



Single Electricity Market

MARKET PARTICIPANT UPDATE DOCUMENT

OVERARCHING VOLUME

SEM R2.7.0

V1.0

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Document History

Version	Date	Author	Comment
1.0	24 June 2015	SEMO	Initial Draft – SEM R2.7.0

Distribution List

Name	Organisation
All Market Participants	

Source / Reference Documents

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

1 DISCLAIMER AND CONTENT INFORMATION

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

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

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

2 INTRODUCTION

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

Typically, the MPUD is updated in advance of any release to the CMS where interfaces with Market Participants are impacted.

This specific document is the over-arching MPUD volume and outlines the following:

- MPUD Document Naming Convention;
- MPUD Baseline;
- MPUD Publication;
- The sub-volumes together with this document form the complete MPUD.

SEMO is responsible for the maintenance and management of the MPUD and welcomes feedback and suggestions in relation to this document at any time. Any correspondence relating to the MPUD and associated volumes should be submitted to the SEMO Market Helpdesk (Markethelpdesk@sem-o.com), title prefixed with the word “**MPUD**”

3 MPUD MANAGEMENT AND PUBLICATION

3.1 MPUD DOCUMENT NAMING CONVENTION

Each volume of the MPUD will be named such that it will be possible to easily identify:

1. The CMS release to which it applies and
2. The version number of the document.

The document naming convention will be as follows:

Document Volume – SEM Release – Document Version

Where:

- ***Document Volume*** indicates the document volume name;
- ***SEM Release*** indicates the specific CMS release to which the document applies; and
- ***Document Version*** indicates the version of this document for the associated release.

The following example outlines the naming convention:

MPUD_TECHNICAL_VOLUME - SEM R2.7.0 - V1.0

3.2 MPUD BASELINE

Each software release to the CMS will be associated with a baseline set of documentation. A baseline consists of a set of deliverables that together defines the coherence of the overall documentation of the SEM at a specific point in time. A baseline allows all stakeholders to work on the same set of documentation, thus ensuring consistency of the overall solution. Typically, a series of baselines would be issued to reflect the implementation of new changes or to support different milestones for a larger programme of work.

The MPUD and associated volumes are constituent elements of the SEM baseline. These documents are kept under strict version control and configuration management. This enables SEMO to align a version of the MPUD with a specific software release to the CMS.

3.3 MPUD PUBLICATION

Updates to the MPUD are distributed over two channels:

- Direct email to all Market Participants via the market helpdesk; and
- Publication on the SEMO website.

4 MPUD VOLUMES

The table below outlines the constituent volumes which, along with this document, form the complete MPUD document.

Document	Description	Features
MPUD Overarching Volume	Overarching Document (this document)	<ul style="list-style-type: none"> • Baseline • Naming Conventions • MPUD Constituents etc.
MPUD Technical Volume	Technical Volume	<ul style="list-style-type: none"> • Interfaces Architecture; • Communication Channels available; • Security; • Messaging Overview; • System Prerequisites etc.
MPUD Market Interface Volume 1 - Trading and Registration	Functional Volume 1	<ul style="list-style-type: none"> • Registration Transactions (Type 3) • Trading Transactions (Type 3)
MPUD Market Interface Volume 2 - Reporting	Functional Volume 2	<ul style="list-style-type: none"> • Reporting

Table 1: MPUD Constituent Volumes

5 APPENDIX A – GLOSSARY OF TERMS AND ACRONYMS

Term	Description
Agreed Procedure(s) APs	Means the detailed procedures to be followed by Parties to the Code in performing their obligations and functions under the Code.
Autonomous Generator Unit	Means a Generator Unit that is not Dispatchable or subject to Active Power control by the relevant System Operator and which is registered as a Price Taker Generator Unit in accordance with the Code.
Central Market Systems (CMS)	Means the IT systems within the control of the Market Operator used to meet its obligations under the Code.
Commercial Offer Data (COD)	Means Commercial Offer Data in respect of a Generator Unit.
Communications Channel	<p>Means one of three methods of communicating with the Market Operator:</p> <p>Type 1: meaning manual communication comprising but not limited to paper based communications and fax communications;</p> <p>Type 2: meaning assisted communication (e.g. GUI – human to computer)</p> <p>Type 3: meaning automated communication (e.g. webservice – computer to computer).</p>
CSV File	A CSV file is a specially formatted plain text file which stores spreadsheet or basic database-style information in a very simple format, with one record on each line, and each field within that record separated by a comma.
Data Record	Means a set of data fields containing the field level information within a Data Transaction complying to field-level rules.
Data Transaction	Means a set of data included in a communication by a Party to the Market Operator, or by the Market Operator to a Party.
Default Data / Standing Data	Means the standing Commercial Offer Data (COD) and Technical Offer Data (TOD) provided by a Participant on registration of each of its Units, but not Interconnector Units, as updated from time to time in accordance with the Code.
Demand Side Unit (DSU)	Means one or more Demand Sites which comply individually or collectively as appropriate with the criteria set out in the Code and is so registered by a Participant. A Demand Side Unit is classified as a Generator Unit under the Code.

