

I-SEM Market Trial Plan

Version 2.0

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Revision History

Summary of Changes	Version
Initial version of document – based on the I-SEM Level 2 Plan, Milestone Descriptions at the date of publication (15 October 2016)	1.0
<p>Updated to align with:</p> <ul style="list-style-type: none"> Revisions made to the Level 2 Plan and Milestone Descriptions following the approval of JCR 170 (February 2017); and Processes and activities outlined in the RAs' document 'High Level Framework for I-SEM Go-Live Readiness', SEM-17-005, 20 January 2017. <p>Key changes from Version 1.0:</p> <ul style="list-style-type: none"> Preparation Phase now commences on 1 August 2017. Execution of the Market Trial commences on 1 December 2017 leading up to the Go-live date of 23 May 2018. The mock auction for the Capacity Market is now included in the scope of the Market Trial. <p>The TSOs appreciate the useful and considered feedback that was received from participants following the publication of version 1.0 of this document. This feedback has not however been incorporated into this version of the document but will be fully assessed as an input into the Preparation Phase of the Market Trial when the Market Trial Team is mobilised in 3rd Quarter of 2017.</p>	2.0

Glossary of Terms

Acronym/Abbreviation/Term	Definition
AoLR	Agent of Last Resort
BM	Balancing Market
CCC	Coordinated Capacity Calculation
CCQT	Communication Channel Quality Testing
CM	Capacity Market
DAM	Day-Ahead Market
DSU	Demand Side Unit
EDIL	Electronic Dispatch Instruction Logger
FTR	Financial Transmission Rights
ICO	Interconnector Owner
IDM	Intra-Day Market
I-SEM	Integrated Single Electricity Market
JAO	Joint Allocation Office
MDP	Meter Data Provider
MO	Market Operator
NEMO	Nominated Electricity Market Operator
PEMR	Participant Engagement and Market Readiness (TSOs' I-SEM Project workstream)
PIT	Participant Interface Testing
RAs	Regulatory Authorities
SEMO	Single Electricity Market Operator
SO	System Operator
TSO	Transmission System Operator
TSOs' Market Trial Team	A team within the Participant Engagement and Market Readiness workstream of the TSOs' I-SEM Project.
WEF	Wind Energy Forecast

1. Summary

Market trials have proven to be effective tools in the implementation of electricity markets. These trials are now seen as essential for the successful launch and early operation of any new market. Market trials provide an extended opportunity for the market operator and market participants to demonstrate that market processes are working properly and to experience the market in a risk-free environment without financial consequences.

The **TSOs' Market Trial Team** (a team within the Participant Engagement and Market Readiness workstream of EirGrid/SONI's I-SEM Project) will lead the planning, preparation and coordination of the Market Trial. This Trial will be a full-scale, 'as-live' operational trial of market systems and processes. The Trial is intended to give all the organisations that will be involved in the I-SEM an opportunity to trial their processes, systems and operations prior to Go-live.

The Market Trial defined in this plan includes:

- Day-Ahead Market (DAM) and Intra-Day Market (IDM);
- Agent of Last Resort (AoLR) operation;
- Balancing Market (BM);
- Imbalance Settlement;
- Interfaces to the Financial Transmission Rights (FTR) market (and related processes);
- Interfaces to the Capacity Market (CM) and related processes; and
- The Coordinated Capacity Calculation (CCC).

The scope of the Market Trial outlined in this document excludes the trialling of the auction for the FTR market. The trialling of this auction will be covered in a separate document. The outputs from the FTR auction process will however be included in the scope of the Market Trial. The Market Trial will include the trialling of the CM auction, the settlement of Reliability Options, and also the production and processing of FTR pay-outs and congestion rents.

While participation in the Market Trial is not a mandatory requirement, all organisations and entities that intend to have an active operational role in the new market at Go-live are expected to participate.

The Market Trial will consist of two key phases:

- **Preparation Phase:** In which the Trial Participants (the organisations and entities that will be directly involved in the Market Trial) jointly develop the framework, resources, tools and materials necessary to operate the Trial. This activity will be led and facilitated by the TSOs' Market Trial Team.
- **Execution Phase:** In which the Trial Participants jointly trial their systems and processes. The Execution Phase is comprised of three stages:
 - Establishment – in which Trial Participants ensure that they are successfully connected to the Market System, that individual simple transactions can be successfully sent and received and that all trialling environments and connections are operating as expected;

- **Scripted** – in which all Trial Participants work through a series of agreed, scenarios and perform actions in accordance with previously determined scripts and pre-determined data; and
- **Unscripted** – in which Trial Participants choose and execute their own actions which are within the context of defined market circumstances, but which otherwise are unrestricted other than by the Market Rules and Procedures.

A **Market Trial Working Group** will be formed and will be open to representatives from all of the various participants in the Market Trial. The TSOs' Market Trial Team will work closely with the Market Trial Working Group which will provide input and feedback in key areas such as definition of scenarios, execution schedule, prioritisation and risk management.

Target **Market Trial Entry Criteria** are intended to ensure that: the necessary infrastructure for the Market Trial has been established, the Central Market Participants (EirGrid/SONI (in their various roles), Meter Data Providers (MDPs) and the Interconnector Owners) are ready to operate the market; and sufficient Trial Participants are ready to enter the Trial. These criteria also define the requirements for individual Market Participants to join the Market Trial.

Target **Market Trial Exit Criteria** provide a checklist of key operational readiness metrics to be tracked during the Trial. These criteria will be used as the basis of status reports both during and at the completion of the Market Trial. These Market Trial exit criteria should not be confused with the overall 'market readiness criteria' for Go-live (which will be based on a more extensive consideration of Go-live risks and issues). While the outcomes of the Market Trial will certainly form an input to the Go-live decision-making process, failure to completely achieve Market Trial exit criteria would not necessarily mean that live market operations could not commence. The Go-live decision-making process will be defined in the Framework Paper to be published by the RAs.

The Market Trial is in essence a demonstration of market processes. **Trial Management Tools** will be implemented to measure, track and report on the execution of the processes for which Trial metrics have been defined. Tools will also be implemented to log, track and report the status of the Trial, issues arising, and issue resolution.

A **Legal Framework** will be established to enable and facilitate the Market Trial. All participants in the Market Trial will need to enter into a Market Trial Agreement. The principal objective of this agreement is to limit the liabilities of the parties and in particular, to allow the sharing of data independently of the formal Market Codes coming into effect.

As there will be no financial consequences resulting from Trial outcomes, no money will change hands as part of the Trial, with the exception of a scenario to transfer a nominal amount (e.g. €1) between bank accounts of Market Participants and those of the Central Market Participants.

The necessary materials and documentation for the execution of the Trial will be developed in the Preparation Phase of the Market Trial. These will include:

- **Market Trial Scenarios and Data;**
- A detailed **Scope Definition** of the market procedures, processes, and systems to be included in the Market Trial including the way in which any deviations from the live configuration will be implemented;
- **Market Trial Execution Calendar;** and
- A detailed **Market Trial Participant Guide** to provide participants with guidance on how to participate in the Trial.

During the Execution Phase, progress will be centrally monitored, tracked and reported by the TSOs' Market Trial Team. The TSOs' Market Trial Team will ensure the smooth running of the Execution Phase by facilitating daily and weekly conference calls, issuing status reports and ensuring that issues are promptly assessed and resolved. A **Helpdesk** will be established by the TSOs to handle both technical and non-technical (business) queries and issues.

Three key summary reports will be published by the TSOs' Market Trial Team:

- **Market Trial Commencement Report:** will provide a summary confirmation of readiness to start the Market Trial, identifying any risks and issues;
- **Market Trial Status Report for Go-live Decision:** will provide a summary of the outcomes of the Trial to form a key input into the Go-live decision-making process; and
- **Final Market Trial Completion Report:** will summarise findings and process metrics for the entire Trial.

2. Introduction

2.1 Background

The introduction of the Integrated Single Electricity Market (I-SEM) in 2018 will require significant changes to the business processes, information systems and commercial arrangements of multiple energy organisations in both the Republic of Ireland and Northern Ireland.

EirGrid and SONI have jointly established the Transmission System Operators' (TSOs') I-SEM Project to:

1. Support the Regulatory Authorities (RAs) in establishing the required market and legal arrangements, and operational agreements, for the Integrated Single Electricity Market (I-SEM);
2. Implement the technology infrastructure, service arrangements, and organisational and process changes required by the TSOs to carry out their responsibilities under the I-SEM; and
3. Coordinate market readiness activities to ensure that all involved parties are prepared to play their role in the I-SEM by its Go-live date¹.

As part of meeting the third of the above objectives, the TSOs' Market Trial Team will lead the planning, preparation and coordination of a Market Trial. This Trial will be a full-scale, 'as-live' operational trial of market systems and processes. The Trial is intended to give all the organisations that will be involved in the I-SEM an extended risk-free opportunity to trial their processes, systems and operations prior to Go-live. The Market Trial will also facilitate a smooth transition into the live market.

It is important to understand that the Market Trial is not a test; all systems and processes should be fully tested prior to their entry into the Market Trial.

Market trials have proven to be effective tools in the implementation of electricity markets. Such trials provide an opportunity for the market operator and market participants to ensure that market processes are working properly and to experience the market in a risk-free environment.

¹ The RAs will publish a Framework Paper in May 2017 which will provide context to market readiness activities by identifying critical Go-live events and the roadmap to get to each event. This paper will establish criteria, governance and contingency arrangements for each Go-live event.

2.2 Purpose of this Document

The TSOs' I-SEM Project published the [Market Trial Strategy](#) document in September 2016. The Market Trial Strategy presents high-level features of the Market Trial including:

- Objectives and principles;
- Scope;
- Structure;
- Participation;
- Criteria for commencement and completion;
- Governance; and
- A summary of the activities and schedule.

This Market Trial Plan document builds upon the principles and directions provided in the Market Trial Strategy document. This document provides:

- Further detail of the Market Trial scope and structure;
- The approach to be used for preparation and coordination of execution;
- A timeline, with milestone dates for key activities;
- Categories and examples of scenarios to be trialled (with guidelines for prioritisation); and
- Details of the management and reporting approach including roles and responsibilities.

This document is focussed on providing guidance and direction to the detailed preparation activities for the Market Trial. These preparation activities will put in place all of the necessary arrangements for the successful execution of the Market Trial.

This Plan details the purpose of the Scripted Stage of Trial execution and includes examples of the types of scenarios that will be trialled. However, the Plan does not define the actual detailed scenarios to be used in the Market Trial as these are best defined in a collaborative process with Trial Participants during the Preparation Phase. The scenarios will draw heavily on the details contained within the various regulatory codes and procedures that define Trial Participants' obligations and processes for market operation². Examples of scenarios are provided in Section 4.4.

Likewise, this Plan does not define the final Market Trial Execution Calendar. Again, the scheduling of scenarios is best done in a collaborative process with Trial Participants when all the constraints and limitations can be assessed.

² Details of market codes and procedures will be provided on the [SEMO website](#).

2.3 Participation

It is expected that all organisations and entities that intend to have an active operational role in the new market at Go-live will participate in the Market Trial. The following organisations and entities are therefore expected to take part in the Trial:

- EirGrid and SONI (and their service providers), which, as well as being Transmission System Operators (TSOs), also fulfil the roles of the Nominated Electricity Market Operator (NEMO), the Single Electricity Market Operator (SEMO) and the Agent of Last Resort (AoLR);
- Market Participants:
 - Generators;
 - Suppliers; and
 - Assetless Traders.
- Regulatory Authorities, who are operators of the Market Monitoring Unit and have an operational role in the Capacity Market;
- Interconnector Owners;
- Meter Data Providers; and
- Aggregators.

