



Single Electricity  
Market Operator

MARKET OPERATOR  
SINGLE ELECTRICITY

## Market Systems Development Plan 6

**MSDP 6 2013-2015**

### **Abstract**

This document fulfils the Market System Development Plan licencing requirement placed upon both SONI and EirGrid by NIAUR and CER respectively.

**Date – November 2014**

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## Document History

Version	Date	Author	Comment
0.1	October 2013	SEMO	First Draft
0.2	November 2013	SEMO	2 <sup>nd</sup> Draft after departmental input.
0.3	February 2014	SEMO	3 <sup>rd</sup> Draft after further departmental input.
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1.4	November 2014	SEMO	Revised with Feedback from Regulatory Authorities.

## Distribution List

Once authorised:

Name	Organisation
NIAUR	Northern Ireland Authority for Utility Regulation
Market Participants	All participants in the SEM
TSOs	EirGrid and SONI

## Table of Contents

Introduction .....	4
Scope of Plan.....	4
Section 1 – Overview of the SEM Systems.....	5
Section 2 - Progress since MSDP5.....	8
November 2013 Release .....	8
May 2014 Release .....	8
Modifications Summary .....	9
Section 3 - Forthcoming Market Releases .....	10
November 2014 Release .....	10
April 2015.....	10
Section 4 - Forward Work Programme .....	11
Introduction .....	11
Policy and Development Initiatives .....	12
Market Integration.....	13
EU Market Integration and SEM Market Integration Project .....	13
Future SEM Developments .....	13
Modifications Developments.....	13
UK Electricity Market Reform .....	13
Demand Side Participation .....	15
Energy Storage .....	15
Regulation on Energy Market Integrity and Transparency (REMIT).....	15
REMIT details .....	16
Capex Programme 2013-2016 .....	17
Capex Programme 2010-2013 .....	17
Appendix 1 Modifications .....	20

## Introduction

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The Market Systems Development Plan (MSDP) is a licence requirement placed upon both SONI and EirGrid by NIAUR and CER respectively. This two year plan is produced and reviewed annually in accordance with Condition 16 of the SONI Licence, “Licence to act as SEM Operator” and in accordance with Condition 4 of the EirGrid Licence, “Market Operator Licence granted to EirGrid plc.”

This document is the sixth Market System Development Plan (MSDP) developed by SEMO for the period from 1<sup>st</sup> October 2013 to 30<sup>th</sup> September 2015. The plan identifies the issues that SEMO face in relation to the operation, administration and development of the Single Electricity Market (SEM).

## Scope of Plan

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MSDP6 2013-2015 is designed to provide a view of upcoming activities in the market, in addition to the update on market changes. It provides a forward view of upcoming system requirements, as well as acknowledging future policies that will impact on the SEM. The content of the plan thus reflects this development of the SEM. The plan is accordingly structured with the following Sections:

**Section 1** aimed at providing a high level overview of SEM IT systems and illustrates the range of Central Market Systems that SEMO develop, maintain and support.

**Section 2** This section identifies work progressed and completed since MSDP5.

**Section 3** Provides a summary of the content of the November 2013 and April 2014 releases.

**Section 4** This Forward Work Programme section identifies areas of potential work and their possible impacts. The initiatives described in this section are not a definitive list but rather what is likely to be addressed based upon the future work programmes of the Regulatory Authorities and industry developments within the two year period, 2013 to 2015.

**Section 5** relates specifically to IT projects under commitment or proposed. This section provides an update on the progress of the Capital Programme approved in the SEMO Price Control.

## Section 1 – Overview of the SEM Systems

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The purpose of this section is to provide a brief overview of the SEM Central Market Systems (CMS) so readers of this document can conceptualise the complexity and structure of the market systems. In particular, this section provides a brief description of the key functionality contained within each of the core CMS subsystems (see page 7) along with some of the key data feeds and participant interactions with the market processes. The diagram also identifies some of the vendors that provide the various parts of the overall Central Market System solution.

### *Market Infrastructure (MI) system*

The Market Infrastructure (MI) system is the main interface for Participants, Transmission System Operators (TSOs), Meter Data Providers (MDPs) and Interconnector Administrators (IAs). It provides communications through screens (Type 2) and through computer-to-computer interactions via Web Services (Type 3). It also provides an interface to SEMO to allow monitoring, control and operation of the SEM. The main functions of the Central Market System are as follows:

- Registration – including registration of Participants, Users, Trading Sites, Units and Meters.
- Trading – the mechanism for submitting, revising and querying Default Offers and Normal Offers.
- Event Manager – schedules programs and events, so much of the SEM operation is automated.
- Report Manager – generates reports for Participants, SEMO, TSOs and IAs.
- Market Operator Interface – the interface used by SEMO to monitor, control and run the SEM.
- Interface to Other Systems – interfaces between CMS and with some External Data Providers.

### *Scheduling and Pricing (MA)*

The Market Application (MA) system (which includes the MSP Software) performs the following key functions:

- Calculation of Market Schedule Quantities for Ex Ante, Indicative Ex Post and Initial Ex Post Market Schedules.
- Calculation of System Marginal Prices for Ex Ante, Indicative Ex Post and Initial Ex Post Runs.
- Calculation of Dispatch Quantities (using the Instruction Profiling module) for Ex Post Runs.

### *MIUN Calculator (MIUN)*

Following the calculation of Interconnector Unit Nominations (IUNs), the MIUN Calculator is used to provide the required data to relevant systems, notably the Market Infrastructure System (MI) and the Auction Management Platform (AMP):

- Modified Interconnector Unit Nominations (MIUNs), the energy allocations to Interconnector Units; and
- The Interconnector Dispatch Schedule (DIs), the dispatch profile for the Interconnector as a whole.

The MIUN Calculator includes additional rules/constraints to those contained within the MSP Software; to ensure that the dispatch profile is feasible at all points. The additional constraints include application of the relevant Interconnector Ramp Rate, treatment of Deadbands (where such restrictions apply) and provision for instances of Interconnector trips.

### *Settlement System*

The CMS Settlements System calculates the amounts payable by or to be paid to Participants, in accordance with the provisions of the Code. In particular, this includes:

- Calculation of all payments and charges on a weekly (Billing Period) basis for Energy Settlement or monthly (Capacity Period) basis for Capacity Settlement.
- Management and reconciliation of currency costs incurred in the SEM for all payments and charges.
- Preparation of Invoice data for use in the Invoicing System.

### *Invoicing System*

The Invoicing System manages the production of Invoices, which provide a summary of the amounts payable by or to Participants (including correct jurisdictional treatment of VAT and currency) for the relevant Billing Period or Capacity Period.

