# I-SEM Roles and Responsibilities

## Consultation Paper

## SEM-15-016

## 6 March 2015

# 1 CONTENTS

# 2 INTRODUCTION

## 2.1 Implementation of I-SEM and European Network Codes in Ireland and Northern Ireland

Implementation of the I-SEM in Ireland and Northern Ireland is being undertaken in parallel with the implementation of the Electricity Target Model across the European Union. Many elements of the I-SEM design are underpinned by draft European Regulations (e.g. Capacity Allocation and Congestion Management Guidelines (CACM), the Forward Capacity Allocation Network Code and the Electricity Balancing Network Code[1]) and therefore will be directly applicable without need for transposition into national law and take precedence over the existing SEM legal framework in the event of conflict or inconsistency.

The CACM Regulation, which is the first of the European Regulations designed to create a single pan-European electricity market under the aegis of the EU's Third Energy Package, was adopted by Member States on 5 December 2014[2]. The CACM Regulation, following a period of scrutiny by the European Council and the European Parliament is due to enter into force in mid-2015. The CACM Regulation sets out rules for the operation of day ahead and intraday market coupling, provides for the development of methodologies and rules that underpin these markets and sets out a high level governance structure for the management and regulatory oversight of the TSOs and market operators.

The CACM Regulation provides for an explicit derogation for Ireland and Northern Ireland for the majority of its provisions, with the redesign of the SEM pool to bring it in line with the CACM rules acknowledged in the recitals to the Regulation[3]. Specifically, Article 83 provides that:

*Except for Articles 4, 5 and 6 and participation in the development of terms and conditions or methodologies, for which the respective deadlines shall apply, the requirements of this Regulation shall not apply in Ireland and Northern Ireland until 31 December 2017.*

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[1] While the CACM is due to be formally adopted as an EC Regulation, the rules for Forward Capacity Allocation and Balancing are currently Network Codes. It is likely that all three market Codes will be adopted as European Commission Regulations. The terms Guidelines, Regulations and Network Codes are used interchangeably in this this paper.

[2] http://ec.europa.eu/energy/en/content/draft-regulation-establishing-guideline-capacity-allocation-and-congestion-management-0

[3] Recital 34: 'Due to the significant challenges in introducing single day ahead and intraday coupling into the current market of Ireland and Northern Ireland, it is undergoing a process of major redesign. Additional time is, therefore, needed for the implementation of parts of this Regulation, with a number of transitional arrangements being put in place'

The provision of the derogation in the voted text of CACM is a welcome development and the result of a long period of discussion between the Regulatory Authorities (RAs), the Departments (the Department of Communications, Energy and Natural Resources (DCENR) in Ireland and the Department of Enterprise, Trade and Investment (DETI) in Northern Ireland), the European Commission and ACER and ultimately through the comitology process which concluded in December 2014. The extension of the original derogation to end-2017 will allow sufficient time for the I-SEM detailed design to be developed, consulted on and implemented by Q4 2017. However, in the meantime, the CACM requires that:

1. Under Articles 4 to6, at least one Nominated Electricity Market Operator (NEMO)[4] be designated in Ireland and in Northern Ireland by four months from entry into force of the regulation;

2. The TSOs and NEMO(s) in Ireland and Northern Ireland participate in the development of terms and conditions or methodologies as per the CACM deadlines.

Ofgem, in their recent open letter on implementation of the EU Electricity Network Codes in Great Britain[5] have estimated that the full suite of CACM provisions will formally take effect after 31 months, following a series of steps involving TSOs, NEMOs and National Regulatory Authorities (NRAs). Upon NEMO designation and TSOs taking up their responsibilities under CACM, key tasks are required to be completed before day ahead and intraday market coupling formally takes effect, notably:

- The determination of capacity calculation regions and related methodologies including the capacity calculation methodology
- Development of plan for the Market Coupling Operator (MCO) role
- Products for day ahead and intraday markets
- Maximum and minimum day ahead and intraday prices
- Back up procedures

This means that it is important that the key entities responsible for the development of the CACM processes for I-SEM are designated as soon as possible in order to avoid delayed implementation and to ensure that the interests of all island consumers and market participants are represented at EU level in developing the rules, methodologies, terms and conditions of the day ahead and

[4] The market operator functions for the day ahead and intraday markets which have been carried out by power exchanges in some jurisdictions are being codified into European law as the roles of the 'nominated electricity market operators (NEMOs). CACM establishes and defines the term 'market operator' in this context.

[5] https://www.ofgem.gov.uk/sites/default/files/docs/2014/12/open_letter_on_enc_implementation_and_consultation_on_nemo_designation.pdf

intraday market coupling.

## 2.2 I-SEM Institutional Arrangements – Roles and Responsibilities

The SEM is due to be replaced by the Integrated Single Electricity Market (I-SEM) in Ireland/ Northern Ireland by Q4 2017. The new market will be based around voluntary Day Ahead and Intraday markets in physical energy. The I-SEM and the European rules that underpin it will require the establishment of a number of new roles and responsibilities as well as changes in the responsibilities of a number of existing licence holders in the SEM including the Market Operator, Transmission System Operators (TSOs), interconnector owners and market participants.

## 2.3 Minded-to consultation

In anticipation of implementation of the I-SEM by Q4 2017, this consultation focuses on the minded-to position of the SEM Committee regarding the allocation of key administrative roles and responsibilities amongst parties within the new market as well as setting out proposals for the process for NEMO Designation in Ireland and Northern Ireland.

Transparency and certainty around the allocation of roles is important in order to provide regulatory certainty and stability for business planning and continuity. Clear communication of minded-to roles and responsibilities will also aid the development of effective regulatory processes.

## 2.4 Next Steps

Following the consultation period of six weeks, the RAs will publish a decision to incorporate both NEMO and non-NEMO roles by October 2015 (assuming CACM enters into force in June 2015). The decision will align with the CACM requirement to designate at least one NEMO for the bidding zone in Ireland and Northern Ireland by the expected deadline of October 2015. The table below provides an indication of proposed publication dates:

| Deliverable | Publication date |
|---|---|
| Publish Roles and Responsibilities Paper | 6 March 2015 |
| Receipt of responses on Roles and Responsibilities Consultation | 17 April 2015 |
| RAs' invitation for NEMO applications | 5 May 2015 |
| Deadline for receipt of NEMO applications | 16 June 2015 |
| Decision on I-SEM Roles and Responsibilities | October 2015 |

Any comments or queries in relation to this paper should be sent to Leigh Greer (Leigh.Greer@uregni.gov.uk) and Elaine Gallagher (egallagher@cer.ie) by 17:00 on 17 April 2015.

# 3 DESCRIPTION OF I-SEM OPERATIONAL ROLES AND FUNCTIONS

## 3.1 SEM Institutional Arrangements

The Single Electricity Market (SEM) for the island of Ireland went live on 1 November 2007 and consists of a centralised and mandatory all-island wholesale pool market through which generators and suppliers trade electricity.

The current SEM arrangements are provided for in legislation (the Single Electricity Market Act 2007 in Ireland and the Single Electricity Market (NI) Order 2007 in Northern Ireland), and licences for generators, suppliers, Transmission System Operators (TSOs), Market Operators (MOs) and Interconnectors in Ireland and Northern Ireland. The SEM rules are provided for in detail in a suite of contractual arrangements; these are set out primarily in the Trading and Settlement Code, Bidding Codes of Practice, Grid Codes and Metering Codes.

**Table 1** below gives an overview of the institutional arrangements for the SEM and a more detailed description is given in the section below:

| SEM Role[6] | Functions |
|---|---|
| Generators | An entity licensed to generate electricity and to participate as a Generator under the Trading and Settlement Code |
| Suppliers | An entity licensed to supply electricity and to participate as a Supplier in the Trading and Settlement Code |
| The Single Electricity Market Operator | The entity authorized as the single electricity market operator. This role is currently fulfilled solely by a joint venture between EirGrid plc and SONI Limited. Both legal entities are authorised as undertakings by the Regulatory Authorities to perform the Market Operator function pursuant to the Market Operator Licences |
| The Transmission System Operators | The entities licensed to operate the transmission systems in Ireland and Northern Ireland |
| The Interconnector Owners (Moyle and EIL) | The entities licensed in Northern Ireland and Ireland respectively which own and legally control an Interconnector under contract or in law |
| Interconnector Users | A Participant who has entered into arrangements with the relevant Interconnector Owner enabling the Participant to trade on an Interconnector between the SEM and external markets |
| The Interconnector Administrator | The entity assigned by an Interconnector Owner to provide data to the market operator and TSOs under the Trading and Settlement Code |

[6] Generators and suppliers include demand side participants, aggregated generator units and a range of technologies such as storage and energy limited plant.

| SEM Role[6] | Functions |
|---|---|
| The Distribution System Operators | The legal entity being the operator for the time being of the Distribution System for Ireland and Northern Ireland |

**Table 1: Key Roles and Functions in the SEM**

## 3.2 SEM Roles and Responsibilities

*Generators and Suppliers*

The core of the SEM pool is the wholesale marketplace for the exchange of electricity contracts between generation and supply. Licensed generation and supply in Ireland and Northern Ireland as well as Demand Side Units, Aggregated Generator Units and Interconnectors Users participate as market participants in the SEM pool and are subject to rights and obligations set out in the Trading and Settlement Code.