For convenience, this document uses the following terms:

- *'Trial Participants'* - to refer to all of the organisations and entities that will be directly involved in the Market Trial;
- *'Central Market Participants'* - to refer to the organisations that provide the Central Market Arrangements including EirGrid/SONI (in their various roles), Meter Data Providers (MDPs), Regulatory Authorities and the Interconnector Owners;
- *'I-SEM Central Market Arrangements'* - to refer to all the constituents of I-SEM that are provided by central bodies to facilitate the I-SEM markets and hence to allow Market Participants to trade; and
- *'Market Procedures'* - to refer to the procedures included in various codes across all markets that define the operational processes of the markets at a detailed level.

An organisation may play multiple roles in the I-SEM. In the Market Trial, each role will be treated as a separate Trial Participant. Service providers which, for example, provide services to the TSOs will not be treated as Trial Participants. The involvement of service providers in the Market Trial will be the responsibility of their client organisations.

Over 80 companies are likely to be actively involved in the I-SEM. As some companies have many subsidiaries and/or roles, the number of participating entities is likely to be over 200. Although participation is not mandatory, it will be to the advantage of each individual party to participate in the Trial, as much as it is to the market as a whole.

The nature of a Trial Participant's involvement in the Market Trial will vary according to:

- The markets in which the Participant will be active: the Financial Transmission Rights (FTR) Market, Capacity Market (CM), Day-Ahead Market (DAM), Intra-Day Market (IDM) and/or the Balancing Market (BM);
- The role played by the Participant in the market (Supplier, Generator, MDP, ICO etc.); and
- The size and complexity of the Participant's processes and systems and the communication mechanism to be used.

During the Preparation Phase, the different needs and requirements of the various groups of Trial Participants will be taken into account when determining the scenarios to be followed in the Market Trial.

2.4 Critical Success Factors

A successful Market Trial of end-to-end market processes involving all market participants can play an invaluable role in achieving an orderly start to the new market arrangements with minimal impact to customers.

Issues and problems are to be expected in any Market Trial. But in a successful Market Trial, the number of issues and problems are minimised by ensuring that, as far as possible, staff and systems are ready in advance of the Trial's commencement.

Before the start of the Market Trial, all Trial Participants should have both trained their staff and ensured that systems and processes are fully tested and ready for operation. The start of trialling is better thought of as a reduced version of Go-live, rather than a final stage of testing.

If Trial Participants' staff and systems are ready, the Trial is more likely to:

- Proceed smoothly;
- Keep to the defined schedule; and
- Give Trial Participants an accurate demonstration of the way processes and systems will work after the start of the market.

Significant issues and problems encountered in the Trial will need to be addressed rapidly. Issue management processes must be defined to ensure that issues are captured efficiently, passed to experts as required and, if necessary, escalated to decision-making bodies. All Trial Participants must ensure that key support resources and groups can be made available rapidly to investigate and resolve issues.

Effective communication is also essential for the execution of a successful trial. A comprehensive Market Trial Participant Guide is invaluable to ensure that Trial Participants are clear about what is expected of them on each day. In addition, reports on progress and outcomes of trial scenarios need to be published rapidly. Communication should be open, transparent and timely, allowing the opportunity for discussion and feedback.

Experience has shown that the most effective market trials follow real market processes as closely as possible. These trials ensure that processes are trialled end-to-end using systems and processes that are, as far as possible, those to be used in production (noting that there will always be practical limitations which the trial will need to recognise and accommodate).

A successful trial needs robust planning and scoping. The trial period must be long enough to allow successful completion of end-to-end processes – but not too long so that resources become fatigued and the trial is not cost-effective. When selecting the processes and scenarios to be used in the trial, an assessment of relative risks associated with those processes should be taken into account. The planning and scoping of a trial should have high-levels of participation and consultation from involved parties.

In summary, the critical success factors for a market trial are as follows:

- Focus on end-to-end business processes;
- Prioritise the processes to be trialled by assessing the relative importance, risk and impact of failure;
- Gain commitment from all parties to meet defined entry criteria (including completion of training and end-to-end testing of systems and processes);
- Define a timescale and schedule which includes sufficient time for rectification of issues and defects;
- Implement effective issue management and escalation processes;
- Perform detailed planning and preparation – with high-levels of participation and consultation from involved parties;
- Ensure communication is effective throughout trial execution; and
- Employ a collaborative approach to trialling – with effective open and transparent communications.

2.5 Intended Audience

This document has been developed for the individuals and groups that will be involved in the preparation and coordination of the Market Trial including:

- Project Managers' Group;
- Market Trial Working Group (to be established);
- Participant project teams; and
- Project teams within Central Market Participants.

2.6 Document Structure

This document builds upon the Market Trial Strategy. The document provides further details of the scope and objectives of the Market Trial, outlines the approach to be used and presents the way in which the Trial will be managed. The document is structured around the sequence of activities in the Market Trial as follows:

- Prepare for Market Trial;
- Decision to commence Market Trial (Entry Criteria);
- Execute Market Trial; and
- Complete Market Trial (Exit Criteria).

The structure of the remaining sections of the document is shown in Table 1.

Table 1 – Structure of the Remaining Sections of the document

Section	Summary of Contents
3. Objectives and Principles	<ul style="list-style-type: none"> • Objectives • Principles
4. Scope	<ul style="list-style-type: none"> • Participation • Markets • Functionality • Scenarios • Prioritisation of Scenarios • Exclusions from Scope • Relationship with Transition and Cutover Planning • Data • Environments • Constraints
5. Structure of the Market Trial	<ul style="list-style-type: none"> • Trial Phases • Roles and Responsibilities • Key Commencement Decisions • Dependences • Legal Framework
6. Preparation Phase	<ul style="list-style-type: none"> • Overview • Key Deliverables • Schedule • Roles and Responsibilities • Risks
7. Entry Criteria into Market Trial	<ul style="list-style-type: none"> • Market Participant Entry Criteria • Central Market Participant Entry Criteria • Market Trial Coordination Criteria • Minimum Participation Criteria
8. Execution Phase	<ul style="list-style-type: none"> • Overview • Approach • Schedule • Roles and Responsibilities • Communications • Query and Issue Management • Defect Management and Reporting • IT Change Management • Changes to Market Rules and Procedures • Progress Reporting and Metrics • Management Tool • Registration • Documentation
9. Exit Criteria	
10. Key Milestones	

2.7 References

This document should be read in conjunction with the following documents:

- [Market Trial Strategy](#), version 1.0 – published 21st September 2016 (for background);
- [Transitional Registration Plan](#), version 3.2 – Version 1.0 was published 14th October 2016 (for background); and
- Latest versions of the I-SEM Level 2 Plan, Milestone Descriptions (as the milestone dates referred to in this Plan may be updated during the course of the project).

3. Objectives and Principles

3.1 Objectives

The overall objectives of the I-SEM Market Trial are to:

- Provide an extended period of operational trialling to enable all Participants the opportunity to bed-down their operations prior to Go-live;
- Facilitate a smooth and orderly transition into live market operations;
- Inform the Go-live decision, through well-defined and established exit criteria; and
- Build stakeholder confidence and assurance in both the robustness of the new market arrangements, as being fit for live operation, and in the Central Market Participants' operational capabilities to meet their obligations.

The Market Trial is in essence a demonstration of market processes; It does not seek to provide a preview of either market prices or the behaviour of Trial Participants in the live market. The Market Trial is not intended to simulate or model the impact of market circumstances on the behaviours of Trial Participants and on pricing. Specifically, the Market Trial is not:

- A validation of the market design and market rules. The Market Trial is, however, one element of an overall assurance process. There are numerous other elements of this process including robust end-to-end testing and certification processes;
- A test of market processes and systems or participant process and systems; these systems should be fully tested before Trial commencement;
- Basic training for operational staff. Staff should have received relevant training, know their responsibilities and tasks, and be able to execute them from the start of the Trial;
- A representation or simulation of likely market outcomes – given that bids and offers may not necessarily represent live operation, outcomes may vary from those expected in live operation; and
- An opportunity for drastic experimentation. The aim is that the intended operational design will be set out before trialling starts.

3.2 Principles

To achieve the objectives, the Market Trial will:

- Use a systems environment as close to a live production environment as possible;
- Be carried out by operational staff so that they can practice the roles they will be carrying out in live operation and refine their procedures;
- Operate for an extended period so that end-to-end processes can be trialled;
- Provide information about the readiness of both the Central Market Participants and Market Participants to the Go-live decision making process.
- Include defined entry and exit criteria as part of a robust decision-making process;
- Be managed by a dedicated team within the TSOs' I-SEM Project;
- Be monitored and tracked so that objective reports are provided to decision makers;
- Operate within a legal framework defined by a Market Trial Agreement; and
- Operate in parallel with current market arrangements and systems operation arrangements which will remain unchanged whilst the Market Trial is underway. TSOs, Market Participants, and Meter Data Providers will need to continue to fulfil their obligations under the current arrangements while also participating in the Market Trial.

4. Scope

4.1 Participation

It is expected that all Market Participants intending to operate in the new market at Go-live will participate in the Market Trial. All Market Participants should complete a defined set of Registration requirements before the start of the Market Trial. The Registration data provided at this time will be used for the Trial, and will also (subject to limited change) be used for live operation. Market Participants will be requested to confirm their participation in the Market Trial.

Prior to commencing the Market Trial, Trial Participants will be requested to formally confirm, through a self-certification process, that they have met the necessary entry criteria (as defined in Section 7).

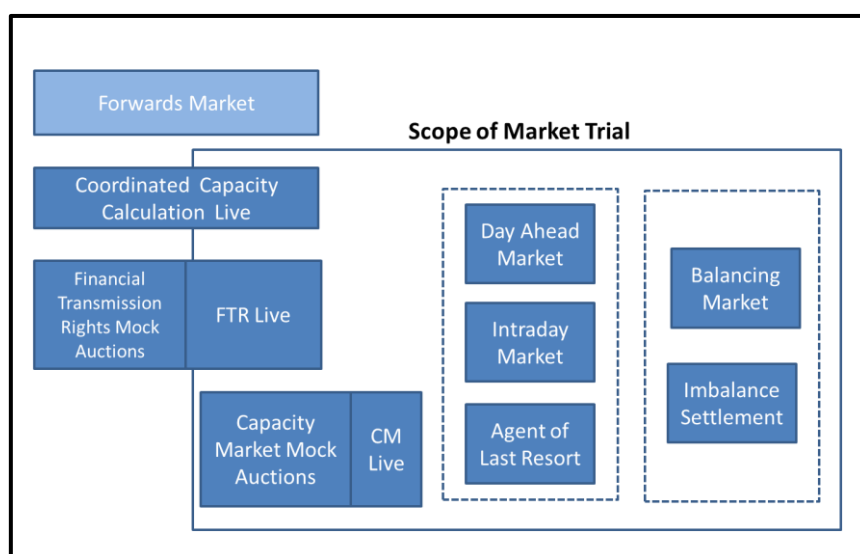
Reports on the numbers of Trial Participants confirming that they will participate in the Trial, and the readiness of those Trial Participants, will be collated by the TSOs' Market Trial team and provided to the appropriate governance body as an input into the 'Commencement of Market Trial' decision-making process (see Section 5.3).

4.2 Markets

The Market Trial will act as an operational demonstration of market systems and processes. As outlined in the objectives above, its purpose is to provide Trial Participants with the chance to experience the operation of market processes prior to the opening of the market.

Figure 1 is an overview of the markets and services included within the scope of the Market Trial.

Figure 1 Overview of Scope of Market Trial



For I-SEM, there are multiple markets with different ‘Go-live’ dates:

- The auctions for the Capacity Market (CM) and for the market for trading of Financial Transmission Rights (FTRs) commence earlier than the Day-Ahead and Intra-Day markets and balancing. It should be noted that there is no dependency between the dates of the opening of the FTR market, the CM and the start of the Market Trial;
- The Coordinated Capacity Calculation (CCC) function will be operating live in time to enable the FTR Market.

The trialling of the FTR auction process will occur separately to the Market Trial outlined in this document. Further details will be provided in a separate document. It should also be noted that the Forwards Market is outside the scope of this Market Trial.