### *Metering System*

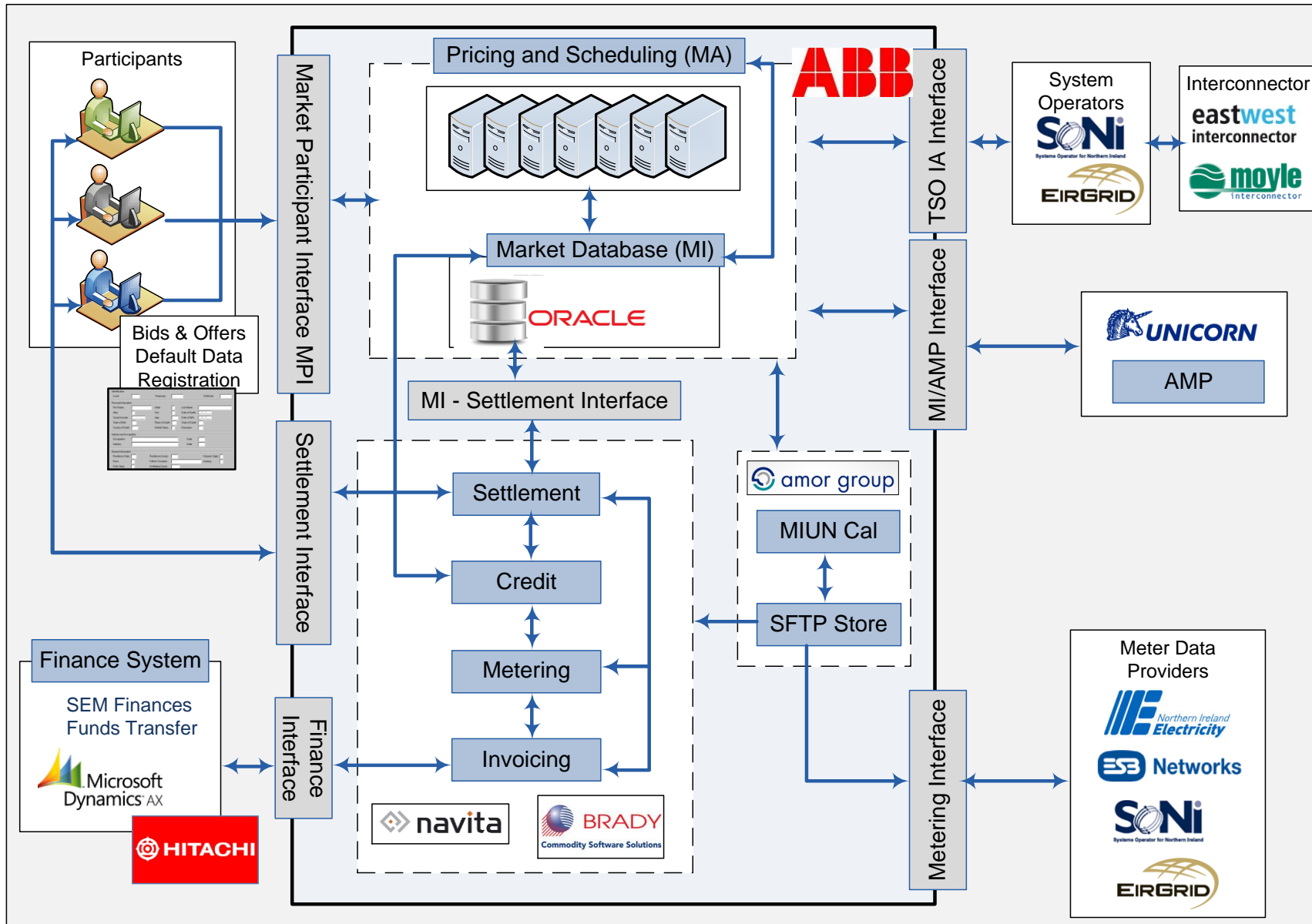
The Metering System manages the receipt of meter reading data from Meter Data Providers (MDPs); logs receipt of data; and transfers meter data to the Settlement, MI or MA systems for use in further processes.

### *Credit Risk Management System*

The Credit Risk Management (CRM) system manages Participant credit risk by evaluating their outstanding liability and a forecast of expected liability in the near future (this data is transferred from the Settlement System or Finance System). The calculated liability is matched with the total collateral posted by the Participant.

### *Finance System*

The Finance System manages and monitors payments of Invoices and debtor information with respect to Participant liabilities within the SEM.



## Section 2 - Progress since MSDP5

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SEMO has continuously communicated with participants regarding the scope and likely impact of the biannual releases. This has included providing detailed information on each release to allow Market Participants to design, plan and implement any changes necessary to their systems. The following two sections provide a brief overview of the November 2013 and May 2014 system releases.

### November 2013 Release

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The SEM R2.3.0 release to the CMS was deployed to schedule on November 15<sup>th</sup>, 2013. There were nine approved SEM Design Service (SDS) sourced Change Requests included in the release scope. The approved scope for this release was as follows:

CR or MOD ID	Change Request/Modification Description
SEM_PC_CR174	MPI Dropdown values for a Trading Site
SEM_PC_CR186	Export Functionality in MA
SEM_PC_CR265	Task Functionality
SEM_PC_CR310	Run Cancellation Initialisation
SEM_PC_CR312	Run Cancellation Functionality
SEM_PC_CR168	Unnecessary File Import Type selection
SEM_PC_CR311	VTOD Status Changes for Approval
SEM_PC_CR294	DDF Linked to System Type within POMAX file import
SEM_PC_CR203	Displaying UUC Penalty Costs in MA

**Table 1** Release SEM R2.3.0 scope

### May 2014 Release

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The SEM R2.4.0 release to the CMS was deployed to schedule on May 16<sup>th</sup>, 2014. There were nine approved SEM Design Service (SDS) sources Change Requests included in the release scope. The approved scope was as follows:

CR or MOD ID	Change Request/Modification Description
SEM_PC_CR271	Automated FX download to the Central Market Systems
SEM_PC_CR320	Dispatch Instruction Validation Change
SEM_PC_CR324	Event Warning for DAM Event
SEM_PC_CR292	MDP Dropdown in the MPI
SEM_PC_CR226	Pop-up Reminder of Digital Cert Renewal
SEM_PC_CR323	Bad Debt Smearing Calculation
SEM_PC_CR309	Tax File Import
SEM_PC_CR325	Automated Data Imports
SEM_PC_CR326	Historical Process Warnings

**Table 2** Release SEM R2.4.0 scope



## Modifications Summary

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The table below gives a breakdown of modifications that SEMO have worked on since MSDP5; 1<sup>st</sup> October 2012 to 30<sup>th</sup> September 2013. [Appendix 1](#) lists all of these modifications along with a high level description of each Modification.

Modification Status	Number
Implemented	51
Awaiting RA Decision	2
In Progress	4
Total	57

**Table 3** Modification progress since MSDP5

## Section 3 - Forthcoming Market Releases

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### November 2014 Release

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Regulatory approval was received for the proposed scope for the SEM R2.5.0 release on May 1<sup>st</sup>, 2014 and the approved scope was published to the industry on May 7<sup>th</sup>, 2014.

The following table outlines the approved scope for the SEM R2.5.0 release to the Central Market Systems:

CR or MOD ID	Change Request/Modification Description
<i>SEM_PC_CR327</i>	<i>Event Queuing</i>
<i>SEM_PC_CR330</i>	<i>Changes to IART Report</i>
<i>SEM_PC_CR322</i>	<i>Eligible Availability for Energy Limited Units Under Test</i>
<i>SEM_PC_CR333</i>	<i>Functionality to apply PUGDOG TTariff on a Trading Day basis</i>
<i>SEM_PC_CR332</i>	<i>Issue Zero Invoices</i>

**Table 4** Release SEM R2.5.0 scope

### April 2015

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The release cut-off date for the SEM R2.6.0 release to the Central Market Systems is: Friday, September 5<sup>th</sup>, 2014.

## Section 4 - Forward Work Programme

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### Introduction

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Changes to electricity market provisions in the SEM will emerge in response to legislative requirements and policy considerations. Currently there are a number of such initiatives that potentially represent changes to the current market arrangements. Whilst these are often longer-term initiatives, where policy or legislation dictates change to the SEM market and its supporting systems, early engagement and interaction is vital. This will ensure that SEMO meets its obligations to comply with all relevant statutory requirements and remains responsive to the current and future needs of the electricity market across the island of Ireland and with neighbouring markets to which we are interconnected.

This Forward Work Programme section identifies a number of initiatives that are not fully established and it is appropriate to highlight these areas of potential work and their potential impacts. The initiatives described in this section are not a definitive list but rather our belief in what is likely to be addressed based upon the future work programmes of the Regulatory Authorities and industry developments within the three year period, 2013 to 2017.

Key to the understanding of this programme is the influence of European legislation through the CACM guidelines and the subsequent demands for Market Integration for the All Island Market. This subject is currently under consideration by the respective Departments of Northern Ireland and Ireland and the Regulatory Authorities. However the effect of the Market Integration Project has to be taken into account in relation to the current market arrangements and the future operational life and need to keep a fully functional market up to end 2017 and for any period beyond as required for re-settlement.

