

# I-SEM Technical Specification (ITS)

## **VOLUME A: OVERARCHING V9.0**

### **COPYRIGHT NOTICE**

All rights reserved. This entire publication is subject to the laws of copyright. This publication may not be reproduced or transmitted in any form or by any means, electronic or manual, including photocopying without the prior written permission of EirGrid plc and SONI Limited.

### **DOCUMENT DISCLAIMER**

Every care and precaution is taken to ensure the accuracy of the information provided herein but such information is provided without warranties express, implied or otherwise howsoever arising and EirGrid plc and SONI Limited to the fullest extent permitted by law shall not be liable for any inaccuracies, errors, omissions or misleading information contained herein.

## Document History

Version	Date	Author	Comment
1.0	8 July 2016	EirGrid and SONI	Initial Draft.
2.0	5 September 2016	EirGrid and SONI	Updated to reflect Volume E and F changes
3.0	28 October 2016	EirGrid and SONI	Inclusion of Section 5 (I-SEM Entity Model Overview)
4.0	31 January 2017	EirGrid and SONI	Updated version numbers within 'Source/Reference Documents' section.
5.0	5 May 2017	EirGrid and SONI	Updated version numbers within 'Source/Reference Documents' section.
6.0	17 July 2017	EirGrid and SONI	Updated version numbers within 'Source/Reference Documents' section.
7.0	13 October 2017	EirGrid and SONI	Updated version numbers within 'Source/Reference Documents' section.
8.0	01 December 2017	EirGrid and SONI	Remove Source/Reference Document table in header.
9.0	09 February 2018	EirGrid and SONI	Updated Footer date

## Distribution List

Name
All participants

## Table of Contents

Table of Contents.....	3
1 Disclaimer and Content Information.....	4
2 Introduction .....	5
3 Constituent Volumes .....	6
4 I-SEM Technical Specification - Naming Conventions and Baselines .....	8
4.1 Document Naming Convention .....	8
4.2 I-SEM Technical Specification Baselines .....	8
4.3 I-SEM Technical Specification Publication .....	8
5 I-SEM Entity Model Overview .....	9

## **1 DISCLAIMER AND CONTENT INFORMATION**

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

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

1. EirGrid and SONI accept no responsibility for decisions made or actions taken by participants as a result of the information presented in this document or associated documents. Furthermore, EirGrid and SONI do not indemnify any commercial or organisational decisions made by participants in relation to the information herein.
2. This document represents the most up-to-date information on the I-SEM Systems as they have been developed. With this in mind, it is not appropriate simply to compare the document against the market rules; instead, the document is aligned with a release of the I-SEM Systems.
3. The information provided in this document is based entirely on documentation and information provided by the software vendor. Although EirGrid and SONI have made all reasonable efforts to ensure that the information presented is correct, it cannot guarantee the information provided.
4. 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, EirGrid and SONI will be issuing planned updates to this document and associated documents (where appropriate).

## 2 INTRODUCTION

The I-SEM<sup>1</sup> Technical Specification (ITS) comprises a number of volumes which provide participants with the information necessary for them to develop their own systems to interface with the I-SEM central market systems.

The volumes of the I-SEM Technical Specification are:

Volume	Document
A	ISEM TS (Overarching Volume)
B	ISEM TS (Technical Volume)
C	ISEM TS (Balancing Market Volume)
D	ISEM TS (SEMOpx Ex-Ante Markets Volume)
E	ISEM TS (Capacity Market Volume)
F	Intentionally blank
G	ISEM TS (Glossary)

Table 1: I-SEM Technical Specification Volumes

This volume A provides an overview of the volumes which collectively comprise the I-SEM Technical Specification.

*Note: Volume F had originally been included in order to provide details of the FTR interface specification, with the aspiration of providing a single reference document for all of the central market interfaces. However, it has since been determined that it would not be appropriate to include the FTR interface specification in the I-SEM Technical Specification, as this is not being delivered by the TSOs' I-SEM Project. Hence, Volume F is now shown as being 'intentionally blank' and the 'missing' detail will be provided elsewhere in appropriate documentation to be published and maintained by the FTR provider.*

---

<sup>1</sup> The market arrangements and associated delivery project are known as the I-SEM, but parties are asked to note that the legal name for the new arrangements will be the Single Electricity Market (SEM).