The output from the FTR auction process will be included in the scope of the Market Trial. The Market Trial will include the settlement of Reliability Options, and also the production and processing of FTR pay-outs and congestion rents. The extent to which “live” data or simulated data is used for these information flows will be determined in detailed planning. The way in which secondary trading of Reliability Options will be included in the Trial and the exact scope and approach will be determined in the Preparation Phase.

Data from the live version of the CCC function may be included in the Market Trial. Alternatively a separate trialling instance may be used. This will be determined in the Preparation Phase.

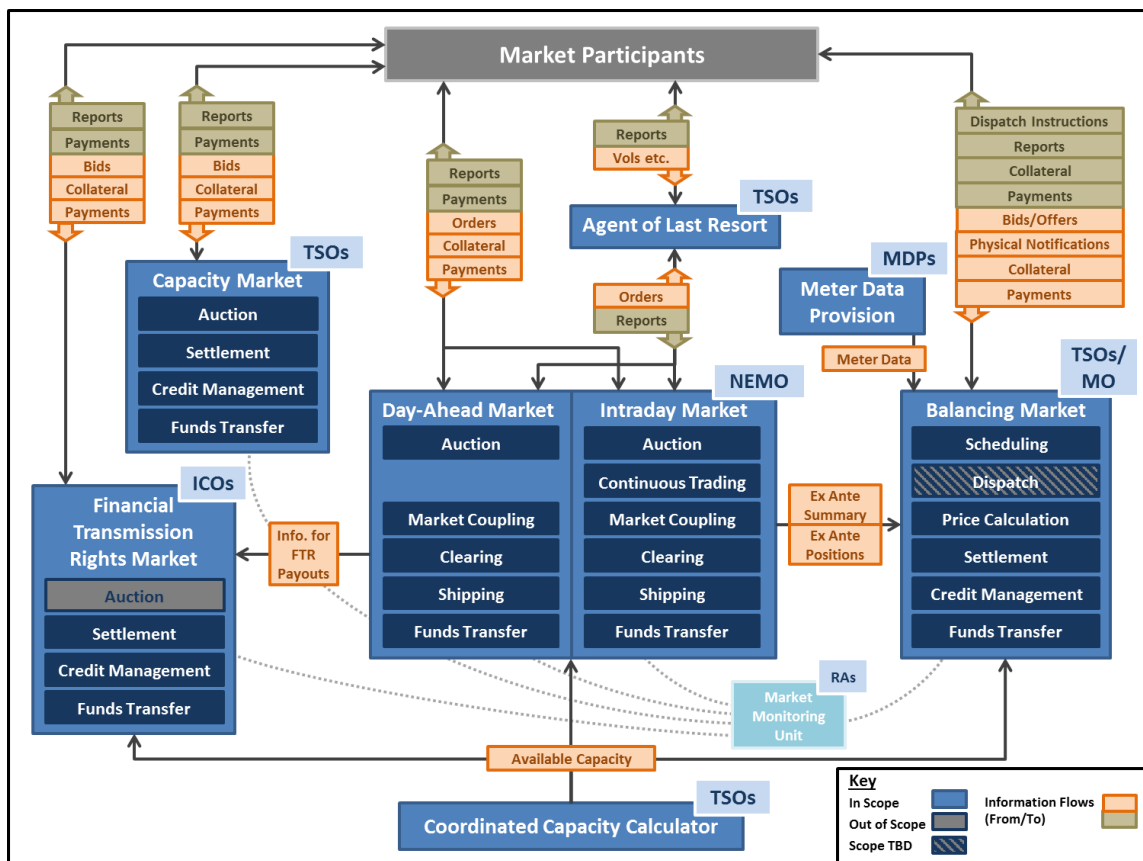
The Market Trial defined in this plan therefore includes:

- Day-Ahead and Intra-Day Markets;
- AoLR operation;
- Balancing Market;
- Imbalance Settlement;
- Interfaces to the FTR market (and related processes);
- The mock auction for the CM as well as interfaces to the CM (and related processes); and
- The Coordinated Capacity Calculation.

4.3 Functionality

The main areas of functionality to be included in the Market Trial, and the principal information flows between them are summarised in Figure 2.

Figure 2 - Areas of Functionality and Principal Information Flows



A more detailed breakdown of functionality to be included in the Market Trial is shown in Table 2 below.

Table 2 – Functionality to be included in the scope of the Market Trial

Market/Area	Functionality to be included in Market Trial ³
Registration	<ul style="list-style-type: none"> Ability for a participant to revise market Registration information.
Coordinated Capacity Calculator	<ul style="list-style-type: none"> (Will be trialled and operating live prior to Market Trial) Capacity calculation and information flows to markets
Financial Transmission Rights Market	<ul style="list-style-type: none"> (The auction will be trialled and in live operation prior to Market Trial) Information flows to/from other markets, related processes and reporting Market surveillance and monitoring
Capacity Market	<ul style="list-style-type: none"> The auction process Information flows to/from other markets, related processes and reporting Market surveillance and monitoring Reporting Query and issue management
Day-Ahead Market/ Intra-Day Market	<ul style="list-style-type: none"> Agent of Last Resort Auctions and continuous trading Cross-border and local market operation Trading functions/order types Contracted position submission to Balancing Market Settlement, clearing, invoicing, and financial functions (including payment statements) Trading limits, credit management and collateral management Shipping functions Reporting Query and issue management Market surveillance and monitoring Market participant interface options (details will be developed in the Preparation Phase)
Balancing Market and Imbalance Settlement	<ul style="list-style-type: none"> Bid/offer submissions, default bids Physical Notification submissions Scheduling constraints Dispatch (noting that there may be limits to the extent to which this can be included in trialling - to be determined) Tagging and flagging, price calculation and publication Meter data submission Imbalance settlement (including Capacity Market) and resettlement Settlement reallocation agreements Invoicing, financial functions, credit management and collateral management (including payment statements) Reporting Query and issue management Market surveillance and monitoring Market participant interface options (details will be developed in the Preparation Phase)

³ Functionality will be trialled by following Market Procedures as adapted for the Trial

4.4 Scenarios

The scenarios to be used in the Market Trial will be agreed with Trial Participants during the Preparation Phase through the Market Trial Working Group. In general, scenarios will be based on a common structure. Each scenario will commence with the issuing of bids and offers (or orders, depending on the market) and will continue through the end-to-end business process, completing with settlement and payment.

No Market Trial can ever cover all of the permutation and combinations of events and circumstances defined in the Rules. The scenarios will be prioritised based on the criteria listed in Section 4.5 focussing on key risks and impacts. The scenarios will not cover the full breadth of obligations and processes. Initially scenarios will be used to demonstrate the fundamental processes of the markets. Progressively more complex scenarios will be introduced to deal with, for example, different, more challenging market conditions. These scenarios may include exceptions and other more unusual occurrences. Some examples of types of scenarios are as follows:

- Normal Day Operation
- System Event Scenarios:
 - Planned outage
 - Unplanned outage (for example, if the dispatch system fails)
 - Load shedding
- Market Condition Scenarios:
 - Series of high-demand days
 - Low or high wind forecast days, rapidly changing wind forecast (including in the Intra-Day timeframe)
 - Days with dramatic peaks and troughs in demand
 - Days with extreme intraday price movement from positive to negative pricing and extreme negative bidding
- Settlement and Financial Event Scenarios:
 - Posting of initial settlement results
 - Scheduled resettlement
 - Execution of ad-hoc resettlements
 - Execution and posting of invoices
 - Execution of settlement re-allocations
 - Financial transfers
- Credit Management Scenarios:
 - Collateral management (calculation, request, collection, etc.)
 - Calculation and application of trading limits
 - Attempted breach of trading limits
 - Collateral default
 - Payment default

Further details on scenarios are provided in Section 8.2.2.

The materials required for each scenario are shown in Table 3.

Table 3 – Materials Required for Market Trial Scenarios

Material	Description
Market Scenario Definition	Description of market circumstances, including load forecast, wind forecast scheduled outages and weather, as well as other important details associated with the scenario.
Market Data Packages	A package of data files to be used in conjunction with the execution scripts for submitting pre-defined data to the Central Market Arrangements. Data packages will be participant specific, when required. For some scenarios, Participants will be asked to provide bid/offer data. Data packages will also define data that is to be used in the event that specific data is required from the participants to repeat the scenario.
Market Trial Execution Script	Description of each step required by the Trial Participants to participate in the Scripted Stage of the Market Trial, including obtaining and submitting data, reviewing results and providing a checklist of progress. Scripts will be produced for all Trial Participants.

To increase the efficiency of the Market Trial, some scenarios may be merged so that a number of different events or conditions are addressed in a single scenario. The Market Trial will include scenarios that trial the linkages between markets. A scenario could, for example, include a process involving the Day-Ahead market, FTR pay-outs and congestion rent collection.

Scenarios will incorporate different access types including manual (direct entry) and the use of system to system interfaces. Scenarios can also incorporate connectivity problems such as IT systems access failures. The Trial may also include some 'negative' scenarios for example where a Trial Participant submits an invalid transaction for which an error message should be returned.

When finalising the scenarios, consideration will be given to:

- Involvement of third parties such as JAO and National Grid;
- Involvement of the Market Monitoring Unit; and
- Inclusion of scenarios which attempt to reflect the events in neighbouring markets.

As noted in Section 2.3, the nature of a Trial Participant's involvement in the Market Trial will vary. Trial Participants may not therefore all perform the same scenarios.

If Trial Participants are not available to play some potential roles in the Market (such as, for example, a solar farm), then it may be necessary for the TSOs to simulate the actions of a participant in the Trial. More generally, this approach will be considered as a contingency measure if it appears there will be a lack of numbers or types of Market Participants⁴.

A trial of 24/7 operation will be included at some stage in the Market Trial but only for a limited period. Again, this will be coordinated with all Trial Participants.

⁴ This approach will also be considered for the Unscripted Stage.

4.5 Prioritisation of Scenarios

It should be noted that the purpose of the Market Trial is not to trial every possible combination or permutation of events and conditions. In the Preparation Phase, Trial Participants will assess a series of candidate scenarios to determine those that will be included in the scope of the Market Trial.

The scenarios to be used in the Market Trial will be prioritised by taking account of:

- Frequency of occurrence;
- Complexity/risk of operational failure;
- Impact of failure; and
- Value/feasibility of trialling.

4.6 Exclusions from Scope

The Market Trial scenarios will focus on the transactions and interactions between Trial Participants (that is between Market Participants and the Central Market Participants in their roles of TSO, NEMO, SEMO and AoLR, ICOs and MDPs).

The internal activities required by Trial Participants to make their individual organisations ready for the operation of the new market are not defined in this plan.

The scope of this Market Trial Plan therefore excludes the following:

- Development and execution of strategies and plans for the testing by individual Trial Participants of their internal IT systems, business processes and procedures – including any interim solutions and workarounds. All of this testing is to be completed before the commencement of Market Trial;
- Validation of volume and performance capabilities of processes and systems;
- Planning for support, management, definition and validation of Participant Interface Testing (PIT); and
- Local trialling by Participants carried out within the context of the centrally-managed Market Trial.

As explained in Section 4.2 above, the Market Trial outlined in this document will not include the initial trialling of the FTR auction. The Forwards Market is outside the scope of the Market Trial. However, as the outcomes of the Forwards Market will have implications for the other Markets, the operation of any interfaces between the Forwards Market and the other Markets will be incorporated into the Market Trial.

4.7 Relationship with Transition and Cutover Planning

At the I-SEM Go-live, there will need to be a cutover from the SEM to the I-SEM. In addition, some elements of I-SEM live operations for the BM, IDM and DAM will need to commence in advance of the market Go-live date (which is the first trading day of the BM). The commencement of these transitioning activities could limit the time available for the Market Trial depending on the strategy adopted for transition. In addition, the detailed preparation for the Market Trial will need to take account of the fact that some elements of I-SEM (such as the FTR Market and the Coordinated Capacity Calculator) will already have transitioned to live operations before the Market Trial is underway.

Also, some Trial Participants may need to end Market Trial activities so that they can commence cutover to their production environments. It is essential that sufficient time is allowed for cutover processes to be tested and completed. In addition, 'dress rehearsals' of cutover processes included data conversions, may need to be taken into account when defining the Execution Calendar for the Market Trial.