## Policy and Development Initiatives

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The Forward Work Programme outlines a number of forthcoming policy and development initiatives which have the potential to affect SEMO. While these projects may be further along the horizon than can be adequately detailed herein, it is important that the longer term direction of the Market be included when considering SEMO's undertakings. There is likely to be significant impact on the Market Rules and/or the Central Market Systems as a result of any such changes/ developments. Key European and Regulatory initiatives are included within this section as they influence /affect the current and future market arrangements.

In the next number of years, a number of significant market changes will be developed and implemented in the SEM. Many of these changes are policy-led and are detailed in the respective forward work programmes of the government departments and Regulatory Authorities. These activities relate to some of the most complex and multi-faceted aspects of SEM, supported by highly detailed rules and complex systems. SEMO will need to undertake significant analysis to determine the most suitable and cost effective way of supporting development in these areas.

In addition to changes resulting from broad policy direction, SEMO continues to be involved in many issues and proposed changes raised through the Modifications Committee. Indeed, SEMO is also continually working to identify ways in which the Central Market Systems (CMS) could be developed in future to deliver more efficient, transparent, accurate and timely services to the SEM as a whole. As such SEMO will ensure that the current market arrangements continue to function efficiently up to the implementation of Market Integration changes in 2017 and beyond if required to do so.

With this set of circumstances it is recognised that changes will still need to be addressed within the expected lifetime of the SEM. Changes that are currently under consideration include:

- Changes due to REMIT legislation;
- Changes to DSU operation in the SEM; and
- New rules to accommodate new unit types.

In addition, as had been the case during the last five years of operation of the SEM other changes may be proposed to increase the efficiency of the SEM.

## Market Integration

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European electricity market integration represents the next major development of the trading arrangements on the island of Ireland. Since 2007, the SEM has provided a stable and transparent platform for the wholesale trade of electricity in Ireland and Northern Ireland. Beyond 2014 (2017 for the SEM), EU member states have agreed to implement the 'target model' of day ahead price coupling and continuous intraday trading. This will also include provisions for forward trading and balancing. Implementing the target model will contribute to enhanced cross-border trade and competition on the island of Ireland and will introduce a greater level of flexibility to the trading arrangements to complement increasing amounts of variable renewable generation.

### *EU Market Integration and SEM Market Integration Project*

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The Association for the Cooperation of Energy Regulators (ACER), published the Framework Guidelines on Capacity Allocation and Congestion Management (FG CACM). This is a significant milestone in the development of the Internal Energy Market (IEM). It will require SEM to harmonise its arrangements for allocation of cross border capacity with all other EU regional markets. The ultimate aim of this process is market coupling and the establishment, where there is no congestion, of a single wholesale price for electricity at the day ahead stage.

## Future SEM Developments

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### *Modifications Developments*

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In the midst of all this change, we would like to emphasise our continuing focus and commitment to the on-going stable and transparent operation of the SEM. This is important to attract continued investment which will be needed to help manage and ensure security of supply and meet our renewables targets. Whilst the SEM will need to undergo significant change as part of Market Integration, this will be unlikely to take place before 2017 which means that the current market arrangements will continue for the next three years. To put this in context, the SEM has been in existence since 2007. 2012 marks an approximate half way point between 2007 and 2017. While we would not expect the same amount of change between 2013 and 2017 and recognising that any major changes will probably need to be considered as part of Market Integration, it is reasonable to expect that aspects of the SEM can and will be improved upon over this period.

### *UK Electricity Market Reform*

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The UK Electricity Market Reform (EMR) programme represents a paradigm shift for the energy industry across Great Britain (GB) and Northern Ireland (NI). EMR has significant implications for generators, suppliers and consumers of electricity from both fossil fuel and renewable sources. The published Energy Bill [1] has put in place the institutional framework expected to attract £110 billion in investment to replace ageing capacity, upgrade the grid and to meet rising demand to 2020 and beyond. EMR is a multi-strand reform programme which is progressing apace to deliver the following:

- Feed in Tariffs (FiT) to provide investment signals and long term incentives for renewable generation. This includes the phasing out of the existing Renewables Obligation (RO) regime and transition to a replacement system of subsidies, which will apply to renewables and nuclear power based on Contracts for Difference (CfDs). The scheme will be implemented in 2014 in GB and 2016 in NI.
- Capacity Mechanism which complements the FiT CfD scheme ensuring reliable capacity is available avoiding potential security of supply issues. The Capacity Market guarantees delivery of excess capacity in times of tight margins due to high system demand. Additional demand side response measures and supplemental reserve products are also being considered. The capacity mechanism proposed will not apply in NI due to the existing Capacity Payment Mechanism (CPM) in the Single Electricity market (SEM).
- Carbon Price Floor (CPF) tax which is a HM Treasury led mechanism that is designed to rebalance the electricity market towards low carbon generation by taxing generators based on the carbon content of the fuel. The rate of tax is designed to achieve a trajectory rising to £30/tCO<sub>2</sub> by 2020 and applies as a top up to the carbon price under the European Union Emissions Trading Scheme (EU-ETS). The Carbon Price Floor is already in force in GB but exempted in NI as of the UK Budget in March 2013.
- Emissions Performance Standard (EPS) to curb emissions of the most pollutant power stations. EPS will apply to all new fossil fuel-fired power plants over 50 MW. It will not cover existing plant but may apply where existing plant are subject to significant upgrades or life extension. The annual carbon emissions limit is set at 450g CO<sub>2</sub>/kWh. It is intended to prevent construction of any new coal-fired plant unless fitted with Carbon Capture and Storage (CCS).

Developments in UK EMR policy include the publication in June 2013 of the Capacity Market detailed design proposals<sup>[2]</sup>, the Draft Strike Prices for Renewable technologies<sup>[3]</sup> and in July 2013 the consultation on the EMR Delivery Plan<sup>[4]</sup> which details the implementation of the strike price methodology for GB and NI for the FIT CFD scheme. Also in July 2013 a consultation on the transition from the RO to the FIT CFD scheme was published<sup>[5]</sup>.

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<sup>[2]</sup> [Electricity Market Reform Capacity Market – Detailed Design Proposals](#)

<sup>[3]</sup> [Levy Control Framework and Draft CfD Strike Prices](#)

<sup>[4]</sup> [Consultation on the draft Electricity Market Reform Delivery](#)

<sup>[5]</sup> [Transition from the Renewables Obligation to Contracts for Difference](#)

In October 2013 the consultation on proposals for implementation of Electricity Market Reform [6] was published which includes the Capacity Market impact assessment and the impact of EMR on Interconnection documents. EirGrid Group will continue to monitor closely the developments in UK EMR policy in 2014.

### *Demand Side Participation*

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The SEM has always had an objective to facilitate Demand Side Participation; however, until 2012 there had been limited activity in this area. Following the decision on Demand Side Vision for 2020 by the SEM Committee in May 2011, a number of actions were set out which have led to changes to the current arrangements in the SEM and the associated systems.

Throughout 2013, SEMO continued to engage with prospective Demand Side Units and Aggregated Generator Units with a view to facilitating their entrance into the SEM. One of the existing Demand Side Units that had registered in SEM in 2012, as a result of Modifications to the Trading and Settlement Code rules, increased their registered capacity in 2013. Two new Demand Side Units registered in the market, while additional DSUs are in the process of registration. Working with the TSO, SEMO has provided and will continue to provide the necessary market expertise to support any appropriate changes to SEM that remove barriers to entry and greater participation of Demand Side and Aggregated Generation in the SEM. The development of a method to monitor the performance of Demand Side Units within the SEM has become an area of focus with increasing participation. The TSO has proposed a new method of compliance monitoring which is currently under consultation with industry.

### *Energy Storage*

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SEMO is engaged with current and potential future Market Participants regarding rules for types of energy storage other than Pumped Storage e.g. Compressed Air Energy Storage (CAES) and Battery Storage. When the SEM was designed, the Market Rules were based on the existing storage facility at Turlough Hill. However there are now other potential storage developments under consideration. A Modification (Mod\_11\_12) has been raised to the Trading and Settlement Code to modify the existing rules to provide for a Compressed Air Energy Storage plant. Options for this have been assessed by SEMO. A second modification, (Mod\_12\_13), has been raised regarding making energy storage rules in the SEM generic and is currently under consideration. SEMO will continue to work with the relevant organisations to ensure that SEM facilitates additional proposed storage options.

