

## **SEM Agreed Procedure**

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| <b>Title</b>   | <b>Agreed Procedure 4: Transaction Submission and Validation</b> |
| <b>Version</b> | <b>4.2</b>   |
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## **DOCUMENT HISTORY**

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| V2.0           | 03/11/06    | SEM Implementation Team | Issued to the Regulatory Authorities                                   |
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## **RELATED DOCUMENTS**

| <b>DOCUMENT TITLE</b>   | <b>VERSION</b> | <b>DATE</b> | <b>BY</b>              |
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| Trading and Settlement Code   | V2.0           | 31/05/2007  | Regulatory Authorities |
| Agreed Procedure 1 “Participant and Unit Registration and Deregistration”     |                |             |                        |
| Agreed Procedure 3 “Communication Channel Qualification.”                     |                |             |                        |
| Agreed Procedure 5 “Data Storage and IT Security”                             |                |             |                        |
| Agreed Procedure 7 “Emergency Communications”                                 |                |             |                        |
| Agreed Procedure 11 “Market System Operation, Testing, Upgrading and Support” |                |             |                        |

## **1. INTRODUCTION**

### **1.1. BACKGROUND AND PURPOSE**

This Agreed Procedure sets out the process both for Participants and for the Market Operator (MO) for the submission and issue of Data Transactions. It also describes the defaulting rules for the submission of Offer Data as referred throughout the Trading and Settlement Code.

To achieve this, the following topics will be dealt with:

- Communication Channels supporting the Data Transactions
- Rules supporting the Data Transactions
- Submission and issue processes

### **1.2. SCOPE OF AGREED PROCEDURE**

This Agreed Procedure is a definition of procedural steps to be followed by the Market Operator and Participants. It forms an annexe to, and is governed by the Code. This document is a statement of process and procedure. Parties' rights and obligations are set out in the Code. The scope of this Agreed Procedure is set out in Appendix L of the Code.

This Agreed Procedure is not intended as a technical user guide.

The following topics are out of scope of this Agreed Procedure:

- Authentication, non-repudiation of any data surrounding the communication of any Data Transaction over a Type 2 Channel or Type 3 Channel (refer to Agreed Procedure 5 “Data Storage and IT Security” for further information).
- Interconnector Administrator Data Transactions.

### **1.3. DEFINITIONS**

Save as expressly defined, words and expressions defined in the Code shall have the same meanings when used in this Agreed Procedure.

References to particular sections relate internally to this Agreed Procedure unless specifically noted.

### **1.4. COMPLIANCE WITH AGREED PROCEDURE**

Compliance with this Agreed Procedure is required under the terms set out in the Code.

## 2. DESCRIPTIVE OVERVIEW

The Data Transactions in the scope of this Agreed Procedure are those submitted by the Participants to the Market Operator and the messages the Market Operator (MO) submits in response.

### 2.1. COMMUNICATION CHANNELS

The Market Operator will allow communication with the Participants via three distinct Communication Channel types:

- Type 1 Channel;
- Type 2 Channel;
- Type 3 Channel

Each Participant must designate and qualify for at least one of either Type 2 Channel or Type 3 Channel as described in the Agreed Procedure 3 “Communication Channel Qualification.”

The Data Transactions in scope of this Agreed Procedure are those that are sent via Type 2 Channel or Type 3 Channel as permitted under the Code.

Type 1 Channel communications are not covered in this Agreed Procedure.

#### 2.1.1. Type 1 Channel

Manual communication consists of paper-based communications that are mailed, hand-delivered, or faxed to or by the Market Operator.

#### 2.1.2. Type 2 Channel

Assisted (human to computer) communication consists of an interface provided by the Market Operator for an end-user to interact with. The current implementation consists of a set of web forms that the end-user can interact with, along with a web form to facilitate interaction via XML request/response files for certain Data Transactions.

#### 2.1.3. Type 3 Channel

Automated (computer to computer) communication is currently implemented via Web Services.

## 2.2. PARTICIPANT DATA TRANSACTIONS

The Participant can perform the following:

- Data submission;
- Data query;
- Report query.

The classes of Data Transaction covered under this Agreed Procedure and their constituent elements are:

| Class | Element          | Available Transactions        |
|-------|------------------|-------------------------------|
| MPR   | Application Data | Data submission or data query |
|       | Contacts Data    | Data submission or data query |
|       | Users Data       | Data submission or data query |

| <b>Class</b> | <b>Element</b>                       | <b>Available Transactions</b> |
|--------------|--------------------------------------|-------------------------------|
|              | Bank Data                            | Data submission or data query |
|              | Unit (Resource) Data                 | Data submission or data query |
| MI           | Generator Offer Data                 | Data submission or data query |
|              | Load Bid Data (for Demand Side Unit) | Data submission or data query |
|              | Interconnector Offer Data            | Data submission or data query |
|              | Settlement Reallocation Data         | Data submission or data query |
|              | MI Reports                           | Report query                  |
| STL          | Settlement Statements                | Report query                  |
|              | Participant Information Report       | Report query                  |
|              | Settlement Reallocation              | Report query                  |
|              | Invoicing Data                       | Report query                  |

Further information on the data that makes up each of these elements can be found in this Agreed Procedure, Appendix 2 – Business Data Contained In Each Element.

Subject to the restrictions below, where the Participant is submitting Data Transactions via a Type 3 Channel it is possible to include multiple elements in the same Data Transaction. However each of these Data Transactions can only contain elements of the same Data Transaction class. Additional restrictions are outlined below.

A Data Transaction (or message) can contain one or many elements and/or one or many occurrence of these elements provided that:

- Elements all belong to the same class, e.g. Application Data is not included with Generator Offer Data in the same Data Transaction.
- Within each individual message, elements must occur in a defined order.
  - MPR Elements when submitted together, should be in the following sequence:
    - 1- Application Data
    - 2- Contacts Data
    - 3- Users Data
    - 4- Bank Data
    - 5- Unit (Resource) Data
  - MI Elements submitted together, should be in the following sequence:
    - 1- Generator Offer Data
    - 2- Load Bid Data (for Demand Side Units)
    - 3- Interconnector Offer Data
    - 4- Settlement Reallocation Data

In addition:

- An Accepted Settlement Reallocation Transaction will have effect in addition to any other Settlement Reallocation Transaction that has been Accepted in respect of the same Participants and Trading Period
- Only one Settlement Reallocation Data element is allowed per Data Transaction. For the avoidance of doubt, and subject to the provisions of the Code relating to Settlement Reallocations Agreements, a Participant is capable of submitting more than one Settlement Reallocation per Trading Period. A Participant is also permitted to submit Settlement Reallocations between their own Supplier Units and Generator Units.

- In the case of Settlement Report Data Transactions it is possible to request a report (Settlement Statements, Invoices, etc.) or a list of all available reports (a directory listing)
- The Code requires Participants to submit and keep under review Default Data for all Generator Units. The application of Default Data is described in the sections below.
- When submitting Data Transactions containing MI elements, (with the exception of MI Report requests), the Participant can include an External ID.
- When submitting a data query, the Participant cannot include an External Id.
- The Market Operator shall include an External Id in the response message to a data query where the External Id has been stored as part of an Accepted Data Transaction.

The Market Systems will perform high level validations to ensure:

- The message is correctly formatted;
- The Participant is authorised to submit the Data Transaction;
- The Data Transaction is submitted within the required timeframes;
- That all required data is present;

Further details on the rules governing the format and makeup of market messages are available in the Interface Documentation Set.

The processing windows during which Data Transactions can be submitted are outlined in the table below:

| Transactions                   | Market Window             |                             | Comments   |
|--------------------------------|---------------------------|-----------------------------|--|
|                                | Start Time                | End Time                    |  |
| Submit Trading Day Data        | 06:00 AM on TD-29(GC-28)  | 10:00 AM on TD-1            | The data submission window opens at 06:00 AM 28 days before Gate Closure (GC), and closes on Trading Day (TD) - 1 at 10:00 AM  |
| Query Data submitted           | as available              | 23:59 PM on TD+7            | Data may be Queried according to the Submit timeline, with this functionality being available for an additional 7 days after the Trading Day (TD)  |
| Submit Settlement Reallocation | 06:00 AM on TD-29 (GC-28) | 10:00 AM on Invoice Day - 1 | 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) |
| Submit Standing Data           | N/A                       | N/A                         | The submission of standing data window is always open – albeit only to be used for Market Submission Windows to be opened in the future  |

**Table 1: Market Interface – Market Windows**

The table below describes the timelines associated with different Data Transactions and their elements.

Certain MPR Class data submissions require more time than others for Market Operator approval. The timeline below gives an indication of approval times expected to be required by the Market Operator.

For MPI Class data submissions and for data queries and report queries no Market Operator approval is required.

| Data Transaction | Class | Element of Data Transaction | Timeline  |
|------------------|-------|-----------------------------|---|
| Data submission  |       |                             |   |
|                  | MPR   | Unit (Resource) Data        | <p>Can be submitted anytime before Gate Closure with effective date the next Trading Day with the following exceptions:</p> <p>Approval time of at least 1 Working Day from date of submission<br/>Qualified Communication Channel</p> <p>Effective date at least 2 Working Days from date of submission<br/>Unit Under Test End Date</p> <p>Effective Date at least 5 Working Days from date of submission<br/>Unit Under Test Start Date</p> <p>Effective date at least 28 days from date of submission<br/>Priority Dispatch flag</p> <p>Approval time up to 28 days from date of submission<br/>Resource Type, Resource Name, IM Resource Name, Connection Point, Connection Type, Connection Agreement, Fuel Type, Netting Generator Flag, Physical Location ID, Identification of Unit location on grid, Name of station or site, Identification of the Station, Station Address line 1, Station Address line 2, Registered Firm Capacity, Non-Firm Access Quantity, Old Resource Flag, Old Resource Name, Old Participant Name, Jurisdiction, Trading Site Name, Data Exchange Test, EB Licence number, Electricity Commission Licence Effective Date, Electricity Commission Licence Expiration Date, Default Data Submission.</p> <p>Performed initially during Participant Registration using Type 1 Channel, subsequent updates via Type 2 or Type 3 Channel</p> |
|                  | MPR   | Application Data            | <p>Can be submitted anytime before Gate Closure with approval time of up to 2 Working Days from date of submission.</p> <p>Performed initially during Participant Registration using Type 1 Channel, subsequent updates via Type 2 or Type 3 Channel.</p>   |