Market transition and cutover timescales have yet to be defined. A Market Transition and Cutover Strategy will therefore be developed during the Preparation Phase of the Market Trial to ensure that the schedule and completion dates for the Market Trial address the requirements of the transitioning and cutover activities (which will be occurring at the same time as the Market Trial). As an example, the Market Transition and Cutover Strategy will define the process and timing for Trial Participants to provide collateral for the purposes of operating in the live market.

A further aspect of transition and cutover is the detail of the way in which the Market Trial is brought to a conclusion. Depending on the strategy adopted, this might include a definition of trialling activities to be carried out and completed after the Go-live decision has been made. Examples might include completing actions identified in the Go-live decision as conditions for Go-live, or completing processing actions to achieve an orderly transition to live operation.

The Market Transition and Cutover Strategy will be determined in Q3 2017 to allow the Market Trial Execution Calendar to be developed in the Preparation Phase (see Section 6.0)

It should be noted that the Market Trial may itself facilitate effective transitioning and cutover. For example, having successfully loaded Registration data in the environments used for Market Trial, there may be an opportunity to use the Market Trial environments as the production environments. This opportunity will be assessed as part of transition and cutover planning.

4.8 Data

To be effective, the Market Trial will use data that is as close to actual 'as-live' data as possible. However, because of the complexity of interfacing Market Trial system environments with live production environments, it will not be practical to use actual production data in all cases.

The data used in the Market Trial will therefore be a combination of:

- Historical data;
- Actual live production data; and
- Synthesised data.

To assess the outcomes from the Scripted Stage of execution, a consistent pre-determined data set is required. Data for this Stage will therefore be based on a combination of historical and synthesised data. Creating coherent data sets for trading and settlement days, either from scratch or by adapting historical data, is a substantial task that will require early consideration in the detailed Preparation Phase.

The possibility of using at least some live production data in the Unscripted Stage will be investigated during the Preparation Phase. As an example, the Registration data and the entity model used in the Trial is, in effect, live data as it will become the actual Registration data at Go-live. Issues related to confidentiality of data and potential requirements to remove Market Participant details will also be assessed in the Preparation Phase.

The TSOs' I-SEM Project will be responsible for coordinating the provision of data for the Market Trial. The data will be sourced from both the TSOs and Meter Data Providers.

4.9 Environments

A guiding principle of the Market Trial is that Trial Participants are operating in a 'safe' environment. This may be achieved by keeping trialling environments separate from live environments. The IT environments used for the Market Trial should be a non-production equivalent to the environment that will be used in production after Go-live. The environments used in market trials are often pre-production or end-to-end test environments.

An assessment of transition options, as part of the development of the Market Transition and Cutover Strategy, may show that there are advantages in converting the environment used in end-to-end testing into the environment used for the Market Trial. In addition, there may be advantages in converting the environment used in the Market Trial into the version used in the production environment. This 'smooth transition' or 'soft landing' approach may, for example, reduce the risks associated with transferring bids/offers and Registration data from one environment to another. In these cases, it is essential to ensure that all necessary controls are established to avoid any trial data becoming inadvertently used in a live production environment.

4.10 Constraints

While the Market Trial is to operate in an 'as-live' environment, there are some cases in which it is not practical (for example, due to required elapsed time) or effective to operate a full business process in the Market Trial. Examples of these constraints are as follows:

- Actual payments will, in general, not be made in the trial (however a limited trial of the end-to-end payment transfer process may be included);
- The full enduring end-to-end Registration process will not be trialled (as the elapsed time for this process is greater than the time of the Market Trial). Some elements of the Registration process (for example, amending Registration details) will be included in the Trial;
- Dispatch instructions would not be provided to generators unless sufficient protections are in place to ensure that these instructions could not be acted upon in live operations (the TSOs are likely to make use of an internal 'operations simulator' to trial dispatch functions);
- Some cross-border and third-party service providers may not be in a position to fully participate throughout the trial;
- 24/7 operations will be trialled, but only for a limited period (and not necessarily by all Trial Participants); and
- Resettlement timescales would need to be adjusted so that multiple resettlements for a settlement day could be fully included in the trial.

5. Structure of the Market Trial

5.1 Trial Phases

The Market Trial will consist of two phases:

- **Preparation Phase:** In the Preparation Phase, the Trial Participants will jointly develop the framework, resources, tools and materials necessary to operate the Trial. This activity will be led and facilitated by the TSOs' Market Trial team. In parallel, Trial Participants will also be preparing their individual systems and processes so that they meet the entry criteria for the Market Trial. During this period, Market Participants will also need to enter into the Market Trial Agreement and confirm participation in the Trial.
- **Execution Phase:** Trial Participants will jointly trial their systems and processes. The Execution Phase is comprised of three Stages:
 - Establishment – in which Trial Participants ensure that they are successfully connected to the Market System, that individual simple transactions can be successfully sent and received and that all trialling environments and connections are operating effectively;
 - Scripted – in which all Trial Participants work through a series of agreed, scenarios in which each participant in the Trial performs actions in accordance with previously determined scripts and pre-determined data; and
 - Unscripted – in which Trial Participants choose and execute their own actions, but in accordance with Market Rules and Agreed Procedures.

During the Execution Phase, progress will be centrally monitored, tracked and reported by the TSOs' Market Trial Team. Details on the Preparation and Execution Phases are explained in more detail in Sections 6 and 8.

5.2 Roles and Responsibilities

During the Market Trial, all involved entities are expected to play the role that they will play under live market operations. Specifically:

- The **Central Market Participants** will execute their functions necessary to operate the I-SEM, with limited exceptions (e.g. funds will not change hands). However, it is not expected that all administrative aspects of the Market Rules will be trialled (e.g. disputes, rule changes), although it is possible that some of these administrative features may already be 'live' during the period of the Trial; and
- **Market Participants** will execute the functions necessary to interact with the Central Market Arrangements in the I-SEM. Market Participants will also be able to use the Trial as an opportunity to trial their own processes and systems; although this is not a formal requirement of the Market Trial.

It is expected that systems and processes will be exercised in the Trial by the same staff that will operate them in the live market. Because of the need to concurrently support operations for the current market arrangements, this could, to some extent, involve parallel operations or additional staffing.

The **TSOs' I-SEM Project** will prepare and coordinate the Trial. This includes tracking and reporting of Trial metrics, managing Trial communications with Trial Participants, etc. The TSO' Market Trial Team will be created within the project to undertake these activities.

A **Market Trial Working Group** will be formed comprising of representatives from all of the various groups that will take part in the Market Trial (including the RAs). The Market Trial Working Group will be a liaison group similar to the Project Managers' Group and Business Liaison Group and will not have a decision-making role. The TSOs' Market Trial Team will work closely with the Market Trial Working Group which will provide input and feedback in key areas such as:

- Definition of scenarios;
- Practicalities of operating the end-to-end scenarios in a Market Trial environment;
- Relative priorities of the candidate scenarios;
- Practicality of execution timescales (taking into account any constraints and issues such as those defined in Section 4.10); and
- Definition of processes for Trial Participants to provide reports on progress and for capturing and resolving issues.

The Preparation Phase for the Market Trial will produce a number of documents that define the detailed scope of the scenarios to be used and the roles of the various Trial Participants in these scenarios. The Market Trial Execution Calendar will define the schedule for the execution of these scenarios. These scenarios and the execution calendar may impact Trial Participants' resources and arrangements with service providers and cross-border partners.

The Market Trial Working Group process will ensure that Trial Participants are sufficiently involved in the definition and finalisation of Market Trial Preparation and Execution documentation. In addition, Market Trial Preparation and Execution documentation will be presented to the Project Managers' Group prior to being finalised and approved by the TSOs.

The TSOs' and RAs' design authorities will also have a role in the Market Trial. The design authorities will:

- Be invited to comment on scenario definitions; and
- Play a role in the assessment of any proposed changes to the Market Rules during the trialling period.

It is envisaged that the Market Trial Working Group will meet at least monthly, and probably more frequently during the preparation and review of scenarios.

5.3 Key Commencement Decisions

The RAs will publish a Framework Paper in May 2017 that will provide context to market readiness activities by identifying critical Go-live events and the roadmap to get to each event. This Paper will establish criteria, governance and contingency arrangements for each Go-live event. The key decisions and the information required for the key decisions relating to the Market Trial are shown in Table 4 below.

Table 4 - Key Decisions

Key Decision	Information Required (to be confirmed)	Decision-making body (to be confirmed ⁵)	Date
Proceed with Market Trial	<ul style="list-style-type: none"> Confirmed Entry Criteria. Trial Participants' 'ready for market trial' statements. Central Market Participants' 'ready for market trial' statements. The TSOs' Market Trial Team 'ready for market trial' statement. 	I-SEM Project Board	17 November 2017
Go-live decision	<ul style="list-style-type: none"> Status of Market Trial against defined Exit Criteria Participant 'ready for Go-live' self-assessment reports. 	I-SEM Steering Committee	11 May 2018 (as required for Go-live decision - date to be confirmed)
Confirm Trial Completion	<ul style="list-style-type: none"> Market Trial Completion Report 	I-SEM Project Board	May 2018 (date to be confirmed). This report will be produced when the Market Trial has been completed and may include any remaining issues etc.

In making the decision to proceed with the Market Trial, the appropriate governance group will consider whether a sufficient number of Market Participants will be ready to participate and if there is sufficient coverage of the market in terms of the size and type of Trial Participants and their key roles. These requirements will be set out in advance in the defined Entry Criteria.

The TSOs' I-SEM Project is responsible for collating the information to support the key decisions outlined above.

In addition, the TSOs' I-SEM Project will continuously monitor the progress of readiness activities through the Readiness Reporting Process. This monitoring is intended to provide an early warning of any issues. Metrics and checkpoints will be defined to review readiness for the Market Trial.

⁵ The decision making bodies will be confirmed in the RAs' Framework Paper.

5.4 Dependencies

The activities defined in this Plan are dependent upon a number of activities as listed in Table 5 below.

Table 5 – Key Dependencies

Dependency	Timescales	Impact
Publication of a sufficiently stable and complete version of the market rules, procedures and/or process documentation that defines how the market processes operate.	Required no later than end June 2017.	A delay in the finalisation of market procedures and/or process documentation would delay the definition and agreement of Trial scenarios.
Availability and involvement of Participant resources in the Market Trial Working Group.	Required at the commencement of the Preparation Phase.	Participant involvement during the Preparation Phase is essential for the Market Trial to meet its objectives.
Readiness of Market Participants to commence Market Trial (as defined in entry criteria).	Required for the 'commence Market Trial' decision on 17 November 2017.	Unless sufficient Participants (with sufficient coverage of size, type and roles) are involved, the Trial cannot meet its objectives.
Readiness of the Central Market Participants to commence Market Trial (as defined in entry criteria).	Required for the 'commence Market Trial' decision on 17 November 2017	Unless the Central Market Participants are involved, the Trial cannot meet its objectives.

5.5 Legal Framework

The new Market Rules and Procedures will not formally cover the Market Trial. Therefore all participants in the Trial will need to enter into a legal agreement that will enable cooperation during the Trial. This legal agreement will, for example, need to take into account data protection obligations. The agreement is likely to put in place contractual arrangements as follows:

- Confirm that Trial Participants will each bear their own costs;
- Capture the intent that Trial Participants will follow Market Rules and Procedures with defined adjustments;
- Ensure that there are no liabilities for the sharing of information in accordance with the Market Rules and will provide permissions for use of data during the Market Trial;
- Establish an explicit acknowledgement that no money changes hands in the Market Trial, and as such, there can be no liability for adverse financial outcomes; and
- Provide a waiver of all consequential liability associated with any aspect of the Trial – for example, wasted time and resources, or subsequent commercial actions taken by a participant based on the outcomes of the Trial.