Digital Certificate	A digital certificate establishes Market Participant credentials when doing business or other transactions on the Web. It is issued by a certification authority (CA). It contains your name, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting messages and digital signatures), and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real.
Error Supplier Unit (ESU)	Means a Supplier Unit for a Jurisdiction for which Loss-Adjusted Net Demand in that Jurisdiction (allowing for net transfers between Jurisdictions) is calculated in accordance with the Code.
Extensible Mark-up Language (XML)	XML is a universal format for structured documents and data on the web.
Generator Unit	Means a Generator and/or other item of Dispatchable plant, registered by a Participant, or which is the subject of an application for registration, under the Code. For the purposes of the Code a Generator Unit may be any one of the following types, without limitation: Aggregated Generator Unit, Autonomous Generator Unit, Demand Side Unit, Energy Limited Generator Unit, Hydro-electric Generator Unit, Interconnector Unit, Interconnector Error Unit, Interconnector Residual Capacity Unit, Netting Generator Unit, Pumped Storage Unit, Run-of-River Hydro Unit or Wind Power Unit or Dual Rated Generator Unit.
Hyper Text Mark-up Language (HTML)	HTML is a mark-up language that web browsers use to interpret and compose text, images and other material into visual or audible web pages
Interconnector Error Unit (IEU)	Means, in relation to an Interconnector, a registered Generator Unit to which Uninstructed Imbalances relating to that Interconnector shall be allocated for Settlement purposes.
Interconnector Residual Capacity Unit (IRCU)	Means, in relation to an Interconnector, a registered Generator Unit, which is used for Settlement or for the utilisation of residual or unused capacity in accordance with the Code.
Interconnector Unit	Means a Unit registered by an Interconnector User associated with the relevant Interconnector.
Interconnector User	Means, in relation to an Interconnector, a Participant (or Applicant as the case may be) who has entered into arrangements with the relevant Interconnector Owner enabling the Participant to acquire Active Interconnector Unit Capacity Holdings from time to time.
Long Day	A day that contains 25 hours (50 Trading Periods) due to the standard time being set back by 1 hour in the Winter for Daylight Savings.

Market Participant Interface (MPI)	The Type 2 (GUI) channel with which Market Participants can communicate with the CMS.
MSP Software	Means the “Market Scheduling and Pricing” software used by the Market Operator to determine Market Schedule Quantities for each Price Maker Generator Unit and to determine the System Marginal Price for each Trading Period.
Normal Day	A day that contains 24 hours (48 Trading Periods).
Offer Data	Means Commercial Offer Data and/or Technical Offer Data as appropriate.
Offer Data Transaction	Means a Data Transaction in relation to Offer Data.
Optimisation Time Horizon (OTH)	Means the time period from and including 06:00 on the relevant Trading Day up to but not including 12:00 on the subsequent Trading Day.
Participant	Means a Party or business division of a Party which at the relevant time has been designated as, or deemed to be, the “Participant” in relation to any Units which have been registered in accordance with the Code.
Party	Means any person who is a party to the Framework Agreement and is thereby bound by the Code, and shall include its successors and permitted assigns.
Predictable Generator Unit	Means a Generator Unit with predictable Availability which is Dispatchable, and can include all types of Generator Unit, except Wind Power Units and Run-of River Hydro Units that are considered as being Variable Generator Units.
Predictable Price Maker Generator Unit (PPMG)	Means a Predictable Generator Unit which is a Price Maker Generator Unit.
Predictable Price Taker Generator Unit (PPTG)	Means a Predictable Generator Unit which is a Price Taker Generator Unit.
Price Maker Generator Unit	Means a Generator Unit that is Dispatchable and may be a Variable Price Maker Generator Unit or a Predictable Price Maker Generator Unit.
Price Taker Generator Unit	Means a Generator Unit that may be a Variable Price Taker or a Predictable Price Taker Generator Unit or an Autonomous Generator Unit.
Pumped Storage Unit	Means a Generator Unit within a pumped storage plant where a fluid is pumped to a storage container when in pumping mode and the fluid’s flow back is used to drive a turbine which powers a generator when in generating mode.