### *Regulation on Energy Market Integrity and Transparency (REMIT)*

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SEMO is currently considering, in consultation with the Regulatory Authorities and Market Participants, the implications of REMIT and how it may impact on the operation of the SEM. Much of the information required to meet the REMIT obligations is already published by SEMO and SEMO could build on the existing levels of transparency in the SEM in an effort to assist Market Participants in meeting their reporting obligations. The implementation of a reporting system could require systems changes, be they in the Central Market Systems or associated corporate systems (e.g. SEMO website).

### *REMIT details*

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Regulation 1227/2011 came into effect on 28th December 2011. This regulation for the wholesale energy markets prohibits insider trading and requires publication of additional information. The regulation prohibits market manipulation, requires detailed reporting of energy transactions and the registration of energy market participants. ACER has monitoring and coordination roles. The REMIT scope for Wholesale Energy products is as follows:

- Contracts (including intra-group) for supply of electricity/natural gas for delivery in EU
- Derivatives relating to electricity/natural gas traded or delivered in EU
- Contracts relating to the transportation of electricity/natural gas in the EU
- May also apply to capacity mechanisms
- Derivatives relating to the transportation of electricity/natural gas in the EU
- Prohibitions do not apply to derivatives traded on exchanges (remain covered by MAD); disclosure requirements do apply
- Does not apply to emission trading – in future will fall within MAR



## Capex Programme 2013-2016

The following table gives a brief update on the progress to date of the SEMO 2013-16 Revenue Control Capital projects.

SEMO's Capital Projects 2013-2014	
CMS Infrastructure	Not started.
Website Infrastructure and Services Upgrade	Analysis and vendor input completed. Infrastructure in place and commissioned. Migration about to commence.
SharePoint: Upgrade & Refresh Hardware	Analysis and design completed In progress – completion date is October 2014
Corporate Systems Refresh	Scoping, design, plan and RFT (Request for Tender) completed. Infrastructure completed – migration currently in progress
Telecommunications Links	Scoping, design, plan and RFT (Request for Tender) completed Links delivered – currently in test with go-live early October 2014
Technical Upgrade of Microsoft Dynamics	Not progressed to date.
Security Intrusion (Protection of CMS)	Scoping, design, plan and RFT (Request for Tender) completed. Scoping, design completed. SoW (Scope of Work) issued to vendor with Purchase Order generated.
Virtulisation of Oracle & network devices	Not progressing
Upgrade of SupportWorks Helpdesk	Not started. Moved to 2015

## Capex Programme 2010-2013

The section provides a summary of the seventeen approved capital business cases which address the likes of IT infrastructure requirements, the need for additional operational support systems, reporting requirements, data storage, system monitoring tools etc. The progress of each business case can be viewed in table below. More detail as to the progress of each capital project is provided in the following section.

No	Capital Project	Project Description	Project Status
1	Hardware Upgrade	Three year Delivery timeline.	<b>Completed</b>
2	System Monitoring Reporting	This proactive system will help significantly reduce the time it takes to find and clear system faults.	<b>Design Phase - December 2011. DELIVERED Implementation - Completed Go live date Quarter 2 2013. Completed</b>
3	Systems Management	This system will help facilitate Patch Management, Code Releases, centralised software server updates and will help the more efficient utilisation of IT infrastructure resources.	<b>Design – Completed Implementation – Quarter 2 2013 Completed Go live date - Quarter 4 2013</b>
4	Virtualisation	This project virtualises all of the SEMO non	<b>Phase 1 Virtualisation of non-production</b>

## Market Systems Development Plan 6

MSDP 6 2013-2015

		production environments. Phase 2 will deliver the virtualisation of SEMO's Corporate systems but excluding the Central Market Systems.	<b>environments DELIVERED</b> <b>Phase 2 Virtualisation of Corporate systems DELIVERED</b>
5	Oracle Logging	Auditor recommendation for security logging.	<b>Design Phase - Quarter 1 2012 DELIVERED</b> <b>Delivery date - July 2012. DELIVERED</b>
6	SharePoint and Document Management	Facilitates the storage, organisation and sharing of documents within SEMO	<b>Phase 1 - Storage of Processes, Work Procedures and Checklist templates, Compliance Register – DELIVERED</b> <b>Phase 2 – Migration of SEMO users from file stores to SharePoint – Completed</b>
7	Data Storage	Relieves data storage problems and reduces costs.	<b>Phase 1 – Settlements Database partitioning - November 2011 – DELIVERED</b> <b>Phase 2 - Settlements Database Archiving – February 2012 - DELIVERED</b> <b>Phase 3 – Consolidation and policy refresh of backup procedures - Completed</b> <b>Phase 4 – MI Database partitioning and archiving – Completed</b>
8	Data Warehouse	This will provide SEMO with enhanced capacity for carrying out detailed market analysis.	<b>Phase 1 - Infrastructure implementation – DELIVERED</b> <b>Phase 2 - Requirements &amp; Design for BI tools - Delayed until completion of an EirGrid Group data warehouse strategy</b> <b>Phase 3 – Implementation – On-Hold</b>
9	Reporting Database Upgrade	This is now a business critical system which requires additional system support.	<b>Delivery date - July 2012 - DELIVERED</b>
10	Oracle Database Server Version 2	The database is struggling to maintain acceptable performance and requires significant maintenance.	<b>Phase 1 - New File system, change of OS &amp; upgrade to 11G - July 2012 - DELIVERED</b> <b>Phase 2 - Upgrading to new high performance hardware - July 2012 – DELIVERED</b>
11	New Communications Links	Key infrastructure components providing fully redundant, consistently available high performance links	Rolled over into the 2013-2016 Revenue Control period.
12	CMS Pre Production Environment (IPT)	Environments for investigating, testing and diagnosing issues in a timely and efficient manner.	Implementation of CMS Pre Production Environments - January 2012 – <b>DELIVERED</b>
13	Axapta Upgrade	This system is used for reconciling bank accounts, processing cash receipts, maintaining market ledgers, managing collateral and bad debt and managing market currency exposure.	<b>DELIVERED</b> May 2011.
14	On-Line Help System	This system will allow external stakeholders to submit and track any new or existing queries directly through a SEMO portal.	<b>Requirements - December 2011 - DELIVERED</b> <b>Design - May 2012 – DELIVERED</b> <b>Implementation - December 2012 - DELIVERED</b>
15	Electronic FAX Solution	Audit recommendation. The current manual processes for fax communications has the potential for error or omission, may not be timely enough, is difficult to co-	<b>DELIVERED - July 2012.</b>

		ordinate across dual site operations, is open to security breaches, and does not provide auditable permanent records of incoming or outgoing communications.	
<b>16</b>	On-Line Registration System	The online registration system should decrease the workload for new participants entering the SEM and make the registration process less daunting and more transparent.	<b>Requirements – Q4 2012 – DELIVERED Design – Started Delivered</b>
<b>17</b>	Training Environment (Internal)	It is essential that additional Market Application environments are made available to allow SEMO to optimally train staff and thus reduce the potential of operational issues in the live systems.	<b>DELIVERED - July 2012</b>

**Table 3** – High level summary of the 17 Capital Projects

## *Appendix 1 Modifications*

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Modification proposal status from 01 October 2012 to 30 September 2013.