| Data Transaction  | Class | Element of Data Transaction          | Timeline   |
|-------------------|-------|--------------------------------------|--|
|                   | MPR   | Contacts Data                        | Can be submitted anytime before Gate Closure with approval time of up to 2 Working Days from date of submission.<br>Performed initially during Participant Registration using Type 1 Channel, subsequent updates via Type 2 or Type3 Channel..   |
|                   | MPR   | Users Data                           | Can be submitted anytime before Gate Closure with approval time of up to 2 Working Days from date of submission<br>Performed initially during Participant Registration using Type 1 Channel, subsequent updates via Type 2 or Type 3 Channel.  |
|                   | MPR   | Bank Data                            | Can be submitted anytime before Gate Closure with approval time of up to 2 Working Days from date of submission. This assumes that Participant has agreed all of this data with their bank prior to submission to the Market Operator.<br>Performed initially during Participant Registration using Type 1 Channel, subsequent updates via Type 2 or Type 3 Channel. |
|                   | MI    | Generator Offer Data                 | Anytime before Gate Closure<br>Performed initially during Unit Registration to register the Standing Offer Data using Type 1 Channel, subsequent updates via Type 2 or Type3 Channel<br>Refer to section 2.4 of this document related to default rules   |
|                   | MI    | Load Bid Data (for Demand Side Unit) | Anytime before Gate Closure<br>Performed initially during Unit Registration to register the Standing Offer Data using Type 1 Channel, subsequent updates via Type 2 or Type3 Channel<br>Refer to section 2.4 of this document related to default rules   |
|                   | MI    | Interconnector Offer Data            | Anytime before Gate Closure  |
|                   | MI    | Settlement Reallocation Data         | Up to 1 Working Day before Invoice date. There is no registration data related to Settlement Reallocation  |
| <b>Data query</b> |       |                                      |  |
|                   | MPR   | Application Data                     | Anytime. Data returned is that which is valid for the relevant date queried  |
|                   | MPR   | Contacts Data                        | Anytime. Data returned is that which is valid for the relevant date queried  |
|                   | MPR   | Users Data                           | Anytime. Data returned is that which is valid for the relevant date queried  |
|                   | MPR   | Bank Data                            | Anytime. Data returned is that which is valid for the relevant date queried  |
|                   | MPR   | Unit (Resource) Data                 | Anytime. Data returned is that which is valid for the relevant date queried  |
|                   | MI    | Generator Offer Data                 | Anytime but limited to 1 months worth of data in the past  |
|                   | MI    | Load Bid Data (for Demand Side Unit) | Anytime but limited to 1 months worth of data in the past  |

| <b>Data Transaction</b> | <b>Class</b> | <b>Element of Data Transaction</b>      | <b>Timeline</b>  |
|-------------------------|--------------|---|--|
|                         | MI           | Interconnector Offer Data               | Anytime but limited to 1 months worth of data in the past  |
|                         | MI           | Settlement Reallocation Data            | Anytime but limited to limited to 2 years worth of data in the past  |
| <b>Report query</b>     |              |   |  |
|                         | STL          | Settlement Reports                      | Anytime, but limited to 1 month in the past for daily and weekly reports and limited to 2 years in the past for monthly and annual reports |
|                         | MI           | All reports (except Settlement Reports) | Anytime, but limited to 1 month in the past for daily and weekly reports and limited to 2 years in the past for monthly and annual reports |

**Table 2 - Data Submission Timelines**

## 2.3. RESPONSE MESSAGES FROM THE MO

For all Type 3 Channel communications and for all Type 2 Channel communications that involve uploading an xml file to the MO, the sender will receive a response message from the Market Operator's Isolated Market System as per the table below.

For Type 2 Channel interactions via Web Forms, the responses will be displayed on the screen.

| Class               | Request      | Request Response –Valid                            | Response – Invalid   |
|---------------------|--------------|--|--|
| MI (not MI Reports) | Submit       | Original Data , Processing Statistics and Messages |  |
| MI (not MI Reports) | Query        | Original Data , Processing Statistics and Messages |  |
| MPR                 | Submit       | Original Data , Processing Statistics and Messages |  |
| MPR                 | Query        | Original Data and Messages                         |  |
| MI Report           | List Reports | Original Data and Messages                         |  |
| MI Report           | Report       | Report   | Original Data and Messages   |
| STL                 | List Reports | File List  | Empty List   |
| STL                 | Report       | File   | <ul style="list-style-type: none"> <li>• Requested File not found</li> <li>• Invalid Filename</li> <li>• XML request not well formed</li> <li>• There was an error processing the request</li> <li>• Invalid request type</li> </ul> |

The response message, which includes the Confirmation Notice for the Data Transaction and the Validation Notice/Rejection Notice for each element within the Data Transaction, will be automatically submitted by the Market Operator when a Data Transaction occurs. If the expected response is not received within an acceptable timeframe the Participant should check their internet connection and systems. If this does not reveal an issue the Participant should contact the Help Desk.

Agreed Procedure 7 “Emergency Communications” details emergency communications and the required notification processes.

## 2.4. DEFAULT RULES RELATED TO OFFER DATA SUBMISSION

### 2.4.1. Introduction

As an introduction to the terminology used below, Technical Offer Data (**TOD**) and Commercial Offer Data (**COD**) are categories of Offer Data as set out in the Code.

Default rules for TOD and COD are applied, unless otherwise specified in the Code, in order to ensure that a valid TOD or COD will be available at Gate Closure.

The rules the Participant must follow, and the MO will apply to ensure valid Offer Data are available, are supported by rules around the submission and validation timelines of Offer Data. These rules are described in the following sections.

Definitions of Offer Data types:

- **Registration Default TOD:** refers to TOD (submitted using the Unit (Resource) Data element<sup>1</sup>) which must be submitted by Participants during Unit Registration to apply from the first Trading Day of participation. Any future updates to this Registration Default TOD, must be provided by the Participants and approved by the Market Operator (using the high level validation in section 2.2). Because there is always active approved Registration Default Data, this meets the Default Data requirements in the Code.
- **Standing Offer Data:** refers to TOD and COD (submitted using the appropriate<sup>2</sup> elements) which must be submitted by Participants during Unit Registration to apply from the first Trading Day of participation. For any future updates to this Standing Offer Data, Participants must submit Standing Offer Data prior to the opening of the Market Submission Window.
- **Trading Offer Data:** refers to the daily submission of COD and TOD from Participants which can occur within the Market Submission Window (i.e. from 06:00 29 days before Gate Closure to Gate Closure) and will be applicable for the Trading Day specified in the Data Transaction.

As Standing Offer Data will be converted to Trading Offer Data at Market Submission Window opening, submissions of Trading Offer Data will always be an update to Offer Data.

For the avoidance of doubt, all COD inclusive of Default Data will be submitted via the Standing Offer Data and Trading Offer Data channels. There will be two subsets of TOD submitted, some via the Registration Default TOD message and some via the Standing Offer Data and Trading Offer Data channels. Details of which interface TOD are submitted is provided in Appendix B of this Agreed Procedure.

The high level validations mentioned in section 2.2 apply to Offer Data at the point of submission.

The submission timeline rules applying to the different types of Offer Data are described in the following sections and are summarised in the Default Rules Diagram below.

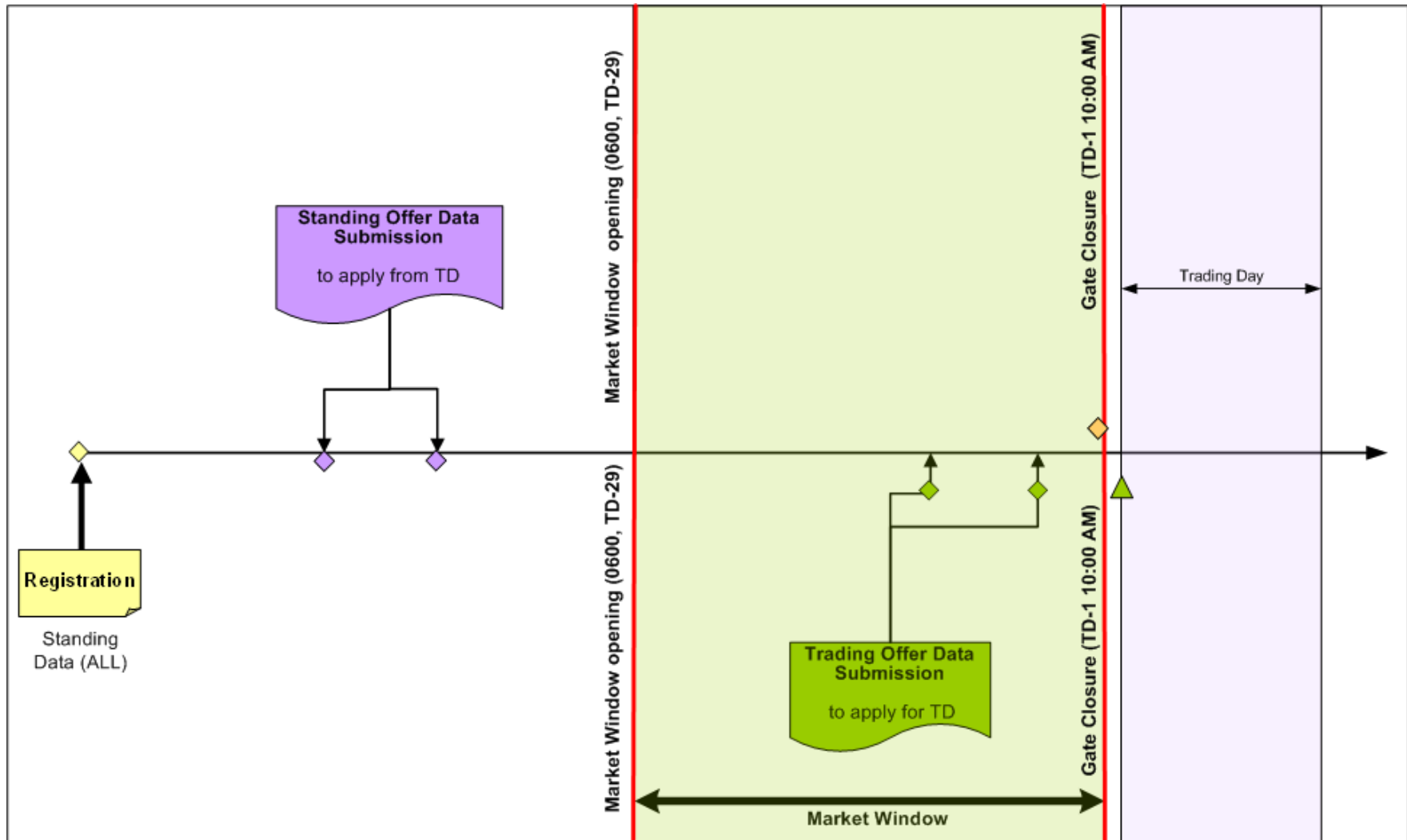
The following sections outline how the Default Data for Commercial Offer Data and Technical Offer Data, as defined in the Code, is supported in the Market Operator's Isolated Market System through a combination of functionality called Registration Default TOD, Standing Offer Data and Trading Offer Data.

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<sup>1</sup> Refer to section 2.2

<sup>2</sup> 'Generator Offer Data', 'Load Bid Data', 'Interconnector Offer Data'

### 2.4.2. Default Rules Diagram



### **2.4.3. Registration Default TOD**

Registration Default TOD refers to business data, in the Unit (Resource) Data element (as detailed in Appendix 2 – Business Data Contained In Each Element). It is not anticipated that Registration Default TOD will change on a regular basis and is considered similar to static data.