*The Single Electricity Market Operator*

The SEM is operated by the Single Electricity Market Operator (SEMO). SEMO is currently a contractual joint venture between the transmission system operators (TSOs) in Ireland and Northern Ireland, EirGrid and SONI respectively, and is part of the EirGrid group. SEMO is regulated by the SEM Committee (SEMC) through market operator licences granted to EirGrid and SONI.

EirGrid and SONI, as holders of the market operator licences, are authorised to conduct their Single Electricity Market (SEM) business jointly on an all-island basis through licences in Northern Ireland and Ireland and a corresponding licence exemption in the other jurisdiction.

The function of market operator in the SEM is set out in primary legislation in Ireland and Northern Ireland. SEMO is responsible for operation of the SEM pricing algorithm (the Market Scheduling and Pricing Software) and the resulting scheduled market prices and quantities, settling the market including paying generators for their electricity generated and invoicing suppliers for the electricity they have bought as well as administering capacity payments and charges, providing registration, accession, credit cover, currency management and re-settlement functions.

*Transmission System Operators (EirGrid and SONI)*

The main functions of the TSOs are to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system.

EirGrid holds licences as independent electricity Transmission System Operator (TSO) in Ireland, and purchased the System Operator Northern Ireland (SONI) in 2009; SONI is the licensed TSO in Northern Ireland.

*Moyle Interconnector and East West Interconnector*

The Moyle Interconnector connects Northern Ireland to Scotland and the East West Interconnector connects Ireland to Wales and jointly they provide cross border capacity between wholesale trading in the all-island and the British electricity markets and form the boundaries between these bidding zones under the European Target Model.

The East West Interconnector is owned by the EirGrid Interconnector Limited which is a subsidiary of EirGrid Plc. and is due to be certified as a TSO.

The Moyle Interconnector is owned by Mutual Energy and was certified as a TSO with effect from 26 June 2014[7].

Currently, SONI acts as interconnector administrator for the Moyle and East West Interconnectors.

Once both Moyle and East West Interconnectors (and any future interconnectors) have been certified as TSOs, the European Network Codes will apply to them and they must either discharge their obligations as TSOs under each code or have those obligations assigned to Third Parties[8].

*Interconnectors Users*

Interconnector users are external market participants who trade through the SEM pool either through having purchased explicit transmission rights or through implicit intraday capacity allocation.

[7] http://www.uregni.gov.uk/uploads/publications/Moyle_Certification_26_June.pdf

[8] Article 1.3 of CACM provides that not all obligations under CACM will necessarily apply to all certified TSOs where more than one TSO exists in a Member State and that Member States may provide that the responsibility for complying with those obligations is assigned to one or more different, specific TSOs.

Currently, interconnector users are not licensed in the SEM and that category of participant will become redundant with the coming into force of I-SEM and CACM.

## 3.3 I- SEM Institutional Arrangements

**New and Changed Roles under the EU Network Codes**

In order for the European Regulations which underpin the Third Package and the Internal Energy Market to be implemented, Member States are required to assign responsibilities to a number of key actors for the operation and administration of the market across Europe. The first European Network Code is the CACM Regulation; this sets the stage for the institutional and governance arrangements that the subsequent Codes and Regulations will then follow.

In order for each Member State to implement and comply with their obligations, CACM requires as a first step the assignment of roles and responsibilities to entities which are then charged with the development of methodologies, terms and conditions required to be submitted to regulators for approval prior to the coming into effect of the operation of the European Day Ahead and Intraday markets coupling. Specifically, the **CACM Regulation** requires in the first instance:

- The designation of Nominated Electricity Market Operators (NEMOs) by each Member State for each of its bidding zones; and
- The assignment of responsibilities to Transmission System Operators (TSOs).

Once these roles are assigned, the NEMOs and TSOs will be required to carry out a set of preparatory functions that establish the operating rules for the day ahead and intraday market coupling at national, regional and pan-European level for approval by National Regulatory Authorities. It is therefore paramount that these roles are assigned in Ireland and Northern Ireland in line with the binding CACM deadlines.

In addition to the CACM requirements, the draft **European Balancing Network Code (EBNC)** requires the following functions and roles to be carried out by each TSO in each bidding zone of each Member State[9]:

- Operation of the Balancing Market: this is a core TSO function and thus is automatically carried out by the TSO in each Member State;
- Imbalance Settlement by the TSOs but assignable to a Third Party under Article 9 of the EBNC. Imbalance settlement is not a core TSO function and

[9] https://www.entsoe.eu/Documents/Network%20codes%20documents/NC%20EB/140806_NCEB_Resubmission_to_ACER_v.03.PDF

the current draft EBNC provides that it may be assigned to another party subject to a number of criteria.

Finally, the **Forward Network Code for Capacity Allocation** provides for TSOs to carry out the functions of[10]:

- Development of allocation rules for approval by NRAs on forward cross border capacity products (Financial Transmission Rights or Physical Transmission Rights);
- Settlement of forward cross border capacity products.

**Other I-SEM Roles and Functions**

In addition to the energy market, the I-SEM High Level Design provides for a centralised capacity remuneration mechanism (CRM) based on reliability options. It is necessary to establish who will be responsible for the two administrative functions required to implement the CRM:

- Capacity Mechanism Delivery Body
- Capacity Mechanism Settlement Body

The key institutional changes with the I-SEM relate to the market operator role which will now incorporate the operation of day ahead and intraday market coupling and a range of new functions for the TSOs (including the hitherto interconnector owners/operators who either have been or are in the process of being certified as TSOs as provided for under the Third Package)[11].

In addition to the continuing roles of the SEM Committee, the Regulatory Authorities and Departments, the key roles and responsibilities to be created and amended as part of the I-SEM institutional arrangements are set out in Table 2 below:

| I-SEM Role | Responsibility or Function | Change for I-SEM and/or EU Regulations |
|---|---|---|
| **Generators** | Entities licensed to generate electricity and to participate as a Generator in the I-SEM. | As for SEM but with new requirements to participate in I-SEM marketplaces and be balance responsible. |

[10] https://www.entsoe.eu/Documents/Network%20codes%20documents/NC%20FCA/140402_NC%20FCA%20Resubmission.pdf

[11] The Moyle Interconnector was certified in NI with effect from 26 June 2014: http://www.uregni.gov.uk/uploads/publications/Moyle_Certification_26_June.pdf

| I-SEM Role | Responsibility or Function | Change for I-SEM and/or EU Regulations |
|---|---|---|
| **Suppliers** | Entities licenced to supply electricity and to participate as a Supplier in the I-SEM. | As for SEM but with new requirements to participate in I-SEM marketplaces and be balance responsible. |
| **Traders** | Interconnector users currently operate in the SEM without generating electricity or supplying end consumers. | While the concept of interconnector user will disappear in the I-SEM, trading across timeframes may be possible without the need for ownership of a generation asset or to supply end consumers. |
| **Transmission System Operators** | The entities licensed to operate the transmission systems in Ireland and Northern Ireland and including the Interconnector Owners. As well as being responsible for dispatch and balancing of the all-island system, the TSOs have a defined set of responsibilities under the EU Network Codes and Guidelines. | Upon certification, the Moyle and East West Interconnectors will be considered TSOs under the EU Network Codes. Where TSO obligations under those Codes do not apply to the interconnectors those obligations must be assigned to the appropriate TSO. In conjunction with Ofgem, the RAs will give further consideration to this process for assignment with regard to the East West and Moyle Interconnectors. |
| **Nominated Market Operator for the Day Ahead and Intraday Markets (NEMO)** | Entity responsible for performing single day-ahead and intraday coupling including receiving bids and offers, matching and allocating orders and clearing and settling contracts related to the day ahead and intraday coupled markets. | Currently there is no firm day ahead market in the SEM while the intraday market consists of two intraday auctions as per the transitional arrangements for SEM set out in CACM.<br><br>CACM and I-SEM introduce the new designated entity of a NEMO to operate the day ahead and intraday markets and cross border market coupling. |
| **Market Coupling Operator (MCO)** | The function of matching orders from the day ahead and intraday market for all bidding zones and allocating cross border capacities. The MCO runs the Euphemia algorithm for all bidding zones following receipt of bids and offers from the NEMOs. | Currently the SEM algorithm determines market prices and quantities and determines cross border flows in Ireland and Northern Ireland and between the SEM and the rest of the European internal market. CACM and I-SEM rules will provide that the MCO run algorithm takes over these functions for the day ahead and intraday timeframe. The MCO function is performed by NEMOs or delegated to other NEMOs |