The TSOs' I-SEM Project will prepare the Market Trial Agreement in Q3 2017 so that the Agreement can be entered into by all Trial Participants prior to the 'commence Market Trial' decision on 17 November 2017.

6. Preparation Phase

6.1 Overview of Preparation Phase

The Preparation Phase will be led by the TSOs' Market Trial Team which will work closely with the Market Trial Working Group. The Preparation Phase of the Market Trial will:

- Define the detailed scope of the Market Trial in terms of the numbers and categories of Trial Participants and the business processes to be trialled;
- Develop the detailed scenarios to be used by the various categories of Trial Participants;
- Deliver a detailed Market Trial Execution Calendar;
- Arrange the provision of data for the Market Trial;
- Define and implement monitoring and reporting capabilities to be used in the Execution Phase;
- Deliver the Market Participant Trial Guide;
- Establish communications arrangements for the Execution Phase; and
- Deliver the Market Trial Agreement for signing by Trial Participants.

6.2 Key Deliverables

The key deliverables from the Preparation Phase are shown in Table 6.

Table 6 - Key Deliverables

Deliverable	Summary	Responsibility
Market Trial Participant List	List of Trial Participants defining their involvement in the Market Trial.	TSOs' Market Trial Team
Market Trial Execution Calendar	A day-by-day schedule of trialling activities over the execution period.	TSOs' Market Trial Team in conjunction with Trial Participants and RAs
Market Trial Agreement	A legal agreement which must be entered into by each Trial Participant prior to commencement of the Market Trial.	TSOs' Market Trial Team
Market Trial Scope Definition	A description of the market procedures, processes, and systems to be included in the Market Trial (including the way in which any deviations from the live configuration will be implemented).	TSOs' Market Trial Team in conjunction with Trial Participants and RAs

Deliverable	Summary	Responsibility
Market Trial Scenario Documentation	The detailed processes that each Participant will execute during the Market Trial (including references to market procedures). These scenarios will define the interactions between Trial Participants - but will not define the activities that occur inside a Participant's organisation. It is envisaged that each Participant will have defined its own internal work instructions and trained its personnel in those work instructions.	TSOs' Market Trial Team in conjunction with Trial Participants and RAs
Confirmed Market Trial Entry and Exit criteria	The entry and exit criteria based on those outlined in this document will be confirmed - along with the detailed metrics for the 'Participation Criteria' – see Section 7.4.	TSOs' Market Trial Team in conjunction with Trial Participants and RAs
Market Transition and Cutover Strategy	Details of the market activities required for transition and cutover to the new market arrangements.	TSOs' Market Trial Team in conjunction with Trial Participants and RAs
Market Trial Participant Guide	A detailed guide for each Trial Participant to assist them throughout the Market Trial. This guide may cover: <ul style="list-style-type: none"> - Execution of Trial scenarios - Reporting outcomes of trialling - Reporting issues and defects - Communications processes and contact details - Use of Management Tools - Useful background documentation - Transition and Cutover information 	TSOs' Market Trial Team
Market Trial Management Tool(s)	Tools used for tracking and monitoring the Market Trial.	TSOs' Market Trial Team

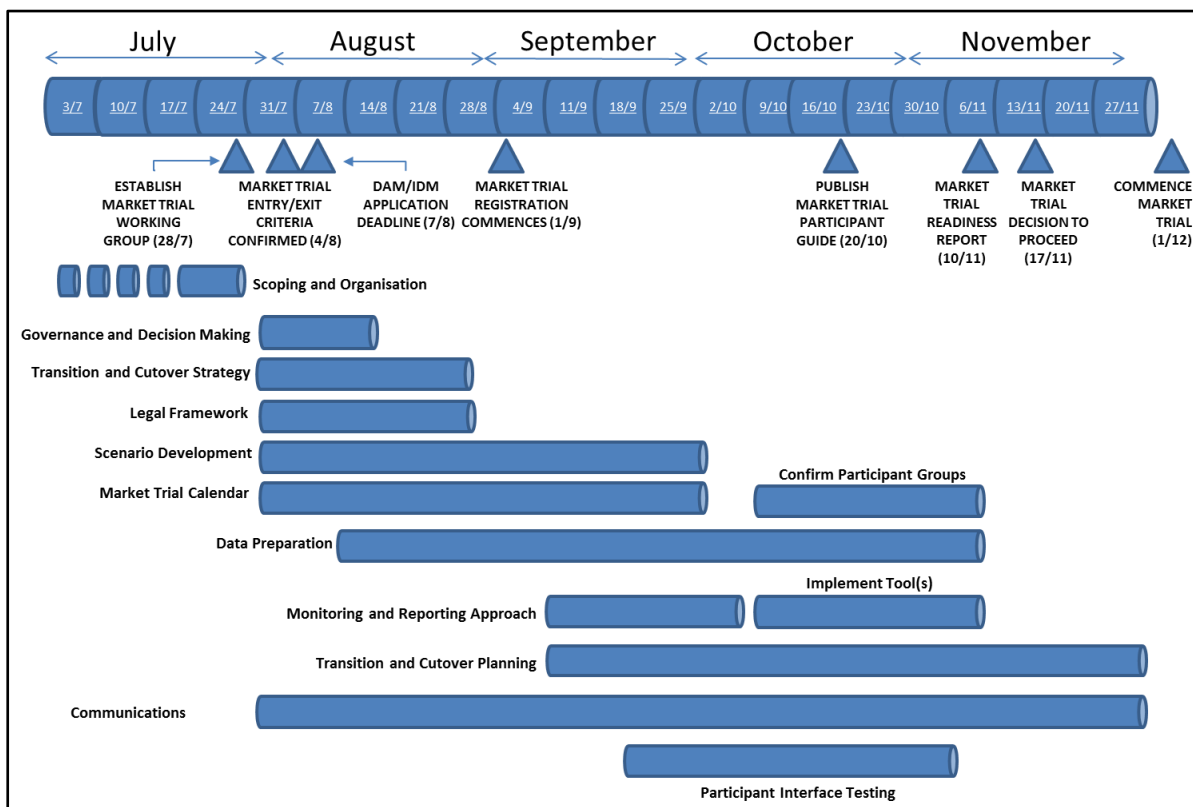
In addition, this Market Trial Plan may be revised as a result of the work completed in the Preparation Phase. It is likely that one or more subsequent versions of this document may be published.

6.3 Schedule for Preparation Phase

Figure 3 presents a proposed schedule for the Preparation Phase. This shows the scoping and organisation for the Preparation Phase starting in advance of the scheduled commencement date of August 1 2017.

This schedule will be reviewed by the Market Trial Working Group at the commencement of the Preparation Phase.

Figure 3 – Indicative Schedule for Preparation Phase



6.4 Roles and Responsibilities

The relative roles of the TSOs’ Market Trial Team, the overall TSOs’ I-SEM Project and Market Participants in the Preparation Phase are shown the Table below.

Table 7 – Roles and Responsibilities

Group	Role
TSOs’ Market Trial Team	<ul style="list-style-type: none"> • Provide facilitation and leadership to the preparation for the Market Trial. • Responsible for development, in consultation with Trial Participants, of key deliverables.
Central Market Participants	<ul style="list-style-type: none"> • Establish market systems, processes and skilled personnel to operate the new market arrangements. • Participate in, and provide support to, the Market Trial preparation activities.
Market Participants	<ul style="list-style-type: none"> • Establish systems, processes and skilled personnel to operate the new market arrangements. • Participate in, and provide support to, the Market Trial preparation activities.

The following sections outline the key activities for each of the groups listed above.

6.4.1 TSOs' Market Trial Team

The key activities of the TSOs' Market Trial team in the Preparation Phase are shown in Table 8 below.

Table 8 – Key Activities of the Market Trial Team in the Preparation Phase

Activity	Description
Scoping and Organisation	<ul style="list-style-type: none"> Define a detailed plan for the Preparation Phase Confirm market procedures, processes and systems to be included in scope of Market Trial (and how the constraints to scope will be addressed) Establish the Market Trial Working Group and schedule meetings Create Market Trial Participant List (including points of contact) Confirm arrangements for new Market Participants who may, for example, be registering for the Markets during the Market Trial
Development of Market Trial Scenarios and Execution Calendar	<ul style="list-style-type: none"> Facilitate Market Trial Working Group sessions to agree target list of prioritised scenarios Develop initial proposals for scenarios for review by the Market Trial Working Group. Facilitate Market Trial Working Group sessions to agree the schedule for executing scenarios
Preparation of Key Documentation Deliverables	<ul style="list-style-type: none"> Develop Key Deliverables as defined in Table 6
Data Preparation	<ul style="list-style-type: none"> Define detailed data requirements Identify sources of data to be used for each scenario Arrange provision of data
Monitoring and Reporting Approach	<ul style="list-style-type: none"> Establish Market Trial Management Tool(s) Confirm reporting metrics Define reporting approach Define required contents and timing of reports
Trial Management Tools	<ul style="list-style-type: none"> Establish the tools that will be required during the Execution Phase of the Market Trial to: <ul style="list-style-type: none"> Track overall Trial progress Track Participant operation against defined metrics throughout the Trial Track issues that arise during the Trial and their resolution Report status and progress to all stakeholders Inform assessments of market and participant readiness
Communications	<ul style="list-style-type: none"> Establish communications arrangements for Execution Phase (daily communications, helpdesk etc.)
Access Management	<ul style="list-style-type: none"> Coordinate the definition of an identity and access management approach for the Trial Coordinate the provision of login and password details and digital certificates for use in the Trial as required

Activity	Description
Transition and Cutover	<ul style="list-style-type: none"> Define what market activities are required for transition and cutover to new market arrangements, e.g.: <ul style="list-style-type: none"> Early submission of bids and offers Confirmation of market parameters Registration process Collateral provisions Legal framework Design overall approach Define arrangements for market systems cutover –connectivity changes, production verification testing etc. (if required)

6.4.2 Central Market Participants

The readiness activities of the Central Market Participants during the Preparation Phase are shown in Table 9 below.

Table 9 – Central Market Participants’ Readiness Activities in the Preparation Phase

Activity	Description
Complete Internal Readiness Project(s)	<ul style="list-style-type: none"> Complete internal readiness projects to achieve the defined Market Trial Entry Criteria
Market Trial Related Activities	<ul style="list-style-type: none"> Sign the Market Trial Agreement Prepare internal scripts and data for roles in Market Trial Review Market Trial materials and provide feedback Provide regular updates on readiness as part of the readiness assessment process Define support arrangements for issues management, escalation and resolution Establish Market Trial Environments Support Participant Interface testing and CCQT

6.4.3 Individual Market Participants

The key activities of the Market Participants in the Preparation Phase are shown in Table 10 below.

Table 10 – Market Participants' Internal Readiness Activities in the Preparation Phase

Activity	Description
Complete Internal Readiness Project(s)	<ul style="list-style-type: none"> Complete internal readiness projects to achieve the defined Market Trial Entry Criteria
Market Trial Readiness Activities	<ul style="list-style-type: none"> Attend any information and awareness sessions provided by the TSOs' I-SEM Project Sign the Market Trial Agreement Complete Registration (covering both I-SEM and the Market Trial) Prepare internal scripts and data for roles in Market Trial (it is envisaged that Trial Participants will be able to make use of internal operating instructions derived from market procedures in the preparation of their scripts) Review Market Trial materials and provide feedback Provide regular updates on readiness as part of the Readiness Reporting process Establish Market Trial Environments Review Market Trial Participant Guide and prepare for Trial execution Completed Participant Interface testing and CCQT

6.4.4 Registration

Registration for both the I-SEM and for the Market Trial is planned to be a single group of activities. To reduce risks at Go-live, the final version of the Registration data used for the Market Trial will be the same data as that used for live operation. There will be only limited opportunity for changes during the period of the Market Trial.

A detailed plan for the proposed approach to Registration will be published subsequently.

6.5 Risks

Risks will be continually identified and mitigation progress monitored during the Preparation Phase at the meetings of the Market Trial Working Group. An initial assessment of the risks of the Market Trial not meeting its objectives is shown in Table 11.