1. [Implemented](#)
2. [Awaiting RA Decision](#)
3. [In Progress](#)

*Implemented Modifications*

Mod ID	Modification Title	Description
Mod_05_13	Amendment to the definition of "Working Day"	This modification changed the definition of "Working Day" to take account of the days when the SEM Bank is unable to process items such as December 24th. This is recognised by SEMO as a non-processing day and as such any invoice payment dates are amended to allow for these non-processing days. It also removes the ambiguity when determining the response date for any credit cover increase notices.
Mod_06_13	Housekeeping 6	The proposal rectified minor drafting and inconsistencies currently existing in the AP1 and AP6.
Mod_07_13	Appendix O Correction	This modification edited Appendix O, which addresses the Instruction Profiling function in SEM. It clarifies how Dispatch Instructions having the same Instruction Issue Time and Instruction Effective Time are handled. In addition, it documents how wind instructions are merged with MWOFS with the same Effective Time.
Mod_08_13	Issuing of Accession Deed	Section 3.1.2 of Agreed Procedure 1 defines the Party Registration procedural steps. As part of the process the Applicant was required to sign, date and return a Party Accession Deed to the Market Operator (as stated in Step 18). Once received, the Market Operator was required to sign and date the Accession Deed, sending a copy to the Applicant (as stated in Step 19). The Market Operator had 2 Working Days to complete that step.  This Modification proposed to change the timing of Step 19 from "Within 2 Working Days" to a more realistic timeline of "Within 15 Working Days". The Modifications Committee voted to amend the number of days down to 10 days.
MOD_04_13	Process for changing the VAT Jurisdiction of an Interconnector Unit	This modification proposal clarified the process for changing the VAT Jurisdiction of an Interconnector Unit. The proposal amended the T&SC to remove the requirement for companies to become VAT registered in the Jurisdiction in which the Unit is registered.
MOD_03_13	Mods Process Clarifications	The proposal provides Working Group process document to clarify governance of Working Groups. T&SC Section 2 and Agreed Procedure 12 outlines the Modifications process and it is believed that the process is best documented in the Market Rules. The proposal sets out the roles and responsibilities of a Working Group with regard to Modification Proposals.
MOD_01_13	Enduring Provisions for Interconnector point of Connection	The enduring Code was designed on the basis that Interconnector related quantities would be defined at the Connection to the Transmission System, whereas for Moyle all quantities are defined at the Scottish end, and for EWIC, they are defined at the Welsh end, aligning with the UK BETTA arrangements. There is a difference between these quantities due to losses on the link itself, with subsequent consequences for the calculation and settlement of Interconnector quantities. To date, interim arrangements have been in place in Section 7 of the Code defining the point of connection of an Interconnector to the SEM as being at the far end of the link. This proposal makes the interim provisions enduring in the T&SC.
MOD_30_12	Improved Efficiencies in Unit Registration Process	This modification streamlined the unit registration process for units entering the SEM as set out in AP1. The procedural steps define a single process which covers all aspects of a unit registration including, inter alia, the Market Operator receiving an application, validation of the application by the various parties involved and the unit becoming effective in the market.

		<p>This proposal changed the process from a single continuous process to one which is broken down into 4 sequential stages. The stages are as follows</p> <ol style="list-style-type: none"> <li>1. Application</li> <li>2. Review</li> <li>3. Participant Readiness</li> <li>4. Go-Live</li> </ol> <p>In summary the new structure sets out the steps in stages with each stage having a clearly defined requirement to be met before completion. Until this requirement is met the application cannot be advanced to the next stage. This means that applications will conform to minimum standards before being circulated amongst validating parties, thereby reducing time wasted unnecessarily by all parties.</p>
<b>MOD_29_12</b>	Dwell Time Up and Dwell Time Down Glossary Definitions	The change includes definitions for Dwell Time Up and Down in the Glossary of the T&SC.
<b>MOD_28_12</b>	Clarifications to Appendix N	An inconsistency was identified in Table N.2 following implementation of Mod_18_10_v2 <i>Intra-Day Trading</i> which this modification corrected.
<b>MOD_27_12</b>	Representation of Price Takers in the MSP Software	This proposal aligns the MSP Software with Appendix N. The issue was raised by the certification team where Price Takers are individually represented in the MSP Software. While the MSQs of these units are set according to Table 5.1 in Section 5 and are not calculated by the MSP Software, the Schedule Demand calculation (e.g. N.32 for EP2 runs) is not explicitly pre-processed and is effected within the MSP Software. Price Taker Generators (and Price Taker Generators Under Test) are represented individually in the MSP Software for the purpose of determining the Schedule Demand and this change reflects this.
<b>MOD_26_12</b>	Notification Time for updating Interconnector Technical Data	As part of the Intra Day Trading (IDT) Modification, Agreed Procedure 2 was updated in relation to the notification time that the Interconnector Administrator (IA) has to provide SEMO for changes to Interconnector Technical Data. The same timeline as used for other registration data which changes infrequently (29 days) was put in place. However 29 day's notice is inflexible, as this length of notice period may impact upon trading on the Interconnectors and also the security of the transmission system. The IA proposed that five working day's notice (as was the case prior to the IDT modification) is sufficient to inform SEMO and Interconnector Users of any changes to the Interconnector Technical Data.
<b>MOD_23_12</b>	Minimum Stable Generation Correction	Mod_42_10v2, which became effective in the November 2012 release, made changes to the Single Ramp Rate calculation. It also amended the definitions of Minimum Stable Generation and Minimum Generation. The certification review noted that, as the amended Glossary definition of Minimum Stable Generation references a Code paragraph that refers to an Ex-Post calculation; this introduces a lack of clarity as to how Minimum Stable Generation is defined for Ex-Ante. There were instances in the Glossary definitions where the use of Minimum Stable Generation in the Glossary definition needed amendments to Minimum Generation. This modification corrected the Glossary definitions.
<b>MOD_22_12</b>	Administered Scheduling for	The change rectified a gap in the market rules where a General System Failure occurs and the Central Market System was unable

	General System Failure	to produce MIUNs for day-ahead and within day trading on the Interconnector. If the GSF duration was long enough this could leave the Market Operator in the position where MIUNs are required, but they had no authority under the GSF to issue MIUNs (even if they are zero). To mitigate this, a clause is introduced in the T&SC and AP2 that allows the MO set MIUNs to zero in the event of GSF.
<b>MOD_20_12</b>	Timelines in relation to the scheduling of Ad Hoc Resettlement following an upheld Query	The proposal sought an improvement in the approach to management of ad hoc resettlement with regard to upheld formal queries. The legal drafting change agreed by the Modifications Committee allowed for the Market Operator, in consultation with Market Participants seek up to a maximum of 10 additional Working Days to allow for completion of associated Settlement reruns and issue a relevant update to the settlement Calendar.
<b>MOD_19_12</b>	Correction to discrepancy in Required Credit Cover Query resolution timeline	This corrected a discrepancy in AP3 <i>Data Generation</i> where the timeline for investigation of Credit Cover Query was to be completed within 90 minutes of <i>issue</i> of a Required Credit Cover report, the correct reference should be within 90 minutes of <i>receipt</i> of a Required Credit Cover query.
<b>MOD_18_12</b>	Constraint Payments Calculation for Interconnector Residual Capacity Units	The proposal, raised by the TSO proposes a change to the IRCU calculation to align the application of CLAF with the changes approved in Mod_12_11 <i>Interconnector Unit Loss Adjustment When Exporting</i> . It also simplifies the SO Trade Calculation algorithm.
<b>Mod_17_12</b>	Report on Offered Capacity in Implicit Auctions	The proposal sought the introduction of a new report detailing the amount of Offered Capacity on each Interconnector in each direction in Implicit Auctions after each Gate Closure. The data is required under Transparency in the Congestion Management Guidelines (Regulation (EC) no. 714/2009 Annex I.5 Transparency). This is essential information for Interconnector Users in determining if and where trading opportunities are available in EA2 and WD1.
<b>MOD_16_12</b>	Inconsistent Technical Capabilities when Higher Operating Limit is zero and less than Lower Operating Limit	The proposal corrects in inconsistency between the Code and CMS systems. It proposes to document more fully the treatment of inconsistent higher and lower operating limits.
<b>MOD_15_12</b>	Inclusion of ATC limit slack variables and associated penalty cost parameters	The description of the treatment of slack variables and their associated penalty costs in the Central Market System is not fully transparent. This modification proposed to more accurately describe the implementation of Intra-Day Trading related constraints and to document them in the Code.
<b>MOD_14_12</b>	Reference to MO Status for VTOD	The proposal sought to ensure that all steps which must take place in order for a submitted Validation Data Set to be approved in the SEM systems are documented in the Trading and Settlement Code, and the responsibilities of the relevant parties outlined.
<b>MOD_13_12</b>	Housekeeping 5	The Modification Proposal corrects minor drafting, formatting and typographical errors of various sections of the T&SC and APs.
<b>MOD_09_12</b>	Treatment of Settlement Reruns of EP1 following MSP Failure	As part of the preparations for Intraday Trading, a review of Administered Settlement highlighted the need for a Code modification to clarify the requirements for Settlement Reruns after an Administered Settlement event. The proposal updated section 6.255 to