| I-SEM Role | Responsibility or Function | Change for I-SEM and/or EU Regulations |
|---|---|---|
| **Central Counter Party (NEMO Role)** | The Central Counter Party is a NEMO role and refers to the entity or entities with the task of entering into contracts with market participants, and of organising the transfer of net positions resulting from capacity allocation with other central counter parties or shipping agents. | This role is not currently undertaken in SEM though the equivalent entities are interconnector users who enter in contracts with market participants in the SEM and BETA markets in order to trade across the interconnectors. |
| **Shipping Agent (TSO/IC Owners Role)** | The entity (TSOs) responsible for transferring net positions between central counter parties. | The TSOs will be the shipping agents in the I-SEM. |
| **Balancing Market Operator (TSO Role)** | Entity responsible for the balancing and reserve market including submission of incremental and decremental prices, as well as related dispatch of generation and associated near time TSO operations. | The nature of the real time or balancing market will change from SEM to I-SEM. However the core functions and responsibilities of this core TSO role will not change |
| **Imbalance Settlement Operator** | Entity responsible for the clearing and settlement of imbalances in the I-SEM relating to differences between contractual positions in the day ahead and intraday markets and metered generation or load. | With no firm contracts outside of the real time in the SEM pool, the concept of imbalance settlement is limited to differences between dispatch and metered generation in the SEM. The introduction of voluntary physically firm day ahead and intraday markets in the ISEM and CACM changes the role of settlement for energy and non-energy actions. |
| **Forward Cross Border Capacity Allocation and Settlement** | The rules and functions for the forward allocation of cross border capacity are provided for in the CACM Guideline and draft FCA Network Code and will be implemented through pan European Harmonised Allocation Rules (HAR). Key functions are:<br>• Capacity calculation<br>• Auctions of transmission rights<br>• Settlement of forward capacity contracts | Currently the allocation of cross border forward capacity (Physical Transmission Rights) is carried out by SONI as Interconnector Administrator.<br><br>The I-SEM and the Forward Network Code will provide for the allocation of Financial Transmission Rights to be done by a European Single Allocation Platform though it may continue to be done at a regional level on an interim basis.<br><br>Currently settlement of Transmission Rights in the SEM is carried out by the Interconnectors. |

| I-SEM Role | Responsibility or Function | Change for I-SEM and/or EU Regulations |
|---|---|---|
| | | As with capacity allocation, this function will be performed by the Single Allocation Platform in the future, though may continue to be done at regional level as a transitional measure. |
| **Capacity Market Settlement Body** | Entity responsible for the settlement of capacity contracts resulting from the capacity auction and administering collateral and secondary trading arrangements | Currently the market operator administers capacity payments to generators in the SEM and interconnector users and collects capacity charges from suppliers in the SEM.<br><br>The I-SEM will require a similar contractual role for a market operator to administer centralised reliability options. |
| **Capacity Market Delivery Body** | The I-SEM capacity mechanism requires that an entity is responsible for the running the capacity market auction including prequalification and setting the amount to auction. | The SEM capacity mechanism is based on the Best New Entrant Price set by the RAs and the capacity requirement set by the TSOs.<br><br>Under the I-SEM the capacity market will be administered by a Deliver Body responsible for running an auction to determine the price of capacity based on the capacity requirement determined by the TSOs. |
| **Ancillary Services Procurement** | The TSOs are responsible for the procurement of all-island ancillary services | The I-SEM will not change the nature of ancillary services procurement per se other than through the requirements for exchanges of cross border reserves under the Balancing Network Code.<br><br>Rather the revised ancillary services regime being developed by the RAs and TSOs under the DS3 project will require changes in the procurement of all island ancillary services. The project plan for the design and implementation of the DS3 project will be published in Q2 2015. |

| I-SEM Role | Responsibility or Function | Change for I-SEM and/or EU Regulations |
|---|---|---|
| **The Distribution System Operators** | The legal entity being the operator for the time being of the Distribution System for Ireland and Northern Ireland | No change from SEM |

**Table 2: I-SEM Institutional Arrangements**

# 4 ASSIGNMENT OF I-SEM OPERATIONAL ROLES AND FUNCTIONS

## 4.1 Assignment of roles

As discussed above, this consultation will establish the scope of TSO and market operator functions for the I-SEM. The RAs recognise the importance of providing clarity around the allocation of roles as early as practically possible in order to align with system procurement processes, CACM timelines and ultimately I-SEM delivery.

We set out below our proposals on the allocation of the following operational roles and functions for the I-SEM:

- Balancing Market Operator Role
- Settlement of Imbalances Role
- Capacity Mechanism Delivery and Auction Role
- Capacity Mechanism Settlement Role
- Forward Contracting Roles

The Day Ahead Market Operator and Intraday Market Operator Roles are considered as part of the NEMO Designation Process set out in Section 6.

**Balancing Market Operator Role**

The Balancing Market is a new construct in the I-SEM but is closely related in its purpose to the scheduling and dispatch mechanism that is currently undertaken by the TSOs in the SEM. The Balancing Market is the set of operational, commercial and institutional arrangements operated by the TSOs to ensure a feasible dispatch of plant that delivers a safe and secure system, including having sufficient reserve available to deal with contingencies. The TSOs role regarding the procurement of ancillary services comes under the aegis of the DS3 project.

As with the scheduling and dispatch of plant in the SEM, the operation of the balancing market in the I-SEM is a core TSO function.

The Electricity Balancing Network Code (EBNC) will require increased cross border cooperation between the TSOs in Ireland and Northern Ireland (and beyond) initially though Coordinated Balancing Areas (COBAs) and ultimately through the EU wide common merit order in line with the Electricity Balancing Network Code. The TSOs' responsibilities regarding the dispatch of plant and cross border exchanges will therefore be extended under I-SEM to operate a balancing market for the all-island system and to implement cross border arrangements with National Grid in GB to ensure the efficient use of the interconnectors in real time.

In line with the Electricity Balancing Network Code and their licence conditions to ensure a feasible dispatch of plan to operate a safe and secure system, the TSOs will perform the role of Balancing Market Operator in I-SEM.

**Settlement of Imbalances Role**

As with Balancing Market, the concept of imbalance settlement will undergo changes from the SEM to the I-SEM. Currently imbalance settlement is limited to differences between dispatch quantities and metered generation in the SEM and is settled by the market operator in SEM as part of the ex-post settlement. The introduction of physically and financially firm day ahead and intraday markets in the I-SEM changes the role of ex-post settlement for energy and non-energy (that is imbalances that do not relate to energy deviations but to constraints on the transmission system) actions.

Imbalance settlement consists of three key activities:

- metering the quantities produced and consumed by each market participant in I-SEM;
- comparing these with the quantities covered by contractual positions from the day ahead and intraday markets in I-SEM; and
- settling the differences.

In addition, the entity responsible for imbalance settlement would be required to:

- Determine the imbalance price or prices for each settlement period
- Administer a set of market rules for the settlement of imbalances,
- Provide collateral arrangements to limit exposure from non-payment,
- Provide a system of registration, funds transfer, invoicing, resettlement and rules for the management of currency risk.

Settlement of imbalances is performed by different entities in other jurisdictions, depending on market design and institutional arrangements. For example, in Great Britain, Elexon Limited, which is owned by the GB System Operator (National Grid), is responsible for the functions of imbalance settlement and administers the Balancing and Settlement Code which sets out the market rules for its implementation.

In other jurisdictions in Europe, imbalance settlement is carried out by the TSOs (e.g. Germany, France) or the day ahead and intraday market operator (e.g. Italy). In the United States the real time markets and their settlement are mostly operated by the same entities (Independent System Operators or ISOs) that also run the day ahead markets. A brief survey of the functions and corporate structure of market operators/power exchanges operating in Europe is set out in Annex 1.

The current draft of the Electricity Balancing Network Code places the obligation for imbalance settlement on the TSOs. However, while dispatch and balancing of the electricity system in real time is a core TSO function, imbalance settlement is not. The Electricity Balancing Network Code provides that the function of imbalance settlement may be assigned by the TSO to a party other than a TSO if provided for in current legislation or upon request of the TSOs[12]. The assumption in European cross border rules is therefore is that imbalance settlement is carried out by the TSOs unless provided for elsewhere in legislation or upon request by the TSOs to delegate this function.

For the I-SEM the options for performing the function of imbalance settlement are therefore:

1. TSOs fulfil this role and their licenses are updated to provide for this; or

2. The holders of the current market operator licences are assigned this role and their licences are updated to provide for this or the TSOs request that this role be delegated to a market operator.

The purpose of consulting on the role of imbalance settlement is to acquire stakeholder views on the synergies and conflicts of interest relating to the operational roles in I-SEM.