#### **Submissions at Unit Registration**

Registration Default TOD must be submitted during Unit Registration. Once approved by the Market Operator, this data will apply from the first Trading Day of participation and will continue to be effective indefinitely, or until updates are submitted and approved.

#### **Submissions of Updates Prior to Gate Closure**

Registration Default TOD can be updated at anytime by submitting new Registration Default TOD, and once approved will be applicable from an 'Effective From' date specified in the Data Transaction. The 'Effective From' must comply with Table 2 - Data Submission Timelines.

At Gate Closure the approved Registration Default TOD is utilised for the next appropriate Trading Day.

### **2.4.4. Standing Offer Data**

Standing Offer Data refers to Offer Data in the Generator Offer Data, Load Bid Data, Interconnector Offer Data elements (as detailed in the Appendix 2 – Business Data Contained In Each Element). Standing Offer Data is comprised of COD and TOD items.

Standing Offer Data represents the Default Data for those items submitted in this Data Transaction.

- Standing Offer Data can be created at any time
- It is automatically used to create Trading Offer Data immediately after the opening of the appropriate market submission window (28 days in advance of Gate Closure)
- 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" (valid for all days). There is no expiry for this, as Default Data (see below) is always required on the system
- After Communication Channel Qualification – i.e. once access to the system is granted – Participants may update the Standing Offer Data (type "ALL")
- Participants may also submit Standing Offer Data for specific day types (SUN, MON, ..., SAT). These may optionally have an expiration date
- If an expiration date is used, the Standing Offer Data will be used daily and automatically cancelled after the expiration date
- If no expiration date is given, the Standing Offer Data will be used indefinitely, or until the Participant supersedes the specific day type data
- The latest Standing Offer Data available is used at Gate Closure where no valid Trading Offer Data has been submitted.
- The use of Standing Offer Data, ensures that there is always valid Offer Data available for a Unit
- The effective date must be greater than the date for which the specific day type Standing Offer Data will be processed by Standing Offer Data Conversion. The earliest effective date for a Standing Offer Data submission is Current Day + 29 days, based on a Market Submission Window of 28 days.

- At Market Submission Window opening, if for a given Trading Day there is Standing Offer Data for both a specific day type and "ALL", the system will only use the specific day type.
- There are some circumstances whereby it is possible that Data Conversion – changing Standing Offer Data to Trading Offer Data at Market Submission Window opening – could fail. In this case the Market Operator will contact the Market Participant to add Trading Offer Data and update Standing Offer Data if appropriate. Although there are 28 days before this data will be used, it is expected that the situation should be resolved within 5 Working Days

#### **2.4.5. Trading Offer Data**

Trading Offer Data refers to any Offer Data in the Generator Offer Data, Load Bid Data, Interconnector Offer Data (as detailed in the Appendix 2 – Business Data Contained In Each Element). Trading Offer Data applies for the Optimisation Time Horizon for a given Trading Day only.

Trading Offer Data comprises of COD and TOD items.

- The use of Trading Offer Data, pre-populated by Standing Offer Data, ensures that there is always valid Offer Data available for a Unit
- The latest Trading Offer Data available is used at Gate Closure
- Trading Offer Data submissions will be validated and processed upon receipt, and the Participant will be informed of the results of validation and processing
- The communication mechanism during data submission is synchronous.
- Participants have the ability to revise Trading Offer Data as many times as necessary within the appropriate Market Submission Window.

#### **Data Transactions within Market Submission Window Opening**

Trading Offer Data can be submitted at anytime within the Market Submission Window and will be applicable for the Trading Day specified in the Data Transaction.

At Gate Closure the latest Accepted Trading Offer Data will be used for the Trading Day.

#### **2.4.6. Timings of Submissions**

Transactions received by the Market Operator's Isolated Market System are generally processed on a first come first served basis. However, to facilitate throughput, various levels of parallelism and pooling are implemented which could result in certain scenarios under which this sequencing cannot be guaranteed. Also, as a Transaction may be serviced by either of the Web Interface systems, at either Market Operator site, sequencing may also be affected

- The solution architecture for SEM is cognisant of the fact that there are multiple users on multiple channels that may be submitting updates to the same data
- As such, any specific requirement around sequencing which a Participant identifies will need to have appropriate business and system processes implemented by the Participant to match the implementation required by them
- For example, a Market Participant who chooses to only use the Type 3 Channel from a single user with a single login could configure their application such that each transaction is submitted in sequence and a subsequent transaction is not submitted until a response has been received
- Other implementations may need to recognise that not all submissions may need to be sequenced, e.g. Market Interfaces vs. Registration, but that there may be submission by multiple users on multiple channels

**2.4.7. Submission of Standing and Trading Offer Data**

For the avoidance of doubt, Standing Offer Data and /or Trading Offer Data must be submitted by Participants using their designated Communication Channel (Type 2 Channel or Type 3 Channel). Outside of initial registration (process in Agreed Procedure 1 “Participant and Unit Registration and Deregistration”) or emergency communications (process in Agreed Procedure 7 “Emergency Communication”), the Market Operator will not enter such Offer Data on a Participant’s behalf. If a Participant fails to submit Offer Data for a particular Trading Day then that Participant’s Default Offer Data will be used.



### **3. PROCEDURE DEFINITION**

#### **3.1. PROCESS FOR DATA SUBMISSION, QUERY AND REPORT REQUEST**

- The Participant's system, subject to the associated access rules, establishes a connection with the Market Operator's Isolated Market System.
- The Participant's system selects their required Data Transaction and submits it using the established connection.
- The Participant's system then receives a response message from the MO over the established connection.
- If the response message indicates that there is no error in any element of a Data Transaction, that Data Transaction and all the elements specific to that Data Transaction have been stored in the Market Operator's Isolated Market System.
- If the response message indicates that there is an error in a Data Transaction for a given element, this particular Data Transaction is rejected. The Participant will have to build a new Data Transaction and submit it as described in the previous steps. The other Data Transactions included in the same communication which have no errors are successfully stored in the system.

For Type 3 Channel, the connection uses Web Services.

For Type 2 Channel the connection uses Web Forms. The Web Forms may be used to upload previously built Data Transactions (excluding report requests) or the data can be entered directly into specific Web Forms.

## 4. APPENDIX 1 – DEFINITIONS AND ABBREVIATIONS

### 4.1. DEFINITIONS

|                               |   |
|-------------------------------|---|
| Application Data              |   |
| Autonomous Generator Unit     | As defined in the Code  |
| Bank Data                     | Means data relating to banking details first submitted at Party registration  |
| Billing Period                | As defined in the Code  |
| Capacity Period               | As defined in the Code  |
| Code                          | As defined in the Code  |
| Commercial Offer Data         | As defined in the Code  |
| Communication Channel         | As defined in the Code  |
| Connection Agreement          | As defined in the Code  |
| Contacts Data                 | Means data relating to Party contact for certain functions as submitted by the Party  |
| Credited Participant          | As defined in the Code  |
| Data Transaction              | As defined in the Code  |
| Debited Participant           | As defined in the Code  |
| Default Data                  | As defined in the Code  |
| Demand                        | As defined in the Code  |
| Demand Side Unit              | As defined in the Code  |
| Digital Certificate           | As defined in Agreed Procedure 5 “Data Storage and IT Security”   |
| Element                       | <p>An element is a set of business data. The 12 elements in scope are listed below:</p> <ul style="list-style-type: none"> <li>• Application Data – MPR</li> <li>• Contacts Data – MPR</li> <li>• Users Data – MPR</li> <li>• Bank Data – MPR</li> <li>• Unit (Resource) Data – MPR</li> <li>• Generator Offer Data – MI</li> <li>• Load Bid Data (for Demand Side Unit) – MI</li> <li>• Interconnector Offer Data – MI</li> <li>• Settlement Reallocation Data – MI</li> <li>• Reports (except settlement Reports) – MI</li> <li>• Settlement Reports – STL</li> </ul> |
| Energy Limit                  | As defined in the Code  |
| Energy Limited Generator Unit | As defined in the Code  |
| External ID                   | For submission of Data Transactions, the schema will allow the Participant to provide an optional Data Transaction ID, called External ID   |
| Framework Agreement           | As defined in the Code  |
| Gate Closure                  | As defined in the Code  |
| Generator                     | As defined in the Code  |
| Generator Unit                | As defined in the Code  |
| Help Desk                     | As defined in Agreed Procedure 11 “Market System Operation, Testing, Upgrading and Support”   |
| Interconnector Administrator  | As defined in the Code  |

|  |  |
|--|--|
| Invoice Due Date                       | As defined in the Code   |
| Isolated Market System                 | As defined in the Code   |
| Load Bid Data                          | Unit bid data provided by a Participant  |
| Market Interface                       | Data Transactions that cover market related data submitted by Participants   |
| Market Operator                        | As defined in the Code   |
| Market Participant Registration        | Data Transactions that cover additional Technical Offer Data not included in the Market Interface class  |
| Market Submission Window               | The period in which Trading Offer Data can be submitted by Participants. The window is open at 06:00 29 days prior to Trading Day and is closed at Gate Closure for that Trading Day |
| Market Timeline                        | A period of time at which certain actions are taken or recorded that begins when at Unit Registration and ends at Trading Day  |
| Market Web Interface                   | The mechanism through which Participants can send and receive Data Transactions through Type 2 Channel communication   |
| Market Website                         | As defined in the Code   |
| Offer Data                             | As defined in the Code   |
| Participant Registration               | Means the process of becoming a Participant in respect of a Unit as described in Agreed Procedure 1 "Participant Registration and Unit Registration and Deregistration"              |
| Party                                  | As defined in the Code   |
| Predictable Price Maker Generator Unit | As defined in the Code   |
| Predictable Price Taker Generator Unit | As defined in the Code   |
| Price Taker Generator Unit             | As defined in the Code   |
| Regulatory Authorities                 | As defined in the Code   |
| Generic Settlement Class               | As defined in the Code   |
| Settlement Reallocation                | As defined in the Code   |
| Settlement Reallocation Data           | Means the data that is submitted by Participants to the Market Operator providing details of the Settlement Reallocation Agreement   |
| Settlement Report                      | Means reports arising from Settlement  |
| Standing Offer Data                    | Is as defined in section 2.4.4   |
| Standing Offer Data Conversion         | Means the process of converting Standing Offer Data to Trading Offer Data at the opening of the Market Submission Window   |
| Supplier                               | As defined in the Code   |
| Technical Offer Data                   | As defined in the Code   |
| Trading Offer Data                     | Is as defined in section 2.4.4   |
| Trading Day                            | As defined in the Code   |
| Trading Period                         | As defined in the Code   |
| Trading Site                           | As defined in the Code   |
| Trading Site Data                      | Means data relating to a Trading Site  |
| Type 1 Channel                         | As defined in the Code   |
| Type 2 Channel                         | As defined in the Code   |
| Type 3 Channel                         | As defined in the Code   |
| Unit                                   | As defined in the Code   |
| Unit (Resource) Data                   | Means data relating to a Unit  |
| Unit Registration                      | As defined in the Code   |
| User                                   | As defined in Agreed Procedure 1 "Participant Registration and Unit Registration and Deregistration"   |

|                                     |  |
|-------------------------------------|--|
| Users Data                          | Means data relating to Participant User that has access to elements of the system                                  |
| Variable Price Maker Generator Unit | As defined in the Code   |
| Variable Price Taker Generator Unit | As defined in the Code   |
| Web Form                            | Means a web page on the MPI which allows the Participant to enter data and submit the data to the Market Operator. |
| Web Services                        | Means the automated communication consisting of an XML-based programmatic interface                                |
| Working Day                         | As defined in the Code   |

