submission format.

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

<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_submit application_type="DAM"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_settlement_reallocation
      credited_participant_name="CREDITED_PARTICIPANT_NAME"
      reallocation_type="REALLOCATION_TYPE"
      standing_flag="STANDING_FLAG"
      version_no="1.0">

      <identifier external_id="EXTERNAL_ID_STRING"/>

      <!-- ENERGY_PAYMENT or CAPACITY_PAYMENT -->
      <reallocation_detail
        start_hr="START_HR"
        start_int="START_INT"
        end_hr="END_HR"
        end_int="END_INT"
        agreement_name="TEXT_AGREEMENT"
        monetary_value="MONETARY_VALUE"/>

      </sem_settlement_reallocation>
    </market_submit>
  </bids_offers>
```

#### **Sample XML 1: Settlement Reallocation Data Submission**

The following template specifies the Settlement Reallocation Data Query format:

```
<?xml version="1.0" encoding="UTF-8"?>
< bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  < market_query application_type="DAM"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    < sem_settlement_reallocation
      credited_participant_name="CREDITED_PARTICIPANT_NAME"
      reallocation_type="REALLOCATION_TYPE"
      start_hr="START_HR"
      start_int="START_INT"
      end_hr="END_HR"
      end_int="END_INT"
      standing_flag="STANDING_FLAG"
      version_no="1.0">

    < /sem_settlement_reallocation>
  < /market_query>

< /bids_offers>
```

### ***Sample XML 2: Settlement Reallocation Data Query***

The following template specifies the Settlement Reallocation Data Cancellation format:

```

<?xml version="1.0" encoding="UTF-8" ?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <market_cancel
    application_type="DAM"
    trading_date=""
    participant_name=""
    user_name=""
    mode="NORMAL">
    <sem_settlement_reallocation
      credited_participant_name=""
      agreement_name=""
      reallocation_type="">
    </sem_settlement_reallocation>
  </market_cancel>
</bids_offers>

```

### Sample XML 3: Settlement Reallocation Data Cancellation

#### 4.4.4 GENERATOR COMMERCIAL OFFER SUBMISSIONS

##### 4.4.4.1 GENERATOR OFFER ELEMENTS

Market Interface: Generator Offers	
Element	Requirement
market_submit	Mandatory if submit request.
market_query	Mandatory if query request.
sem_gen_offer	Mandatory
standing	Mandatory, if standing_flag=true.
identifier [external_id]	Optional
forecast	Mandatory, non-autonomous units.
fuel_use	Optional, only applicable to Dual Rated Generator Units
pump_storage_detail	Mandatory, for pumped storage units.
energy_limit_detail	Mandatory, for energy limited units.
price_maker_detail	Mandatory, for PPMG or VPMG unit, excluding demand side units and units Under Test.
price_taker_detail	Mandatory if PPTG, VPTG or PPMG/VPMG Under Test.

**TABLE 20: GENERATOR OFFER ELEMENTS**

The table above gives details of the XML elements of the transactions, and specifies the conditions under which they are mandatory or optional.

## 4.4.4.2 GENERATOR OFFER VALIDATIONS

Name	Validation	Validation Message	Submission	Query
<b>market_submit Element</b>				
gate_window	The Gate_Window is optional. A Valid value is one of EA, EA2 or WD1. If it is not submitted, the default value will be EA.		Optional	Optional
participant_name	The "participant_name" attribute is mandatory and the Participant should be registered in the SEM. It should not be more than 12 characters.	<i>The user_name {0} for participant_name {1} does not have system access privileges to participate in Market Trading for trading_date {2}.</i>	Mandatory	Mandatory
<b>sem_gen_offer Element (mandatory)</b>				
trading_date, standing_flag	When the standing flag is false, the Market Window must be open.	<i>Market Window for normal bid is not open for trading_date {0} and application_type {1}</i>	Mandatory	Mandatory
	When the standing flag is false, the status of the trading_date must be set to "Open".	<i>An error occurred when fetching data from the cm_market table for trading_date {0}</i>	Mandatory	Not Applicable
	When the standing_flag is false, the trading date must be for past 7 days, current date and future 28 days.	<i>The trading_date {0} is invalid. It must fall within the past {1} days and future {2} days</i>	Not Applicable	Mandatory
	When the standing flag is true and day type is SUN, MON, TUE, WED, THU, FRI or SAT, the valid trade_date must be greater than or equal to the max(market_date with current state as "OPEN") + 1 day.	<i>Invalid trading_date {0}. The trading_date must be greater than or equal to {1} for standing bid with day type as {2}</i>	Mandatory	Not Applicable
	When the standing flag is true and day type is ALL: <ul style="list-style-type: none"> <li>For an existing standing bid, the valid trade_date must be equal to the max (market_date with current state as "OPEN") + 1 day.</li> <li>For a new standing bid, the valid trade_date must be greater than or equal to max(market_date with current state as "OPEN") + 1 day.</li> </ul>	<i>No record in cm_market table</i>	Mandatory	Not Applicable
		<i>Invalid trading_date {0}. The trading_date must be equal to {1} for an existing standing bid with day type as ALL. Please contact a Market Operator for clarification and assistance</i>		
standing_flag, standing	If the standing flag is equal to true, Standing must exist.	<i>Standing Element must be present when standing_flag is set to true</i>	Mandatory	Not Applicable
	If the standing element is present, the standing flag must be true.	<i>The standing_flag must be set to true when Standing Element is present</i>	Mandatory	Mandatory

Name	Validation	Validation Message	Submission	Query
resource_name	Must be STRING.		Mandatory	Optional
	Must be valid Resource and belong to the Participant.	The resource name {0} is invalid		
resource_type	Must be one of the following PRED_PR_MAKER_GEN; PRED_PR_TAKER_GEN; VAR_PR_MAKER_GEN; or VAR_PR_TAKER_GEN.	Invalid facility_type {0} given for facility_name {1}, it must be PRED_PR_MAKER_GEN, PRED_PR_TAKER_GEN, VAR_PR_MAKER_GEN, or VAR_PR_TAKER_GEN	Mandatory	Not Applicable
	Must match the stored Resource Type.	The submitted resource_type value {0} does not match the value {2} registered for the resource {1}		
Standing Element (mandatory if standing_flag=true)				
expiry_date	YYYY-MM-DD		Optional	Not Applicable
	Must be in the future.	The expiry_date {0} must be in the future		
	Must be greater than or equal to the Trading Date.	The expiry_date {0} must be greater than or equal to trading_date {1}		
	Only applicable if the day type is SUN, MON, TUE, WED, THU, FRI or SAT.			
	Not required when DAY_TYPE is “ALL”.	The expiry_date attribute must not present when day type is ALL	Not Applicable	
day_type	<ul style="list-style-type: none"><li>If STANDING_FLAG is TRUE then must be MON, TUE, WED, THU, FRI, SAT, SUN or ALL.</li><li>If a standing bid in place and DAY_TYPE=ALL, then no other DAY_TYPE bids can be submitted.</li><li>If standing bid with DAY_TYPE not ALL accepted, then no bid with DAY_TYPE=ALL can be submitted.</li></ul>	Submitted Standing Data with type {0} conflicts with existing Standing Data with type {1} for trading_date {2}	Optional	Optional
Identifier Element (optional)				
external_id	Must be STRING.		Optional	Not Applicable
Fuel Use Flag Element (optional)				
type	If there is a fuel_use element with type attribute value as “SECONDARY”, then the unit must be registered as a dual fuel unit.		Optional	Not Applicable
start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Optional	Not Applicable



Name	Validation	Validation Message	Submission	Query
start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Optional	Not Applicable
end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Optional	Not Applicable
end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Optional	Not Applicable
<b>Forecast Parameters</b> <b>Only the following Generator Units shall be permitted (and it is mandatory for) to submit Forecast Availability, Forecast Minimum Stable Generation and Forecast Minimum Output:</b> <ul style="list-style-type: none"> <li>Predictable Price Maker Generator Unit – PPMG (including Interconnector Units, Pumped Storage Units, Demand Side Units).</li> <li>Predictable Price Taker Generator Unit – PPTG</li> <li>Variable Price Maker Generator Unit – VPMG.</li> </ul>				
Forecast Element	The Hours & Intervals below must cover the entire Trading Day.	<i>Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Window from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}.</i>		
	A Warning message will be given if the hours & Intervals below are outside the Trading Window.	<i>The hour {0} and interval {1} in {2} element will not be utilized because they are outside the relevant Trading Window from start_hr {3}, start_int {4} to end_hr {5}, and end_int {6}.</i>		
	Must be present.	<i>The forecast element must be present</i>	Mandatory	Not Applicable
Forecast Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
maximum_mw	Must be >=0.	<i>The {0} value of {1} must be greater than 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable
	MAXIMUM_MW >= MINIMUM_MW.	<i>The maximum_mw value of {0} must be greater than or equal to the minimum_mw value of {1} from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
minimum_mw	Must be >=0.	<i>The {0} value of {1} must be greater than 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
	MAXIMUM_MW>=MINIMUM_MW.	<i>The maximum_mw value of {0} must be greater than or equal to the minimum_mw value of {1} from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
minimum_output_mw	<ul style="list-style-type: none"><li>Standing flag is true with day type: ALL.</li><li>Must be = 0 if not pump storage unit.</li><li>Must be &lt;=0 if pumped storage unit.</li></ul>	<i>The {0} value of {1} MWh must be negative or equal to 0 for standing bid with day type ALL from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"><li>Standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI or SAT.</li><li>Must be = 0 if not pumped storage unit.</li></ul>	<i>The {0} value of {1} MWh must be equal to 0 for non pumps from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
	<ul style="list-style-type: none"><li>Standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI or SAT.</li><li>Must be &lt;=0 if pumped storage unit.</li></ul>	<i>The {0} value of {1} MWh must be negative for Pumps from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
Pumped Storage Parameters (mandatory if pumped storage unit)				
pump_storage_detail	<ul style="list-style-type: none"><li>When standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, SAT and the unit can operate as a pump, this element must be present.</li><li>Units with PUMP_STORAGE_FLG value is set to “Y”.</li></ul>	<i>The pump_storage_detail element must be present when pump_storage_flag is set to Y</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"><li>Units with PUMP_STORAGE_FLG value is set to “N”.</li></ul>	<i>The pump_storage_detail element can not be submitted when pump_storage_flag is set to N</i>		
target_reservoir_level_mwh	Target Reservoir Level at end of Current Trading Day (06:00 on D+1).		Mandatory	Not Applicable
	<ul style="list-style-type: none"><li>When standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, SAT, the reservoir capacity should not exceed Maximum storage capacity (MAX_RESERVOIR_CAP).</li></ul>	<i>The target_reservoir_level_mwh value of {0} must not exceed the Maximum Reservoir storage capacity value of {1}</i>		
	<ul style="list-style-type: none"><li>When the standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, or SAT (except day type: ALL), the reservoir capacity must not be less than Minimum Reservoir storage capacity (MIN_RESERVOIR_CAP).</li></ul>	<i>The target_reservoir_level_mwh value of {0} must not fall below the Minimum Reservoir storage capacity value of {1}</i>		

Name	Validation	Validation Message	Submission	Query
target_reservoir_level_percent	Target Reservoir Level at end of Current Trading Day (06:00 on D+1).		Optional	Not Applicable
prior_day_end_reservoir_level_mwh	End Reservoir Level from the previous Trading Day.		Optional	Not Applicable
operational_reservoir_capacity_limit_mwh	Must be <= MAX_RESERVOIR_CAP.	<i>The operational_reservoir_capacity_limit_mwh value of {0} must not exceed the Maximum Reservoir storage capacity value of {1}</i>	Optional	Not Applicable
	Must be >= MIN_RESERVOIR_CAP.	<i>The operational_reservoir_capacity_limit_mwh value of {0} must not fall below the Minimum Reservoir storage capacity value of {1}</i>		
spin_generation_cost	Cost of moving from Spinning to Generating.		Optional	Not Applicable
spin_pump_cost	Cost of moving from Spinning to Pumping.		Optional	Not Applicable
minimum_generation_cost	Cost of operating unit at minimum generation level.		Optional	Not Applicable
Energy Limit Parameters (mandatory if Energy Limited)				
energy_limit_detail	Must be present when ENERGY_LIMIT_FLAG="Y".	<i>The energy_limit_detail element must be present when energy_limit_flag is set to Y</i>	Mandatory	Not Applicable
	Must not be present when ENERGY_LIMIT_FLAG="N".	<i>The energy_limit_detail element can not be submitted when energy_limit_flag is set to N</i>		
limit_mwh	Must be between 999999.99 and -999999.99.		Optional	Not Applicable
limit_factor	Must be between 0 and 1.		Optional	Not Applicable
Energy Limit Period Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Energy Limit Period Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			

Name	Validation	Validation Message	Submission	Query
Energy Limit Period Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Energy Limit Period Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
<b>Price Maker Element</b> (mandatory if Predictable Price Maker or Variable Price Maker, excluding demand side units and Units under Test for EA, EA2 and WD1)				
Price Maker Element	Must be a Price Maker Element or Price Taker element submitted, but not both.	The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"	Mandatory	Not Applicable
		Only one price_maker_detail or price_taker_detail elements is allowed per Gen Offer		
pq_curve_price	Price Quantity Pairs must cover the entire EA, EA2 & WD1 Trading Windows for PPMGs, VPMGs, PPTGs (excluding Interconnector Units).		Mandatory	Not Applicable
	Must be monotonically increasing.	<i>The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}</i>		
	Not exceed Price Cap.	<i>The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2})</i>		
	Not fall below Price Floor.	<i>The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2})</i>		
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		
	The prices must be equal to 0 if the unit is a pumped storage unit.	<i>The price and quantity in the PQ Curve must be equal to 0 when the unit is pumped storage.</i>		
	Must be no more than 10 PQ pairs per Trading Day.			
pq_curve_quantity	Must be monotonically increasing.	<i>The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}</i>	Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		
	The prices must be equal to 0 if the unit is a pumped storage unit.	<i>The price and quantity in the PQ Curve must be equal to 0 when the unit is pumped storage.</i>		
	Must be no more than 10 PQ pairs per Trading Day.			
startup_cost_hot, startup_cost_warm, startup_cost_cold	Start-up costs for cold, warm or hot states.			
	At least one (1) and up to three (3) values must be provided.	<i>Start-up costs for cold, warm or hot states. At least one and up to three values must be provided</i>		
	If these values are provided, they must be positive.	<i>The {0} value of {1} {2} must be greater than or equal to 0 {3}</i>		
	If these values are provided, STARTUP_COST_COLD >= STARTUP_COST_WARM >= STARTUP_COST_HOT	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
startup_cost_hot	At least one and up to three values.	<i>Start-up costs for cold, warm or hot states. At least one and up to three values must be provided</i>	Optional	Not Applicable
	All >=0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>		
	COLD >= WARM >= HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The hot startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		

Name	Validation	Validation Message	Submission	Query
	<ul style="list-style-type: none"> <li>This element must not be present in price_taker_detail when the resource type is: "VAR_PR_TAKER_GEN"; or</li> <li>Unit is under test for the following resource_types: "VAR_PR_MAKER_GEN"; "VAR_PR_TAKER_GEN"; "PRED_PR_TAKER_GEN"; "PRED_PR_MAKER_GEN".</li> <li>Unit under test information is obtained from the mf_generator_parameters table Only When standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, or SAT (except day type: ALL) check unit is under test.</li> </ul>	<i>The startup_cost element can not be submitted in price_taker_detail element when resource type is {0}</i>		
startup_cost_warm	At least one and up to three values.	<i>Start-up costs for cold, warm or hot states. At least one and up to three values must be provided</i>	Optional	Not Applicable
	All >= 0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>		
	COLD >= WARM >= HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The warm startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		

Name	Validation	Validation Message	Submission	Query
	<ul style="list-style-type: none"> <li>This element must not be present in price_taker_detail when the resource type is: "VAR_PR_TAKER_GEN"; or</li> <li>Unit is under test for the following resource_types: "VAR_PR_MAKER_GEN"; "VAR_PR_TAKER_GEN"; "PRED_PR_TAKER_GEN"; "PRED_PR_MAKER_GEN".</li> <li>Unit under test information is obtained from the mf_generator_parameters table Only When standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, or SAT (except day type: ALL) check unit is under test.</li> </ul>	<i>The startup_cost element can not be submitted in price_taker_detail element when resource type is {0}</i>		
startup_cost_cold	At least one and up to three values.	<i>Start-up costs for cold, warm or hot states. At least one and up to three values must be provided</i>	Mandatory	Not Applicable
	All >= 0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>		
	COLD >= WARM >= HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The cold startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		

Name	Validation	Validation Message	Submission	Query
	<ul style="list-style-type: none"><li>This element must not be present in price_taker_detail when the resource type is: "VAR_PR_TAKER_GEN"; or</li><li>Unit is under test for the following resource_types: "VAR_PR_MAKER_GEN"; "VAR_PR_TAKER_GEN"; "PRED_PR_TAKER_GEN"; "PRED_PR_MAKER_GEN".</li><li>Unit under test information is obtained from the mf_generator_parameters table Only When standing flag is set to false or standing flag is set to true with day type: SUN, MON, TUE, WED, THU, FRI, or SAT (except day type: ALL) check unit is under test.</li></ul>	<i>The startup_cost element can not be submitted in price_taker_detail element when resource type is {0}</i>		
no_load_cost	Must be >=0.	<i>The {0} value of {1} {2} must be greater than or equal to 0 {3}</i>	Mandatory	Not Applicable
	The value for no load cost must be equal to 0 if the unit is a pumped storage unit.	<i>The no_load_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_MAKER_GEN or VAR_PR_MAKER_GEN if not Under Test.	<i>The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN"</i>		
Price Taker Parameters (mandatory for Price Takers, excluding wind units and autonomous units or Units Under Test for EA, EA2 and WD1)				
Price Taker element	Must be a Price Maker Element or Price Taker element submitted, but not both.	<i>The price_taker_detail element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN or Under Test is true</i>	Mandatory	Not Applicable
PQ elements (below)	Price Quantity Pairs must cover the entire EA, EA2 & WD1 Trading Windows for PPMGs, VPMGs, PPTGs (excluding Interconnector Units).			
	Must be no more than 10 PQ pairs per Trading Day.			



Name	Validation	Validation Message	Submission	Query
pq_curve_price	Must be monotonically increasing.	<i>The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}</i>	Mandatory	Not Applicable
	Must not exceed Price Cap.	<i>The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2})</i>		
	Must not fall below Price Floor.	<i>The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2})</i>		
	This element must be present in price_taker_detail when the resource is "PRED_PR_TAKER_GEN" and the unit is not under test.	<i>The pq_curve element must be presented in price_taker_detail element when resource type is PRED_PR_TAKER_GEN</i>		
	This element must not be present in price_taker_detail when the resource is the following: <ul style="list-style-type: none"> <li>VAR_PR_TAKER_GEN; or</li> <li>Unit under test.</li> <li>Only when standing flag is set to false or standing flag is set to true with day type SUN, MON, TUE, WED, THU, FRI or SAT check unit is under test.</li> </ul>	<i>The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}</i>		
	Must be no more than 10 PQ pairs per Trading Day.			
pq_curve_quantity	Must be monotonically increasing.	<i>The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}</i>	Mandatory	Not Applicable
	This element must be present in price_taker_detail when the resource is "PRED_PR_TAKER_GEN" and the unit is not under test.	<i>The pq_curve element must be presented in price_taker_detail element when resource type is PRED_PR_TAKER_GEN</i>		
	This element must not be present in price_taker_detail when the resource is the following: <ul style="list-style-type: none"> <li>VAR_PR_TAKER_GEN; or</li> <li>Unit under test.</li> <li>Only when standing flag is set to false or standing flag is set to true with day type SUN, MON, TUE, WED, THU, FRI or SAT check unit is under test.</li> </ul>	<i>The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}</i>		
	<ul style="list-style-type: none"> <li>Must be no more than 10 PQ pairs per Trading Day.</li> </ul>			

Name	Validation	Validation Message	Submission	Query
startup_cost_hot, startup_cost_warm, startup_cost_cold	Start-up costs for cold, warm or hot states.			
	At least one (1) and up to three (3) values must be provided.	<i>Start-up costs for cold, warm or hot states. At least one and up to three values must be provided</i>		
	If these values are provided, they must be positive.	<i>The {0} value of {1} {2} must be greater than or equal to 0 {3}</i>		
	If these values are provided, STARTUP_COST_COLD >= STARTUP_COST_WARM >= STARTUP_COST_HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	Must be present.	<i>The startup_cost element must be presented in price_taker_detail element when resource type is PRED_PR_TAKER_GEN</i>		
startup_cost_hot	All >= 0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>	Y/O	N/NA
	COLD >= WARM >= HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start-up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The hot startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN if Unit is Under Test.	<i>The price_taker_detail element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN or Under Test is true</i>		
	Must not be present if resource type is VAR_PR_TAKER_GEN or VAR_PR_MAKER_GEN when Under test.	<i>The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}</i>		
startup_cost_warm	All >= 0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>	Optional	Not Applicable
	COLD >= WARM >= HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start-up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The warm startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN if Unit is Under Test.	<i>The price_taker_detail element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN or Under Test is true</i>		

Name	Validation	Validation Message	Submission	Query
	Must not be present if resource type is VAR_PR_TAKER_GEN or VAR_PR_MAKER_GEN when Under test.	<i>The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}</i>		
startup_cost_cold	All>=0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>	Mandatory	Not Applicable
	COLD>=WARM>=HOT.	<i>The {0} start-up costs must be greater than or equal to {1} start-up costs</i>		
	The value for hot, warm and cold start-up costs must be equal to 0 if the unit is a pumped storage unit.	<i>The hot startup_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN if Unit is Under Test.	<i>The price_taker_detail element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN or Under Test is true</i>		
	Must not be present if resource type is VAR_PR_TAKER_GEN or VAR_PR_MAKER_GEN when under test.	<i>The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}</i>		
no_load_cost	Must be >=0.	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh</i>	Mandatory	Not Applicable
	The value for no load cost must be equal to 0 if the unit is a pumped storage unit.	<i>The no_load_cost value of {0} {1} must be equal to 0 when the unit is pumped storage</i>		
	Must be present if resource type is PRED_PR_TAKER_GEN or PRED_PR_MAKER_GEN if Unit is Under Test.	<i>The no_load_cost element must be presented in price_taker_detail element when resource type is PRED_PR_TAKER_GEN</i>		
	Must not be present if resource type is VAR_PR_TAKER_GEN or VAR_PR_MAKER_GEN when Under test.	<i>The no_load_cost element can not be submitted in price_taker_detail element when resource type is {0}</i>		
Nomination Profile Price Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Nomination Profile Price Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Nomination Profile Price Element:	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			

Name	Validation	Validation Message	Submission	Query
start_int	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Nomination Profile Price Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages. Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
nomination_profile_value	Non-price sensitive generation offer which is a declaration of intended output level for each Trading Period.		Mandatory	Not Applicable
<b>Decremental Price Element</b>				
Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.				
start_hr	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Decremental Price Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages. Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Decremental Price Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages. Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
Decremental Price Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages. Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test</i>	Mandatory	Not Applicable
decremental_price_value	Decremental Price for Predictable Price Taker Generator Unit u, Variable Price Taker Generator Unit u or Generator Unit Under Test u in Trading Period h.		Mandatory	Not Applicable
	Submitted decremental price must be zero.	<i>The {0} value of {1} must be equal to 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		

Name	Validation	Validation Message	Submission	Query
	Must be present if resource type is PRED_PR_TAKER_GEN or VAR_PR_TAKER_GEN or if a Unit is Under Test.	<i>The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test</i>		

**TABLE 21: GENERATOR OFFER VALIDATIONS**

**Notes** on Generator Offers:

- Price Makers will usually submit only the price\_maker\_detail element.
- The exception is if the Unit is Under Test, in which case Price Makers will submit the price\_taker\_detail element.
- Price Takers (non-autonomous) will only submit the price\_taker\_detail element.

#### 4.4.4.3 GENERATOR OFFER XML TEMPLATES

The following template specifies the Generator Offer Submission format:

```
<?xml version="1.0" encoding="UTF-8"?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <market_submit application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">
    <sem_gen_offer resource_name="RESOURCE_NAME"
      resource_type="RESOURCE_TYPE"
      standing_flag="STANDING_FLAG"
      version_no="1.0">

      <standing expiry_date="EXPIRY_DATE" type="DAY_TYPE"/>
      <identifier external_id="EXTERNAL_ID_STRING"/>
      <forecast
        start_hr="FORECAST_START_HR"
        start_int="FORECAST_START_INT"
        end_hr="FORECAST_END_HR"
        end_int="FORECAST_END_INT"
        maximum_mw="FORECAST_MAXIMUM_MW"
        minimum_mw="FORECAST_MINIMUM_MW"
        minimum_output_mw="FORECAST_MINIMUM_OUTPUT_MW"/>
      <fuel_use
        start_hr="FUEL_USE_START_HR"
        start_int="FUEL_USE_START_INT"
        end_hr="FUEL_USE_END_HR"
        end_int="FUEL_USE_END_INT"
        type="FUEL_USE_TYPE"/>
      <pump_storage_detail
        target_reservoir_level_mwh="TARGET_RESERVOIR_LEVEL_MWH"
        target_reservoir_level_percent="TARGET_RESERVOIR_LEVEL_PERCENT"
        prior_day_end_reservoir_level_mwh="PRIOR_DAY_END_RESERVOIR_LEVEL_MWH"
        operational_reservoir_capacity_limit_mwh="OPERATIONAL_RESERVOIR_CAPACITY_LIMIT_MWH"
        spin_generation_cost="SPIN_GENERATION_COST"
        spin_pump_cost="SPIN_PUMP_COST"
        minimum_generation_cost="MINIMUM_GENERATION_COST"/>
      <energy_limit_detail limit_mwh="LIMIT_MWH"
        limit_factor="LIMIT_FACTOR"/>
    </sem_gen_offer>
  </market_submit>
</bids_offers>
```

**Sample XML 4: Generator Offer Submission: Part 1 of 2**

```

<energy_limit_period_flag
  start_hr="ENERGY_LIMIT_PERIOD_START_HR"
  start_int="ENERGY_LIMIT_PERIOD_START_INT"
  end_hr="ENERGY_LIMIT_PERIOD_END_HR"
  end_int="ENERGY_LIMIT_PERIOD_END_INT"
  limit_flag="ENERGY_LIMIT_PERIOD_FLAG">
</energy_limit_period_flag>

<price_maker_detail>
  <pq_curve>
    <point price="PQ_CURVE_PRICE"
      quantity="PQ_CURVE_QUANTITY"/>
  </pq_curve>
  <startup_cost hot="STARTUP_COST_HOT"
    warm="STARTUP_COST_WARM"
    cold="STARTUP_COST_COLD"/>
  <no_load_cost value="NO_LOAD_COST_VALUE"/>
</price_maker_detail>
<price_taker_detail>
  <pq_curve>
    <point price="PQ_CURVE_PRICE"
      quantity="PQ_CURVE_QUANTITY"/>
  </pq_curve>
  <startup_cost hot="STARTUP_COST_HOT"
    warm="STARTUP_COST_WARM"
    cold="STARTUP_COST_COLD"/>
  <no_load_cost value="NO_LOAD_COST_VALUE"/>
<nomination_profile
  start_hr="NOMINATION_PROFILE_START_HR"
  start_int="NOMINATION_PROFILE_START_INT"
  end_hr="NOMINATION_PROFILE_END_HR"
  end_int="NOMINATION_PROFILE_END_INT"
  value="NOMINATION_PROFILE_VALUE"/>
  <decremental_price
    start_hr="DECREMENTAL_PRICE_START_HR"
    start_int="DECREMENTAL_PRICE_START_INT"
    end_hr="DECREMENTAL_PRICE_END_HR"
    end_int="DECREMENTAL_PRICE_END_INT"
    value="DECREMENTAL_PRICE_VALUE"/>
</price_taker_detail>
</sem_gen_offer>
</market_submit>
</bids_offers>

```

### Sample XML 5: Generator Offer Submission: Part 2 of 2

The following template specifies the Generator Offer Query format:

```
<?xml version="1.0" encoding="UTF-8" ?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_query application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_gen_offer
      resource_name="RESOURCE_NAME"
      start_hr="START_HR"
      start_int="START_INT"
      end_hr="END_HR"
      end_int="END_INT"
      standing_flag="STANDING_FLAG"
      version_no="1.0">
      <standing type="DAY_TYPE"/>
    </sem_gen_offer>
  </market_query>

</bids_offers>
```

***Sample XML 6: Generator Offer Query***



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#### 4.4.5 DEMAND COMMERCIAL OFFER SUBMISSION

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##### 4.4.5.1 DEMAND OFFER ELEMENTS

Market Interface: Demand Bids	
Element	Requirement
sem_demand_offer	Mandatory
standing	Mandatory, if standing_flag=true
identifier [external_id]	Optional
forecast	Mandatory
price_maker_detail	Mandatory, if Demand Side Unit is not Under Test
price_taker_detail	Mandatory, if Demand Side Unit is Under Test

**TABLE 22: DEMAND BID ELEMENTS**

The table above gives details of the XML elements of the Transactions, and specifies whether they are mandatory or optional.

## 4.4.5.2 DEMAND OFFER VALIDATIONS

Name	Validation	Validation Message	Submission	Query
<b>Market_submit</b>				
gate_window	The Gate_Window is optional. A valid value is one of EA, EA2 or WD1. If it is not submitted, the default value will be EA.		Optional	Optional
<b>SemDemandOfferSubmit / SemDemandOfferQuery Element</b> (mandatory, depending on transaction)				
trading_date, standing_flag	<ul style="list-style-type: none"> <li>When the standing flag is false, the Market Window must be open.</li> </ul>	Market Window for normal bid is not open for trading_date {0} and application_type {1}	Mandatory	Mandatory
	<ul style="list-style-type: none"> <li>When the standing flag is false, the status of the trading_date must be set to "Open".</li> </ul>	An error occurred when fetching data from the cm_market table for trading_date {0}	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>When the standing_flag is false, the trading date must be for past 7 days, current date and future 28 days.</li> </ul>	The trading_date {0} is invalid. It must fall within the past {1} days and future {2} days	Not Applicable	Mandatory
	<ul style="list-style-type: none"> <li>When the standing flag is true and day type is SUN, MON, TUE, WED, THU, FRI or SAT, the valid trade_date must be greater than or equal to the max(market_date with current state as "OPEN") + 1 day.</li> </ul>	Invalid trading_date {0}. The trading_date must be greater than or equal to {1} for standing bid with day type as {2}	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>When the standing flag is true and day type is ALL:</li> <li>For an existing standing bid, the valid trade_date must be equal to the max(market_date with current state as "OPEN") + 1 day.</li> <li>For a new standing bid, the valid trade_date must be greater than or equal to max(market_date with current state as "OPEN") + 1 day.</li> </ul>	No record in cm_market table Invalid trading_date {0}. The trading_date must be equal to {1} for an existing standing bid with day type as ALL. Please contact a Market Operator for clarification and assistance Invalid trading_date {0}. The trading_date must be greater than or equal to {1} for a new standing bid with day type as ALL	Mandatory	Not Applicable
standing_flag,	<ul style="list-style-type: none"> <li>If the Standing Flag is equal to true, Standing must exist.</li> </ul>	Standing Element must be present when standing_flag is set to true	Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
standing	<ul style="list-style-type: none"><li>If the standing element is present, the standing flag must be true.</li></ul>	<i>The standing_flag must be set to true when Standing Element is present</i>	Mandatory	Mandatory
resource_name	<ul style="list-style-type: none"><li>Must be STRING.</li></ul>		Mandatory	Optional
	<ul style="list-style-type: none"><li>Must be valid Resource and belong to the Participant and User.</li></ul>	<i>The resource name {0} is invalid</i>		
resource_type	<ul style="list-style-type: none"><li>Must be PR_MAKER_DEMAND_UNIT.</li></ul>	Invalid facility_type {0} given for facility_name {1}, it must be PR_MAKER_DEMAND_UNIT	Mandatory	Not Applicable
	<ul style="list-style-type: none"><li>Must match the stored Resource Type.</li></ul>	The submitted resource_type value {0} does not match the value {2} registered for the resource {1}		
Standing Element (mandatory if standing_flag=true)				
expiry_Date	<ul style="list-style-type: none"><li>YYYY-MM-DD</li></ul>		Optional	Not Applicable
	<ul style="list-style-type: none"><li>Must be in the future.</li></ul>	The expiry_date {0} must be in the future		
	<ul style="list-style-type: none"><li>Must be greater than or equal to the Trading Date.</li></ul>	The expiry_date {0} must be greater than or equal to trading_date {1}		
	<ul style="list-style-type: none"><li>Optional if the day type is SUN, MON, TUE, WED, THU, FRI or SAT.</li></ul>			
	<ul style="list-style-type: none"><li>Not required when DAY_TYPE is "ALL".</li></ul>	The expiry_date attribute must not present when day type is ALL	Not Applicable	
day_type	<ul style="list-style-type: none"><li>If STANDING_FLAG is TRUE then must be MON, TUE, WED, THU, FRI, SAT, SUN or ALL.</li><li>If a standing bid in place and DAY_TYPE=ALL, then no other DAY_TYPE bids can be submitted.</li><li>If standing bid with DAY_TYPE not ALL accepted, then no bid with DAY_TYPE=ALL can be submitted.</li></ul>	<i>Submitted Standing Data with type {0} conflicts with existing Standing Data with type {1} for trading_date {2}</i>	Mandatory	Mandatory
Identifier Element (optional)				
external_id	<ul style="list-style-type: none"><li>Must be STRING.</li></ul>		Optional	Not Applicable

Name	Validation	Validation Message	Submission	Query
<b>Forecast Element</b> <i>(mandatory)</i>				
Forecast Element	<ul style="list-style-type: none"> <li>Must be present.</li> </ul>	<i>The forecast element must be presented</i>	Mandatory	Not Applicable
Forecast Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Forecast Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages			
maximum_mw	<ul style="list-style-type: none"> <li>Must be <math>\geq 0</math>.</li> </ul>	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>Must be <math>\geq</math> MINIMUM_MW.</li> </ul>	<i>The maximum_mw value of {0} must be greater than or equal to the minimum_mw value of {1} from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
minimum_mw	<ul style="list-style-type: none"> <li>Must be <math>\geq 0</math>.</li> </ul>	<i>The {0} value of {1} MWh must be greater than or equal to 0 MWh from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>Must be <math>\leq</math> MAXIMUM_MW.</li> </ul>	<i>The maximum_mw value of {0} must be greater than or equal to the minimum_mw value of {1} from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		
minimum_output_mw	<ul style="list-style-type: none"> <li>Must be <math>\leq 0</math>.</li> </ul>	<i>The {0} value of {1} MWh must be less than or equal to 0 MWh from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable
<b>Price Maker Element</b> <i>(mandatory if demand side unit is not Under Test)</i>				

Name	Validation	Validation Message	Submission	Query
Must be present if the Unit is not Under Test.		<i>The price_maker_detail element must be present when the unit is not under test</i>	Mandatory	Not Applicable
Must be either PRICE TAKER or PRICE MAKER element in the submission, but not both.		<i>Only one price_maker_detail or price_taker_detail element is allowed per Demand Offer.</i>		
The Hours & Intervals must cover the entire Trading Window.		<i>Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Window from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}.</i>		
A Warning message will be given if the hours & Intervals are outside the Trading Window.		<i>The hour {0} and interval {1} in {2} element will not be utilized because they are outside the relevant Trading Window from start_hr {3}, start_int {4} to end_hr {5}, and end_int {6}.</i>		
pq_curve_price	<ul style="list-style-type: none"> <li>Must be monotonically increasing.</li> </ul>	<i>The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}.</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>Must not exceed Price Cap.</li> </ul>	<i>The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2}).</i>		
	<ul style="list-style-type: none"> <li>Must not fall below Price Floor.</li> </ul>	<i>The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2}).</i>		
	<ul style="list-style-type: none"> <li>Must be no more than 10 PQ pairs per Trading Day.</li> </ul>			
pq_curve_quantity	<ul style="list-style-type: none"> <li>Must be monotonically increasing.</li> </ul>	<i>The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}.</i>	Mandatory	Not Applicable
	<ul style="list-style-type: none"> <li>Must be no more than 10 PQ pairs per Trading Day.</li> </ul>			
shutdown_cost	<ul style="list-style-type: none"> <li>Cost associated with Shut Down of a Demand Side Unit.</li> </ul>		Mandatory	Not Applicable
<b>Price Taker Element</b> (mandatory only if DemandSide Unit is Under Test)				

Name	Validation	Validation Message	Submission	Query
Must be present if the Unit is Under Test.		<i>The price_taker_detail element must be present when the unit is under test</i>	Mandatory	Not Applicable
Must be either PRICE TAKER or PRICE MAKER element in the submission, but not both.		<i>Only one price_maker_detail or price_taker_detail element is allowed per Demand Offer</i>		
The Hours & Intervals must cover the entire Trading Window.		<i>Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Window from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}.</i>		
A Warning message will be given if the hours & Intervals are outside the Trading Window.		<i>The hour {0} and interval {1} in {2} element will not be utilized because they are outside the relevant Trading Window from start_hr {3}, start_int {4} to end_hr {5}, and end_int {6}.</i>		
Nomination Profile Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Nomination Profile Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Nomination Profile Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Nomination Profile Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
nomination_profile_value	A Nomination Profile for a Generator Unit u shall comprise Nominated Quantities (NQ <sub>uh</sub> ) in respect of each Trading Period h during the Trading Day.		Mandatory	Not Applicable
Decremental Price Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Decremental Price Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Decremental Price Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.			
Decremental Price Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages			
decremental_price_value	Decremental Price for Predictable Price Taker Generator Unit u, Variable Price Taker Generator Unit u or Generator Unit Under Test u in Trading Period h.		Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
	<ul style="list-style-type: none"><li>Submitted decremental price must be zero.</li></ul>	<i>The {0} value of {1} must be equal to 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>		

**TABLE 23: DEMAND BID OFFER VALIDATIONS**

## 4.4.5.3 DEMAND OFFER XML TEMPLATES

The following template specifies the Demand Offer Data Submission Data Submission format:

```
<?xml version="1.0" encoding="UTF-8"?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <market_submit application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">
    <sem_demand_offer resource_name="RESOURCE_NAME"
      resource_type="RESOURCE_TYPE"
      standing_flag="STANDING_FLAG"
      version_no="1.0">
      <standing expiry_date="EXPIRY_DATE" type="DAY_TYPE"/>
      <identifier external_id="EXTERNAL_ID_STRING"/>
      <forecast
        start_hr="FORECAST_START_HR"
        start_int="FORECAST_START_INT"
        end_hr="FORECAST_END_HR"
        end_int="FORECAST_END_INT"
        maximum_mw="MAXIMUM_MW"
        minimum_mw="MINIMUM_MW"
        minimum_output_mw="MINIMUM_OUTPUT_MW"/>
      <price_maker_detail>
        <pq_curve>
          <point price="PQ_CURVE_PRICE"
            quantity="PQ_CURVE_QUANTITY"/>
        </pq_curve>
        <shutdown_cost value="SHUTDOWN_COST_VALUE"/>
      </price_maker_detail>
```

**Sample XML 7: Demand Offer Submission: Part 1 of 2**



```
<!-- Either price_taker_detail or price_maker_detail is
      Required Most of the time Demand units submit as price
      maker.
      But when the unit is under test, they submit as price
      taker.
-->
<!-- price_taker_detail>
  <nomination_profile
    start_hr="NOMINATION_PROFILE_START_HR"
    start_int="NOMINATION_PROFILE_START_INT"
    end_hr="NOMINATION_PROFILE_END_HR"
    end_int="NOMINATION_PROFILE_END_INT"
    value="NOMINATION_PROFILE_VALUE"/>
  <decremental_price
    start_hr="DECREMENTAL_PRICE_START_HR"
    start_int="DECREMENTAL_PRICE_START_INT"
    end_hr="DECREMENTAL_PRICE_END_HR"
    end_int="DECREMENTAL_PRICE_END_INT"
    value="DECREMENTAL_PRICE_VALUE"/>
  <price_taker_detail-->price_taker_detail>
</sem_demand_offer>
</market_submit>
</bids_offers>
```

***Sample XML 8: Demand Offer Submission: Part 2 of 2***

The following template specifies the Demand Offer Data Query format:

```
<?xml version="1.0" encoding="UTF-8"?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_query application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_demand_offer
      resource_name="RESOURCE_NAME"
      start_hr="START_HR"
      start_int="START_INT"
      end_hr="END_HR"
      end_int="END_INT"
      standing_flag="STANDING_FLAG"
      version_no="1.0">

      <standing type="DAY_TYPE"/>
    </sem_demand_offer>
  </market_query>
</bids_offers>
```

**Sample XML 9: Demand Offer Query**

---

#### 4.4.6 INTERCONNECTOR COMMERCIAL OFFER SUBMISSION

---

##### 4.4.6.1 INTERCONNECTOR OFFER ELEMENTS

Market Interface: Interconnector Offers	
Element	Requirement
sem_interconnector_offer	Mandatory
identifier [external_id]	Optional
interconnector_capacity	Mandatory
pq_curve	Mandatory

**TABLE 24: INTERCONNECTOR OFFER ELEMENTS**

The table above gives details of the XML elements of the Transactions, and specifies whether they are mandatory or optional.

## 4.4.6.2 INTERCONNECTOR OFFER VALIDATIONS

Name	Validation	Validation Message	Submission	Query
<b>Header</b>				
gate_window	The "gate_window" attribute is an optional field. The valid value is one of EA, EA2 or WD1. If it is not submitted, the default value will be EA.		Optional	Optional
trading_date	sStarting Date for which the bid or offer is submitted. The "Trading Date" attribute is mandatory.	Mandatory	Mandatory	
<b>SemIntconOfferSubmit / SemIntconOfferQuery Element (mandatory, depending on transaction)</b>				
standing_flag	Must be "FALSE".	Could not {0} a standing bid for Interconnector Offer.	Optional	Optional
		The Standing Element could not be presented in Interconnector Offer {0}		
participant_name	Must be a valid Participant Name, the INTCON_FLAG must be set to 'Y' in MF_PARTICIPANT_USERS table.	Invalid -- participant_name {0} is not registered as a Interconnector user in Market Participant Registration	Mandatory	Mandatory
resource_name	Must be STRING.		Mandatory	Mandatory
	Must be a valid Resource.	The resource name {0} is invalid		
resource_type	Must be INTERCONNECTOR.	Invalid facility_type {0} given for facility_name {1}, it must be INTERCONNECTOR	Mandatory	Mandatory
	Must match the stored Resource Name.	The submitted resource_type value {0} does not match the value {2} registered for the resource {1}		
priority_order	The "priority_order" attribute is optional for EA, EA2 and WD1. Default value is set to 1		Optional	Optional

Name	Validation	Validation Message	Submission	Query
<b>Identifier Element</b> <i>(optional)</i>				
external_id	Must be STRING		Optional	Not Applicable
<b>Interconnector_Capacity Element</b> <i>(mandatory)</i>				
Interconnector Capacity Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
Interconnector Capacity Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
Interconnector Capacity Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
Interconnector Capacity Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
maximum_import_capacity_mw	It must be greater than or equal to zero for all offers.	<i>The maximum_export value of {0} must be greater than or equal to zero</i>	Mandatory	Not Applicable
maximum_export_capacity_mw	It must be less than or equal to zero for all offers.	<i>The maximum_export value of {0} must be less than or equal to zero</i>	Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
<b>PQ_Curve Element</b> (mandatory)				
	The Hours & Intervals below must cover the entire Trading Day.	<i>Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Window from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}.</i>		
	A Warning message will be given if the hours & Intervals below are outside the Trading Window.	<i>The hour {0} and interval {1} in {2} element will not be utilized because they are outside the relevant Trading Window from start_hr {3}, start_int {4} to end_hr {5}, and end_int {6}.</i>		
PQ Curve Element: start_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
PQ Curve Element: start_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
PQ Curve Element: end_hr	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
PQ Curve Element: end_int	Refer to section 4.4.2 Hours and Interval for the common validation rules and messages.		Mandatory	Not Applicable
pq_curve_price	Must be monotonically increasing.	<i>The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}</i>	Mandatory	Not Applicable
	Must not exceed Price Cap.	<i>The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2}) from start_hr {3}, start_int {4} to end_hr {5}, end_int {6}</i>		
	Must not fall below Price Floor.	<i>The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2})</i>		
	No more than 10 PQ pairs per Trading Period.			
pq_curve_quantity	Must be monotonically increasing.	<i>The Prices in the PQ Curve are not monotonically increasing between points {0} and {1} from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}</i>	Mandatory	Not Applicable

Name	Validation	Validation Message	Submission	Query
	If the last quantity is positive, it must be less than or equal to the Maximum Import Capacity.	<i>The quantity value of {0} must not exceed the maximum_import_capacity_mw value of {1} for hour {2} and interval {3}</i>		
	If the first quantity is negative, the absolute value must be less than or equal to the absolute value of the Maximum Export Capacity.	<i>The absolute quantity value of {0} must not exceed the absolute maximum_export_capacity_mw value of {1} for hour {2} and interval {3}</i>		
	No more than 10 PQ pairs per Trading Period.			

**TABLE 25: INTERCONNECTOR OFFER ELEMENTS**

#### 4.4.6.3 INTERCONNECTOR OFFER XML TEMPLATES

The following template specifies the Interconnector Offer Data Submission format:

```
<?xml version="1.0" encoding="UTF-8" ?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <market_submit application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">
    <sem_interconnector_offer
      resource_name="RESOURCE_NAME"
      resource_type="RESOURCE_TYPE"
      priority_order="PRIORITY_ORDER"
      version_no="1.0">
      <identifier external_id="EXTERNAL_ID_STRING" />
      <interconnector_capacity
        start_hr="INTERCONNECTOR_CAPACITY_START_HR"
        start_int="INTERCONNECTOR_CAPACITY_START_INT"
        end_hr="INTERCONNECTOR_CAPACITY_END_HR"
        end_int="INTERCONNECTOR_CAPACITY_END_INT"
        maximum_import_capacity_mw="MAXIMUM_IMPORT_CAPACITY_MW"
        maximum_export_capacity_mw="MAXIMUM_EXPORT_CAPACITY_MW" />
      <pq_curve start_hr="PQ_CURVE_START_HR"
        start_int="PQ_CURVE_START_INT"
        end_hr="PQ_CURVE_END_HR"
        end_int="PQ_CURVE_END_INT">
        <point price="PQ_CURVE_PRICE"
          quantity="PQ_CURVE_QUANTITY" />
      </pq_curve>
    </sem_interconnector_offer>
  </market_submit>
</bids_offers>
```

**Sample XML 10: Interconnector Offer Submission**



The following template specifies the Interconnector Offer Data Query format.