**Capacity Mechanism Delivery Role**

The Capacity Mechanism in the I-SEM requires that new roles and functions be performed beyond those currently undertaken for the CRM in the SEM, notably relating to participation in and operation of the auctions. While the RAs shall oversee the design of the capacity mechanism and its implementation through a set of auction and settlement rules, the I-SEM CRM requires a delivery body to implement it. Responsibilities for the capacity mechanism delivery role are likely to include[13]

- Setting the capacity requirement (that is the amount to be auctioned based on a pre-defined security standard);

[12] Draft Network Code on Electricity Balancing, Article 9 on Delegation of Functions:
4. Member States or NRAs, if allowed to do so by the national legislation, may, at the request of the relevant TSO, assign the task of Imbalance Settlement to another party than the TSO pursuant to Article 60 and Article 62. In such a case the party to whom the task is assigned shall meet all the requirements that are applicable to the TSO according this Network Code and shall work in close cooperation with a TSO when defining appropriate procedures.
5. Notwithstanding paragraph 4, if the rules of national law at the date of the entry into force of this Network Code assign to a different party and according to a different legal framework non-essential tasks which, according to this Network Code, are assigned to the TSO, then the national legislation prevails.
13. The precise responsibilities of the CRM Delivery Body will be determined under the aegis of the I-SEM CRM workstream.

- Preparation, pre-qualification and operation of auctions as well as planning the auctions and publishing results;
- Provision to the body responsible for settlement of data and auction results necessary to settle capacity contracts and levy charges on market participants;
- Test providers to ensure that they are able to demonstrate their capacity and validate eligibility of parties for secondary trading;
- Acting as contractual counterparty to capacity contracts.

Some of the functions of the delivery body are core TSO roles that are currently carried out by the TSOs (e.g. setting the capacity requirement, calculating availability which is provided to the market operator for capacity settlement) while all those relating to the auctions are new to I-SEM. Requiring the CRM delivery body to act as a central counterparty will also be a new role.

As is standard in other markets where capacity mechanisms are implemented (GB, PJM, New England, Italy) it is our minded-to position that the TSOs be the delivery body for the I-SEM Capacity Mechanism. This is because the TSOs are in a unique position of being the licenced entities for Ireland and Northern Ireland responsible for the operation of a safe and secure power system. It therefore follows that implementation of the new capacity mechanism which aims to ensure security of supply in Ireland and Northern Ireland be undertaken by the TSOs.

**Capacity Mechanism Settlement Role**

As well as a delivery body, the I-SEM Capacity Mechanism requires a role to be established for the settlement of capacity contracts resulting from the capacity auction and administering collateral and secondary trading arrangements.

The I-SEM HLD Decision provides that the capacity mechanism is a centralised system to procure capacity on behalf of all demand and so it is important that capacity charges are levied on all metered load. The corollary of this is that the settlement of capacity contracts in the I-SEM should be carried out by the same entity that settles the imbalance market. The role of settlement of capacity payments and charges will thus depend upon which entity is assigned responsibility for imbalance settlement (i.e. the TSOs or a third party who has been assigned or delegated that function).

Therefore our minded-to position is that capacity settlement could be carried out by the entity responsible for imbalance settlement.

**Forward Contracting Roles**

The RAs plans for internal and cross border forward contracts and hedging are described in our recent discussion paper on the I-SEM Forwards and Liquidity

Workstream[14]. This has identified that current market arrangements have not resulted in liquid forward markets and that measures to promote trading in the forward time frame may need to be implemented to allow market participants to hedge short term prices to the benefit of consumers. The Forward and Liquidity workstream will therefore seek to implement the decisions of the I-SEM High Level Design, which involve encouragement of forward financial market liquidity including facilitation of a centralised forward trading platform. The High Level Design also requires that only financial instruments will be used in within-zone trading and that, subject to agreement, cross border trading will take the form of Financial Transmission Rights.

Forward financial contracts themselves will not be regulated by the RAs and may fall under financial regulation.

Regarding cross border forward capacity allocation and hedging, the I-SEM High Level Design and the Forward Network Code will provide for the allocation of Financial Transmission Rights (FTRs) to be done by a European Single Allocation Platform though transitional arrangements may be adopted on an interim basis.

Currently settlement of Physical Transmission Rights (PTRs) in the SEM is carried out by the interconnector owners. As with capacity allocation, this function will be performed by the Single Allocation Platform in the future, though interim arrangements may be adopted as a transitional measure.

The decisions as to the allocation of responsibilities for FTRs falls under the scope of the Forwards and Liquidity workstream and will be consulted on in due course.

## 4.2 Key Marketplace interactions

The key interactions and financial settlement flows between the different marketplaces in I-SEM will depend on the assignment of roles referred to above. Data and financial flows for the balancing market, imbalance settlement and capacity settlement will be carried out by the entities assigned those function in I-SEM. Financial settlement between generator and suppliers in I-SEM will include an increased cross border element, particularly around day ahead, intra day and forward cross border capacity allocation [15]. Regarding the day ahead timeframe, CACM provides that central counterparties (i.e. NEMOs) collect congestion income, (that is the price differential between bidding zones arising from day ahead), and distribute this to the relevant TSOs (interconnector owners) who then reimburse any holders of transmission rights (FTRs in the case of Moyle and East West)[16].

[14] http://www.allislandproject.org/en/wholesale_overview.aspx?article=50e36f89-7232-40a0-a371-15cbcbe19c93

[15] For a more detailed description of market process and data flows for day ahead and intraday see: http://www.eirgrid.com/media/CapacityAllocationandCongestionManagement.pdf

[16] Article 72 of CACM provides that 12 months after the entry into force of the Regulation, the TSOs shall develop a methodology for the distribution of congestion income.

# 5 SYNERGIES AND CONFLICTS OF INTEREST RELATED TO I-SEM OPERATIONAL ROLES

## 5.1 Synergies

It is market participants and ultimately all-island consumers who pay the costs of the operational roles described in Sections 3 and 4. It is the SEM Committee's role to protect the short and long term interests of all island consumers and therefore our focus here is on reducing costs to consumers by achieving synergies where possible and mitigating conflicts of interests where they lead to increased consumer costs.

In particular, it is useful to examine both the synergies of one entity carrying out several of the roles described in sections 3 and 4 such that transaction costs to market participants are minimised and balance this with concerns around perceived conflicts of interests that could lead to increased costs to consumers and mitigation measures to minimise such conflicts.

The market operator role is a clear example of the need to balance these two elements. The market operator(s) along with the TSOs have a central role in the delivery of the I-SEM. In a relatively small market such as the SEM or I-SEM, there may be economies and scale and scope that mean efficiencies that can be achieved by having at least one entity discharging all I-SEM market operator roles.

These synergies are:

- **Cost savings associated with economies of scope**[17]**.** Given the relatively small size of the all-island market, economies of scope in the I-SEM operational roles might come from at least one market operator carrying out all clearing and settlement (invoicing) functions across all marketplaces – i.e. for the day ahead and intra day markets as well as the settlement of imbalances and capacity payments/charges.
- **Cost savings associated with economies of scale**[18]**.** A number of studies have shown that there are significant economies of scale in the functions carried out by commodity exchanges, whether they be financial, power or other exchanges[19]. This is because power

[17] Economies of scope are where it is cheaper to produce a range of products or carry out a range of tasks together than to produce or carry out each one of them on its own and come from businesses sharing centralised functions such as finance and invoicing. Economies of scope may come from similar tasks being carried out in the same market or across different markets.

18 Economies of scale are factors that cause the average cost of producing something to fall as the volume of its output increases. For more on the economies of scale in relation to power exchanges see: *Meeus, L. (2010) Why (and how) to regulate Power Exchanges in the EU market integration context, Florence School of Regulation.*

[19] For more on economies of scale related to commodity exchanges see for example:

*Malkamäki, M. (2001): Are there Economies of Scale in Stock Exchange Activities? Bank of Finland Discussion Paper 4.*

*Schmiedel, H. (2001): Technological Development and Concentration of Stock Exchanges in Europe. Bank of*

exchanges typically involve large fixed costs and low variable costs. Economies of scale in the I-SEM context would therefore stem from the avoidance of essentially fixed costs in procuring duplicate trading and settlement systems, staff and administration for I-SEM implementation and operation.

- **Reduction in transaction costs** for market participants who would need to register with a single rather than multiple entities across all physical (near term) market timeframes, provide a single net amount of credit cover and submit commercial offer data (bids and offers) to one entity, potentially cutting costs and resource requirements[20]. Transaction costs are particularly important in this regard for smaller market participants who may face challenges in providing the resources to create multiple interfaces with different market operators and meeting dispersed collateral requirements.

Whether or not multiple NEMOs operate in the I-SEM (see Section 6), the specific features of the I-SEM arrangements may mean that a single market operator covering all the administration and settlement functions (including those required to administer the day ahead, intraday, balancing, ancillary services and capacity markets) is required if these synergies are to be realised.

## 5.2 Conflicts of Interest

While there may be clear synergies in having at least one market operator performing all the market administrative functions in the I-SEM, of equal importance is the matter of conflicts of interest that arise from such a role in the context of the current legal and business relationship between the current licensed market operator and the TSOs, that could lead to an increase in costs to consumers.

There is currently no legal or functional separation between the Single Electricity Market Operator (SEMO) and the TSOs, whilst in every other EU market, the power exchange/market operator is legally and functionally separate from the TSOs[21] (for more on the organisational structure of market operators and power exchanges in Europe see Annex 1). The current market operator licence and the TSO licence have a very definite differentiation in terms of the roles and functions contained within them. Another important distinction is that the Market Operator licence function is regulated jointly by the two RAs through the SEM Committee.