Secure Sockets Layer (SSL)	SSL is the standard security technology for establishing an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browser remains private and integral. SSL is an industry standard and is used by millions of websites in the protection of their online transactions with their customers.
Short Day	A day that contains 23 hours (46 Trading Periods) due to standard time advancing by 1 hour in the Spring for Daylight Savings.
Single Electricity Market (SEM)	Means the wholesale all-island single electricity market established as described in paragraph 1.1 of the Code.
Single Electricity Market Operator (SEMO)	Means the entity that performs the Market Operator function pursuant to the Market Operator Licenses and any relevant exemption, with their rights, powers, functions, obligations and liabilities under the Code.
Technical Offer Data (TOD)	Means technical offer data in respect of a Generator Unit.
Trading and Settlement Code ("the Code")	The Code sets out the trading and settlement rules and procedures for participating in the SEM.
Trading Day	Means the period commencing at 06:00.
Variable Generator Unit	Means a Wind Power Unit or a Run-of-River Hydro Unit that is Dispatchable, where the short-term availability of the Generator Unit is unpredictable as a result of its fuel source.
Variable Price Maker Generator Unit (VPMG)	Means a Variable Generator Unit which is a Price Maker Generator Unit.
Variable Price Taker Generator Unit (VPTG)	Means a Variable Generator Unit which is a Price Taker Generator Unit.
Web Service	A Web service is a method of communication between two electronic devices over a network.
Wind Power Unit	Means a Generator Unit that generates electricity from wind energy.

Table 2: Glossary of Terms and Acronyms

6 APPENDIX B - TRADE HOUR AND TRADE INTERVAL

When communicating with the CMS, a Trading Period is represented by a combination of two data items – Trade Hour and Trade Interval.

- Trade Hour is the actual hour of the day to which the time applies, based on ‘end of hour’ notation.
- Trade Interval denotes the 30 minute trading period within the Hour in Day (1 or 2).

Examples:

- The Trading Period 06:00 – 06:30 (albeit ending just before 06:30) is represented by:
 - Hour in Day: 7 (based on ‘End-Of-Hour’ notation).
 - Trade Interval: 1.
- Trading Period 06:30 – 07:00 is represented by:
 - Hour in Day: 7.
 - Trade Interval: 2.

6.1 NORMAL DAY

A Normal Day has 48 Trading Periods:

Trading Period Date Time (Start of Period)	Hour In Day	Trade Interval
27-June-2006 06:00	7	1
27-June-2006 06:30	7	2
27-June-2006 07:00	8	1
...
27-June-2006 23:30	24	2
28-June-2006 00:00	1	1
...
28-June-2006 05:00	6	1
28-June-2006 05:30	6	2

Table 3: Trading Hour/Interval – Normal Day

6.2 LONG DAY

A Long Day has 50 Trading Periods.

- Due to the clock change, the hour between 01:00 and 02:00 is repeated.
- This extra hour is denoted by Hour in Day: 25.

Trading Period Date Time (Start of Period)	Hour In Day	Trade Interval
28-Oct-2006 06:00	7	1
28-Oct-2006 06:30	7	2
...

Trading Period Date Time (Start of Period)	Hour In Day	Trade Interval
29-Oct-2006 01:00	2	1
29-Oct-2006 01:30	2	2
29-Oct-2006 01:00	25	1
29-Oct-2006 01:30	25	2
29-Oct-2006 02:00	3	1
29-Oct-2006 02:30	3	2
...
29-Oct-2006 05:30	6	2

Table 4: Trading Hour/Interval – Long Day

6.3 SHORT DAY

A Short Day has 46 Trading Periods. Due to the clock change there are no Trading Period entries for 01:00 and 01:30 so therefore there are no entries for “Hour in Day” 2.

Trading Period Date Time (Start of Period)	Hour In Day	Trade Interval
24-Mar-2007 06:00	7	1
24-Mar-2007 06:30	7	2
...
25-Mar-2007 00:00	1	1
25-Mar-2007 00:30	1	2
25-Mar-2007 02:00	3	1
25-Mar-2007 02:30	3	2
...
25-Mar-2007 05:00	6	1
25-Mar-2007 05:30	6	2

Table 5: Trading Hour/Interval – Short Day