		clearly state that Settlement Reruns are only required for MSP Failures for EP2.
<b>MOD_08_12</b>	Calculation of Modified Interconnector Unit Nominations (MIUNs) for SEM Intra-Day Trading	The proposal arose following the implementation of the Intraday Trading Modification; it clarifies that the MIUNs as calculated following the relevant MSP Software Run will be fixed in subsequent MIUN calculations where possible. It also corrects the explanation of when Interconnector Units are considered to be ramping up or down. (This is currently incorrect in its description of the existing process.). The proposal introduces Original MIUNs and Original IUNs as defined terms in Agreed Procedure 2, Appendix 2. These terms enable fixing and make clear which version of the IUNs/MIUNs are used as inputs to the relevant MIUN Calculator run.
<b>MOD_07_12</b>	Testing Charge Calculation for the Interconnector Error Unit when Under Test	The proposal allows for a testing tariff to apply to any Interconnector Error Unit when Under Test for both importing and exporting. It also facilitates the decision to allow the classification of the Interconnector Error Unit as Under Test, as approved under Mod 10_11 <i>Interconnector Under Test</i> . The application of the Testing Tariff to the absolute value of the metered generation for the Interconnector Error Unit when Under Test is being progressed as part of the implementation of Mod 10_11 and the modification clarifies the application of the Testing Tariff in the T&SC.
<b>MOD_06_12</b>	Improved Efficiencies in LCF Process	This Modification Proposal sought to streamline the process for acceptance and input of Offer Data in the CMS when submitted in the event of a Limited Communication Failure within one hour of Gate Closure for the relevant Offer Data.
<b>MOD_05_12</b>	Cross Border Settlement Reallocation Calculations	The proposal, raised by the MO provides clarification of what is currently in practice in relation to the appropriate exchange rates applied to cross border settlement reallocations as part of Settlement calculations and Credit Risk Cover calculations
<b>MOD_04_12</b>	Corporate Website Publication Times for Capacity Settlement Data	The proposal applies the same timelines to Data Publication relating to Capacity Settlement as those applied to Energy Settlement Data Publication.
<b>Mod_03_12</b>	Alignment of the TSC with revised VAT arrangements	<p>The proposal was put forward as a result of the inability of some Interconnector Units (Generators) to join the market because of the requirement in the current VAT Agreement to have a VAT number in the Jurisdiction of the unit. Where a company is established in a Jurisdiction other than that of where the Generator Unit is, that company is not entitled to a VAT number in the Unit Jurisdiction.</p> <p>The change is deemed necessary by the VAT Authorities in order to satisfy EU VAT legislation requirements where the Participant company is established outside the jurisdiction of the unit At the start of the market it was not anticipated that companies would register units in jurisdictions outside of where they were established and on that basis the existing VAT Agreement complied with VAT law and no issues arose until 2011.</p>
<b>MOD_02_12</b>	Amendment of Credit Cover requirements	Flexibility for Market Participants is introduced with this Modification Proposal as it satisfies Participants credit cover obligations and takes account of the tighter access to such products in today's banking market.
<b>MOD_01_12</b>	Representation of Demand Side Units on the Modification	The proposal addressed the absence of suitable Demand Side Units representation on the Modification The modification introduced a seat for Demand Side Units.



Committee		
<b>Mod_33_11</b>	<p>Temporary exclusion of Interconnector Error Unit Testing Charges from Settlement calculations</p>	<p>Mod_10_11 Interconnector Under Test was approved by the Regulatory Authorities on July 21st 2011. It requires changes to the Central Market System. As the scope for 11th Scheduled Release SEM R2.0.0 (Deployment Date July 2012) is full, the earliest that this change could be incorporated in the CMS is October 2012, after the commissioning phase of EWIC which is scheduled for June/July 2012.</p> <p>The MO undertook the investigation of a time-limited manual workaround to implement Mod_10_11 so that Testing Tariffs could be applied to EWIC during its commissioning phase. However, a possible manual workaround is complicated by the fact that Testing Charges are included in the Total Payments made for a Generator unit in a Settlement Day i.e. DAYPUud, which in turn feeds through into a number of other calculations including Invoice Energy Payments (6.124), Billing Period Currency Charge (6.136 &amp; 6.136A), Balancing Cost (6.141), Unsecured Bad Debt Energy Charge (6.153) and Actual Generator Exposure (6.187).</p> <p>While it is feasible to implement the inclusion of the testing charges manually in the Invoice Energy Payments (6.124) and the Balancing Cost (6.141) for a limited period, it is not feasible to implement a manual workaround adjusting the calculations in relation to Billing Period Currency Charge, Unsecured Bad Debt Energy Charge and Actual Generator Exposure.</p> <p>The proposed change temporarily removes the Testing Charges associated with Interconnector Error Units from the Total Payments to Generator Unit calculation (DAYPUud). The Testing Charges are then added back in to the Invoice Energy Payments (6.124) and the Balancing Cost (6.141) calculations. This is to ensure that the obligation remains for the Interconnector Administrator to pay Testing Charges for the Interconnector Under Test.</p> <p>The Testing Charges are excluded from the Billing Period Currency Charge (6.136 &amp; 6.136A), Unsecured Bad Debt Energy Charge (6.153) and the Actual Generator Exposure (6.187) calculations.</p> <p>The temporary provisions extend until the date of the 12th Scheduled Release Deployment Date i.e. the Oct 2012 release when Mod_10_11 is scheduled to be implemented.</p>
<b>Mod_32_11</b>	<p>Excess Cash Collateral Drawdown Requirements</p>	<p>It is proposed to have a Standing Request for Participants to draw down from their excess cash collateral to pay outstanding invoices amounts. The Standing Request means that a Participant can request SEMO to draw down from their Excess Cash Collateral for Invoices due. It is also proposed that the Participants can use their Excess Cash Collateral to draw down for FMOc and Blended VAT Invoices, which they cannot do at the moment. As Excess Cash Collateral is used, it does not affect their Required Credit Cover.</p>
<b>Mod_31_11</b>	<p>Calculation of Estimated Energy Price (EEP) and Estimated Capacity Price (ECP)</p>	<p>This Modification Proposal seeks to address an inconsistency in the calculation of EEP and ECP that exists between the Code and the CMS. The inconsistency was discovered during the development of Intra-Day Trading.</p>
<b>Mod_30_11</b>	<p>Assessment and Approval of Registration Data</p>	<p>This modification is required to clarify the Registration process and obligations for all parties involved. It aims to align Agreed Procedure 1: "Participant and Unit Registration and Deregistration" with the obligations that are already set out in the Trading and</p>