### 3 CONSTITUENT VOLUMES

The table below outlines the constituent volumes of the I-SEM Technical Specification.

Volume	Document
A	<p><b>Overarching Volume</b></p> <p>The overarching volume (this document) outlining document naming conventions, baselines, and volumes comprising the I-SEM Technical Specification.</p>
B	<p><b>Technical Volume</b></p> <p>This volume covers the technical aspects of the Interfaces which are available for participants to communicate with the I-SEM Systems. The document includes information regarding Interfaces Architecture, Communication Channels available, Security, Messaging Overview, and System Perquisites for the Balancing Market, Ex-Ante Markets (SEMOpX), Capacity Market, and FTR Market.</p>
C	<p><b>Balancing Market Volume</b></p> <p>This volume covers all aspects of the Balancing Market Interface (previously known as the MPI and including the I-SEM Registration System) which forms part of the I-SEM Systems. This document principally addresses the functional aspects of the Balancing Market interface and is provided to enable participants to communicate with the I-SEM Balancing Market Systems, with the focus being Type 3 Communication Channel, i.e. submission and retrieval of I-SEM Data Transactions via Web Services (covering Registration, Trading and Reporting).</p>
D	<p><b>SEMOpX Ex-Ante Markets Volume</b></p> <p>This volume covers the interfaces available to participants for interaction with the I-SEM Day Ahead and Intra-Day Markets, Intraday Continuous Market, and Clearing &amp; Settlements.</p>
E	<p><b>Capacity Market Volume</b></p> <p>This volume covers the interfaces available to participants in relation to the Capacity Market, in particular how Participants will interact with capacity auctions and secondary trading arrangements.</p>

Volume	Document
F	<b>Intentionally Blank</b>
G	<b>Glossary</b>  This document consists of definitions and terms, providing information to support understanding of the content presented in the volumes of the I-SEM Technical Specification. This glossary applies only to the terms in the I-SEM Tech Spec docs and does not supplant or replace the larger SEM Glossary that will be developed as part of the Trading & Settlement Code process

**Table 2: I-SEM Technical Specification: Constituent Volumes**

## 4 I-SEM TECHNICAL SPECIFICATION - NAMING CONVENTIONS AND BASELINES

### 4.1 DOCUMENT NAMING CONVENTION

Each volume of the I-SEM Technical Specification will be named such that it will be possible to easily identify:

1. the volume to which it relates; and
2. the version number of the document.

The document naming convention will be as follows:

#### ***Document Volume – Document Version***

Where:

- **Document Volume** indicates the document volume name; and
- **Document Version** indicates the version of this document for the associated release.

The following example outlines the naming convention:

ISEM\_TS Volume C – Balancing Market –V1.0

### 4.2 I-SEM TECHNICAL SPECIFICATION BASELINES

Each software release to the I-SEM Systems will be associated with a baseline set of documentation. A baseline consists of a set of documents that together define the I-SEM Systems as implemented 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 baseline would be issued to reflect the implementation of new changes or to support different milestones for a larger programme of work.

The I-SEM Technical Specification and its constituent volumes are elements of the I-SEM baseline. These documents are kept under strict version control and configuration management. This enables alignment of a version of the I-SEM Technical Specification with a specific software release to the I-SEM Systems.

### 4.3 I-SEM TECHNICAL SPECIFICATION PUBLICATION

All versions of, and updates to, the I-SEM Technical Specification are distributed and/or notified over two channels:

- Direct email to all participants via the market helpdesk; and
- Publication on the SEMO website's I-SEM page.

All queries in relation to an I-SEM Technical Specification volume should be emailed to [I-SEMproject@sem-o.com](mailto:I-SEMproject@sem-o.com), detailing the particular publication and version in the subject line.



## 5 I-SEM ENTITY MODEL OVERVIEW

Figure 1 contains an example of the I-SEM entities and the entity model governing the relationships between entities.