## 4.2. ABBREVIATIONS

|      |  |
|------|--|
| APTG | Autonomous Generator Unit              |
| COD  | Commercial Offer Data                  |
| GC   | Gate Closure                           |
| MO   | Market Operator                        |
| MPR  | Market Participant Registration        |
| PPMG | Predictable Price Maker Generator Unit |
| PPTG | Predictable Price Taker Generator Unit |
| SEM  | Single Electricity Market              |
| SO   | System Operators                       |
| TD   | Trading Day                            |
| TOD  | Technical Offer Data                   |
| VPMG | Variable Price Maker Generator Unit    |
| VPTG | Variable Price Taker Generator Unit    |



## 5. APPENDIX 2 – BUSINESS DATA CONTAINED IN EACH ELEMENT

This appendix describes the business data contained in each category of data. Any additional information needed to build the message is described in the Interface Documentation Set.

### APPLICATION DATA

| APPLICATION DATA                              |   |                         |
|---|---|-------------------------|
| Screen Name                                   | Comment   | Mandatory / Optional    |
| Name  | Corporate name of the Participant.  | Mandatory               |
| Short Name or Participant Name                | Participant Short Name – will be used as the Participant Name in all Data Transactions  | Mandatory               |
| President Name                                | Person authorised to sign Framework Agreement   | Mandatory               |
| Effective Date                                | Effective Date (from) for the Participant   | Mandatory               |
| Expiry Date                                   | Expiry Date (to) for the Participant  | Optional                |
| Address 1                                     | Party Address   | Mandatory               |
| Address 2                                     | Party Address (following)   | Optional                |
| City  | Party City  | Mandatory               |
| County  | Party County  | Mandatory               |
| Postal Code                                   | Party Postal Code   | Mandatory               |
| Billing Address 1                             | Address to which all invoices for the Participant will be sent.   | Optional                |
| Billing Address 2                             | Address to which all invoices for the Participant will be sent.   | Optional                |
| Billing City                                  | City to which all invoices for the Participant will be sent.  | Optional                |
| Billing County                                | County to which all invoices for the Participant will be sent.  | Optional                |
| Billing Code Postal                           | Postal code to which all invoices for the Participant will be sent.   | Optional                |
| Country                                       | Party Country   | Mandatory               |
| Phone   | Party Phone   | Mandatory               |
| Fax   | Party Fax   | Mandatory               |
| email   | Party Email   | Mandatory               |
| URL   | Party URL   | Optional                |
| Represent Party                               | Name of the Party that is represented by the registering Participant.   | Optional                |
| VAT Jurisdiction                              | ROI or NI.  | Mandatory               |
| VAT number                                    | VAT number  | Mandatory               |
| VAT Status                                    | VAT Exempt (1) or Non-Exempt (0), for each jurisdiction   | Mandatory               |
| Notification Comment                          | Used by the Market Operator and Participant to exchange notes with respect to that registration data.                                 | Optional                |
| Was Participant flag                          | Was Previously a Participant? {'Y'/'N'}   | Optional                |
| Old Market Participant Name                   | Old Business Associate ID (in the previous)   | Optional                |
| Old Market Participant Name Registration Date | Old Registration Date.  | Optional                |
| Account Manager                               | Name of MO personnel who will manage the Participant's account.   | Mandatory               |
| Market Participant Signatures of Agreement    | Tracking of Participant signatures on Framework Agreement to Trading and settlement Code, Transmission Use of System Agreement (TUoS) | Mandatory               |
| Amount of Initial Credit Cover                | Amount of initial credit cover required at registration.  | Optional                |
| Credit cover Type                             | Type of Credit cover, whether Cash or Letter of Credit.   | Mandatory               |
| Data Exchange Test                            | Will be P (Pass) or F (Fail), depending on whether Market Operator data exchange testing is successful.                               | Optional but do not use |
| Potential Interconnection User                | Yes or No   | Optional                |
| Participant Class                             | Type of Participant   | Mandatory               |
| External ID                                   | Optional text field that can be used to track submissions by Market Participants  | Optional                |

## CONTACTS DATA

| CONTACTS DATA        |   |                      |
|----------------------|---|----------------------|
| Screen Name          | Comment   | Mandatory / Optional |
| Name                 | Contact name for settlement related business or Primary contact for market scheduling related business or Contact name for financial business functions, including credit cover or Contact name for other functional areas. | Mandatory            |
| Address 1            | Contact address 1   | Mandatory            |
| Address 2            | Contact address 2   | Optional             |
| City                 | Contact City  | Mandatory            |
| County               | Contact County  | Mandatory            |
| Postal Code          | Contact Postal Code   | Mandatory            |
| Country              | Contact Country   | Mandatory            |
| Phone                | Contact Phone number  | Mandatory            |
| Fax                  | Contact Fax number  | Mandatory            |
| email                | Contact Email   | Mandatory            |
| mobile               | Mobile Phone Number   | Mandatory            |
| Pager                | Contact Pager Number  | Mandatory            |
| URL                  | Contact URL   | Optional             |
| Notification Comment | Used by the operator and Participant to exchange notes with respect to that registration data.  | Optional             |
| Effective Date       | Contact Effective Date  | Mandatory            |
| Expiry Date          | Contact Expiry Date   | Optional             |
| Position             | Contact Person Position   | Mandatory            |
| Contact Type         | Type of Transaction Contact   | Mandatory            |
| Comments             | Comments on contact   | Optional             |
| External ID          | Optional text field that can be used to track submissions by Market Participants  | Optional             |

## USERS DATA

| USERS DATA           |  |                      |
|----------------------|--|----------------------|
| Screen Name          | Comment  | Mandatory / Optional |
| Login                | Unique User Login ID   | Mandatory            |
| Name                 | Name of user within organisation (multiple users may be entered)                               | Mandatory            |
| Address 1            | User Address 1   | Mandatory            |
| Address 2            | User Address 2   | Optional             |
| City                 | User City  | Mandatory            |
| County               | User County  | Mandatory            |
| Postal Code          | User Postal Code   | Mandatory            |
| Country              | User Country   | Mandatory            |
| Phone                | User Phone Number  | Mandatory            |
| Fax                  | User Fax Number  | Mandatory            |
| email                | User Email ID  | Mandatory            |
| mobile               | User Mobile Phone ID   | Mandatory            |
| Pager                | User Pager ID  | Mandatory            |
| URL                  | User URL   | Optional             |
| Notification Comment | Used by the operator and Participant to exchange notes with respect to that registration data. | Optional             |
| Effective date       | User Effective Date  | Mandatory            |
| Expiry date          | User Expiration Date   | Optional             |
| Position             | User Person Position   | Mandatory            |

| USERS DATA         |   |                         |
|--------------------|---|-------------------------|
| Screen Name        | Comment   | Mandatory / Optional    |
| User type          | Selection of pre-defined roles with corresponding market system access information by functional area, including read-write, read-only, and administrative access, as required. | Mandatory               |
| Data Exchange Test | Will be P (Pass) or F (Fail), depending on whether Market Operator data exchange testing is successful.   | Optional but do not use |
| Comments           | Comments  | Optional                |
| External ID        | Optional text field that can be used to track submissions by Market Participants.   | Optional                |

## BANK DATA

| BANK DATA                          |  |                      |
|------------------------------------|--|----------------------|
| Screen / T&SC Name                 | Comment  | Mandatory / Optional |
| Bank Name                          | Name of the bank for the Market Participant  | Mandatory            |
| Bank Number                        | Bank number for the Market Participant.  | Mandatory            |
| Bank Account Name                  | Bank account name for the Market Participant.  | Mandatory            |
| Account Number                     | Bank account number for the Market Participant.  | Mandatory            |
| Bank Account Description           | Bank account description for the Market Participant.   | Mandatory            |
| Bank Branch Type                   | Bank branch type for the Market Participant.   | Mandatory            |
| Bank Branch Name                   | Bank branch name for the Market Participant  | Mandatory            |
| Bank Branch Number of Sort Code    | Bank branch number for the Market Participant.   | Mandatory            |
| Bank Branch Description            | Bank branch description for the Market Participant.  | Optional             |
| Bank Branch Address line 1         | Address field for the bank branch.   | Optional             |
| Bank Branch Address line 2         | Further address field for the bank branch.   | Optional             |
| Bank Branch City                   | City in which the branch is located.   | Optional             |
| Bank Branch County                 | County in which the branch is located.   | Optional             |
| Bank Branch Postal Code            | Postal code for the bank branch.   | Optional             |
| Bank Branch Country                | Country in which the branch is located.  | Optional             |
| Bank Branch Phone                  | Phone number of the bank branch  | Optional             |
| Bank Branch Fax                    | Fax number of the bank branch  | Optional             |
| SWIFT BIC                          | Swift BIC code   | Mandatory            |
| IBAN                               | International Bank Account Number  | Mandatory            |
| Bank Account Currency jurisdiction | Bank Account Currency jurisdiction - should be ROI or NI. The Market Operator approval process will ensure that all jurisdiction references (AD-22, BD-20, GP-123 and LP-24) are the same. | Optional             |
| Notification Comment               | Used by the operator and Participant to exchanges notes with respect to that registration data   | Optional             |
| External ID                        | Optional text field that can be used to track submissions by Market Participants.  | Mandatory            |
| Effective Start Date               | Effective date for the bank details for the Market Participant.  | Optional             |
| Expiration Date                    | Expiry date for the bank details for the Market Participant.   | Optional             |