```
<?xml version="1.0" encoding="UTF-8"?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_query application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_interconnector_offer
      resource_name="RESOURCE_NAME"
      start_hr="START_HR"
      start_int="START_INT"
      end_hr="END_HR"
      end_int="END_INT"
      version_no="1.0">

    </sem_interconnector_offer>
  </market_query>

</bids_offers>
```

**Sample XML 11: Interconnector Offer Query**

## 4.4.7 GENERATOR VALIDATION TECHNICAL OFFERS

## 4.4.7.1 GENERATOR VALIDATION TECHNICAL OFFERS ELEMENTS

Market Interface: Generator Validation Technical Offers	
Element	Requirement
market_submit	Mandatory if submit request
market_query	Mandatory if query request
sem_gen_technical_offer	Mandatory.
approval_status	Element should not be submitted. It is provided by the system for the query response.
identifier [external_id]	Optional Maximum number of occurrences is 1.
block_loading	Optional
block_deloading	Optional
cooling_boundary	Optional
startup_time	Optional
dwel_time	Optional.
dwel_down_time	Optional.
load_up	Optional. Maximum number of occurrences is 3. (type="COLD" and type="WARM" and type="HOT")
on_time	Optional
off_time	Optional
pump_parameters	Optional.
max_ramp_rate	Optional.
ramp_rate	Optional. Maximum number of occurrences is 2. (type="DOWN" and type="UP")
restricted_regions	Optional.
soak_time	Optional. Maximum number of occurrences is 3.

	(type="COLD" and type="WARM" and type="HOT")
short_term_maximization	Optional
minimum_stable_generation	Optional.

**TABLE 26: TECHNICAL OFFER CHOICE ELEMENTS**

The table above gives details of the XML elements of the transactions, and specifies the conditions under which they are mandatory or optional.

#### 4.4.7.2 GENERATOR TECHNICAL OFFER VALIDATIONS

Name	Validation	Validation Message	Submission	Query
<b>market_submit / market_query element</b>				
application_type	Must be "DAM".	<i>"Unable to process bid upload request..."</i>	Mandatory	Mandatory
date	Must be format: YYYY-MM-DD		Mandatory	Mandatory
date_type	Must be "SUBMISSION".		Mandatory	Mandatory
participant_name	Must be a string type. This is the name of the Market Participant (e.g. PT_499999)	<i>Invalid combination of participant_name {0} and user_name {1} for trading_date {2}</i>	Mandatory	Mandatory
user_name	Must be a string type. This is the name of the Market Participant User.		Mandatory	Mandatory
mode	Must be "NORMAL"	<i>"Unable to process bid upload request..."</i>	Mandatory	Mandatory
<b>sem_gen_technical_offer element</b>				
resource_name	Must be valid Resource and belong to the Participant.	<i>The resource name {0} is invalid</i>	Mandatory	Optional
resource_type	Must be one of the following PRED_PR_MAKER_GEN; PRED_PR_TAKER_GEN; VAR_PR_MAKER_GEN; or VAR_PR_TAKER_GEN.	<i>Invalid facility_type {0} given for facility_name {1}, it must be PRED_PR_MAKER_GEN, PRED_PR_TAKER_GEN, VAR_PR_MAKER_GEN, or VAR_PR_TAKER_GEN</i>	Mandatory	Not Applicable
set_number	Must be integer between 1 and 6.	<i>Unable to process bid upload request: attribute "set_number" has a bad value: the value is out of the range (maxInclusive specifies 6)</i>	Mandatory	Optional
status	Only applicable to queries. Must be either "NON_APPROVED" or "APPROVED"	<i>Unable to process bid upload request: attribute "status" has a bad value:...</i>	Not Applicable	Mandatory
version_number	Must be 1.0		Mandatory	Mandatory

Name	Validation	Validation Message	Submission	Query
approval_status	Must not be submitted.		Not Applicable	Not Applicable
identifier	external_id value is free text.		Optional	Optional
block_loading element				
flag	The valid values are 'true' or 'false'	Unable to process bid upload request: attribute "flag" has a bad value: {1} does not satisfy the "boolean"	Mandatory	Not Applicable
hot	MW Value. Must be a NUMBER between 0 and 99999.999.	Unable to process bid upload request: attribute {1}" has a bad value: the value is out of the range (minInclusive specifies 0)	Optional(Mandatory if Flag is True)	Not Applicable
warm	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional(Mandatory if Flag is True)	Not Applicable
cold	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional(Mandatory if Flag is True)	Not Applicable
deloading element				
Must contain 2 points. Each point contains a rate attribute and a quantity attribute, except for the first Deloading point, in which case the quantity attribute must not be submitted.				
rate	MW/min. Value must be between 0 and 99999.999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
cooling_boundary element				
hot	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
warm	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
cold	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
startup_time element				
hot	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
warm	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
cold	Hours. Value must be between 0 and 999.99		Optional	Not Applicable
dwell_time element				

Name	Validation	Validation Message	Submission	Query
Must contain at least 1 point and at most 3 points. Each point must contain a rate attribute and a quantity attribute.				
time	Minutes. Value must be between 0 and 999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>dwelldown_time element</b>				
Must contain at least 1 point and at most 3 points. Each point must contain a rate attribute and a quantity attribute.				
time	Minutes. Value must be between 0 and 999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>load_up element</b>				
3 possible types: type="HOT", type="WARM", type="COLD".				
Each type must contain at least 2 points and at most 3 points. Each point attribute contains a rate value and a quantity attribute, except for the first load up point, in which case the quantity attribute must not be submitted. This is because rate 1 always applies from 0MW to the next quantity.				
rate	MW/min. Value must be between 0 and 99999.999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>on_time element</b>				
maximum	Hours. Value must be between 0 and 99999999.999		Optional	Not Applicable
minimum	Hours. Value must be between 0 and 99999999.999		Optional	Not Applicable
<b>off_time element</b>				
Contains only 1 attribute: "minimum"				
off time minimum	Hours. Value must be between 0 and 99999999.999		Optional	Not Applicable
<b>pump_parameters element</b>				
pump storage cycle efficiency	MW Value. Must be a NUMBER between 0 and 999.9999.		Optional	Not Applicable

Name	Validation	Validation Message	Submission	Query
pumping load capacity	MWh Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>max_ramp_rate element</b>				
up	MW/min. Value must be between 0 and 99999.999		Optional	Not Applicable
down	MW/min. Value must be between 0 and 99999.999		Optional	Not Applicable
<b>ramp_rate element</b>				
2 possible types: type="UP", type="DOWN"				
Must contain between 1 and 5 points. Each point contains a rate attribute and a quantity attribute, except for the first point, in which case the quantity attribute must not be submitted. This is because rate 1 always applies from MinGen to the next quantity.				
rate	MW/min. Value must be between 0 and 99999.999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>restricted_region element</b>				
If included, this element must contain at least 1 region and at most 2 regions				
start	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
end	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>soak_time element</b>				
3 possible types: type="HOT", type="WARM", type="COLD".				
Each type must contain between 1 and 2 points. Each point must contain a rate attribute and a quantity attribute.				
time	Minutes. Value must be between 0 and 99999999.999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable
<b>short_term_maximization element</b>				
If included, this element must contain at a time and a quantity attribute.				
time	Minutes. Value must be between 0 and 99999999.999		Optional	Not Applicable
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable

Name	Validation	Validation Message	Submission	Query
minimum_stable_generation element				
quantity	MW Value. Must be a NUMBER between 0 and 99999.999.		Optional	Not Applicable

**TABLE 27: GENERATOR TECHNICAL OFFER SET ELEMENTS**

#### 4.4.7.3 GENERATOR VALIDATION TECHNICAL OFFER XML TEMPLATES

The following template (3 parts) specifies the Generator Technical Offer Data Submission format:



```

<?xml version="1.0" encoding="UTF-8" ?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <processing_info/>
  <market_submit
    application_type="DAM"
    gate_window="ER"
    date="2012-05-26"
    date_type="SUBMISSION"
    participant_name="PT_XXXXXXXX"
    user_name="MAIN_USER"
    mode="NORMAL">

    <sem_gen_technical_offer
      resource_name="GU_XXXXXXXX"
      resource_type="PRED_PR_MAKER_GEN"
      set_number="2"
      version_no="1.0">
      <identifier
        external_id="EXTERNAL_ID_STRING" />
      <block_loading
        flag="true"
        hot="0.0"
        warm="0.0"
        cold="0.0" />
      <block_deloading>
        <point rate="0.0" />
        <point rate="0.0" quantity="0.0" />
      </block_deloading>
      <cooling_boundary
        hot="0.0"
        warm="0.0"
        cold="0.0" />
      <startup_time
        hot="0.0"
        warm="0.0"
        cold="0.0" />
      <dwel_time>
        <point time="1" quantity="1.5" />
        <point time="0" quantity="0.0" />
        <point time="0" quantity="0.0" />
      </dwel_time>
      <dwel_down_time>
        <point time="1" quantity="2.0" />
        <point time="2" quantity="3.0" />
        <point time="3" quantity="4.0" />
      </dwel_down_time>

```

**Sample XML 12: Generator Technical Offer Submission: Part 1 of 3**

```

<load_up type="HOT">
  <point rate="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
</load_up>
<load_up type="WARM">
  <point rate="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
</load_up>
<load_up type="COLD">
  <point rate="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
</load_up>
<on_time max="0.0" min="0.0" />
<off_time min="0.0" />
<pump_parameters
  pump_storage_cycle_efficiency="0.0"
  pumping_load_capacity="0.0" />
<max_ramp_rate up="0.0" down="0.0" />
<ramp_rate type="UP">
  <point rate="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
</ramp_rate>
<ramp_rate type="DOWN">
  <point rate="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
  <point rate="0.0" quantity="0.0" />
</ramp_rate>
<restricted_regions>
  <region start="0.0" end="0.0" />
  <region start="0.0" end="0.0" />
</restricted_regions>
<soak_time type="HOT">
  <point time="0" quantity="0.0" />
  <point time="0" quantity="0.0" />
</soak_time>
<soak_time type="WARM">
  <point time="0" quantity="0.0" />
  <point time="0" quantity="0.0" />
</soak_time>
<soak_time type="COLD">
  <point time="0" quantity="0.0" />
  <point time="0" quantity="0.0" />
</soak_time>

```

***Sample XML 13: Generator Technical Offer Submission: Part 2 of 3***

```
-----  
  <short_term_maximization time="0" quantity="0.0" />  
  <minimum_stable_generation quantity="0.0" />  
-</sem_gen_technical_offer>  
-</market_submit>  
-</bids_offers>
```

***Sample XML 14: Generator Technical Offer Submission: Part 3 of 3***

The following template specifies the Generator Technical Offer Data Query format:

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

<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_query
    application_type="DAM"
    date="DATE"
    date_type="DATE_TYPE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_gen_technical_offer
      resource_name="RESOURCE_NAME"
      set_number="SET_NUMBER"
      status="STATUS"
      version_no="1.0"/>

  </market_query>
</bids_offers>
```

**Sample XML 15: Generator Technical Offer Query**

#### 4.4.8 DEMAND SIDE UNIT VALIDATION TECHNICAL OFFER DATA

##### 4.4.8.1 DEMAND SIDE UNIT TECHNICAL OFFER ELEMENTS

Market Interface: Demand Side Unit Validation Technical Offers	
Element	Requirement
market_submit	Mandatory if submit request
market_query	Mandatory if query request
sem_gen_technical_offer	Mandatory.
approval_status	Element should not be submitted. It is provided by the system for the query response.
identifier [external_id]	Optional Maximum number of occurrences is 1.
max_ramp_rate	Optional
down_time	Optional

**TABLE 28: DEMAND SIDE UNIT VALIDATION TECHNICAL OFFER ELEMENTS**

The table above gives details of the XML elements of the transactions, and specifies the conditions under which they are mandatory or optional.