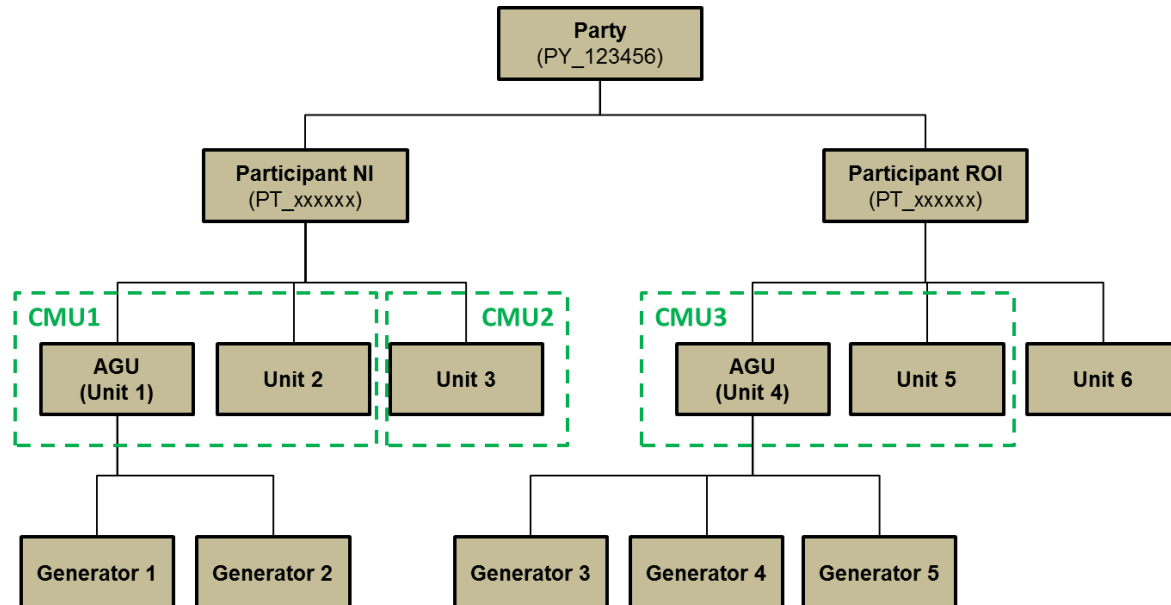


Figure 1: Example Entity Relationships

The entities included in Figure 1 are summarised as follows:

- **Parties** are the entities that accede to the Trading and Settlement Code and the Capacity Market Code, as required.
- **Participants** are the trading entities in respect of the Trading and Settlement Code and/or Capacity Market Code. Where a Party wishes to trade in more than one Jurisdiction in the I-SEM, a Participant must be registered in each Jurisdiction to that Party. Each Participant may be eligible to participate in various I-SEM markets
- **Units** are registered to Participants and comprise Generator Units and Supplier Units (as registered in the Balancing Market). Trading in the Day Ahead Market, Intra-Day Market and Balancing Market is on a per Unit basis.
  - **Aggregated Generator Units (AGUs)** are a special category of Generator Units, where individual Generators may be aggregated together for the purposes of trading (note that the ability to register as an AGU is subject to specific criteria). Where an AGU is registered to a CMU, the individual generators comprising the AGU are considered separately for the purposes of Capacity Market qualification processes. As a result, information on constituent generators of an AGU will be provided by the Participant to support qualification processes.
- **Capacity Market Units (CMUs)** are the entities by which trading in the Capacity Market is conducted. A CMU may comprise a single Generator Unit, Interconnector or a grouping of Generator Units which have qualified to participate in the Capacity Market. Composition of CMUs is subject to various restrictions as set out in the Capacity Market Code, including:

- Autoproducer Generator Units and Interconnectors must have a one-to-one relationship with CMUs; all other Generator Units may have a many-to-one relationship with CMUs.
- All Generator Units that are registered to be part of a CMU must be registered in the same Jurisdiction and with the same Participant.
- For all CMUs comprising a Demand Side Unit, all Units registered to the CMU must be Demand Side Units.

*Note: Figure 1 includes a Unit (Unit 6) which is not part of a CMU, and is therefore not eligible to participate in the Capacity Market.*

- **Generators** are individual generating plant that together comprise an AGU.