## UNIT (RESOURCE) DATA

### Generator parameters

| UNIT (RESOURCE) DATA - Generator parameters  |   |  |   |
|--|---|--|---|
| Screen Name                                  | Comment   | Type 2<br>Mandatory /<br>Optional          | Type 3<br>Mandatory /<br>Optional         |
| Resource Type                                | Indicates the type of resource for which data is being submitted - for example this will indicate if a resource is predictable or variable and whether it is a price taker or price maker.<br>Permitted values include:<br>PRED_PR_MAKER_GEN,<br>PRED_PR_TAKER_GEN,<br>VAR_PR_MAKER_GEN,<br>VAR_PR_TAKER_GEN,<br>AUTO_PR_TAKER_GEN. | Mandatory                                  | Mandatory                                 |
| Resource Name                                | The name of the resource in question (e.g. the name of the Generator Unit, Supplier Unit, Demand Side Unit, Interconnector Unit or Interconnector for which data is being submitted).   | Mandatory                                  | Mandatory                                 |
| IM Resource Name                             | Reference ID to the unit's injection point to the transmission system referenced in the Connection Agreement  | Optional                                   | Optional                                  |
| Connection Point                             | Identifier of the Unit connection point (provided by the Transmission System Operators).  | Optional                                   | Optional                                  |
| Connection Type                              | Will be "TRNS" if transmission system connected and "DIST" if distribution system connected.  | Optional                                   | Optional                                  |
| Connection Agreement                         | Reference ID to the unit's and/or Participant's connection agreement.   | Optional                                   | Optional                                  |
| Effective Date                               | Proposed date and time when Participant will become eligible to participate in the market.  | Mandatory                                  | Optional                                  |
| Expiry Date                                  | Expiry Date   | Optional                                   | Optional                                  |
| Fuel type                                    | May be Oil (OIL), Gas (GAS), Coal (COAL), Multiple Fuel (MULTI), Wind (WIND), Hydro (HYDRO), Biomass (BIO), Combined Heat and Power (CHP), Pumped Storage (PUMP) Demand Side Unit (DEM)   | Mandatory                                  | Optional                                  |
| Minimum Stable Generation                    | Registered Minimum Stable Generation level in MW.   | Mandatory                                  | Optional                                  |
| Minimum Time Sync Cold                       | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory, but not used by the SEM systems | Optional, but not used by the SEM systems |
| Minimum Time Sync Warm                       | The duration in hours off load that indicates the standby status change of the unit from Warm to Cold.  | Mandatory                                  | Optional                                  |
| Minimum Time Sync Hot                        | The duration in hours off load that indicates the standby status change of the unit from Hot to Warm.   | Mandatory                                  | Optional                                  |
| Minimum Output                               | Minimum Output of Generator Unit. The lowest value to which a unit can be scheduled.  | Mandatory                                  | Optional                                  |
| Maximum Generation                           | Maximum Generation level, in MW.  | Mandatory                                  | Optional                                  |
| Maximum Ramp Up Rate for Demand Side Unit    | Maximum Ramp Up Rate for Demand Side Units.   | Mandatory                                  | Optional                                  |
| Maximum Ramp Down Rate for Demand Side Units | Maximum Ramp Down Rate for Demand Side Units.   | Mandatory                                  | Optional                                  |

| UNIT (RESOURCE) DATA - Generator parameters   |   |  |   |
|---|---|--|---|
| Screen Name                                   | Comment   | Type 2<br>Mandatory /<br>Optional          | Type 3<br>Mandatory /<br>Optional         |
| Number of Hours elapsed for Cold Sync time.   | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory, but not used by the SEM systems | Optional, but not used by the SEM systems |
| Number of Hours elapsed for Warm Sync time.   | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory, but not used by the SEM systems | Optional, but not used by the SEM systems |
| Number of Hours elapsed for Hot Sync time.    | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory, but not used by the SEM systems | Optional, but not used by the SEM systems |
| Pumped Storage flag                           | May be Y, N or NULL - it will only be Y if the Unit is a pumped storage unit.   | Mandatory                                  | Optional                                  |
| Energy Limit Flag                             | May be Y, N or NULL - it will only be Y if the Unit is a pumped storage unit.   | Mandatory                                  | Optional                                  |
| Netting Generator Flag                        | Only applicable to PPMG, PPTG, VPMG, VPTG, APTG. It is a Y/N/Null field. Null for supplier, demand and interconnector.  | Mandatory                                  | Optional                                  |
| Short Term Maximisation Capacity above MAXGEN | Capacity above MAXGEN that can be sustained for a finite period of time (MW).   | Mandatory                                  | Optional                                  |
| Short Term Maximisation time                  | The duration in hours representing the length of time that Short-Term Maximisation can be sustained.  | Mandatory                                  | Optional                                  |
| Minimum On-time                               | The minimum time that must elapse from the time a Generator Unit Starts-Up before it can be Shut-Down   | Mandatory                                  | Optional                                  |
| Maximum On-time                               | The maximum time that must elapse from the time a Generator Unit Starts-Up before it can be Shut-Down   | Mandatory                                  | Optional                                  |
| Minimum Off-time                              | The minimum time that a Generator Unit must remain producing no Active Power or Reactive Power commencing at the time when it stops producing Active Power or Reactive Power. | Mandatory                                  | Optional                                  |
| Start Forbidden Range 1                       | MW level where restricted loading range (1) starts. Unit must move through this range as quickly as possible  | Mandatory                                  | Optional                                  |
| End Forbidden Range 1                         | MW level where restricted loading range (1) ends. Unit must move through this range as quickly as possible.   | Mandatory                                  | Optional                                  |
| Start Forbidden Range 2                       | MW level where restricted loading range (2) starts. Unit must move through this range as quickly as possible.   | Mandatory                                  | Optional                                  |
| End Forbidden Range 2                         | MW level where restricted loading range (2) ends. Unit must move through this range as quickly as possible.   | Mandatory                                  | Optional                                  |
| Fixed Unit Load                               | Fixed linear factor used to calculate net output from a Generator Unit. Fixed Unit Load (FUL) $\geq 0$  | Mandatory                                  | Optional                                  |
| Unit Load Scalar                              | Scalar quantity which approximates physical losses associated with a Generator Unit Transformer. Unit Load Scalar (ULS). $0 < \text{ULS} \leq 1$ .                            | Mandatory                                  | Optional                                  |
| Start-up Time Cold                            | Notification/Start-up times in hours for a unit considered to be in a cold state.   | Mandatory                                  | Optional                                  |
| Start-up Time warm                            | Notification/Start-up times in hours for a unit considered to be in a warm state.   | Mandatory                                  | Optional                                  |

| UNIT (RESOURCE) DATA - Generator parameters |  |                                   |                                   |
|---|--|-----------------------------------|-----------------------------------|
| Screen Name                                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Start-up Time Hot                           | Notification/Start-up times in hours for a unit considered to be in a hot state.   | Mandatory                         | Optional                          |
| Block load Flag                             | Will be "Yes" or "No", depending on whether the Unit has block loading characteristics.  | Mandatory                         | Optional                          |
| Block Load Cold                             | Block Load in MW when the unit is in a cold state.   | Mandatory                         | Optional                          |
| Block Load Warm                             | Block Load in MW when the unit is in a warm state.   | Mandatory                         | Optional                          |
| Block Load Hot                              | Block Load in MW when the unit is in a hot state.  | Mandatory                         | Optional                          |
| Loading Rate Cold 1                         | Loading Up Rate in MW/min when a Unit is in a cold state that applies until LOADING_UP_BREAK_PT_COLD_1.                              | Mandatory                         | Optional                          |
| Loading Rate Cold 2                         | Loading Up Rate in MW/min when a Unit is in a cold state that applies from LOADING_UP_BREAK_PT_COLD_1 to LOADING_UP_BREAK_PT_COLD_2. | Mandatory                         | Optional                          |
| Loading Rate Cold 3                         | Loading Up Rate in MW/min when a Unit is in a cold state that applies above LOADING_UP_BREAK_PT_COLD_2.                              | Mandatory                         | Optional                          |
| Loading Rate Warm 1                         | Loading Up Rate in MW/min when a Unit is in a warm state that applies until LOADING_UP_BREAK_PT_WARM_1                               | Mandatory                         | Optional                          |
| Loading Rate Warm 2                         | Loading Up Rate in MW/min when a Unit is in a warm state that applies from LOADING_UP_BREAK_PT_WARM_1 to LOADING_UP_BREAK_PT_WARM_2  | Mandatory                         | Optional                          |
| Loading Rate Warm 3                         | Loading Up Rate in MW/min when a Unit is in a warm state that applies above LOADING_UP_BREAK_PT_WARM_2                               | Mandatory                         | Optional                          |
| Loading Rate Hot 1                          | Loading Up Rate in MW/min when a Unit is in a hot state that applies until LOADING_UP_BREAK_PT_HOT_1.                                | Mandatory                         | Optional                          |
| Loading Rate Hot 2                          | Loading Up Rate in MW/min when a Unit is in a hot state that applies from LOADING_UP_BREAK_PT_HOT_1 to LOADING_UP_BREAK_PT_HOT_2.    | Mandatory                         | Optional                          |
| Loading Rate Hot 3                          | Loading Up Rate in MW/min when a Unit is in a hot state that applies above LOADING_UP_BREAK_PT_HOT_2.                                | Mandatory                         | Optional                          |
| Loading Up Breakpoint Cold 1                | MW level from which the cold loading up rate will change from Loading Rate 1 to Loading Rate 2.                                      | Mandatory                         | Optional                          |
| Loading Up Breakpoint Cold 2                | MW level from which the cold loading up rate will change from Loading Rate 2 to Loading Rate 3.                                      | Mandatory                         | Optional                          |
| Loading Up Breakpoint Warm 1                | MW level from which the warm loading up rate will change from Loading Rate 1 to Loading Rate 2.                                      | Mandatory                         | Optional                          |
| Loading Up Breakpoint Warm 2                | MW level from which the warm loading up rate will change from Loading Rate 2 to Loading Rate 3.                                      | Mandatory                         | Optional                          |
| Loading Up Breakpoint Hot 1                 | MW level from which the hot loading up rate will change from Loading Rate 1 to Loading Rate 2.                                       | Mandatory                         | Optional                          |

| UNIT (RESOURCE) DATA - Generator parameters |   |                                   |                                   |
|---|---|-----------------------------------|-----------------------------------|
| Screen Name                                 | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Loading Up Breakpoint Hot 2                 | MW level from which the hot loading up rate will change from Loading Rate 2 to Loading Rate 3.  | Mandatory                         | Optional                          |
| Soak Time Hot 1                             | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a hot state before continuing to increase or decrease output.  | Mandatory                         | Optional                          |
| Soak Time Hot 2                             | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a hot state before continuing to increase or decrease output.  | Mandatory                         | Optional                          |
| Soak Time Warm 1                            | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a warm state before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Soak Time Warm 2                            | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a warm state before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Soak Time Cold 1                            | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a cold state before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Soak Time Cold 2                            | Time below Minimum Stable Generation for which a Unit remains at a constant MW level whilst in a cold state before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Trigger Point Hot 1                         | MW level at which TRIGGER_PT_HOT_1 should be observed before output can further increase or decrease.   | Mandatory                         | Optional                          |
| Trigger Point Hot 2                         | MW level at which TRIGGER_PT_HOT_2 should be observed before output can further increase or decrease.   | Mandatory                         | Optional                          |
| Trigger Point Warm 1                        | MW level at which TRIGGER_PT_WARM_1 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Trigger Point Warm 2                        | MW level at which TRIGGER_PT_WARM_2 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Trigger Point Cold 1                        | MW level at which TRIGGER_PT_COLD_1 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Trigger Point Cold 2                        | MW level at which TRIGGER_PT_COLD_2 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Start-up End Point                          | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory                         | Optional                          |
| Ramp Up Rate 1                              | Ramp Up Rate in MW/min that applies until RAMP_UP_BREAK_PT_1.   | Mandatory                         | Optional                          |
| Ramp Up Rate 2                              | Ramp Up Rate in MW/min that applies from RAMP_UP_BREAK_PT_1 until RAMP_UP_BREAK_PT_2.   | Mandatory                         | Optional                          |
| Ramp Up Rate 3                              | Ramp Up Rate in MW/min that applies from RAMP_UP_BREAK_PT_2 until RAMP_UP_BREAK_PT_3.   | Mandatory                         | Optional                          |