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*Finland Discussion Paper 21.*
*Schaper, T. (2009): Organizing Equity Exchanges.*

[20] Transaction costs are usually defined as those costs incurred in the exchange of goods and services and occurring as a result of market imperfections. Under the conditions of perfect competition there are no transaction costs for market agents.

[21] In many European Member States, power exchanges are owned by, but legally separate from, TSOs

The TSO licences are different and are regulated separately by the RA within the relevant jurisdiction.

We are aware that some stakeholders continue to express concerns around the conflict of interests within the EirGrid Group, owing to their multiple roles in the SEM and that this could be raised again as a concern if new roles and functions were to be given to EirGrid in the I-SEM. Specifically some market participants have pointed to a conflict between EirGrid as owner of the East West Interconnector and their TSO role as procurer of ancillary services, the provision of which the East West Interconnector could compete with other market participants for.

The role of the East West Interconnector will be considered as part of the TSO certification process, including its role in the ancillary services market which has been considered as part of the SEM Committee Decision on System Services Procurement[22]. Therefore, this paper does not consider those particular conflicts of interest and level of business separation between EirGrid Interconnector Limited and EirGrid Plc. It addresses instead the synergies and conflicts of interest between the market operator and system operator roles in I-SEM.

In order to address conflicts of interest, the following steps are required:

1. the identification of the conflict and assessment of how the conflict could translate into higher costs for all-island consumers
2. assessing the ability of the party to act on such a conflict
3. assessing the incentive of the party to act on such a conflict[23]
4. putting in place mitigation measures to deal with the conflict.

Examples of conflicts of interest between the Market Operator and TSOs' roles that could arise include:

- Influence of TSOs on trading rules owing to their naturally conservative nature, notably influencing the design of the day ahead and intraday markets to require longer gate closure;
- Influence of TSOs on trading rules for financial gain (e.g. to minimise dispatch or balancing costs, to the extent that the TSO is incentivised through economic regulation to minimise balancing costs).

[22] http://www.allislandproject.org/en/transmission_current_consultations.aspx?article=11d55fa2-e9cd-454c-aaa5-d689d434db20&mode=author

[23] For more see consultation undertaken by DECC and Ofgem regarding National Grid's role in Electricity Market Reform (EMR) which set out the analytical approach taken in assessing potential conflicts of interest and synergies. The joint paper then assessed the ability of, and incentive on, National Grid to act on potential conflicts: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191731/EMR_Conflicts_of_interest_consultation_final_report_FINAL__P_.pdf

- Use by the TSO of inside knowledge of constraints on the transmission system and of the likely volume of net energy imbalances to influence the calculation of imbalance prices and of net imbalance quantities

Mitigation measures that may be applied to address conflicts of interest that are judged to increase costs to consumers may include business separation or 'ring-fencing' requirements such as those set out in Table 3 below:

| Level of ring-fence | Examples of business separation requirements |
|---|---|
| Information separation | restrictions on access to confidential information and computer systems |
| Employee and staff separation | separation of employee incentive schemes<br><br>strict requirements affecting the transfer of employees from one business to another such as 3 month cooling off periods<br><br>appointment and duties of a compliance monitor may ensure appropriate separation of staff as well as provide accountability for other separation measures |
| Physical separation | typically includes separation of property, facilities and premises |
| Financial separation and additional financial obligations | separate auditing and reporting of accounts<br>separation of revenues and prohibition of cross-subsidy<br>requirement not to hold or acquire shares or investments in other relevant business |
| Legal separation | requirement for directors to fulfil their roles as a director of a separate company whose sole business is the business in respect of which the legal board of which he is a member has been established |

**Table 3: Levels of Business Separation.** ***Source: (2013) DECC/Ofgem: Synergies and Conflicts of Interest arising from the Great Britain System Operator delivering Electricity Market Reform***

Depending on the assignment and roles and responsibilities in I-SEM, we intend to consider in further consultation papers the synergies and conflicts of interest regarding the roles described in this paper and the mitigation measures to be put in place to deal with these.

## 5.3 Consultation Questions

In light of the above discussion on synergies and conflicts of interest arising from the TSOs and market operator roles in the I-SEM, we are interested in the views of stakeholders on our proposed assignment of roles in section 3.

1. Do you agree that the TSOs should carry out the role of delivery body for the capacity mechanism?
2. Are there are synergies and economies of scope from having a single entity perform the I-SEM market operator roles, i.e. day ahead and intra day, imbalance settlement and capacity settlement? If so, how would these lower costs to consumers?
3. Do you think there are conflicts of interest arising from the same entity performing the market operator and TSO roles in the I-SEM? If so how would these increase costs to consumers and what mitigation measure could be put in place to deal with these?

# 6 NEMO DESIGNATION

## 6.1 CACM Process for NEMO designation

The process for designating a 'Nominated Electricity Market Operator' (NEMO) is set out in the European Commission Regulation establishing a Guideline on Capacity Allocation and Congestion Management (CACM). Specifically, the CACM provides that 'Unless otherwise provided by Member States, regulatory authorities shall be responsible for NEMO designation, monitoring of the designation criteria and the approval of NEMO fees'. Accordingly the RAs will be responsible for the designation of at least one NEMO in Ireland and Northern Ireland.

Articles 4 and 5 of the CACM set out a number of options for designation of NEMOs and a series of steps required for Member States and designating authorities to ensure that the initial designation and ongoing processes for NEMO designation and monitoring of NEMO functions are organised in a fair and non-discriminatory manner and comply with the designation criteria in Article 6. Specifically CACM provides in Article 4 that:

- Member States shall ensure that at least one NEMO is designated for each bidding zone of each Member State
- Regulatory Authorities shall carry out the designation of NEMOs
- The initial designation period shall be four years and applications for NEMO designation shall be accepted annually
- The criteria in Article 6 apply regardless of whether one or more NEMOs are designated
- A NEMO designated in one Member State shall have the right to offer day ahead and intra-day trading services in another Member State
- The designating authorities shall monitor and ensure compliance of all NEMOs operating within their Member State regardless of where the NEMO was designated
- If a national legal monopoly for day ahead and intraday services exists in a Member State or a bidding zone of a Member State, the Member State concerned may refuse the designation of more than one NEMO. The Member State concerned must notify its decision within two months of the entry into force of CACM to the European Commission, to the NEMO and to the designating authority of the Member State where the NEMO is designated, as well as to ACER; and the refusal shall be duly justified
- If a NEMO does not comply with the designation criteria, the designating authority of the Member State may revoke the NEMO designation
- The European Commission will produce a report every two years on the development of the day ahead and intraday coupling in Member States and consider the state of competition between NEMOs and may bring

forward measures on foot of this to further increase competition between NEMOs and the removal of national monopolies.

The steps and decisions involved for NEMO designation for Member States and regulatory authorities are illustrated in Figure 1 below:

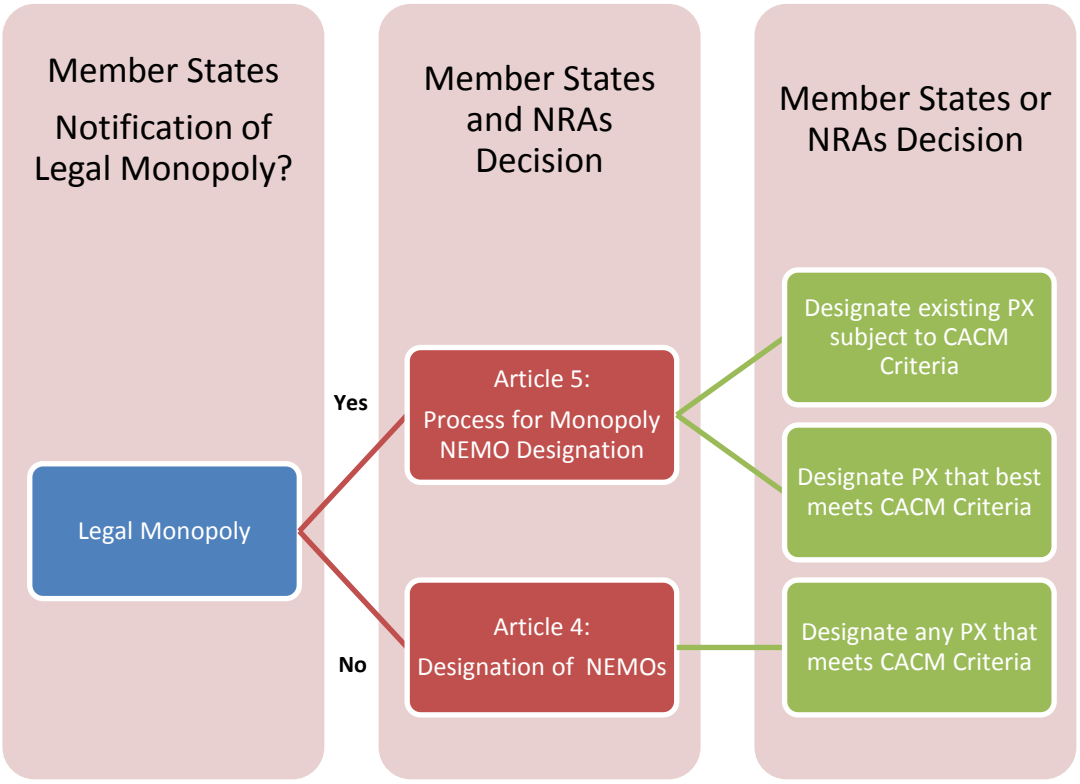


**Figure 1: NEMO Designation Steps**

The first step in the NEMO Designation Process is for the Member State to consider whether a national legal monopoly for day ahead and intra day services exists in the relevant bidding zone, and if so whether there will be designation of the existing market operator or a competition to determine who the monopoly NEMO shall be. If no legal monopoly exists, the initial designation process follows that set out in Article 4 of CACM.