Table 11 – Initial Assessment of Risks Associated with the Market Trial

Risk	Mitigation Approaches
Preparation for the Trial may take longer than estimated (noting that Trial Participants will be carrying out their own testing concurrently with trial preparation).	<ul style="list-style-type: none"> Prepare detailed plan for Preparation Phase and tightly monitor and track progress. Ensure activities are identified early and prioritised.
Execution of the scenarios in the Execution Phase may take longer than estimated.	<ul style="list-style-type: none"> Prepare detailed plan for Execution Phase and tightly monitor and track progress. Ensure that emphasis is given to execution of high priority scenarios when developing the Execution Schedule. Be prepared, so far as is practicable, to be agile in scheduling in the Execution Phase. Assess opportunities to lengthen Execution Phase by shortening the cutover window.

Risk	Mitigation Approaches
A sufficiently stable and complete version of the Market Procedures and/or process documentation, that defines how the market processes operate, may not be available by end July 2017.	<ul style="list-style-type: none"> Commence development of trial scenarios based on existing documents but schedule a review process to finalise scenarios when stable documentation is available.
Practical constraints (for example related to involvement of external service providers and third parties) may limit the ability to trial end-to-end processes.	<ul style="list-style-type: none"> Work closely with the Trial Participants through the Market Trial Working Group to identify limitations and constraints.
Issues and defects encountered in the early stages of the Execution Phase may delay the progress of the Market Trial.	<ul style="list-style-type: none"> Ensure that Participant Interface Testing is completed before the commencement of the Market Trial.
The Central Market Participants and/or sufficient Market Participants may not be ready to commence the Market Trial.	<ul style="list-style-type: none"> Ensure that Entry Criteria are clearly defined and well understood. Perform ongoing readiness assessments in advance of Market Trial. If risk increases as the start of the Trial approaches, consider contingency arrangements (for example, using simulations of Participant inputs).
Registration processes may not be completed in time for commencement of the Market Trial.	<ul style="list-style-type: none"> Combine Registration for the markets and the Market Trial into a single activity. Provide clear guidance to Market Participants on the requirements (including timings) of the Registration process.
Timescales for transition and cutover processes may limit the time available for the Market Trial.	<ul style="list-style-type: none"> Deliver a high-level Market Transition and Cutover Strategy at an early stage of the Preparation Phase of Market Trial.
An unexpected scope change may adversely impact the Market Trial.	<ul style="list-style-type: none"> Enforce strict change management procedures for the Market Trial.

7. Entry Criteria for Market Trial

The Entry Criteria for the Market Trial include the following:

- **Market Participant Entry Criteria** which determine whether individual Trial Participants are ready to enter the Trial;
- **Central Market Participant Entry Criteria** which determine whether the Central Market Participants are ready for the Trial to commence;
- **Market Trial Coordination Criteria** which determine whether the processes and arrangements for conducting the execution of the Market Trial, as a whole, are ready for the Trial to commence; and
- **Minimum Participation Criteria** which define the minimum requirements for the type, size, and roles of Trial Participants which must be ready in order that the Market Trial can be started effectively.

The RAs' Framework Paper will provide further details of the entry criteria which will be confirmed during the Preparation Phase including the specific details (numbers and percentages) for the Minimum Participation Criteria.

7.1 Market Participant Entry Criteria

For the Market Trial to operate successfully, all Market Participants will be expected to have achieved the following entry criteria:

- All IT systems that will be used by the Market Participant in the Market Trial have successfully completed end-to-end testing;
- An IT systems environment has been established for use in Market Trial;
- All business processes and work procedures that will be used by the Market Participant in the Market Trial have been sufficiently validated and documented (this includes scripts for the scenarios in the Scripted Stage);
- Commercial arrangements have been established with any service providers/external parties who will participate in, or support, the Market Trial;
- Any necessary support arrangements have been established with internal service providers;
- Staff, who will operate IT systems and business processes in the Market Trial, have been trained and will be available as required throughout the Market Trial;
- Market Participants have registered for participation in the appropriate markets;
- Market Participants have attended any training sessions provided by the TSOs' I-SEM Project;
- Market Participants have successfully completed the required Participant Interface Testing (PIT) and Communication Channel Quality Testing (CCQT).

Individual Market Participants will be required to provide a 'Ready for Market Trial' readiness statement to confirm that they have met the above criteria and are ready to participate in the Trial. The RAs' Framework Paper will provide further details of the requirements for these statements.

If a Market Participant has not completely achieved these Entry Criteria by the time of the 'Proceed with Market Trial' decision, then they would provide a readiness statement which provides details of their status against each of the Entry Criteria. In this statement, the Market Participant would present a proposed plan for their involvement in the Market Trial including details of the remediation actions that they will take to address the areas in which they are not ready.

In addition, the readiness progress of Market Participants will be included, as an aggregate, in the ongoing Readiness Reporting process operated by the TSOs' I-SEM Project.

7.2 Central Market Participant Entry Criteria

For the Market Trial to operate successfully, the Central Market Participants are expected to have achieved the following entry criteria:

- All IT systems that will be used by the Central Market Participants in the Market Trial have successfully completed end-to-end testing;
- IT systems environments have been established by the Central Market Participants for use in Market Trial;
- All business processes and working procedures that will be used by the Central Market Participants in the Market Trial have been sufficiently validated and documented (this will include scripts for the Scripted and Unscripted Stages);
- Commercial arrangements have been established with any service providers/external parties who will participate in, or support, the Market Trial;
- Any necessary support arrangements with internal service providers have been arranged;
- Staff, who will operate the Central Market Participants' IT systems and business processes in the Market Trial, have been trained and are available as required throughout the Market Trial; and
- IT Systems have been populated with all the market, participant, and system parameters and data necessary to execute the Market Trial.

The Central Market Participants will provide a 'Ready for Market Trial' readiness statement to confirm that they have met the above criteria. In addition, the readiness progress of the Central Market Participants will be included in the ongoing Readiness Reporting process operated by the TSOs' I-SEM Project.

If a Central Market Participant has not completely achieved these Entry Criteria by the time of the 'Proceed with Market Trial' decision, then they would provide a readiness statement which provides details of their status against each of the Entry Criteria. In this statement, the Central Market Participant would present a proposed plan for their involvement in the Market Trial including details of the remediation actions that they would take to address the areas in which they are not ready. The plan would highlight any impacts that this approach will have on Market Participants taking part in the Market Trial.

7.3 Market Trial Coordination Entry Criteria

For the Market Trial to operate successfully, the TSOs' Market Trial Team is expected to have achieved the following entry criteria:

- The Market Trial Scope has been defined;
- The Market Trial scenarios have been finalised;
- The Market Trial Execution Calendar has been finalised;
- Trial Participants have been briefed on the process and arrangements for the Market Trial;
- Trial data preparation has been completed;
- An approach for the TSOs' I-SEM Project to assume a specific Market Participant role (e.g. solar operator) if required has been defined;
- The Market Trial Participant Pack has been completed and distributed to all Trial Participants; and
- The Market Trial Management Tool(s) has been configured with all required information (including defined Market Trial scenarios).

The TSOs' Market Trial Team will consolidate the 'Ready for Market Trial' readiness statements from Trial Participants and from the Central Market Participants and will publish a Market Trial Readiness Report to the appropriate governance body in sufficient time for its decision to proceed with the Market Trial on 17 November 2017.

7.4 Minimum Participation Entry Criteria

For the Market Trial to operate successfully, a minimum level of participation is required. For the Market Trial to commence, sufficient Trial Participants should have confirmed their readiness to commence the trial so that the Trial has, for example:

- Sufficient coverage across all Participant roles (generator, supplier, trader and DSU);
- Full involvement of all key entities that provide the Central Market Arrangements;
- Sufficient coverage of unit types (thermal, wind, pumped, storage, etc.);
- Sufficient coverage across the profile of Participants (size and scale of companies); and
- Coverage of a defined minimum percentage of the total system generation and demand for each of Republic of Ireland and Northern Ireland.

The RA's Framework Paper will provide further details of these criteria. The detail of these criteria (including numbers and percentages) will be confirmed in the Preparation Phase no later than 4 August 2017.

8. Execution Phase

8.1 Overview of Execution Phase

The Execution Phase will be conducted in three stages:

- Establishment Stage;
- Scripted Stage; and
- Unscripted Stage.

Structuring the Execution Phase into these three stages allows Trial Participants to move in controlled steps from initially sending and receiving relatively simple transactions, through to complex pre-defined scenarios, and then to situations in which Trial Participants must determine their own responses to various market circumstances.

8.2 Approach

8.2.1 Establishment Stage

Prior to the commencement of the Execution Phase of the Market Trial, the interfaces between Trial Participants and the Central Market Arrangements will already have been tested as part of Participant Interface Testing.

However, before embarking on a series of complex scenarios involving multiple Trial Participants, it is prudent to ensure that all Trial Participants have established the basic capabilities necessary to take part in the Trial. The Execution Phase will therefore commence with an Establishment Stage.

The activities included in this Stage will include:

- Confirming the operation of system interfaces;
- As necessary, updating any identification/access details (such as digital certificates); and
- Execution of simple business transactions across interfaces.

While Trial Participants will follow pre-defined processes in the Establishment Stage, they will be relatively simple with few steps. The focus will be on making sure that individual transactions can be sent and received effectively between the Trial Participants. This approach allows issues relating to interfaces or validations to be resolved before more complex scenarios are performed. The processes in the Establishment Stage will not be required to follow the timings in the Market Procedures.

As a large number of Trial Participants will be involved in the Trial, it may be effective to adopt a phased approach to bringing Trial Participants into the Trial. However, the need for, and details of, such a phased approach have yet to be determined.

If Trial Participants are, for whatever reason, unable to successfully complete the basic processes in the Establishment Stage, they should continue to re-run these processes until they are ready to commence the more complex scenarios in the Scripted Stage.

The Establishment Stage will therefore need to continue until at least the minimum number of required Trial Participants for the Market Trial Scripted Stage has successfully completed the Establishment Stage. The minimum number and type of Market Participants required will be set out in the detailed Preparation Phase.

8.2.2 Scripted Stage

The Scripted Stage of the Market Trial will comprise the execution of a series of pre-defined scenarios. The purpose of a scenario is to demonstrate the operation of I-SEM in a particular context, and to demonstrate how particular events are dealt with and/or to exercise particular features of I-SEM.

The scenario definitions will include the data and actions corresponding to and representing such events. In general, events may be considered to be of two types: 'business events' (such as a payment default by a Market Participant), and 'process events' (such as the failure of a component of the I-SEM Central Market Arrangements). In the case of process events, it is not the intent to simply repeat technical test cases which will already have been carried out in testing, but rather to demonstrate the business processes which would be invoked, should such failures occur.

The definition of each scenario will comprise:

- A definition of market circumstances (including items such as system demand, wind forecast, system events such as outages, exchange rate⁶); and
- A definition (or script) of how Participants should act (for example, when and what to trade in various markets).

As an example, a scenario might demonstrate a Market Participant credit default in the BM. This scenario might include:

- Definition of market circumstances as a 'baseline day';
- Definition of 'baseline day' activities for Market Participants, TSOs, ICOs, NEMO, Meter Data Providers, but amended such that Supplier A's meter data leads to an imbalance in the BM with a value beyond the (notional) collateral held by Supplier A;
- TSO executes 'baseline day' scheduling and dispatch;
- Market Operator executes imbalance pricing;
- Meter data delivered by MDP;
- Market Operator executes, settlement processes and credit management;
- Processes revealing shortfall in collateral;
- Supplier A ignores requests for deposit of further collateral;
- Market Operator executes credit default process;
- Supplier A fails to make payment due;
- Market Operator executes payment default process; and
- NEMO executes processes reflecting BM default.

Attachment 1 describes 'a baseline day' (that is, a trading day with no exceptional events) and, as an illustration, sets out features and events that may be included in scenarios focussed on the DAM/IDM. These examples show that a scenario may well include actions in different markets by both Market Participants and by the Central Market Participants.