##### 4.4.8.2 DEMAND SIDE UNIT TECHNICAL OFFER VALIDATIONS

Name	Validation	Validation Message	Submission	Query
<b>market_submit / market_query element</b>				
application_type	Must be "DAM".	Unable to process bid upload request...	Mandatory	Mandatory
date	Must be format: YYYY-MM-DD		Mandatory	Mandatory
date_type	Must be "SUBMISSION".		Mandatory	Mandatory
participant_name	Must be a string type. This is the name of the Market Participant (e.g. PT_499999)	Invalid combination of participant_name {0} and user_name {1} for trading_date {2}	Mandatory	Mandatory
user_name	Must be a string type. This is the name of the Market Participant User.		Mandatory	Mandatory
mode	Must be "NORMAL"		Mandatory	Mandatory

Name	Validation	Validation Message	Submission	Query
sem_demand_technical_offer element				
resource_name	Must be valid Resource and belong to the Participant.	<i>The resource name {0} is invalid</i>	Mandatory	Optional
resource_type	Must be "PR_MAKER_DEMAND_UNIT"	<i>Invalid facility_type {0} given for facility_name {1}, it must be PR_MAKER_DEMAND_UNIT</i>	Mandatory	Not Applicable
set_number	Must be integer between 1 and 6.	<i>Unable to process bid upload request: attribute "set_number" has a bad value: the value is out of the range (maxInclusive specifies 6)</i>	Mandatory	Optional
status	Only applicable to queries. Must be either "NON_APPROVED" or "APPROVED"	<i>Unable to process bid upload request: attribute "status" has a bad value:...</i>	Not Applicable	Mandatory
version_number	Must be 1.0		Mandatory	Optional
approval_status	Must not be submitted.		Not Applicable	Not Applicable
identifier	external_id value is free text.		Optional	Optional
max_ramp_rate element				
Optional element. 2 possible attributes: "UP" or "DOWN"			Optional	Not Applicable
up	MW/min. Value must be between 0 and 99999.999			
down	MW/min. Value must be between 0 and 99999.999			
down_time element				
Optional element. 2 possible attributes: type="MIN", type="MAX"				
min	Hours. Value must be between 0 and 99999999.999		Optional	Not Applicable
Max	Hours. Value must be between 0 and 99999999.999		Optional	Not Applicable

TABLE 29: DEMAND SIDE UNIT TECHNICAL OFFER SET VALIDATIONS

#### 4.4.8.3 DEMAND TECHNICAL OFFER VALIDATIONS: XML TEMPLATE

The following template specifies the Demand Technical Offer Data Submission format:

```
<?xml version="1.0" encoding="UTF-8"?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_submit
    application_type="DAM"
    date="2010-10-10"
    date_type="SUBMISSION"
    participant_name="PT_500035"
    user_name="MAIN_USER"
    mode="NORMAL">

    <sem_demand_technical_offer
      resource_name="DSU_500190"
      resource_type="PR_MAKER_DEMAND_UNIT"
      set_number="1"
      version_no="1.0">

      <identifier
        external_id="EXTERNAL_ID_STRING"/>

      <max_ramp_rate up="0.0" down="0.0"/>
      <down_time min="0.0" max="0.0"/>
    </sem_demand_technical_offer>

  </market_submit>
</bids_offers>
```

**Sample XML 16: Demand Technical Offer Validation Submission**

The following template specifies the Demand Technical Offer Data Query format:

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

<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_query
    application_type="DAM"
    date="DATE"
    date_type="DATE_TYPE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_demand_technical_offer
      resource_name="RESOURCE_NAME"
      set_number="SET_NUMBER"
      status="STATUS"
      version_no="1.0"/>

  </market_query>

</bids_offers>
```

***Sample XML 17: Demand Technical Offer Validation Query***



#### 4.4.9 VALIDATED TECHNICAL OFFER CHOICE

The Validated Technical Offer Choice submission is used to choose a pre-validated TOD set number for a given Trading Day. This is a daily submission, which can be submitted for any Trading Day open in the 28 day Market window. A VTOD choice can be made for EA or EA2 Gate Windows only. See section 4.2.2 for further details on this.

If Participants do not make a Validated Technical Offer Choice submission for a given Trading Day, the default VTOD set number 1 will be used by the CMS.

Market Interface: Validated Technical Offer Choice	
Element	Requirement
market_submit	Mandatory if submit request
market_query	Mandatory if query request
sem_gen_technical_offer_choice	Mandatory.
identifier [external_id]	Optional Maximum number of occurrences is 1.

**TABLE 30: VALIDATED TECHNICAL OFFER CHOICE ELEMENTS**

The table above gives details of the XML elements of the transactions, and specifies the conditions under which they are mandatory or optional.

Name	Validation	Validation Message	Submission	Query
<b>market_submit / market_query element</b>				
gate_window	The gate_window field is optional. Valid values are 'EA' or 'EA2'. This will default to a value of 'EA' if not supplied.		Optional	Optional
trading_date	Must be format: YYYY-MM-DD		Mandatory	Mandatory
participant_name	Must be a string type. This is the name of the Market Participant (e.g. PT_499999)	<i>Invalid combination of participant_name {0} and user_name {1} for trading_date {2}</i>	Mandatory	Mandatory
user_name	Must be a string type. This is the name of the Market Participant User.		Mandatory	Mandatory
mode	Must be "NORMAL"		Mandatory	Mandatory
<b>sem_technical_offer_choice element</b>				

Name	Validation	Validation Message	Submission	Query
resource_name	Must be valid Resource and belong to the Participant.	<i>The resource name {0} is invalid</i>	Mandatory	Optional
resource_type	<p>This attribute is mandatory.</p> <p>The Resource Type should be a valid type and correspond to the resource name entered.</p> <p>The valid values for Resource Type are as follows:</p> <ul style="list-style-type: none"> <li>• PRED_PR_MAKER_GEN - Predictable Price Maker Generator</li> <li>• PRED_PR_TAKER_GEN - Predictable Price Taker Generator</li> <li>• VAR_PR_MAKER_GEN - Variable Price Maker Generator</li> <li>• VAR_PR_TAKER_GEN - Variable Price Taker Generator</li> <li>• AUTO_PR_TAKER_GEN - Auto Price Taker Generator</li> <li>• PR_MAKER_DEMAND_UNIT - Demand Unit.</li> </ul>		Mandatory	Not Applicable
set_number	Must be integer between 1 and 6.	<i>Unable to process bid upload request: attribute "set_number" has a bad value: the value is out of the range (maxInclusive specifies 6)</i>	Mandatory	Optional
version_number	Must be 1.0		Mandatory	Mandatory
identifier	external_id value is free text.		Optional	Not Applicable

TABLE 31: TECHNICAL OFFER CHOICE ELEMENTS

#### 4.4.9.1 TECHNICAL OFFER CHOICE VALIDATIONS: XML TEMPLATE

The following template specifies the Technical Offer Choice Submission format

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

<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">

  <market_submit
    application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">

    <sem_technical_offer_choice
      resource_name="RESOURCE_NAME"
      resource_type="RESOURCE_TYPE"
      set_number="SET_NUMBER"
      version_no="1.0">

      <identifier
        external_id="EXTERNAL_ID" />

      </sem_technical_offer_choice>

    </market_submit>

  </bids_offers>
```

**Sample XML 18: Technical Offer Choice Submission**

The following template specifies the Technical Offer Choice query format.

```
<?xml version="1.0" encoding="UTF-8" ?>
<bids_offers
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
  <market_query
    application_type="DAM"
    gate_window="GATE_WINDOW"
    trading_date="TRADING_DATE"
    participant_name="PARTICIPANT_NAME"
    user_name="USER_NAME"
    mode="NORMAL">
    <sem_technical_offer_choice
      resource_name="RESOURCE_NAME"
      version_no="1.0"/>
  </market_query>
</bids_offers>
```

***Sample XML 19: Technical Offer Choice Query***

#### 4.4.10 UNIT UNDER TEST

##### 4.4.10.1 UNIT UNDER TEST ELEMENTS

#### Market Interface: Unit Under Test Elements

Element	Requirement
market_submit	Mandatory if submit request
market_query	Mandatory if query request
market_cancel	Mandatory if cancel request
sem_unit_under_test	Mandatory
identifier [external_id]	Optional Maximum number of occurrences is 1.

**TABLE 32: UNIT UNDER TEST ELEMENTS****4.4.10.2 UNIT UNDER TEST VALIDATIONS**

Name	Validation	Validation Message	Submission	Query	Cancel
TRADING_DATE	10 characters in the format of "YYYY-MM-DD".		Mandatory	Mandatory	Mandatory
PARTICIPANT_NAME	The name of Market Participant who is registered with AIP-SEM. Must be a String Type.		Mandatory	Mandatory	Mandatory
USER_NAME	The name of Market Participant user. Must be a String Type.		Mandatory	Mandatory	Mandatory
PARTICIPANT_NAME, USER_NAME	Must be a valid combination of Participant and User in the Master File	Invalid combination of participant_name {0} and user_name {1} for trading_date {2}.	Mandatory	Mandatory	MandatoryMandatory

Name	Validation	Validation Message	Submission	Query	Cancel
	Users must have system access privileges to Market Trading.	The user_name {0} for participant_name {1} does not have system access privileges to participate in Market Trading for trading_date {2}.			
RESOURCE_NAME, PARTICIPANT_NAME	The name of the resource. Must be a String Type.	The resource name {0} is invalid	Mandatory	Mandatory	Mandatory
	Resource must belong to the participant		Mandatory	Mandatory	Mandatory
STATUS	Must be one of the following <ul style="list-style-type: none"> <li>APPROVED</li> <li>DENIED</li> <li>RECEIVED</li> </ul>				
START_DATE	Start date of unit under test. This field is mandatory. It will be in the format YYYY-MM-DD		Mandatory	NA	Mandatory
END_DATE	End date of unit under test. This field is mandatory. It will be in the format YYYY-MM-DD		Mandatory	NA	Mandatory
START_DATE, END_DATE	The start date and end date given must not overlap with existing submissions.	The start date and end date given must not overlap with existing submissions..	Mandatory	NA	Mandatory
	The start date and end date in a submission for unit must be distinct		Mandatory	NA	Mandatory
	The start date for a new submission must be in future i.e. (Today + 2 or more days)	The start date for a new submission must be in future i.e. (Today + 2 or more days)	Mandatory	NA	Mandatory
	The end date for an existing submission must be at least (Today + 2 or more days)	The end date for an existing submission must be at least (Today + 2 or more days)	Mandatory	NA	Mandatory
	The start date must be less than or equal to end date	The start date must be less than or equal to end date	Mandatory	NA	Mandatory