		<p>Settlement Code. The clarification was highlighted by an internal Eirgrid audit.</p> <p>On review considering the number of Distribution Connected Generator Units registering in the SEM it was considered appropriate for this Modification to also include the Distribution System Operators and the Distribution Codes. Thereby ensuring equal treatment of all Generators in the SEM regardless of their point of connection.</p>
<b>Mod_29_11</b>	Revision of Standard Letter of Credit Template	<p>This Modification Proposal replaces the current Standard Letter of Credit template with one that aligns with internationally recognised finance standards set out in Uniform Customs &amp; Practice for Documentary Credits (UCP600). This is the international standard used for documentary credits or Letters of Credit. Included with the proposal is supporting guidelines for Participants and their banks, which would indicate all fields required to be filled out on their behalf. If this Modification Proposal is not approved, the current template will remain in a non-standard format that may not be accepted by banks or may increase the processing required to provide a Letter of Credit.</p>
<b>Mod_27_11</b>	Market Operator Solvers Policy	<p>This proposal seeks to define the existing policy used by SEMO in relation MIP and LR as the 'Market Operator Solver Policy' and to make any changes to it subject to the approval of the SEM Committee. This ensures that there is a clear process for implementing any changes to the Market Operator Solver Policy and removes any discretion that may have existed in relation to the use of different solvers. Were this Modification Proposal not implemented, the existing method for changing and updating the Market Operator Solver Policy would remain.</p>
<b>Mod_23_11</b>	Additional Clause for Standard Letter of Credit	<p>This proposal, proposed by Airtricity, raised following advice from Lloyds proposes the addition of a clause to the conditions set out within the current version of the Standard Letter of Credit. The proposal ensures that future Letters of Credit comply with the current view of best banking practice.</p>
<b>Mod_21_11</b>	UI Payments for Generator Units Constrained On	<p>At present when an Energy Limited generator incurs an uninstructed imbalance for over generation, the payment received is based upon the minimum of SMP and Dispatch Offer Price. As Energy limited plant must have a DOP = €0, this means that there is no payment possible for over generation. Over generation occurs for two reasons as follows</p> <ol style="list-style-type: none"> <li>a. Over generation as a result of plant free governing and responding to system frequency. In this case the plant correctly generates above DQ but cannot get compensated.</li> <li>b. Over generation as a result of poor plant performance. In this case, the tolerance bands and the associated DOG provide adequate incentive to remain within the tolerance bands (as for all plant).</li> </ol> <p>Without this modification, energy limited generation units which correctly operate in the market and generate above DQ as a result of system frequency variations will not get remunerated which is discriminatory and perverse.</p>
<b>Mod_17_11</b>	Clarifying the requirement to provide Dispatch Instruction for Generator Units	<p>The proposal, proposed by Airtricity, states that there is no explicit restriction on the provision of Dispatch Instructions for Autonomous Generator Units, Interconnector Units or Interconnector Residual Capacity Units in the market rules. However for the reason that the Market Operator does not need the data for Instruction Profiling, as well as for the existing technical situation wherein if the Dispatch Instructions were issued to the Market Operator for those classes of Generator Units, the market systems</p>

		<p>would automatically procure Instruction Profiling for them, in practice Dispatch Instructions are not sent to the Market Operator. While we accept that Instruction Profiling does not need to be performed for those classes of Generator Units, it does not necessarily follow that the Dispatch Instructions relating to them should not be received by the Market Operator and published in the Central Market Systems as the relevant data for other classes of Generator Units are published. In essence, while the Market Operator may not need the data for its operations, Market Participants do need the data for their own purposes which include the monitoring of generation assets in relation to TSO dispatch actions. For these purposes the Market Operator would be functioning in its role as a central information clearing agent. If this modification is not approved, the faulty logic applied to the provision of Dispatch Instructions for certain classes of Generator Units by implicitly linking it to the Code obligation to not perform Instruction Profiling for those classes of Generator Units will be allowed to continue. This would be contrary to the Code Objectives regarding facilitation of participation of electricity undertakings (Objective 3), transparency (Objective 5) and ensuring no undue discrimination between persons who are parties to the Code (Objective 6).</p>
<b>Mod_16_11</b>	Credit Worthiness Test for SEM Bank and Credit Cover Provider Banks	The proposal seeks a revision of debt rating for the SEM Bank and Provider Banks.
<b>MOD_12_11</b>	Interconnector Unit Loss Adjustment When Exporting	<p>Currently, the Moyle Interconnector connects Scotland with Northern Ireland. In 2012, the EW Interconnector will connect Ireland with Wales. Each of these DC Interconnectors will incur losses associated with the transmission of electricity. Current Transmission Loss Adjustment factors (TLAF) for Interconnectors are based on the point of connection in SEM jurisdictions, plus an allowance for losses on the Interconnectors to the Connection Point (noting that DLAF for Interconnectors is equal to one). Within the current Code, adjustment for losses reflects the transfer of electricity between the Connection Point of a Unit and the Trading Boundary, where:</p> <ul style="list-style-type: none"> <li>• Connection Point: The point at which the Generator Unit or Supplier Unit is deemed to be connected within the SEM.</li> <li>• Trading Boundary: A notional balancing point for generation and supply and is the point of sale for trading in the SEM.</li> </ul> <p>This treatment when exporting is incorrect, as it does not reflect the fact that (assuming that the losses related to the Moyle are around 2%), This Modification proposes to adjust quantities for Interconnector Units (where required in accordance with the Code) when exporting by the reciprocal of the CLAF provided by the System Operator to the Market Operator.</p>
<b>MOD_10_11</b>	Interconnector Under Test	Testing Tariffs should apply to an Interconnector while undergoing testing for Commissioning, Grid Code Compliance or otherwise. It is recommended that the Interconnector Error Unit, which is registered to the Interconnector Administrator, as procured by the Interconnector Owner, is liable for the testing charges incurred while the Interconnector is under test.
<b>MOD_06_11</b>	Increasing Maximum Daily Submission Number and Automating Cancellation of Settlement Reallocation	<p><u>Increase on Daily Maximum Number of SRAs:</u></p> <p>The coming online of the EWIC in 2012 will see either the registration of new units or an increase in the volume being registered by Interconnector units (depending on final implementation). Either way, the management of Credit Cover positions (as well as</p>

	Agreements	<p>cash flows) using SRAs will necessitate an increase in the number of SRAs allowed to be lodged daily by Participants.</p> <p><u>Automating Cancellation of SRAs:</u></p> <p>The proposed design of Intra-Day Trading arrangements requires a more ‘aggressive’ treatment of Credit Cover requirements for Interconnector units. Given this development, in order not to frustrate potential trades, it will be necessary to improve the management of SRAs. Automating cancellation of SRAs allows Participants be more responsive under the proposed Credit Cover arrangements.</p>
<b>MOD_04_11</b>	Removal of requirement that a demand site in a DSU shall not have an MEC	<p>Removal of this unnecessary restriction facilitates the participation of sites with MEC &lt; 10MW as Demand Side Units. This will make the load reduction capacity and excess generation capacity of such large energy users available to System Operator. Sites with MEC &lt;10MW typically have embedded CHP generation where the ratio between the site heat load and site electrical load is such that it is economical to export electricity. These are demand sites where demand can become negative in periods of large site heat requirements. Participation of these sites as part of an aggregated DSU, as opposed to an AGU is more practical as it facilitates netting generator output against site demand and also results in declaration of available reduction capacity as opposed to total generation capacity.</p>
<b>MOD_01_11</b>	UI Payments for Generator Units	<p>When a generator incurs an uninstructed imbalance for over generation, the payment received is based upon the minimum of SMP and Dispatch Offer Price. The penalty for Over Generation is excessive for plant which is constrained on as opposed to plant which is in merit. The proposal ensures that the penalty for Over Generation will not be excessive for plant which is constrained on when compared to plant that is in merit.</p>
<b>MOD_18_10</b>	Intra-Day Trading	<p>The Modification Proposal was designed to ensure that the SEM rules comply with the Congestion Management Guidelines set out in Regulation 714/2009 of the European Council and Parliament which require that:</p> <ul style="list-style-type: none"> <li>• ‘By 1 January 2008, mechanisms for the intra-day congestion management of interconnector capacity shall be established in a coordinated way and under secure operational conditions, in order to maximise opportunities for trade and to provide for cross border balancing (section 1.9) and,</li> <li>• ‘Successive intra-day allocations of available transmission capacity for day D shall take place on day D-1 and D, after the issuing of the indicated or actual day-ahead production schedules’. (section 4.3) and,</li> <li>• ‘the access rights for long and medium-term allocations shall be firm transmission capacity rights. They shall be subjected the use-it-or-lose-it or use-it-or-sell-it principles at the time of nomination’ (section 2.5)</li> </ul> <p>The Modification was intended to meet the Trading and Settlement Code Objectives:</p> <ul style="list-style-type: none"> <li>• to facilitate the participation of electricity undertakings engaged in the generation...of electricity in the trading arrangements under the Single Electricity Market. By permitting generators in the SEM and GB market to access the SEM pool for the purpose of importing and exporting after the current single gate closure time of 10am, this Modification Proposal facilitates enhanced participation in the SEM</li> <li>• to promote competition in the single electricity wholesale market on the island of Ireland. The provision of Intra Day</li> </ul>