⁶ Market circumstances may also include assumptions about positions taken by Market Participants in the Forwards Market

Where possible, scenarios will be defined to encompass a number of different events, so as to make the best use of the trading days available within the Scripted Stage.

The Scripted Stage will be structured such that simple scenarios are executed first, followed by more complex ones. Further “normal” scenarios (that is with no exceptional events or circumstances) will be executed before those including exceptions. The Scripted Stage will need to be planned to allow for multiple attempts to execute the defined scenarios.

The scenarios in the Scripted Stage will be executed according to the procedures in the Market Codes (for example, the Agreed Procedures in the Trading and Settlement Code) or other relevant procedures, as adjusted to reflect the limitations of the Trial. The scenarios will not define Trial Participants’ internal activities. Instead, Trial Participants should follow their own internal operating procedures (which should be defined to ensure that the Trial Participants meet the requirements of the Market Rules & Procedures).

During this Stage of the Trial, we envisage that some Trial Participants will be chosen to simulate the process of losing direct communications with the Central Market Arrangements and will submit transactions using the defined fall-back arrangements. Also during this Stage of the Trial, some Market Participants will be asked to transfer a nominal sum of money (€1) between their bank accounts and those of the Central Market Participants.

The Scripted Stage will continue until the pre-defined completion criteria have been satisfied. These criteria will distinguish between the situation where one or a few Market Participants fail to successfully execute a scenario and the situation where most Participants fail to execute a scenario satisfactorily. In the event that a particular scenario has not been successfully executed, consideration will be given to whether the main features of that scenario are likely to be exercised in the following Unscripted Stage; in some cases it might be necessary to schedule the re-execution of a scenario during the Unscripted Stage. The criteria for deciding how to proceed through the Scripted Stage will be far less definitive than those for Market Trial Entry and Exit and are best defined in the detailed Preparation Phase. It will be important to retain a degree of flexibility and agility in managing the detailed Trial execution timetable.

8.2.3 Unscripted Stage

The purpose of the Unscripted Stage is to allow for a period of execution during which Market Participants may operate as they wish, within a defined set of market circumstances.

It is possible that the Go-live decision might require that some features of I-SEM be further exercised before Go-live. In that case, some adjustments to the Unscripted Stage may be necessary to meet such requirements.

The way in which the market circumstances for each trading day are defined will be set out in the planning and detailed preparation work for the Trial.

As an example, the Unscripted Stage may be further broken down into sections. For example:

- Section 1 (first three weeks) – Monitored;
- Section 2 (ongoing open Market Trial – approximately three weeks); and
- Section 3 (final three weeks) – Monitored.

Section 1

The first three weeks could be conducted with normal market activity, allowing Trial Participants to submit data as they choose (not necessarily daily). Daily conference calls would be conducted to allow Trial Participants to ask questions and provide feedback. During this period, Trial Participants and the TSOs' Market Trial Team would review market results, settlements data and posted invoices and provide feedback to the TSOs' Market Trial Team. On one or more of the weekends, the Central Market Participants could perform weekend operations to give the other Trial Participants the experience of weekend activity.

Section 2

After the initial three weeks, the Unscripted Stage could continue with daily operations. Trial Participants would be expected to participate every day in parallel with existing system and market operations. Daily checkpoint conference calls could be conducted to allow Trial Participants to ask questions and provide feedback.

During this period, Trial Participants would review market results, settlement data and posted invoices and provide feedback to the TSOs' Market Trial Team.

Section 3

The final three weeks of the Unscripted Stage could be similar to the first three. Daily activity would continue during this period, including market operations over the weekend between the first two weeks. During this period, Trial Participants will be expected to review market results, settlement data and posted invoices and provide feedback.

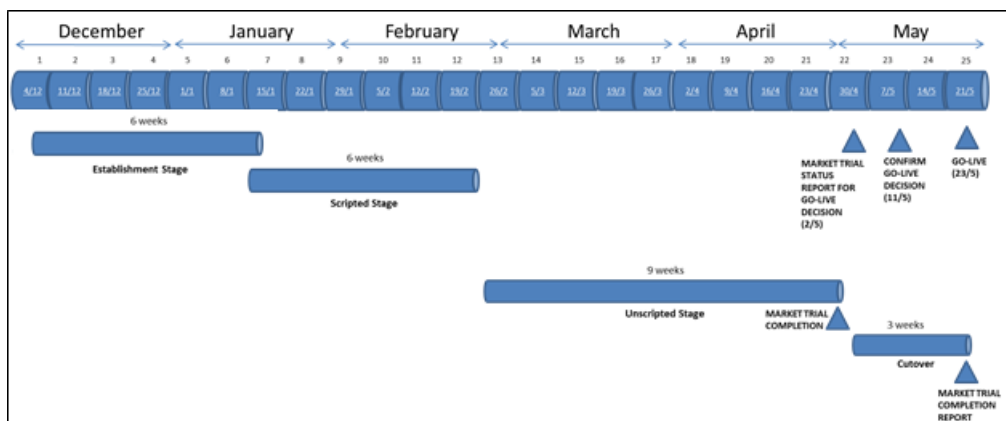
8.3 Schedule

Figure 4 presents an indicative schedule for the Execution Phase of the Market Trial. This indicative schedule shows the Trial completing three weeks prior to Go-live. This, however, has not yet been decided and it may be desirable to extend the period of trialling to overlap with the cutover period. Such an approach has many advantages and has been successfully deployed in other market establishments. This aspect of the Execution Schedule will be assessed in conjunction with transition and cutover planning.

The Execution Schedule may incorporate periods for pausing trialling to allow for recovery from defects, refreshing of data and preparation for subsequent scenarios if required.

The lengths of the various Stages of the Trial presented in this document are indicative planning estimates that reflect a reasonable schedule to achieve readiness. The length of the Stages may be varied as required during the execution of the Market Trial to deal with issues and events as they are encountered. At the appropriate time, a report will be sent to the appropriate governance group who will then confirm the Go-live decision and any further required trialling.

Figure 4 – Indicative Schedule for Execution Phase



8.4 Roles and Responsibilities

8.4.1 TSOs' Market Trial Team

During the Execution Phase, the TSOs' Market Trial Team within the TSOs' I-SEM Project will:

- Oversee and monitor daily execution of Trial;
- Track and report upon performance against Trial metrics;
- Identify, log, track and resolve issues;
- Manage ongoing communications regarding the Trial – activities, progress, outcomes, issues, etc.;
- Coordinate and manage status updates and conference calls regarding the Trial;
- Modify data as necessary to support scripted scenarios;
- Choreograph any specialised execution for each scripted scenario;
- Monitor and analyse Trial outcomes;
- Prepare Market Trial reports; and
- Liaise with the TSOs' I-SEM Project Helpdesk.

8.4.2 Central Market Participants

During the Execution Phase, the Central Market Participants will:

- Execute I-SEM-related functions and processes;
- Provide enhanced operations support for market systems;
- Resolve any systems issues which arise during the Trial; and
- Operate a TSOs' I-SEM Project Helpdesk to manage participant queries (in coordination with the TSOs' Market Trial Team).

8.4.3 Market Participants

During the Execution Phase, Market Participants will:

- Execute I-SEM-related functions and processes – including trading, risk management and back office processes and operational processes. Note: existing market activities will continue during the Market Trial period;
- Participate in daily/weekly Trial debrief and planning calls;

- Download and review Market Trial outcomes;
- Monitor execution of internal tasks, capturing detailed metrics;
- Report progress, feedback, and issues to the TSOs' Market Trial Team; and
- Participate in the Trial on a 'business-as-usual' basis for unscripted scenarios.

8.5 Communications

Table 12 provides an overview of the communications processes that will be established for the Execution Phase:

Table 12 – Communications Processes

Communication	Description	Target Audience
Launch Workshop	<p>Workshop with representatives of Trial Participants to prepare for the Trial launch. This workshop will reiterate how the Trial will operate and confirm:</p> <ul style="list-style-type: none"> • Roles and responsibilities • That everyone has their Market Trial Participant Guide and other documentation • That participant Registration has been completed and the Market Trial Agreement signed • That digital certificates, system logon details and passwords have been received • The Trial timeline and process • How the management, monitoring and coordination processes will operate during the Trial (possibly including demonstration of tools to be used) <p>It will also explain any other orientation information and provide an opportunity to address participant queries.</p>	Trial Participants
Daily Debrief	A short conference call at the end of each weekday to debrief participants on outcomes, to confirm the next day's activities, and identify any urgent issues or questions.	Trial Participants
Weekly Conference Calls	<p>Conference call with all Trial Participants to act as a debrief of recent Trial activity; address issues arising from the Trial; and confirm arrangements and objectives for the following week starting on Monday.</p> <p>The weekly calls will allow the opportunity for Participants to step back, review recent Trial activity, and suggest necessary adjustments to the Trial and/or processes to address issues from the Trial.</p> <p>During the weekly calls, progress against the Trial Execution Calendar will be reviewed and amended as required.</p>	Trial Participants
Regular Status Updates and Bulletins	Newsletter type website publication with details of progress and performance of the Market Trial.	Trial Participants
Ad Hoc Trial Communications	<p>Ad hoc communications will be distributed to participants in the Market Trial via email and/or via the private section of the TSOs' website, with access restricted to Trial participants.</p> <p>Examples might include alert notices, if there is a change to the Trial plan for the following day.</p>	Trial Participants

8.6 Query and Issue Management

The TSOs will establish an I-SEM Project Helpdesk to handle both technical and non-technical enquiries during the Market Trial. This Helpdesk will be set up specifically to receive queries and issues on:

- The new arrangements currently being trialled in the Market Trial; and
- Aspects of the I-SEM that have gone live in advance of 23 May 2018.

Any issues and queries that cannot be resolved by the TSOs' I-SEM Project Helpdesk will be escalated to other specialists within the TSOs' I-SEM Project. The TSOs will ensure that the relevant specialists will be 'on call' during the Market Trial so that they can convene as required to address critical queries.

All queries and issues will be logged and their status recorded and managed. Critical issues and queries can also be raised in the daily debrief teleconference calls. These issues and queries will also be logged and tracked.

Some issues may not be able to be resolved within the TSOs' I-SEM project. There may be some contentious issues if, for example, there are differing interpretations of Market Rules and Procedures. These issues will be escalated for resolution to appropriate governance bodies as required. The TSOs' I-SEM Project Team will ensure that issues are properly assessed prior to escalation.

The existing SEMO Market Helpdesk will continue to manage issues and queries which relate to the current market (SEM).

8.7 Defect Management and Reporting

All Trial Participants should have thoroughly tested their systems, processes and operating procedures prior to the commencement of the Market Trial in accordance with the Entry Criteria (see Section 7). Inevitably, however, Trial Participants will identify some defects in system and processes during the Market Trial.

Trial Participants will not be required to report defects which do not impact their ability to successfully complete scenarios and/or have no impact on other Trial Participants.

If a Trial Participant identifies a defect which does impact their ability to successfully complete a scenario and/or has an impact on other Trial Participants, then this defect should be registered with the TSOs' Market Trial Team. A Trial Management tool will be implemented to facilitate the registration and tracking of defects.

Any Trial Participant may register a defect on another Trial Participant's systems and processes. Trial Participants will be encouraged to bilaterally discuss and confirm these defects before they are formally registered.

The process for registering a defect should capture details relating to:

- Nature of defect (system, process etc.);
- Status;
- Severity;
- Priority;
- Ownership;
- Trial Participants impacted;
- Subject (functional area);
- Date detected; and
- Actions required.

It should be noted that a low-severity defect can still have a high priority for resolution if it is holding up the completion of a scenario. The status of defects will be reviewed and monitored by the TSOs' Market Trial Team and communicated in reports, bulletins and teleconferences.

The Market Trial Execution Calendar will include time periods for Trial Participants to perform defect fixes. However, from a defined point in the Market Trial, a change freeze is likely to be introduced on the market systems. From that point, changes will only be made in the unlikely event of a High⁷ severity defect occurring. No other code changes will be made during the change freeze. Workarounds will be defined for any outstanding Medium⁸ or Low⁹ severity defects.