Name	Validation	Validation Message	Submission	Query	Cancel
	The start date and end date combination must match with an existing record to cancel.		Mandatory	NA	Mandatory
	Cannot cancel an already cancelled record.		Mandatory	NA	Mandatory
	When submitting a cancellation request, an approved Unit Under Test record must exist for the cancellation to proceed.	No approved Unit Under Test record found to cancel for the given start date and end date.	Mandatory	NA	Mandatory

**TABLE 33: UNIT UNDER TEST VALIDATIONS**

#### 4.4.10.3 UNIT UNDER TEST VALIDATIONS: XML TEMPLATE

The following template shows a query request for a Unit Under Test:

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3    xsi:noNamespaceSchemaLocation="mint_sem.xsd">
4    <market_query application_type="DAM"
5      trading_date="YYYY-MM-DD"
6      participant_name="XXXXXX"
7      user_name="XXXXXX"
8      mode="NORMAL">
9      <sem_unit_under_test resource_name="XXXXXX" status="XXXXXX" >
10     </sem_unit_under_test>
11   </market_query>
12 </bids_offers>
13
```

**Sample XML 19: Unit Under Test Query**



The following template shows a submission request for a Unit Under Test:

```
1  <?xml version="1.0" encoding="UTF-8" ?>
2  <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3      xsi:noNamespaceSchemaLocation="mint_sem.xsd">
4      <market_submit application_type="DAM"
5          trading_date="2011-09-18"
6          participant_name="XXXXX"
7          user_name="XXXXX"
8          mode="NORMAL">
9          <sem_unit_under_test
10             resource_name="XXXXX"
11             start_date="YYYY-MM-DD"
12             end_date="YYYY-MM-DD">
13              <identifier external_id="xxx" />
14          </sem_unit_under_test>
15      </market_submit>
16  </bids_offers>
```

**Sample XML 20: Unit Under Test Submission**

The following template shows a cancellation request for a Unit Under Test:

```
1  <?xml version="1.0" encoding="UTF-8"?>
2      <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3          xsi:noNamespaceSchemaLocation="mint_sem.xsd">
4          <market_cancel application_type="XXX"
5              trading_date="YYYY-MM-DD"
6              participant_name="XXXXX"
7              user_name="XXXXX"
8              mode="NORMAL">
9              <sem_unit_under_test resource_name="XXXXX"
10                  start_date="YYYY-MM-DD"
11                  end_date="YYYY-MM-DD" >
12                  <identifier external_id="xxx" />
13              </sem_unit_under_test>
14          </market_cancel>
15      </bids_offers>
```

**Sample XML 21: Unit Under Test Cancellation Request**

#### 4.4.11 SINGLE REQUEST IN TRANSACTION – XML SAMPLES

This section has examples of single Market Interface Submit and Query Request Transactions, and Response messages, for both valid and invalid Requests.

- For multiple bids/offers, the success flag on each request can be interpreted such that success="true" indicates Success and success="false" indicates Failure.
- The attributes at each <sem\_gen\_offer> element level are described below:
  - Valid: This attribute indicates if the XML Offer passed validation or not. "true" indicates it has successfully passed validation.
  - Success: This attribute indicates if the XML Offer has successfully written to the database or not after the successful validation. "true" indicates it has successfully written to the database, in which case valid="true" would also apply. If valid="false", the success attribute will always be "false" as well.
  - Process: This is only used for SEM internal processing, so Market Participants should ignore this field.
- Regarding the <messages> sections embedded in a response, the <information> message is presented at the request root but <error> messages are embedded as close to the data causing the error as applicable.

##### 4.4.11.1 SETTLEMENT REALLOCATION "SUBMIT" XML SAMPLES

```
<?xml version="1.0" encoding="UTF-8" ?>
- <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="mint_sem.xsd">
-   <market_submit application_type="DAM" trading_date="2006-12-01" participant_name="YYYY" user_name="YYYYY01"
      mode="NORMAL">
-     <sem_settlement_reallocation credited_participant_name="ASKP.COM" reallocation_type="ENERGY_PAYMENT"
        standing_flag="false" version_no="1.0">
        <identifier external_id="EXT_ID1" />
        <!-- ENERGY_PAYMENT or CAPACITY_PAYMENT -->
        <reallocation_detail start_hr="18" start_int="2" end_hr="18" end_int="2" agreement_name="TEXT_AGREEMENT"
          monetary_value="2031.21" />
      </sem_settlement_reallocation>
    </market_submit>
  </bids_offers>
```

**Sample XML 22: Settlement Reallocation "Submit" XML sample with no error – Submit**

```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <bids_offers username="YYYYY01@YYYY" valid="true">
  <processing_statistics invalid="0" received="1" time_ms="22604" time_stamp="Mon Nov 06 16:38:12 PST 2006"
    transaction_id="KQA6Gbn0" valid="1" />
- <market_submit application_type="DAM" delivery_date="2006-12-01" mode="NORMAL" participant_name="YYYY"
  process="true" trading_date="2006-12-01" user_name="YYYYY01" valid="true" standing_conversion="false">
- <sem_settlement_reallocation standing_flag="false" valid="true" version_no="1.0" credited_participant_name="ASKP.COM"
  reallocation_type="ENERGY_PAYMENT">
- <messages>
  <information>Successfully processed the SEM Settlement Reallocation.</information>
</messages>
  <identifier external_id="EXT_ID1" />
  <reallocation_detail end_hr="18" end_int="2" start_hr="18" start_int="2" agreement_name="TEXT_AGREEMENT"
    monetary_value="2031.21" />
</sem_settlement_reallocation>
</market_submit>
</bids_offers>

```

**Sample XML 23: Settlement Reallocation “Submit” XML sample with no error – Response**

- In this example it can be seen that there are no invalid data sets and that one valid data set was received.
- It was submitted on Monday November 6th 2006 at 16:38:12 PST and took 22604 milliseconds to process.
- The unique transaction\_id is “KQA6Gbn0” and the external\_id supplied with the Request was “EXT\_ID1” which is also returned in the Response.
- Within the main body of the response it can be seen that there is an information message which specifies that the Settlement Reallocation Transaction which had been submitted was successfully processed.
- Also, the data which formed the original submit Transaction is contained in the main body of the response.

## 4.4.11.2 SETTLEMENT REALLOCATION "SUBMIT" SAMPLES WITH ERROR

```

<?xml version="1.0" encoding="UTF-8" ?>
- <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
- <market_submit application_type="DAM" trading_date="2006-11-06" participant_name="PQPQ"
  user_name="PQPQ01" mode="NORMAL">
- <sem_settlement_reallocation credited_participant_name="ABC"
  reallocation_type="ENERGY_PAYMENT" standing_flag="false" version_no="1.0">
  <!-- ENERGY_PAYMENT or CAPACITY_PAYMENT -->
  <reallocation_detail start_hr="1" start_int="1" end_hr="1" end_int="1"
    agreement_name="TEXT_AGREEMENT" monetary_value="20134.32" />
</sem_settlement_reallocation>
- <sem_settlement_reallocation credited_participant_name="DEF"
  reallocation_type="ENERGY_PAYMENT" standing_flag="false" version_no="1.0">
  <!-- ENERGY_PAYMENT or CAPACITY_PAYMENT -->
  <reallocation_detail start_hr="1" start_int="1" end_hr="1" end_int="1"
    agreement_name="TEXT_AGREEMENT" monetary_value="20134.32" />
</sem_settlement_reallocation>
</market_submit>
</bids_offers>

```

**Sample XML 24: Settlement Reallocation "Submit" XML sample with error – Submit**

```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <bids_offers username="PGEN01@PGEN" valid="true">
  <processing_statistics invalid="2" received="2" time_ms="78" time_stamp="Tue Oct 10 16:32:19 PDT
    2006" transaction_id="KQ9AGWI0" valid="0" />
- <market_submit application_type="DAM" delivery_date="2006-11-06" mode="NORMAL"
  participant_name="PQPQ" process="false" trading_date="2006-11-06" user_name="PQPQ01"
  valid="false" standing_conversion="false">
- <messages>
  <error>Only one sem_settlement_reallocation element is allowed per
    submission</error>
</messages>
- <sem_settlement_reallocation standing_flag="false" valid="false" version_no="1.0"
  credited_participant_name="ABC" reallocation_type="ENERGY_PAYMENT">
  <reallocation_detail end_hr="1" end_int="1" start_hr="1" start_int="1"
    agreement_name="TEXT_AGREEMENT" monetary_value="20134.32" />
</sem_settlement_reallocation>
- <sem_settlement_reallocation standing_flag="false" valid="false" version_no="1.0"
  credited_participant_name="DEF" reallocation_type="ENERGY_PAYMENT">
  <reallocation_detail end_hr="1" end_int="1" start_hr="1" start_int="1"
    agreement_name="TEXT_AGREEMENT" monetary_value="20134.32" />
</sem_settlement_reallocation>
</market_submit>
</bids_offers>

```

**Sample XML 25: Settlement Reallocation "Submit" XML sample with error – Response**

- In this example it can be seen that there was one data set received which is invalid.
- The Transaction was received on Tuesday October 10th 2006 at 16:32:19 PDT and it took 78 milliseconds to process.
- The unique transaction\_id is "KQ9AGWI0" and an external\_id was not supplied with the Request.
- Within the main body of the response there is an error message present which states that only one sem\_settlement\_reallocation element is allowed per submission.
- The main body of the response also includes the data from the original submission.

## 4.4.11.3 SETTLEMENT REALLOCATION "QUERY" SAMPLES WITH NO ERROR

```

<?xml version="1.0" encoding="UTF-8" ?>
- <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="mint_sem.xsd">
- <market_query application_type="DAM" trading_date="2006-12-04" participant_name="NNNN" user_name="NNNN01"
  mode="NORMAL">
  <sem_settlement_reallocation credited_participant_name="ASKP.COM" reallocation_type="ENERGY_PAYMENT"
    start_hr="1" start_int="1" end_hr="1" end_int="1" standing_flag="false" version_no="1.0" />
  </market_query>
</bids_offers>

```

**Sample XML 26: Settlement Reallocation "Query" XML sample with no error – Query**

```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <bids_offers valid="true">
  <processing_statistics invalid="0" received="1" time_ms="47" time_stamp="Mon Nov 06 16:29:00 PST 2006"
    transaction_id="KQA6GT00" valid="1" />
- <market_submit application_type="DAM" delivery_date="2006-12-04" mode="NORMAL" participant_name="NNNN"
  trading_date="2006-12-04" user_name="NNNN01" valid="true">
- <sem_settlement_reallocation standing_flag="false" valid="true" version_no="1.0" credited_participant_name="ASKP.COM"
  reallocation_type="ENERGY_PAYMENT">
- <messages>
  <information>Successfully retrieved the SEM Settlement Reallocation.</information>
</messages>
  <identifier external_id="EXT_ID4" />
  <reallocation_detail end_hr="1" end_int="1" start_hr="1" start_int="1" agreement_name="TEXT_AGREEMENT"
    monetary_value="20134.32" />
</sem_settlement_reallocation>
</market_submit>
</bids_offers>

```

**Sample XML 27: Settlement Reallocation "Query" XML sample with no error – Response**

- In the above example it can be seen that the query which was submitted resulted in a successful retrieval of a particular settlement reallocation.
- In the response, it can be seen that the query was submitted on Monday November 6th 2006 at 16:29:00 PST, that one valid data set was received and that it took 47 milliseconds to process.
- The original data from the query is contained in the main body of the response.
- The reallocation details retrieved are the agreement name and the monetary value of the reallocation.
- If the query is successful in retrieving detail, the response will include the external\_id from the settlement reallocation submission.

## 4.4.11.4 SETTLEMENT REALLOCATION "QUERY" SAMPLES WITH TWO ERRORS