| UNIT (RESOURCE) DATA - Generator parameters |  |                                   |                                   |
|---|--|-----------------------------------|-----------------------------------|
| Screen Name                                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Ramp Up Rate 4                              | Ramp Up Rate in MW/min that applies from RAMP_UP_BREAK_PT_3 until RAMP_UP_BREAK_PT_4.  | Mandatory                         | Optional                          |
| Ramp Up Rate 5                              | Ramp Up Rate in MW/min that applies from RAMP_UP_BREAK_PT_5.   | Mandatory                         | Optional                          |
| Ramp Up Breakpoint 1                        | MW level from which the ramp rate will change from Ramp Rate 1 to Ramp Rate 2.   | Mandatory                         | Optional                          |
| Ramp Up Breakpoint 2                        | MW level from which the ramp rate will change from Ramp Rate 2 to Ramp Rate 3.   | Mandatory                         | Optional                          |
| Ramp Up Breakpoint 3                        | MW level from which the ramp rate will change from Ramp Rate 3 to Ramp Rate 4.   | Mandatory                         | Optional                          |
| Ramp Up Breakpoint 4                        | MW level from which the ramp rate will change to Ramp Rate 5.  | Mandatory                         | Optional                          |
| Ramp Down Rate 1                            | Ramp Down Rate in MW/min that applies until RAMP_DOWN_BREAK_PT_1.  | Mandatory                         | Optional                          |
| Ramp Down Rate 2                            | Ramp Down Rate in MW/min that applies from RAMP_DOWN_BREAK_PT_1 until RAMP_DOWN_BREAK_PT_2.  | Mandatory                         | Optional                          |
| Ramp Down Rate 3                            | Ramp Down Rate in MW/min that applies from RAMP_DOWN_BREAK_PT_2 until RAMP_DOWN_BREAK_PT_3.  | Mandatory                         | Optional                          |
| Ramp Down Rate 4                            | Ramp Down Rate in MW/min that applies from RAMP_DOWN_BREAK_PT_3 until RAMP_DOWN_BREAK_PT_4.  | Mandatory                         | Optional                          |
| Ramp Down Rate 5                            | Ramp Up Rate in MW/min that applies from RAMP_UP_BREAK_PT_5.   | Mandatory                         | Optional                          |
| Ramp Down Breakpoint 1                      | MW level from which the ramp rate will change from Ramp Rate 1 to Ramp Rate 2.   | Mandatory                         | Optional                          |
| Ramp Down Breakpoint 2                      | MW level from which the ramp rate will change from Ramp Rate 2 to Ramp Rate 3.   | Mandatory                         | Optional                          |
| Ramp Down Breakpoint 3                      | MW level from which the ramp rate will change from Ramp Rate 3 to Ramp Rate 4.   | Mandatory                         | Optional                          |
| Ramp Down Breakpoint 4                      | MW level from which the ramp rate will change to Ramp Down Rate 5.   | Mandatory                         | Optional                          |
| Deloading Rate 1                            | Deloading Rate in MW/min that applies for a Unit below Minimum Stable Generation until DELOAD_BREAK_PT.                                | Mandatory                         | Optional                          |
| Deloading Rate 2                            | Deloading Rate in MW/min that applies for a Unit below Minimum Stable Generation beyond DELOAD_BREAK_PT.                               | Mandatory                         | Optional                          |
| Deload Break Point                          | MW level from which the deloading rate will change from DELOADING_RATE_1 to DELOADING_RATE_2.  | Mandatory                         | Optional                          |
| Dwell Time 1                                | Time above Minimum Stable Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Dwell Time 2                                | Time above Minimum Stable Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | Mandatory                         | Optional                          |
| Dwell Time 3                                | Time above Minimum Stable Generation for which a Unit remains at a constant MW level before continuing to increase or decrease output. | Mandatory                         | Optional                          |

| UNIT (RESOURCE) DATA - Generator parameters                                 |   |                                   |                                   |
|---|---|-----------------------------------|-----------------------------------|
| Screen Name   | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Dwell Time Trigger Point 1  | MW level at which DWELL_TIMES_1 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Dwell Time Trigger Point 2  | MW level at which DWELL_TIMES_2 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Dwell Time Trigger Point 3  | MW level at which DWELL_TIMES_3 should be observed before output can further increase or decrease.  | Mandatory                         | Optional                          |
| Droop   | In relation to the operation of the governor of a Generator Unit, the percentage drop in System Frequency which would cause the Generator Unit under free governor action to change its output from zero to Full Load. (in %)   | Mandatory                         | Optional                          |
| Number of Starts  | Number of Starts available before maintenance of the unit when < 30 starts. Note: this value will be provided by Participants as part of their technical offer data. There will be no requirement to consider it in the optimization runs.  | Mandatory                         | Optional                          |
| Number of Run Hours   | Number of run hours available for a unit before maintenance when < 200 hours. Note: this value will be provided by Participants as part of their technical offer data. There will be no requirement to consider it in the optimization runs.  | Mandatory                         | Optional                          |
| Minimum Reservoir Capacity  | For Pumped Storage. Minimum possible capacity for the reservoir (MWh). Reservoir levels must be the same for submissions from all Units Sharing the Reservoir. The value for the first unit by alphabetical order of the unit's name will be selected if the reservoir capacities differ. | Mandatory                         | Optional                          |
| Maximum Reservoir Capacity  | For Pumped Storage, reservoir levels must be the same for submissions from all Units Sharing the Reservoir. The value for the first unit by alphabetical order of the unit's name will be selected if the reservoir capacities differ.  | Mandatory                         | Optional                          |
| Pumping Load Capacity   | For Pumped Storage, the load consumed by unit during pumping phase (MW).  | Mandatory                         | Optional                          |
| Pumped Storage Cycle Efficiency   | (PSCEuh) The ratio between the gross electrical energy consumed to pump a given quantity of water from the lower reservoir to the upper reservoir and the net electrical energy sent out through the release of that quantity of water from the upper reservoir                           | Mandatory                         | Optional                          |
| Modes of Operation  | This is not utilised in the systems. This can be left as NULL in the Data Transaction   | Mandatory                         | Optional                          |
| Physical Location ID.   | Name of unit location on the transmission system.   | Mandatory                         | Optional                          |
| Identification of Unit location on grid.                                    | Unique identifier of unit location. Multiple Unit IDs can exist for each Physical Location (e.g. Supplier Unit and Generator Unit).   | Mandatory                         | Optional                          |
| Name of station or site where unit is located (multiple units per station). | Name of station or site where unit is located (there can be multiple units per station).  | Mandatory                         | Optional                          |

| UNIT (RESOURCE) DATA - Generator parameters    |   |                                   |                                   |
|--|---|-----------------------------------|-----------------------------------|
| Screen Name                                    | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Identification of the Station                  | Station ID defined by the Transmission System Operators.  | Optional                          | Optional                          |
| Station address line 1                         | Station Address line 1.   | Optional                          | Optional                          |
| Station address line 2                         | Station Address line 2.   | Optional                          | Optional                          |
| Registered Firm Capacity                       | Total deep connected capacity designation for the unit.   | Mandatory                         | Optional                          |
| Non-Firm Access Quantity                       | Non-firm capacity for a unit in MW, i.e. part of a Generator Unit's Availability that does not have Firm Access.  | Mandatory                         | Optional                          |
| Target Reservoir Level Percentage              | Target Reservoir Level Percentage, applied to the Target Reservoir Level to calculate the target for the end of the Optimisation Horizon. The Regulatory Authorities reserve the right to set this value. | Mandatory                         | Optional                          |
| Commission Test Certificate                    | Acceptance of commission test for data and generation communication requirements.   | Optional                          | Optional                          |
| Old Resource Flag                              | To indicate if this is an old resource whose ownership is being changed/ or is being re-registered.   | Optional                          | Optional                          |
| Old Resource Name                              | In case of a previously registered resource, this is to provide its previous registered resource identification.  | Optional                          | Optional                          |
| Old Participant Name                           | Participant ID of the previous Participant (if applicable). Can be left NULL if not relevant.   | Optional                          | Optional                          |
| Priority Dispatch flag                         | Indication of a Unit's priority in the physical market schedule if in a tie to serve marginal demand. Will be Y or N and will be set in conjunction with the Transmission System Operator(s).             | Mandatory                         | Optional                          |
| Unit under test start date                     | Date when the Unit is proposed to be under test. This will be approved by the Market Operator in conjunction with the Transmission System Operator(s).  | Optional                          | Optional                          |
| Unit under test end date                       | Date when the Unit is proposed to complete its test. This will be approved by the Market Operator in conjunction with the Transmission System Operator(s).  | Optional                          | Optional                          |
| Qualified Communication Channel                | Indicator of the communication channels the unit has been qualified to utilise.   | Optional                          | Optional                          |
| Jurisdiction                                   | Jurisdiction for the resource - will be "ROI" or "NI".  | Optional                          | Optional                          |
| Notification Comment                           | Used by the Market Operator and Participant to exchange notes with respect to that registration data.   | Optional                          | Optional                          |
| Trading Site Name                              | Name of the Trading Site to which the Generator Unit is associated.   | Optional                          | Optional                          |
| Data Exchange Test                             | Will be P (Pass) or F (Fail), depending on whether Market Operator data exchange testing is successful.   | Optional but do not use           | Optional but do not use           |
| EB Licence number                              | Regulatory licence id number for the Participant based on type of unit owned (e.g. Wind Generation, Demand-side, etc.).   | Optional                          | Optional                          |
| Electricity Commission License Effective Date  | Electricity Commission License Effective Date.  | Optional                          | Optional                          |
| Electricity Commission License Expiration Date | Electricity Commission License Expiration Date.   | Optional                          | Optional                          |

| UNIT (RESOURCE) DATA - Generator parameters |  |                                   |                                   |
|---|--|-----------------------------------|-----------------------------------|
| Screen Name                                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| External ID                                 | Optional External ID text field that can be used to track submissions by Participants. This can be non-unique and cannot be queried.   | Optional                          | Optional                          |
| Target Reservoir Level MWH                  | Minimum Reservoir Level required at the end of the Trading Day.  | Mandatory                         | Optional                          |
| Default Data Submission                     | This is a flag set by the Market Operator, and indicates whether Default Data has been submitted by the Market Participant for a Unit. | Optional                          | Optional                          |