8.8 IT Change Management

Changes (as opposed to defect fixes) to systems are to be avoided during the Market Trial if at all possible, although it is recognised that some changes may be unavoidable. If a change must be made to a Participant's system and that change may impact other Trial Participants, then the change should be reported to the TSOs' I-SEM Project so that other Trial Participants are notified.

All changes in market systems, for whatever purpose, will be subject to a formal release management process; release schedules will be communicated to all participants. As outlined above, a code freeze will be implemented on the market systems at a defined point during the Market Trial.

8.9 Changes to Market Rules and Procedures

It is possible that during the Market Trial there could be urgent changes to Market Rules or Procedures, carried out under formal modification processes. In such cases there will need to be a case-by-case consideration of how such adjustments could be included in the Market Trial.

⁷ High severity defects are those that materially impact the integrity of the I-SEM and that cannot be worked around.

⁸ Medium severity defects are those that materially impact the integrity of the I-SEM, but for which adequate workarounds are available and will be implemented before commencement of the live market.

⁹ Low severity issues are those that have limited impact on the operation of market processes, do not affect financial or other operational outcomes, and for which workarounds are available.

8.10 Progress Reporting and Metrics

The systems used by the Central Market Participants in the Market Trial will generate a number of reports on market operations that will be used by the Central Market Participants as part of their ongoing live operation of the I-SEM. These reports will also be used during the Market Trial to assess how the Trial is progressing.

However, during the Trial it will also be necessary to track and report on progress of the Trial, and to gather key metrics, which provide the measure of Trial success. These reports will be provided by the TSO's I-SEM Project, as part of its Market Trial coordination role. The reports will cover:

- Reporting on the performance of the market processes included in the Trial; and
- Tracking and monitoring the performance of the Trial.

The following two sections address each of these reporting requirements in turn.

8.10.1 Process Metrics

The Market Trial is, in essence, a demonstration of market processes. Measurement of the progress and success of the Trial will, therefore, be based principally on monitoring the execution of key market processes (as defined in the Trial scenarios), which in turn reflect Market Procedures). In particular, the measurement will seek to confirm:

- That the process step has been executed as required; and
- That the process step has been executed in accordance with defined timings.

Monitoring points will be selected by reference to the Market Rules and Market Procedures, with a particular focus on the interactions between Market Participants and the Central Market Participants.

The metrics used for any given process will vary depending upon the nature of the process. Some processes occur frequently during a day at specific times. Other processes occur only by exception. The process metrics monitored and included in Market Trial reporting will include:

- Percentage of transactions of a defined type that were submitted successfully to the Market Systems;
- Percentage of days that a given transaction was successfully submitted;
- Percentage of days that a given output was created by the defined deadline; and
- Percentage of occurrences that a given output was issued on time.

These process metrics, which will be gathered for each scenario and for each day during the Unscripted Stage, may be summarised in the Market Trial reports as follows:

- Successful execution of all core operational processes for a Trading Day and a Settlement Day; and
- Successful execution of all core operational processes for a given Week and Month.

The metrics will be developed during the Preparation Phase, including the establishment of target values for each metric. The result will be the definition of a comprehensive set of metrics to monitor the success of end-to-end market operations during the Market Trial. It is envisaged that Trial Participants may also define their own, more detailed, measures of the

success of their internal processes; these fall outside the scope of the monitoring of the Market Trial.

8.10.2 Progress Metrics

The metrics shown in Table 13 will be used to monitor the progress of the Market Trial. Again, these will be further defined in the Preparation Phase.

Table 13 – Progress Metrics

Indicator	Example Metric	Reporting Party
Participation Rate	Actual participation in the Trial compared with the participation levels defined in the Market Trial Coordination and Participation Criteria.	TSOs' Market Trial Team
Progress Rate ¹⁰	Number of Trial scenarios executed versus the number planned; Number of Trial scenarios completed successfully versus Trial scenarios executed; Number of Trial scenarios blocked versus Trial scenarios planned; and Number of Trial scenarios deferred versus number planned.	TSOs' Market Trial Team
Outstanding Issues and Defects	Number of defects by severity level (high, medium, and low) identified, resolved, and outstanding	TSOs' Market Trial Team
Customer Support	Number of Trial enquiries; Average response times; and Percentage of enquiries resolved, and open.	TSOs' Market Trial Team

8.11 Management Tool

Trial scenarios, Trial execution and the tracking of Trial progress will be managed using a Management Tool provided by the TSOs' I-SEM Project. This Management Tool will be configured with all required information and will be used to provide reports to all Trial Participants.

The Management Tool will be used to record Trial execution, Trial outcomes and defects raised during Trialling.

¹⁰ There will be equivalent metrics for the Unscripted Stage which will track success in relation to trading days and settlement days executed.

8.12 Registration

A lock-down period may be implemented for Registration to minimise the risks of disruption to an orderly start to the I-SEM. During this period, which would start towards the end of the Execution Phase of the Market Trial and last possibly for a month after Go-live, there would be no significant Registration changes allowed. This lock-down period would mitigate risks around the entry of new or changed Registration data. Further details on this are provided in the Transitional Registration Plan.

8.13 Documentation

The TSOs' Market Trial Team will provide the documentation shown in Table 14 during the course of the Execution Phase.

Table 14 – Documentation

Communication	Description	Target Audience
Market Trial Status Reports	Every week throughout the Trial, the Project will prepare and publish (via email) a Market Trial Status Report, reporting on key Trial metrics.	Trial Participants
Operational Market Reports	Trial Participants will have access to all of the operational market reports that the Central Market Participants are obliged to publish as part of ongoing operations as defined in the Market Rules and the associated Market Procedures.	Trial Participants
Market Trial Status Report for Go-live Decision	A report summarising the status of the Market Trial against defined Exit Criteria to demonstrate the extent to which the overall Trial has achieved its objectives and the extent to which Trial Participants have demonstrated their readiness for Go-live.	I-SEM Steering Committee (to be confirmed)
Market Trial Completion Report	At the end of the Market Trial (as required by the Go-live decision), the Market Trial Completion Report will be published. This report will be produced when the Market Trial has been completed and may include any remaining issues etc.	Trial Participants

9. Exit Criteria

The Market Trial will demonstrate the readiness of people, systems and processes within both Market Participants and Central Market Participants to commence I-SEM operations.

The criteria that will be used to determine if the Trial has achieved its objectives are likely to be based on the following:

- The defined level of market systems availability has been achieved for a defined number of weeks;
- Defined market systems performance requirements have been achieved;
- All high-severity defects from the Market Trial have been resolved;
- Workarounds have been defined and implemented for all medium and low-priority defects;
- The Market Trial has demonstrated consistent, successful execution of the market processes, compliant with the Market Rules and Market Procedures;
- Interfaces with Market Participants have been operating reliably;
- No material instances of unusual or unexpected scheduling, pricing or settlement outcomes remain unexplained;
- Any material issues identified with scheduling, pricing or settlement outcomes have been resolved; and
- Active participation in the Market Trial has been achieved for a defined minimum number of weeks at the participation levels defined in the Market Trial Coordination and Participation Criteria.

The detail of these criteria (including numbers and percentages) will be determined in the Preparation Phase.

The outcomes of the Market Trial will be used as part of a broader assessment of market readiness (outside the scope of the Market Trial) which will provide confidence in the readiness of all parties to cutover into live operation.

The TSOs' Market Trial Team will publish a Market Trial status report for the Go-live decision. This report will be presented to the appropriate governance bodies as one of the key inputs to the 'Confirm Go-live Decision' to be made on 11 May 2018.

10. Key Milestones

The Market Trial will commence on 1 December 2017. The trial will be completed in time for the commencement of the I-SEM on 23 May 2018 (taking into account the timescales required for decision-making and cutover processes).

These timescales are based on the assumption that Entry Criteria outlined in this document will be completed in time for Market Trial Execution, including the submission of required Participant Registration data.

Milestones for the Registration process are defined in the Transitional Registration Plan.

The key milestones are shown in Table 15.

Table 15 – Key Milestones

Key Milestone	Date
Preparation Phase Commences	1 August 2017
Confirmation of Market Trial Entry and Exit Criteria	4 August 2017
Market Trial Commencement Decision	17 November 2017
Market Trial Commences	1 December 2017
Capacity Market Mock Auction	4 December 2017
Capacity Market Auction	15 December 2017
Go-live Confirmation Decision	11 May 2018
Market Trial Completion	22 May 2018
Go-live	23 May 2018

Note: These dates will be confirmed in the Preparation Phase.

Attachment 1 – Example of Candidate Features for Scenario Definition: DAM/IDM

Event/Feature	Description	Markets Involved				
		FTR	CM	DAM	IDM ¹¹	BM
Context						
Baseline Day	<p>No exceptional events; demand forecast typical in size and profile for season and day of week; System margin adequate, no unplanned outages; no trips; wind forecast typical and stable. Exchange rate available.</p> <p>In DAM/IDM, all Market Participants trading routinely with simple orders and close to predicted balance position; no abnormally high/low orders.</p> <p>AoLR sell orders placed in DAM/IDM. Market Participants all within trading limits.</p> <p>Interconnector capacity available from CCC. No extreme prices in DAM/IDM; market coupling using normal processes.</p> <p>Clearing of DAM and IDM without exceptional events. Information flows to FTR market, BM normal.</p> <p>In BM, limited Market Participant activity, with small numbers of bids/offers and complex bids. Limited balancing actions required; no SO-SO trades; dispatch routine via EDIL; BM pricing calculation straightforward – no caps, defaults, scarcity. Price publication routine.</p> <p>Meter data received routinely: no missing data, no missing files.</p> <p>CM auction data available.</p> <p>Settlement routine (including CM values); reports, invoices published on time.</p> <p>Credit management runs routinely: no collateral calls or returns, no credit default, no payment default.</p> <p>FTR payment processes operate normally.</p>	✓	✓	✓	✓	✓

¹¹ IDM includes both auctions and continuous trading

Event/Feature	Description	Markets Involved				
DAM/IDM Business Events/Features (increments to/deviations from Baseline Day)						
Order types	To demonstrate for each order type: Market Participant use of each; NEMO acceptance; market coupling with all order types; settlement of each order type.			✓	✓	
Trading	To demonstrate: acceptance/rejection of orders, for example close to gate closure times for auctions; different distribution of orders between auctions and continuous trading (including zero orders for an auction).			✓	✓	
Trading Limits and Credit Management	To demonstrate: credit management processes; calculation, collection, and returning of collateral; calculation and setting of trading limits; attempted breach of trading limits; interface to BM credit management processes.			✓	✓	✓
AoLR ordering	To demonstrate: unusual patterns of AoLR trading (e.g. all in IDM); rapid changes in AoLR orders (as with change of wind forecast); placing of buy orders.			✓	✓	
Liquidity	To demonstrate operation with different (including extreme) spreads of liquidity between individual auctions and markets (that is between DAM, IDM, BM); including low/zero liquidity conditions.			✓	✓	✓
Coupling	To demonstrate normal and extreme cases (for the DAM possibly derived from Euphemia test cases).	✓		✓	✓	✓
Clearing	To demonstrate clearing processes and interfaces to FTR and BM.	✓		✓	✓	✓
DAM/IDM Process Events						
Coordinated Capacity Calculator failure	To demonstrate fall-back processes in the event that interconnector capacity value is not available.	✓		✓	✓	✓
Auctions	To demonstrate processes in the event that required schedule of auctions cannot be achieved.			✓	✓	✓
Exchange failure	To demonstrate fall-back processes in event of failure at exchange (different level of failures to be exercised).	✓		✓	✓	✓
Market coupling failure	To demonstrate processes when market coupling cannot be achieved (includes operating in local/separated mode).	✓		✓	✓	✓
Credit management processes	To demonstrate processes when credit management processes fail to operate correctly.			✓	✓	✓
Clearing failure	To demonstrate processes when clearing processes fail to operate correctly.	✓		✓	✓	✓