## 6.2 Approach to NEMO designation in Ireland and Northern Ireland

As set out in the letters from the Departments regarding NEMO designation published with this paper, neither DCENR nor DETI are intending to invoke the national legal monopoly for the provision of day ahead and intra day services provided for in Article 5 of CACM. Furthermore, as CACM provides that NEMO designation shall be carried out on a Member State or bidding zone of a Member State basis, DETI and DCENR have given responsibility to the UR and CER respectively as designating authorities for NEMOs in Ireland and Northern Ireland.

As requested by the respective Departments and in line with the close

cooperation between the RAs on cross border issues, we intend to carry out the NEMO designation process for Ireland and Northern Ireland in a coordinated manner, beginning with this consultation on our joint interpretation of the NEMO designation criteria.

CACM provides that a NEMO that is designated in one Member State shall have the right to offer day ahead and intra-day trading services in another Member State. Therefore we intend that designation of NEMOs by the RAs will apply to the I-SEM as a whole, reinforcing our coordinated and joined up decision making process.

Article 4 of CACM provides that National Regulatory Authorities (NRAs) shall designate any applicant that meets the criteria outlined in Article 6. Therefore, CER and UR will need to assess applications for NEMO designation in Ireland and Northern Ireland according the criteria outlined in Article 6 of CACM.

Accordingly, we are inviting stakeholders to provide comment on the RAs' interpretation of the NEMO designation criteria as outlined in Article 6 of CACM, and to inform potential interested parties that an invitation to apply for the NEMO role for I-SEM will be posted on the CER, UR and AIP websites in May 2015 with a view to formal designation by CER and UR by October 2015. Once we have published our invitations to apply for NEMO designation, we intend to invite potential applicants to discuss their applications with us in advance of submission.

In line with the approach taken by Ofgem in their open letter and invitation to applications to be designated as a NEMO in GB[24], the RAs set out our proposed application of the CACM criteria for NEMO designation below:

## 6.3 NEMO Designation Criteria

Our proposed application of the designation criteria set out in Article 6 of CACM in Ireland and Northern Ireland focusses on the ability to perform the NEMO functions at the least cost to all-island consumers, taking into account the synergies and conflicts of interest described in this paper as well as the implementation timescales for the I-SEM. Table 4 below sets out the specific designation criteria and our interpretation:

[24] https://www.ofgem.gov.uk/ofgem-publications/93711/decisiononnemoconsultationandinvitationforapplications.pdf

| Criterion | CACM Article 6 Designation Criteria | Application of the Criteria in Ireland and Northern Ireland |
|---|---|---|
| 6.1.(a) **Adequate Resources** | it has contracted or contracts adequate resources for common, coordinated and compliant operation of single day-ahead coupling and/or single intraday coupling, including the resources necessary to fulfil the NEMO functions, financial resources, the necessary information technology, technical infrastructure and operational procedures or it shall provide proof that it is able to make these resources available within a reasonable preparatory period before taking up its tasks in accordance with Article 7. | Applications must provide evidence of capability to deploy necessary resources for NEMO functions including financial resources, the necessary information technology, technical infrastructure and operational procedures sufficiently in advance of the Q4 2017 when the operational aspects of day ahead and intraday market coupling shall apply in Ireland and Northern Ireland and the I-SEM is due to go live.<br><br>Applications should provide evidence of how it intends to operate single day ahead and intra day coupling and in particular whether functions will be delivered internally or outsourced.<br><br>Furthermore, evidence must be provided of the applicant's ability to provide resources for the development of the terms and conditions or methodologies by NEMOs set out in Article 7 and other preparatory arrangements required in Ireland and Northern Ireland prior to Q4 2017. |
| 6.1(b) **Access to information** | it shall be able to ensure that market participants have open access to information regarding the NEMO tasks in accordance with Article 7. | Applications must provide evidence that they have the capability to publish and make available to market participants in Ireland and Northern Ireland all relevant information for the day ahead intraday market set out in CACM Article 7.<br><br>Access to such information should be available to all market participants on an equal and non-discriminatory basis. |
| 6.1(c) **Cost Effective** | it shall be cost-efficient with respect to single day-ahead and / or intraday coupling and shall | Applications will be expected to provide evidence that they can ensure the implementation of the |

| Criterion | CACM Article 6 Designation Criteria | Application of the Criteria in Ireland and Northern Ireland |
|---|---|---|
| | in their internal accounting keep separate accounts for MCO functions and other activities in order to prevent cross-subsidisation. | most cost effective solutions for performing the day ahead and intraday market operation functions in the I-SEM.<br><br>Given the economies of scope arising from performing market operator tasks across a number of markets, we expect that applicants should outsource the MCO functions to third parties if they are not already carrying out such functions and if it is cost effective to do so.<br><br>Applications must also demonstrate that they will be able to provide a breakdown between the MCO activities and other NEMO or market operator costs. |
| 6.1(d)<br>**Adequate Business Separation** | it shall have an adequate level of business separation from other market participants. | Applications should state clearly the legal entity applying for designation and provide detail of its corporate structure.<br><br>Applications shall be required to provide evidence of an adequate level of business separation between the NEMO functions and TSO functions or provide detail of plans to put this in place in reasonable time before taking up their operational activities for day ahead and intraday coupling in Q4 2017.<br><br>The RAs and shall monitor the level of business separation between NEMO functions and TSO functions in accordance with their duties under Article 4 and 5 of CACM taking into account synergies and conflicts of interest between the market operator and TSO roles in the I-SEM. |
| 6.1(e)<br>**No cross subsidisation** | if designated as a national legal monopoly for day-ahead and intraday trading services in a | Where applicable, applications must include evidence that they have separate accounts for any |

| Criterion | CACM Article 6 Designation Criteria | Application of the Criteria in Ireland and Northern Ireland |
|---|---|---|
| **for national monopolies** | Member State, it shall not use the fees in Article 5(1) to finance its day-ahead or intraday activities in a Member State other than the one where these fees are collected. | services provided as a national legal monopoly for day ahead and intraday to prevent cross-subsidisation. |
| 6.1(f) **Non-discriminatory treatment of market participants** | it shall be able to treat all market participants in a non-discriminatory way. | Applications shall provide evidence of its ability to treat all market participants in a non-discriminatory way; and that market participants in the I-SEM shall be sufficiently informed and consulted on the day to day management and development of the single day ahead and intraday coupling. |
| 6.1(g) **Market Surveillance** | it shall have appropriate market surveillance arrangements in place. | Applications must include evidence of training and monitoring procedures or capability to put such procedures in place to identify and report on any potential market abuse consistent with Regulation (EC) 1227(2011) on REMIT. |
| 6.1(h) **Transparency and Confidentiality** | it shall have in place appropriate transparency and confidentiality agreements with market participants and the TSOs. | Applications shall provide evidence of appropriate transparency and confidentiality agreements / proposed transparency and confidentiality agreements with the applicant intends to implement related to market information with market participants and TSOs. |
| 6.1(i) **Clearing and Settlement Services** | it shall be able to provide the necessary clearing and settlement services. | Applications must include evidence that they have, or can contract an entity which is able to provide:<br><br>- adequate capitalisation and financial security, together with procedures in place to ensure satisfactory guarantees for settlements, necessary to clear and settle exchange of energy resulting from single day ahead and/or intraday coupling.<br><br>- the technical, operational and contractual arrangements to clear and settle exchange of energy |

| Criterion | CACM Article 6 Designation Criteria | Application of the Criteria in Ireland and Northern Ireland |
|---|---|---|
| | | resulting from single day ahead and/or intraday coupling. |
| 6.1(j) **Communication systems with TSOs** | it shall be able to put in place the necessary communication systems and routines for coordinating with the TSOs of the Member State; | Applications must provide evidence that they are capable of putting in place the necessary communication and technical systems and agreements for coordinating with the TSOs in Ireland and Northern Ireland including the Moyle and East West interconnectors and contingency plans for communicating with the TSOs. |
| 2. **Fair and non-discriminatory application of criteria** | The designation criteria shall be applied in such a way that competition between NEMOs is organised in a fair and non-discriminatory manner. | The RAs intend to consider each application for designation based on whether they meet the designation criteria. While the CER and UR are responsible for NEMO designation in Ireland and Northern Ireland respectively, we intend to make a coordinated and simultaneous decision on NEMO designation.<br><br>In considering this, the RAs will also take into account how the long and short term interests of consumers in Ireland and in Northern Ireland can be best served by applications for the NEMO role and the synergies and conflicts of interest that may arise in relation to other market operator and TSO roles in the I-SEM. |

**Table 4: NEMO Designation Criteria and application in Ireland and Northern Ireland**

## 6.4 Consultation Questions

The following consultation questions relate to the issues discussed in this section:

1. Do you have any views on the RAs interpretation of the NEMO designation criteria?
2. Do you have any views on the RAs proposed NEMO designation process?