**Load Parameters**

| UNIT (RESOURCE) DATA - Load parameters |   |                                   |                                   |
|--|---|-----------------------------------|-----------------------------------|
| Screen Name                            | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Resource Type                          | Demand Side Unit (DU) or Supplier Unit (SU)   | Mandatory                         | Mandatory                         |
| Resource Name                          | The name of the resource in question (e.g. the name of the Generator Unit, Supplier Unit, Demand Side Unit, Interconnector Unit or Interconnector for which data is being submitted). | Mandatory                         | Mandatory                         |
| IM Resource Name                       | Reference ID to the unit's injection point to the transmission system referenced in the Connection Agreement  | Optional                          | Optional                          |
| Connection Point                       | Identifier of the Unit (provided by the system operators).  | Optional                          | Optional                          |
|  | Transmission or Distribution Connected.   | Optional                          | Optional                          |
| Connection Agreement                   | Reference ID to the unit's and/or Participant's connection agreement.   | Optional                          | Optional                          |
| Effective Date                         | Effective Date for Load Data Submission   | Mandatory                         | Optional                          |
| Expiry Date                            | Expiry Date for Load Data Submission  | Optional                          | Optional                          |
| Max Ramp Up                            | Rate of load increase. Rate of decreasing demand (MW/min).  | Optional                          | Optional                          |
| Max Ramp Down                          | Rate of load reduction. Rate of increasing demand (MW/min).   | Optional                          | Optional                          |
| Dispatchable capacity                  | MWs available for curtailment.  | Optional                          | Optional                          |
| Non Dispatchable capacity              | Portion of total demand not available for curtailment.  | Optional                          | Optional                          |
| Minimum Down Time                      | Minimum amount of time the demand-side unit can be curtailed.(in Hours)   | Optional                          | Optional                          |
| Maximum Down Time                      | Maximum amount of time the demand-side unit can be curtailed.(in Hours)   | Optional                          | Optional                          |
| Trading Site Supplier Flag             | Trading Site Supplier Flag (Y/N)  | Optional                          | Optional                          |
| Unit under test start date             | When applicable   | Optional                          | Optional                          |
| Unit under test end date               | When applicable   | Optional                          | Optional                          |
| Old Resource Flag                      | To Indicate if this is an old resource whose ownership is being changed / or is being re-registered   | Optional                          | Optional                          |
| Old Resource Name                      | In case of a previously registered resource, this is to provide its previous registered resource identification.  | Optional                          | Optional                          |
| Old Participant Name                   | In case of a previously registered resource, this is to provide its previous registered Participant identification.   | Optional                          | Optional                          |
| Qualified Communication Channel        | Indicator of the communication channels the unit has been qualified to utilize.   | Optional                          | Optional                          |
| Jurisdiction                           | ROI or NI.  | Optional                          | Optional                          |
| Notification Comment                   | Used by the operator and Participant to exchange notes with respect to that registration data.  | Optional                          | Optional                          |



| UNIT (RESOURCE) DATA - Load parameters |  |                                   |                                   |
|--|--|-----------------------------------|-----------------------------------|
| Screen Name                            | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| Data Exchange Test                     | Will be P (Pass) or F (Fail), depending on whether Market Operator data exchange testing is successful.                                | Optional                          | Optional                          |
| EB Licence number                      | Regulatory licence id number for the Participant based on type of unit owned (e.g. Wind Generation, Demand-side, etc.).                | Optional                          | Optional                          |
| Effective Date of EB Licence           | Proposed date and time when Participant will become eligible to participate in the market.   | Optional                          | Optional                          |
| Expiry Date of EB Licence              | Expiry Date of EB Licence  | Optional                          | Optional                          |
| Station ID                             | Station ID created by the system operators.  | Optional                          | Optional                          |
| Station Address line 1                 | Address of Station for informational purposes.   | Optional                          | Optional                          |
| Station Address line 2                 | Address of Station for informational purposes. (following)   | Optional                          | Optional                          |
| External ID                            | Optional text field that can be used to track submissions by Market Participants   | Optional                          | Optional                          |
| Fuel Type                              | Type of Fuel   | Optional                          | Optional                          |
| Default Data Submission                | This is a flag set by the Market Operator, and indicates whether Default Data has been submitted by the Market Participant for a Unit. | Optional                          | Optional                          |

## GENERATOR OFFER DATA

| GENERATOR OFFER DATA |  |                                   |                                   |
|----------------------|--|-----------------------------------|-----------------------------------|
| Name                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| APPLICATION_TYPE     | Must be "DAM"  | Mandatory                         | Optional                          |
| TRADING_DATE         | Market Window for normal bid is not open for trading_date {0} and application_type {1}<br>An error occurred when fetching data from the cm_market table for trading_date {0}   |                                   |                                   |
| PARTICIPANT_NAME     | 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                         | Optional                          |
| USER_NAME            | 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                         | Optional                          |
| MODE                 | Must be NORMAL   | Mandatory                         | Optional                          |
| STANDING_FLAG        | Market Window for standing bid is not open for trading_date {0} and application_type {1}. The standing_flag must set to true when Standing Element is present. In multiple Standing Data Submissions, type "ALL" conflicts with other. | Mandatory                         | Optional                          |
| VERSION_NO           | Only one {0} element is allowed per submission   | Mandatory                         | Optional                          |
| RESOURCE_NAME        | The resource name {0} is invalid   | Mandatory                         | Mandatory                         |

| GENERATOR OFFER DATA |  |                                   |                                   |
|----------------------|--|-----------------------------------|-----------------------------------|
| Name                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| RESOURCE_TYPE        | 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. The submitted resource_type value {0} does not match the value {2} registered for the resource {1}  | Mandatory                         | Mandatory                         |
| EXPIRY_DATE          | The expiry_date {0} must be in the future. The expiry_date {0} must be greater than or equal to trading_date {1}.  | Optional                          | Optional                          |
| DAY_TYPE             | Submitted Standing Data with type {0} conflicts with existing Standing Data with type {1} for trading_date {2}   | Optional                          | Optional                          |
| EXTERNAL_ID          | Optional text field that can be used to track submissions by Market Participants. This can be non-unique and cannot be queried (although will be returned in responses if successful).   | Optional                          | Optional                          |
| START_HR             | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N. The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test. The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test. | Mandatory                         | Optional                          |

| GENERATOR OFFER DATA |  |                                   |                                   |
|----------------------|--|-----------------------------------|-----------------------------------|
| Name                 | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| END_HR               | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N. The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test. The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test. | Mandatory                         | Optional                          |
| START_INT            | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N. The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test. The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test.  | Mandatory                         | Optional                          |

| GENERATOR OFFER DATA              |   |                                   |                                   |
|-----------------------------------|---|-----------------------------------|-----------------------------------|
| Name                              | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| END_INT                           | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N. The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test. The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test. | Mandatory                         | Optional                          |
| MAXIMUM_MW                        | The {0} value of {1} must be greater than 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}. 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}   | Mandatory                         | Optional                          |
| MINIMUM_MW                        | The {0} value of {1} must be greater than 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}. 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}   | Mandatory                         | Optional                          |
| MINIMUM_OUTPUT_MW                 | The {0} value of {1} MWh must be less than or equal to 0 MWh  | Mandatory                         | Optional                          |
| TARGET_RESERVOIR_LEVEL_MWH        | The pump_storage_detail element must be present when pump_storage_flag is set to Y. The pump_storage_detail element can not be submitted when pump_storage_flag is set to N   | Mandatory                         | Optional                          |
| TARGET_RESERVOIR_LEVEL_PERCENT    | The pump_storage_detail element must be present when pump_storage_flag is set to Y  | Optional                          | Optional                          |
| PRIOR_DAY_END_RESERVOIR_LEVEL_MWH | The pump_storage_detail element must be present when pump_storage_flag is set to Y. The pump_storage_detail element can not be submitted when pump_storage_flag is set to N   | Optional                          | Optional                          |

| GENERATOR OFFER DATA                     |  |                                   |                                   |
|--|--|-----------------------------------|-----------------------------------|
| Name                                     | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| OPERATIONAL_RESERVOIR_CAPACITY_LIMIT_MWH | The operational_reservoir_capacity_limit_mwh value of {0} must not exceed the Maximum Reservoir storage capacity value of {1}. The operational_reservoir_capacity_limit_mwh value of {0} must not fall below the Minimum Reservoir storage capacity value of {1}. The pump_storage_detail element must be present when pump_storage_flag is set to Y. The pump_storage_detail element can not be submitted when pump_storage_flag is set to Y.   | Optional                          | Optional                          |
| SPIN_GENERATION_COST                     | Cost of running in spinning mode. Used only operationally.   | Optional                          | Optional                          |
| SPIN_PUMP_COST                           | Cost of running in pumping mode. Used only operationally.  | Optional                          | Optional                          |
| MINIMUM_GENERATION_COST                  | Cost of running at minimum generation level. Used only operationally.  | Optional                          | Optional                          |
| LIMIT_MWH                                | The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N.   | Mandatory                         | Optional                          |
| LIMIT_FACTOR                             | The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N.   | Mandatory                         | Optional                          |
| ENERGY_LIMIT_PERIOD_FLAG                 | The energy_limit_detail element must be present when energy_limit_flag is set to Y. The energy_limit_detail element can not be submitted when energy_limit_flag is set to N.   | Mandatory                         | Optional                          |
| PQ_CURVE_PRICE                           | The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}. The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2}). The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2}). The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN" or Under Test is true. The pq_curve element can not be submitted in price_taker_detail element when resource type is {0} | Mandatory                         | Optional                          |
| PQ_CURVE_QUANTITY                        | The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}. The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN" or Under Test is true. The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}   | Mandatory                         | Optional                          |

| GENERATOR OFFER DATA     |  |                                   |                                   |
|--------------------------|--|-----------------------------------|-----------------------------------|
| Name                     | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| STARTUP_COST_HOT         | Start-up costs for cold, warm or hot states. At least one and up to three values provided. The {0} value of {1} MWh must be greater than or equal to 0 MWh. The {0} start-up costs must be greater than or equal to {1} start-up costs. The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN" or Under Test is true. The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}. | Optional                          | Optional                          |
| STARTUP_COST_WARM        | Start-up costs for cold, warm or hot states. At least one and up to three values provided. The {0} value of {1} MWh must be greater than or equal to 0 MWh. The {0} start-up costs must be greater than or equal to {1} start-up costs. The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN" or Under Test is true. The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}  | Optional                          | Optional                          |
| STARTUP_COST_COLD        | Start-up costs for cold, warm or hot states. At least one and up to three values provided. The {0} value of {1} MWh must be greater than or equal to 0 MWh. The {0} start-up costs must be greater than or equal to {1} start-up costs. The price_maker_detail element must be present when resource_type is "PRED_PR_MAKER_GEN" or "VAR_PR_MAKER_GEN" or Under Test is true. The pq_curve element can not be submitted in price_taker_detail element when resource type is {0}  | Mandatory                         | Optional                          |
| NO_LOAD_COST             | The {0} value of {1} MWh must be greater than or equal to 0 MWh. The no_load_cost element must be presented in price_taker_detail element when resource type is PRED_PR_TAKER_GEN or PRED_PR_MAKER_GEN with unit under test. The no_load_cost element can not be submitted in price_taker_detail element when resource type is {0}.  | Mandatory                         | Optional                          |
| NOMINATION_PROFILE_VALUE | The nomination_profile element must be present when resource_type is "PRED_PR_TAKER_GEN", "VAR_PR_TAKER_GEN" or unit under test  | Mandatory                         | Optional                          |
| DECREMENTAL_PRICE_VALUE  | The {0} value of {1} must be equal to 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5}. The decremental_price element must be present when resource_type is PRED_PR_TAKER_GEN, VAR_PR_TAKER_GEN or unit under test.   | Mandatory                         | Optional                          |