		<p>trading arrangements in the TSC should serve to increase competition in the SEM through greater access to prices in neighbouring markets and permitting registered interconnector users to respond to changing conditions such as wind forecasts, plant outages and demand expectations post gate closure.</p> <p>With the ultimate aim of ensuring that all interconnectors in the SEM are utilised in as efficiently as possible by allowing unused capacity to be reallocated to the market after gate closure, this modification promotes the interests of customers through creating a more liquid, competitive market and increasing security of supply. As intermittent generation increases in the SEM, efficient within day interconnector rules will be key to meeting this TSC Objective.</p>
<b>MOD_36_10</b>	Removal of connection between Supplier Units and DSUs	<p>The harmonised provisions of the Ireland and Northern Ireland Grid Codes allow for an entity known as a Demand Side Units (DSUs) which are Demand Sites which offer demand reduction. The Trading and Settlement Code links these units to Supplier Units. This Modification Proposal should have minimal impact on central market systems, and consequentially should have negligible impact on the cost to consumers. Therefore, any improvement brought by competition will have immediate short-term gains for the consumers on the island of Ireland.</p>
<b>MOD_42_10</b>	Changes to the Single Ramp Up Rate and the Single Ramp Down Rate Calculation	<p>At present, the method used to calculate the Single Ramp Up and Down Rates in SEM results in values that fluctuate considerably from one Trading Day to the next and are not always a valid representation of the actual capabilities of the unit. Clearly this is not the intention of the T&amp;SC, as it aims to set down rules that accurately model Generator technical characteristics.</p> <p>The modification aims to more accurately model reality and thus achieve a less volatile application of ramp limitations in the Market Schedule. With the proposed change, Ramp Rates will not be impacted by an artificially low Minimum Stable Generation when coming back from (or going into) an outage.</p>
<b>MOD_40_10</b>	Differentiation between Dwell Times and Dwell Trigger Points while ramping up and ramping down	<p>At present generators submit as part of their Technical Offer Data up to 5 Ramp Up Rates, 5 Ramp Down Rates, 4 Ramp Up Break Points, 4 Ramp Down Break Points, 3 Dwell Times and 3 Dwell Time Trigger Points. There is no differentiation between Dwell Times and Dwell Time Trigger Points for generators when ramping up or ramping down. This lack of differentiation between a Dwell Up Time/Dwell Down Time and Dwell Time Up Trigger Point /Dwell Time Down Trigger Point, limits the ability of the MSP software to accurately capture the behaviour of certain generators. With current practices, if certain units only need dwell times for ramping up, they are forced to have a very low ramp up rate to accommodate this. This has led to the situation where a unit which would require two dwell times and two ramp rates would need six ramp rates to accommodate their performance. Also as the MSP software cannot accurately model generator units with these characteristics, it is limited in solving for the most economic System Marginal Price and Market Scheduled Quantities.</p>
<b>MOD_43_10</b>	Variable Price Taker Generator Units and Firm Access	<p>The Modification Proposal is believed to better facilitate Code Objective 4: “to promote competition in the single electricity wholesale market on the island of Ireland” by ensuring that Price Taker Generator Units are treated in the same way as Price Maker Generator Units when operating in their non-firm region. It is proposed that the requirement set out in the regulatory documents referred to in the Appendix can be met by the changes included in this Modification Proposal.</p>



*Awaiting RA Decision*

Mod ID	Modification Title	Description
Mod_21_12	Amendment to Available Transfer Capacity (ATC) definition	The TSO raised the proposal in order to ensure the T&SC is consistent with EU Regulation (EC) No 714/2009. The proposed change will ensure that the interconnector import and export capacities available to market participants are maximised consistent with safety standards of secure network operation. The facility for TSOs to determine and set transfer limits on inter-jurisdictional flow to respect security standards is required to ensure the secure operation of the transmission system. This facility is proposed to be available to the TSOs pre-Gate Closure, before trade has been established in SEM. The ability to determine and apply new transfer limits resulting in the reduction of Interconnector transfer capacity is an essential tool to enable system security to be maintained during periods when power system conditions would result in situations which breach minimum system security standards.
Mod_18_11	Definition of Availability	The current definition of Availability leaves room for ambiguity in interpretation. This raises concerns around certainty and transparency; it is preferable for the Trading and Settlement Code definition to be amended to provide certainty. This Modification will align the Trading and Settlement Code definition of 'Availability' with the Grid Code definition, which deems a generator to be available where it is capable of delivering electricity to the Connection Point. The proposal was recommended for approval by the T&SC Mods Committee, however the TSO flagged concerns with regard to the meaning of Outturn Availability, should the definition change. There are several scenarios when a generation unit's ability to deliver power to the connection point does not de facto mean that it can deliver that quantity of Active Power to the SEM. Therefore while a generator may be 'available' from a Grid Code perspective it may not always be 'available' from a SEM perspective. The TSO were not in support of the Modification. EirGrid ran an Outturn Availability consultation with a further consultation being conducted on an all island basis.

*In Progress*

Mod ID	Modification Title	Description
<b>Mod_11_12</b>	Proposal to extend the definition of Special Units to include Compressed Air Energy Storage	The proposal seeks to extend the definition of Special Units within the T&SC to include Compressed Air Energy Storage Units.
<b>Mod_25_12</b>	Suspension of Interconnector Unit on instruction of Interconnector Owner due to breach of Access Rules	<p>The TSC provides (section 2.97) that the Interconnector Administrator shall verify to the Market Operator whether or not the Party (or Applicant, as applicable) is an Interconnector User. At this stage the Interconnector Administrator is confirming that the Party has met the eligibility requirements for the interconnector. There is currently no mechanism whereby this “approval” can be revoked if the party no longer meets the eligibility requirements or is in breach of the access rules.</p> <p>The purpose of this change is to allow the interconnector owner to request that the Market Operator suspends an interconnector unit if it no longer meets the eligibility requirements or is in breach of the interconnector access rules.</p>
<b>Mod_02_13</b>	Registration of Charges	<p>The intention of the proposal is to remove the obligation to register a charge over the Collateral Reserve Accounts. The EirGrid legal team believe that the wording of Section 6.20 and 6.24 of the T&amp;SC is sufficient to ensure that the Market Operator has effective administrative control over the Collateral Reserve Accounts of Participants.</p> <p>The obligation on Participants imposed by section 6.21 to facilitate the registration of charges over the Collateral Reserve Accounts has not been fulfilled by all Participants. Accordingly, it has proven very difficult to register a charge over the relevant Collateral Reserve Account within the statutory time limit of 21 days from the date of creation of the charge. This means that, in some circumstances, no charge over certain Participants’ Collateral Reserve Accounts exists and the MO has committed a breach of the Code.</p>
<b>Mod_09_13</b>	Amendment of AP7 to include the use of e-mail notification and the SEMO public website in the event of a GSF	It is proposed to amend AP7 to include the use of the Market Operator public website and market message e-mail alerts to supplement the current emergency communication methods. The methods set out in AP7 are fax and telephony based. The use of fax and telephone calls in practice does not lend itself to efficient communication with affected parties in the event of a General Systems Failure whereas using the Market Operator public website and e-mail alerts is instant and the established participant communication method.



# Market Systems Development Plan 6

MSDP 6 2013-2015