# 7 CHANGES TO LICENSING AND CODES TO IMPLEMENT I-SEM

## 7.1 Changes to the SEM legal framework to provide for I-SEM

As stated above, in order to implement the I-SEM design and simultaneously remove any inconsistency between the SEM legal framework and the coming EU Regulations, we expect that changes will be required to licences, market and technical codes, interconnector access rules and potentially legislation in both jurisdictions. Any legislative changes required will be brought forward by the Departments in due course.

The overall governance of I-SEM will continue to be overseen by the Departments and RAs through the Joint Steering Group (JSG) and JSG Subgroup as per the governance arrangements established in February 2013 for implementing the European Target Model in Ireland and Northern Ireland[25]. Table 5 below illustrates the envisaged overarching governance framework and hierarchy for I-SEM:

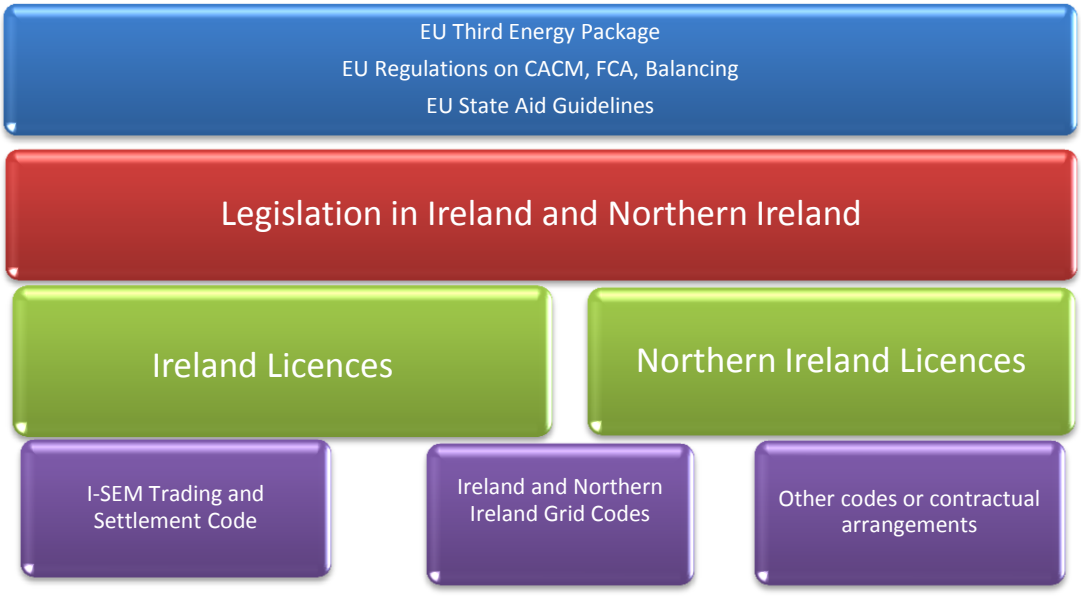


**Table 5: I-SEM Governance Framework**

## 7.2 Licence Changes

The current licence framework and suite of licences throughout Ireland and Northern Ireland for the SEM will require modification to reflect the new and changed roles and responsibilities set out in the I-SEM HLD and the EU regulations. Specifically we will need to follow up our decision on TSOs and Market Operator roles and changes to their functions through licence changes in Ireland and Northern Ireland. Consideration will also be given as to the cost

25 http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=5dc5e905-db0a-4cde-b3bb-5cf9b1873559&mode=author

recovery and regulation of the new and changed market operator roles in I-SEM.

Likewise, the key I-SEM detailed design decisions will need to be given effect through changes to generator and supply licences in both jurisdictions.

## 7.3 Changes to Codes

Regarding market rules and industry codes that provide for these, we intend that the I-SEM rules for the trading of day ahead, intraday and balancing energy as well as imbalance and capacity settlement and the rules of the capacity market will be set out in a revised multilateral contract that will replace the Trading and Settlement Code and be administered by a market operator[26]. Insofar as is possible and based on the principle that changes should only be made where required, we intend that the I-SEM market rules will build on the legal framework established in the SEM Trading and Settlement Code through the replacement of that Code with a new set of trading rules and multilateral contractual arrangements. Depending on the outcome of the NEMO designation process, a single or multiple set of market rules and contractual arrangements may be required. Following assignment of roles and responsibilities, the RAs intend to oversee the development of a revised set of market trading and settlement rules for the I-SEM with implementation being undertaken by the TSOs and market operator(s) in conjunction with market participants.

Accession to and compliance with the I-SEM contractual rules will be enforced through licence provisions underpinned by legislation where required. Ancillary documents such as any potential market power requirements and rules for participation in the capacity auction will similarly be enforced through licence conditions.

[26]The rules of the Day Ahead and Intraday market coupling will be determined and developed at EU and regional level by NEMOs and TSOs through consultation with market participants and subject to the approval of regulatory authorities.

# 8 CONCLUSIONS AND NEXT STEPS

This consultation on Roles and Responsibilities in the I-SEM has set out the RAs' plans to establish the institutional framework and assign roles and responsibilities for the I-SEM and the European Network Codes.

The Paper sets out in its introduction the processes and key assignment of roles to carry out those processes for implementation of the EU Network Codes. In sections 3 and 4, the Paper provides an overview of the new and changed roles required in the I-SEM and our initial thinking on how to assign the following roles and functions:

- Balancing Market Operator Role
- Settlement of Imbalances Role
- Capacity Mechanism Delivery and Auction Role
- Capacity Mechanism Settlement Role

In section 5, we consider it is instructive to examine both the synergies of one entity carrying out several of the roles described in sections 3 and 4 such that transaction costs to market participants are minimised and balance this with concerns around perceived conflicts of interests that could lead to increased costs to consumers and mitigation measures to minimise such conflicts.

In section 6, we set out the background and EU level process for the designation of the Nominated Electricity Market Operators (NEMOs) for the day ahead and intraday markets. We have also provided our proposed interpretation of the CACM Criteria for NEMO Designation set out in Article 6.

Finally, in section 7 we provide a brief overview of the changes required to licences and codes to implement the I-SEM in Ireland and Northern Ireland
We intend to present to stakeholders on the CACM Regulation and the changes to roles and responsibilities at the upcoming EU Stakeholder Forum on 10 March.

The table below highlights the RAs' 'Next Steps' as regards allocation of I-SEM roles and responsibilities:

| Deliverable | Publication date |
|---|---|
| Publish Roles and Responsibilities Paper | 6 March 2015 |
| EU Network Codes Stakeholder Forum | 10 March 2015 |
| Receipt of responses on Roles and Responsibilities Consultation | 17 April 2015 |
| RAs' invitation for NEMO applications | 5 May 2015 |
| Deadline for receipt of NEMO applications | 16 June 2015 |
| Decision on I-SEM Roles and Responsibilities | October 2015 |

# ANNEX 1: OVERVIEW OF POWER EXCHANGES ROLES IN EUROPE

***N.B. The information provided in this Annex is for information purposes only. No liability whatsoever is accepted for any reliance on any data, information or content of this Annex.***

## 1 APX NEDERLAND

Established in 1999, APX Power NL is the power exchange for the market in the Netherlands. APX Power NL is a subsidiary of the APX Group, which is jointly owned by TenneT Holding BV (71%), the Dutch transmission system owner and operator and Elia NV (29%), the Belgian TSO.

In 2012, APX NL had 55 members trading on the spot markets, including distributors, producers, traders, brokers and industrial end users. Current membership in APX is 63 members.

The exchange operates a day-ahead auction and an intraday market. APX NL is designated as an electricity exchange operator under the Dutch Electricity Act of 1998 and is subject to regulatory oversight by the Dutch Office of Energy and Transport Regulation (DREV), which is part of the Authority for Consumers & Markets (ACM).

APX NL involvement in North Western European market coupling (NWE) and cross border Intraday trading is stipulated in the Dutch Grid Code, providing the framework within which APX NL operates market coupling, together with TenneT (the Dutch TSO).

In the day-ahead auction, orders are made before 12.00 for the following day. Hourly contracts are traded in lots of 0.1 MWs, with a minimum price of -3 000 €/MWh and a maximum price of 3 000 €/MWh. Block orders allow members to link a freely definable set of consecutive hourly contracts, subject to the fill-or-kill principle of either a maximum payment condition (buyers) or a minimum income condition (sellers) (volumes may differ between hours).