```

<?xml version="1.0" encoding="UTF-8" ?>
- <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="mint_sem.xsd">
- <market_query application_type="DAM" trading_date="2006-10-11" participant_name="PQPQ"
  user_name="PQPQ01" mode="NORMAL">
  <sem_settlement_reallocation credited_participant_name="ABC"
    reallocation_type="ENERGY_PAYMENT" start_hr="1" start_int="2" end_hr="2" end_int="1"
    standing_flag="false" version_no="1.0" />
  </market_query>
</bids_offers>

```

**Sample XML 28: Settlement Reallocation "Query" XML sample with two errors – Query**

```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <bids_offers username="PGEN01@PGEN" valid="true">
  <processing_statistics invalid="1" received="1" time_ms="31" time_stamp="Tue Oct 10 17:43:53 PDT
    2006" transaction_id="KQ9AHhr0" valid="0" />
- <market_query application_type="DAM" delivery_date="2006-10-11" mode="NORMAL"
  participant_name="PQPQ" process="true" trading_date="2006-10-11" user_name="PQPQ01"
  valid="true">
- <sem_settlement_reallocation end_hr="1" end_int="1" start_hr="1" start_int="2"
  standing_flag="false" valid="false" version_no="1.0" credited_participant_name="ABC"
  reallocation_type="ENERGY_PAYMENT">
- <messages>
  <error>The start_int of 2 must be equal to the end_int of 1 in
    sem_settlement_reallocation query element</error>
  <error>The start_hour of 1 must be equal to the end_hour of 2 in
    sem_settlement_reallocation query element</error>
  </messages>
</sem_settlement_reallocation>
</market_query>
</bids_offers>

```

**Sample XML 29: Settlement Reallocation "Query" XML sample with two errors – Response**

- In the above example, it can be seen that the query was submitted on Tuesday October 10th 2006 at 17:43:53 PDT and that it took 31 milliseconds to process.
- It can also be seen that it failed to retrieve the reallocation details, there was one invalid dataset submitted as part of the query.
- There are two errors returned which indicate invalid hour and interval combinations for this transaction.

#### 4.4.12 MULTIPLE REQUESTS IN TRANSACTION – XML SAMPLE

This section has examples of multiple Market Interface Submit and Query Request Transactions, and Response messages, for both valid and invalid Requests.

```
<?xml version="1.0" encoding="UTF-8" ?>
- <bids_offers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="mint_sem.xsd">
- <market_submit application_type="DAM" trading_date="2006-11-16" gate_window="EA" participant_name="QWRT" user_name="QWRT" mode="NORMAL">
- <sem_gen_offer resource_name="XX1" resource_type="VAR_PR_MAKER_GEN" standing_flag="false" version_no="1.0">
  <identifier external_id="EXT_ID1" />
- <price_taker_detail>
  <nomination_profile start_int="1" end_hr="24" end_int="2" start_hr="1" value="100" />
  <decremental_price start_int="1" end_hr="24" end_int="2" start_hr="1" value="0" />
</price_taker_detail>
</sem_gen_offer>
- <sem_gen_offer resource_name="XX2" resource_type="VAR_PR_TAKER_GEN" standing_flag="false" version_no="1.0">
  <identifier external_id="EXT_ID2" />
- <price_taker_detail>
  <nomination_profile start_int="1" end_hr="24" end_int="2" start_hr="1" value="100" />
  <decremental_price start_int="1" end_hr="24" end_int="2" start_hr="1" value="0" />
</price_taker_detail>
</sem_gen_offer>
- <sem_gen_offer resource_name="XX3" resource_type="PRED_PR_MAKER_GEN" standing_flag="false" version_no="1.0">
  <identifier external_id="EXT_ID3" />
  <forecast start_hr="1" start_int="1" end_hr="24" end_int="2" maximum_mw="0" minimum_mw="0" minimum_output_mw="0" />
- <price_taker_detail>
  - <pq_curve>
    <point price="10" quantity="10" />
    <point price="20" quantity="20" />
    <point price="30" quantity="30" />
  </pq_curve>
  <startup_cost hot="10" warm="20" cold="30" />
  <no_load_cost value="0" />
  <nomination_profile start_int="1" end_hr="24" end_int="2" start_hr="1" value="100" />
  <decremental_price start_int="1" end_hr="24" end_int="2" start_hr="1" value="0" />
</price_taker_detail>
</sem_gen_offer>
- <sem_gen_offer resource_name="XX4" resource_type="PRED_PR_TAKER_GEN" standing_flag="false" version_no="1.0">
  <identifier external_id="EXT_ID4" />
  <forecast start_hr="1" start_int="1" end_hr="24" end_int="2" maximum_mw="0" minimum_mw="0" minimum_output_mw="0" />
- <price_taker_detail>
  - <pq_curve>
    <point price="10" quantity="10" />
    <point price="20" quantity="20" />
    <point price="30" quantity="30" />
  </pq_curve>
  <startup_cost hot="10" warm="20" cold="19" />
  <no_load_cost value="0" />
  <nomination_profile start_int="1" end_hr="24" end_int="2" start_hr="1" value="100" />
  <decremental_price start_int="1" end_hr="24" end_int="2" start_hr="1" value="0" />
</price_taker_detail>
</sem_gen_offer>
</market_submit>
</bids_offers>
```

#### **Sample XML 30: Multiple Bid/Offer “Submit” Requests in one Transaction – Submit**



```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <bids_offers username="QRST01@QRST" valid="true">
  <processing_statistics invalid="1" received="4" time_ms="796" time_stamp="Mon Nov 13 14:40:24 PST 2006" transaction_id="KQADEe00"
    valid="3" />
- <market_submit application_type="DAM" delivery_date="2006-11-16" mode="NORMAL" participant_name="QRST" process="true" gate_window="EA"
  trading_date="2006-11-16" user_name="QRST01" valid="true" standing_conversion="false">
- <sem_gen_offer process="true" standing_flag="false" valid="true" version_no="1.0" resource_name="XX1"
  resource_type="VAR_PR_MAKER_GEN">
- <messages>
  <information>Successfully processed the SEM Generator Offer.</information>
</messages>
<identifier external_id="EXT_ID1" />
- <price_taker_detail>
  <nomination_profile end_hr="24" end_int="2" start_hr="1" start_int="1" value="100.0" />
  <decremental_price end_hr="24" end_int="2" start_hr="1" start_int="1" value="0.0" />
</price_taker_detail>
</sem_gen_offer>
- <sem_gen_offer process="true" standing_flag="false" valid="true" version_no="1.0" resource_name="XX2"
  resource_type="VAR_PR_TAKER_GEN">
- <messages>
  <information>Successfully processed the SEM Generator Offer.</information>
</messages>
<identifier external_id="EXT_ID2" />
- <price_taker_detail>
  <nomination_profile end_hr="24" end_int="2" start_hr="1" start_int="1" value="100.0" />
  <decremental_price end_hr="24" end_int="2" start_hr="1" start_int="1" value="0.0" />
</price_taker_detail>

```

### **Sample XML 31: Multiple Bid/Offer “Submit” Requests in one Transaction – Response Part 1**

- The response data has been split into two parts for ease of presentation.
- The Transaction was submitted on Monday November 13<sup>th</sup> 2006 at 14:40:24 PST, took 796 milliseconds to process and was assigned a transaction\_id of “KQADEe00”.
- The Transaction contained four Requests (received=“4”), of which three were valid and one was invalid.
- Sequentially, the first Request had a Market Participant supplied external\_id of “EXT\_ID1” and a Success information message is supplied with the Request (“Successfully processed the SEM Generator Offer”). It is for a Variable Price Maker Unit.
- The second Request is similar, albeit for a different type of unit (resource\_type) – Variable Price Taker – and a different external\_id is supplied (“EXT\_ID2”).

```

</sem_gen_offer>
- <sem_gen_offer process="true" standing_flag="false" valid="true" version_no="1.0" resource_name="XX3"
  resource_type="PRED_PR_MAKER_GEN">
- <messages>
  <information>Successfully processed the SEM Generator Offer.</information>
</messages>
<identifier external_id="EXT_ID3" />
<forecast end_hr="24" end_int="2" start_hr="1" start_int="1" maximum_mw="0.0" minimum_mw="0.0"
  minimum_output_mw="0.0" />
- <price_taker_detail>
- <pq_curve>
  <point price="10.0" quantity="10.0" />
  <point price="20.0" quantity="20.0" />
  <point price="30.0" quantity="30.0" />
</pq_curve>
<startup_cost cold="30.0" hot="10.0" warm="20.0" />
<no_load_cost value="0.0" />
<nomination_profile end_hr="24" end_int="2" start_hr="1" start_int="1" value="100.0" />
<decremental_price end_hr="24" end_int="2" start_hr="1" start_int="1" value="0.0" />
</price_taker_detail>
</sem_gen_offer>
- <sem_gen_offer process="true" standing_flag="false" valid="false" version_no="1.0" resource_name="XX4"
  resource_type="PRED_PR_TAKER_GEN">
<identifier external_id="EXT_ID4" />
<forecast end_hr="24" end_int="2" start_hr="1" start_int="1" maximum_mw="0.0" minimum_mw="0.0"
  minimum_output_mw="0.0" />
- <price_taker_detail>
- <pq_curve>
  <point price="10.0" quantity="10.0" />
  <point price="20.0" quantity="20.0" />
  <point price="30.0" quantity="30.0" />
</pq_curve>
- <startup_cost cold="19.0" hot="10.0" warm="20.0">
- <messages>
  <error>The cold start-up costs must be greater than or equal to warm start-up costs</error>
</messages>
</startup_cost>
<no_load_cost value="0.0" />
<nomination_profile end_hr="24" end_int="2" start_hr="1" start_int="1" value="100.0" />
<decremental_price end_hr="24" end_int="2" start_hr="1" start_int="1" value="0.0" />
</price_taker_detail>
</sem_gen_offer>
</market_submit>
</bids_offers>

```

### Sample XML 32: Multiple Bid/Offer “Submit” Requests in one Transaction – Response Part 2

- This is a continuation of the response data (Sample XML 29), covering the third and fourth Requests in the Transaction.
- The third Request is for a Predictable Price Maker. The Market Participant supplied external\_id was “EXT\_ID3” and a Success information message is supplied with the Request (“Successfully processed the SEM Generator Offer”).
- The final Request was invalid and has the error message – “The cold start-up costs must be greater than or equal to warm start-up costs”. The Market Participant has supplied the optional external\_id with the Request (“EXT\_ID4”).
- **Note:** In the sample above that there is price\_taker\_detail for a Predictable Price Maker Generator. This is because the unit is under test.

#### 4.4.13 IMPORTANT ADDITIONAL SUBMISSION REQUIREMENTS

The CMS have been built to support the requirements of the Code. However, there are some areas where the data submission requirements are less stringent than those required by the Code. Market Participants should therefore refer to the requirements as set out in the Code, which reflects submission requirements that are physically meaningful and will avoid incorrect results from the CMS.

Some key areas (this is not an exhaustive list) where such additional Code restrictions apply are:

- All submitted costs (e.g. Warm Start Up Cost) must be greater than or equal to zero.
- All submitted times (e.g. Synchronous Start Up Time Cold, Hot Cooling Boundary Time) must be greater than or equal to zero.
- All submitted ramp rates (including the Aggregate Interconnector Ramp Rate) must be greater than zero.
- Pumped Storage Cycle Efficiency must be between 0 and 100.

It is important that Market Participants consider the provisions of the Code and the nature of the values to be submitted when preparing data for submission to the CMS