## LOAD BID DATA

| LOAD BID DATA    |   |                                   |                                   |
|------------------|---|-----------------------------------|-----------------------------------|
| Name             | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| APPLICATION_TYPE | Must be "DAM"   | Mandatory                         | Optional                          |
| TRADING_DATE     | Market Window for normal bid is not open for trading_date {0} and application_type {1}<br>An error occurred when fetching data from the cm_market table for trading_date {0}  |                                   | Optional                          |
| PARTICIPANT_NAME | 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                         | Optional                          |
| USER_NAME        | 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                         | Optional                          |
| MODE             | Must be NORMAL  | Mandatory                         | Optional                          |
| STANDING_FLAG    | The standing_flag must set to true when Standing Element is present. In multiple Standing Data Submissions, type "ALL" conflicts with other.  | Mandatory                         | Optional                          |
| VERSION_NO       | Only one {0} element is allowed per submission  | Mandatory                         | Optional                          |
| RESOURCE_NAME    | The resource name {0} is invalid  | Mandatory                         | Mandatory                         |
| RESOURCE_TYPE    | Invalid facility_type {0} given for facility_name {1}, it must be PR_MAKER_DEMAND_UNIT. The submitted resource_type value {0} does not match the value {2} registered for the resource {1}  | Mandatory                         | Mandatory                         |
| EXPIRY_DATE      | The expiry_date {0} must be in the future. The expiry_date {0} must be greater than or equal to trading_date {1}  | Optional                          | Optional                          |
| DAY_TYPE         | Submitted Standing Data with type {0} conflicts with existing Standing Data with type {1} for trading_date {2}  | Optional                          | Optional                          |
| EXTERNAL_ID      | Optional text field that can be used to track submissions by Market Participants. This can be non-unique and cannot be queried (although will be returned in responses if successful).  | Optional                          | Optional                          |
| START_HR         | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |

| LOAD BID DATA     |   |                                   |                                   |
|-------------------|---|-----------------------------------|-----------------------------------|
| Name              | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| END_HR            | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |
| START_INT         | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| END_INT           | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| MAXIMUM_MW        | 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}. 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}   | Mandatory                         | Optional                          |
| MINIMUM_MW        | 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}. 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}   | Mandatory                         | Optional                          |
| MINIMUM_OUTPUT_MW | 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}  | Mandatory                         | Optional                          |
| PQ_CURVE_PRICE    | The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}. The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2}). The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2})   | Mandatory                         | Optional                          |



| LOAD BID DATA               |   |                                   |                                   |
|-----------------------------|---|-----------------------------------|-----------------------------------|
| Name                        | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| PQ_CURVE_QUANTITY           | The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}. The quantity value of {0} must not exceed the maximum_import_capacity_mw value of {1} for hour {2} and interval {3}. The quantity value of {0} must not exceed the maximum_export_capacity_mw value of {1} for hour {2} and interval {3}   | Mandatory                         | Optional                          |
| SHUTDOWN_COST               |   | Mandatory                         | Optional                          |
| START_HR                    | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |
| END_HR                      | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |
| START_INT                   | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| END_INT                     | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| NOMINATION_PROFILE_VALUE    |   | Mandatory                         | Optional                          |
| DECREMENTAL_PRICE_START_HR  | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}   | Mandatory                         | Optional                          |
| DECREMENTAL_PRICE_START_INT | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element  | Mandatory                         | Optional                          |
| DECREMENTAL_PRICE_END_HR    | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}   | Mandatory                         | Optional                          |

| LOAD BID DATA             |   |                                   |                                   |
|---------------------------|---|-----------------------------------|-----------------------------------|
| Name                      | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| DECREMENTAL_PRICE_END_INT | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element                | Mandatory                         | Optional                          |
| DECREMENTAL_PRICE_VALUE   | The {0} value of {1} must be equal to 0 from start_hr {2}, start_int {3} to end_hr {4}, end_int {5} | Mandatory                         | Optional                          |

## INTERCONNECTOR OFFER DATA

| INTERCONNECTOR OFFER DATA |  |                                   |                                   |
|---------------------------|--|-----------------------------------|-----------------------------------|
| Name                      | Comment  | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| APPLICATION_TYPE          | Must be "DAM"  | Mandatory                         | Optional                          |
| TRADING_DATE              | Market Window for normal bid is not open for trading_date {0} and application_type {1}<br>An error occurred when fetching data from the cm_market table for trading_date {0}   |                                   | Optional                          |
| PARTICIPANT_NAME          | 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                         | Optional                          |
| USER_NAME                 | 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                         | Optional                          |
| MODE                      | Must be NORMAL   | Mandatory                         | Optional                          |
| STANDING_FLAG             | Could not {0} a standing bid for settlement reallocation<br>The Standing Element could not be presented in settlement reallocation {0}. Only one {0} element is allowed per submission                                     | Mandatory                         | Optional                          |
| VERSION_NO                | Only one {0} element is allowed per submission   | Mandatory                         | Optional                          |
| RESOURCE_NAME             | The resource name {0} is invalid   | Mandatory                         | Mandatory                         |
| RESOURCE_TYPE             | Invalid facility_type {0} given for facility_name {1}, it must be INTERCONNECTOR. The submitted resource_type value {0} does not match the value {2} registered for the resource {1}                                       | Mandatory                         | Mandatory                         |
| EXPIRY_DATE               | The expiry_date {0} must be in the future. The expiry_date {0} must be greater than or equal to trading_date {1}   | Optional                          | Optional                          |
| DAY_TYPE                  | Submitted Standing Data with type {0} conflicts with existing Standing Data with type {1} for trading_date {2}   | Optional                          | Optional                          |
| EXTERNAL_ID               | Optional text field that can be used to track submissions by Market Participants. This can be non-unique and cannot be queried (although will be returned in responses if successful).                                     | Optional                          | Optional                          |

| INTERCONNECTOR OFFER DATA  |   |                                   |                                   |
|----------------------------|---|-----------------------------------|-----------------------------------|
| Name                       | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| START_HR                   | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |
| END_HR                     | The start_hr of {0} must be less than or equal to the end_hr of {1} in {2} element. Could not submit hour {0} and interval {1} in {2} element for {3} {4}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1} | Mandatory                         | Optional                          |
| START_INT                  | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| END_INT                    | The start_int of {0} must be less than or equal to the end_int of {1} in {2} element. Missing hour {0} and interval {1} in {2} element, submission must cover the entire Trading Day. The hours and intervals are overlapping for {0} in following {1}. The following Hours and Intervals did not match between the {0} element and the {1} element: {2}  | Mandatory                         | Optional                          |
| MAXIMUM_IMPORT_CAPACITY_MW | The maximum_import value of {0} must not exceed the Maximum Interconnector Import Capacity value of {1}   | Mandatory                         | Optional                          |
| MAXIMUM_EXPORT_CAPACITY_MW | The maximum_export value of {0} must not exceed the Maximum Interconnector Export Capacity value of {1}   | Mandatory                         | Optional                          |
| PQ_CURVE_PRICE             | The Prices in the PQ Curve are not monotonically increasing between points {0} and {1}. The price value of {0} in the pq_curve element must not exceed the Market Price Cap value of {1} ({2}). The price value of {0} in the pq_curve element must be not lower than the Market Price Floor value of {1} ({2})   | Mandatory                         | Optional                          |

| INTERCONNECTOR OFFER DATA |   |                                   |                                   |
|---------------------------|---|-----------------------------------|-----------------------------------|
| Name                      | Comment   | Type 2<br>Mandatory /<br>Optional | Type 3<br>Mandatory /<br>Optional |
| PQ_CURVE_QUANTITY         | The MW Quantities in the PQ Curve are not monotonically increasing between points {0} and {1}. The quantity value of {0} must not exceed the maximum_import_capacity_mw value of {1} for hour {2} and interval {3}. The quantity value of {0} must not exceed the maximum_export_capacity_mw value of {1} for hour {2} and interval {3} | Mandatory                         | Optional                          |

### SETTLEMENT REALLOCATION DATA

| Settlement Reallocation Data |  |                         |
|------------------------------|--|-------------------------|
| Name                         | Comment  | Mandatory /<br>Optional |
| APPLICATION_TYPE             | Must be "DAM"  | Mandatory               |
| TRADING_DATE                 | Market Window for normal bid is not open for trading_date {0} and application_type {1}<br>An error occurred when fetching data from the cm_market table for trading_date {0}   | Mandatory               |
| PARTICIPANT_NAME             | 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               |
| USER_NAME                    | 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               |
| MODE                         | Must be NORMAL   | Mandatory               |
| STANDING_FLAG                | Could not {0} a standing bid for settlement reallocation<br>The Standing Element could not be presented in settlement reallocation {0}. Only one {0} element is allowed per submission                                     | Mandatory               |
| VERSION_NO                   | Only one {0} element is allowed per submission   | Mandatory               |
| CREDITED_PARTICIPANT_NAME    | Invalid participant_name {0} in sem_settlement_reallocation element<br>Only one {0} element is allowed per submission  | Mandatory               |
| REALLOCATION_TYPE            | Only one {0} element is allowed per submission   | Mandatory               |
| EXTERNAL_ID                  | Only one {0} element is allowed per submission   | Optional                |
| START_HR                     | The start_hr of {0} must be equal to the end_hr of {1} in {2} element.<br>Could not submit hour {0} and interval {1} in {2} element for {3} {4}. Only one {0} element is allowed per submission                            | Mandatory               |
| END_HR                       | The start_hr of {0} must be equal to the end_hr of {1} in {2} element.<br>Could not submit hour {0} and interval {1} in {2} element for {3} {4}. Only one {0} element is allowed per submission                            | Mandatory               |
| START_INT                    | The start_int of {0} must be equal to the end_int of {1} in {2} element.<br>Only one {0} element is allowed per submission   | Mandatory               |
| END_INT                      | The start_int of {0} must be equal to the end_int of {1} in {2} element.<br>Only one {0} element is allowed per submission   | Mandatory               |
| AGREEMENT_NAME               | Only one {0} element is allowed per submission   | Mandatory               |
| MONETARY_VALUE               | 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               |