The intraday market offers members the opportunity to continuously trade power products in hourly intervals as well as freely definable block orders up to 5 minutes prior to delivery. The intraday market has been linked to the Belpex intraday market (since February 2011) and the Nord Pool Spot Elbas intraday market (since March 2013).

APX is the central counterparty to all trades; all contracts are traded anonymously, then cleared and settled on behalf of members by APX. Contracts on the exchange are fully collateralised, as all members are required to lodge collateral in the form of cash or letter of credit, in excess of outstanding exposures at all times.

APX is financed by a combination of trading fees and revenues generated from the provision of business development, market coupling and other services to other exchanges and TSOs. Members pay an entrance fee of € 5 000. Then there is an

annual fixed membership fee of € 28 500. The variable trading fees are €0.07/MWh and €0.09/MWh on the day-ahead and intraday markets, respectively. There is a fixed settlement fee of €3 000 and a clearing transaction fee of €0.01/MWh. In addition, there is a technology fee of €5,000.

Finally, in common with all power exchanges in Europe, APX NL charges market coupling service fees to TSOs for cross border trades.

## 2 BELPEX

Established in 2006, Belpex is an exchange for the market in Belgium (www.belpex.be). Belpex is a wholly-owned subsidiary of the APX Group and the market arrangements are similar to that of APX Power NL described above. The 40 members trading on the spot market include distributors, producers, traders, brokers and industrial end-users.

Belpex is licensed as the operator of the Belgian electricity spot market by Royal Decree and is subject to regulation by the Minister in charge of Energy, the Commission for Regulation of Electricity and Gas (CREG) and the Financial Services and Markets Authority (FSMA).

The relationship between Belpex and its participants is governed by Belpex's Market Rules, which are subject to approved by the Energy Minister, who also has to approve any amendments to the Market Rules on the advice of the CREG. CREG supervises compliance with the Royal Decree. The FSMA has the power to withdraw the license of the market operator or request it to (partially) suspend the market.

In the day-ahead auction, orders are made before 12.00 for the following day. Hourly contracts are traded in lots of 0.1 MWs. Block orders allow members to link a freely definable set of consecutive hourly contracts, subject to the fill-or-kill principle of either a maximum payment condition (buyers) or a minimum income condition (sellers) (volumes may differ between hours). The Belpex day-ahead market is coupled to the day-ahead markets of APX Power NL and UK, Nord Pool Spot and the EPEX Spot markets in Germany and France.

The intraday market offers members the opportunity to continuously trade power products in hourly intervals as well as freely definable block orders up to 5 minutes prior to delivery. The intraday market is linked to the APX Power NL intraday market (since February 2011) and the Nord Pool Spot Elbas intraday market (since March 2013).

Members pay an entrance fee of € 12 500 for full access (i.e. to both the day ahead and the intraday markets) and € 5 000 for access to the intraday market only. Then there are annual fixed membership fees of € 25 000 and € 10 000 for full access and intraday market access, respectively. The variable trading fees are €/MWh 0.095 and 0.105 on the day-ahead and intraday markets, respectively. A light clearing membership is offered in addition to the memberships quoted at a cost of €750. Belpex offers an introductory offer where a lower fixed cost and higher variable cost applies for the first three years. There is also the option of

indirect participation at lower costs.

All products traded on Belpex are cleared and settled by APX (legally by the wholly owned subsidiary APX Clearing BV which is separate to APX trading).

## 3 EPEX SPOT

EPEX SPOT is an exchange for the power spot markets in France, Germany, Austria and Switzerland. EPEX SPOT was created in 2008 through the merger of the French (Powernext SA) and German (EEX AG) power exchanges. EPEX SPOT is owned by Powernext (50%), EEX AG (13.3%) and HGRT (36.7%).

Powernext SA is regulated by the French Authority for Financial Markets (*Autorité des Marchés Financiers*) and by the Prudential and Resolution Control Authority (*Autorité de Contrôle Prudentiel et de Résolution*) of the *Banque de France*. Powernext SA is also monitored by the energy regulator (*Commission de Régulation de l'Energie*) and is subject to French energy and environmental legislation and regulation.

Powernext SA is owned by a group of European TSOs and European energy utilities, including HGRT (53%), which is in turn owned by RTE (51%) and Elia and TenneT (both 24.5%), EDF (7%), Electrabel (7%), 3GRT (6%), ENEL (5%), Alpiq (5%). E.ON Global Commodities (5%), Total (6%) and GDF Suez (7%).

EEX AG is regulated by the Saxon State Ministry of Economic Affairs, Labour and Transport.

EEX AG is jointly owned by 19 companies, including Eurex Zurich (63%), LVV (7%), Freistaat Sachsen (5%), Alpiq (5%), 50Hertz Transmission (4%), RWE (4%) and E.ON Global Commodities (3%).

As of February 2015, there are 223 trading members. About 37% of all market participants are from Germany and almost 12% are from Switzerland. Other well-represented countries include Great-Britain (8%), Italy (7%), France (7%), and Austria (6%).

In the day-ahead auction, orders for the following day are made before 12.00 and may contain up to 256 price/quantity combinations for each hour of the following day. Block orders may be used to link several hours on an all-or-none basis, either following standardised formats or by user design.

In the intraday, continuous-trading market, starting at 3.00 pm on the current day all hours of the following day can be traded until 45 minutes before delivery begins; Austria and Switzerland have gate closure 75 minutes before delivery. Block orders may be used to link several consecutive hours, either following standardised formats or by user design. Orders may be of different types ("Limit Order", "Market Sweep Order" and "10th MW Order[27]") and include various

[27] These are offered in Germany only

execution restrictions ("Immediate-or-cancel", "Fill-or-kill", "All-or-none" and "Iceberg"). The intraday trading system also allows for registering of OTC trades for clearing.

All products traded on EPEX SPOT are cleared and settled by the European Commodity Clearing AG (ECC).

EPEX is financed by a combination of trading fees and revenues generated from the provision of business development, market coupling and other services. Members pay a one-time entrance fee of €25,000. Then there is an annual fixed fee of €10,000 to trade on both the day ahead and the intraday markets (per geographical market segment), while trading on the intraday market only costs €5,000. The variable trading fees are €0.04/MWh and €0.11/MWh on the day ahead and intraday markets, respectively (the fee is €0.07/MWh for the French day-ahead market).

The settlement fee is €0.0025/MWh. In addition, there are various technical fees for access to and use of the message and trading systems.

## 4 NORD POOL SPOT

Nord Pool Spot is an exchange for the power spot market of the Baltic and Nordic Region, covering Denmark, Estonia, Finland, Lithuania, Norway and Sweden (the intraday market also covers Germany and gives access to the Benelux market via the NorNed cable). In 2012, there were 370 members trading on Nord Pool Spot, of which 118 traded in the intraday market.

Nord Pool Spot is owned by the various TSOs in the Nordic area:

| | |
|---|---|
| Statnett (Norwegian TSO): | 28.2% |
| Svenska Kraftnet (Swedish TSO) | 28.2% |
| Fingrid (Finnish TSO): | 18.8% |
| Energinet (Danish TSO): | 18.8% |
| Elring (Estonian TSO): | 2.0% |
| Augstsprieguma Tikis (Latvian TSO) | 2.0% |
| Litgrid (Lithuanian TSO): | 2.0% |

Nord Pool Spot AS holds a licence to operate an organised marketplace for trade in physically delivered power contracts under the Energy Act (2003) of Norway, granted by the Norwegian Water Resources and Energy Directorate (NVE). It is subject to regulation by NVE on behalf of the energy regulators in the other Nordic countries, which includes a cap on rate of return. It is the only power exchange in North West Europe (NWE) which is subject to economic regulation. NVE and the Norwegian Competition Authority are responsible for monitoring generator bidding at Nord Pool Spot.

Nord Pool Spot is unique among other European power exchanges because it is granted monopoly physical access to cross-zonal transmission capacity within the

Nordic region. Most other PXs in Europe compete with OTC trades, both domestically and across borders, where explicit access to physical cross-border capacity is the norm.

In the day-ahead auction (Elspot), orders for the following day are made before 12.00 and may contain up to 62 price/quantity combinations for each hour of the following day. Block orders may be used to link three or more hours with an all-or-nothing condition. Two or three blocks may also be linked together. Flexible hourly bids may be used to place sales orders for a fixed volume and price, but without specifying the hour of delivery.

In the intraday, continuously traded market (Elbas), all hours of the following day can be traded until 1 hour before delivery begins. TSOs allocate transmission capacity for Elbas trading. Orders available to members in their local Elbas markets are dependent on the amount of transmission capacity available across the entire Elbas market. Block orders of the all-or-nothing type are allowed, with a maximum of three in a series.

All products traded on Nord Pool Spot are cleared and settled by Nord Pool.

In 2012, 334 TWh were traded on Elspot and 3 TWh on Elbas. All in all, 77 percent of all power in the Nordic region was traded on Nord Pool Spot.

Members pay a fixed fee of € 15 000 to trade on both the day-ahead and the intraday markets (client representatives pay the same fees, while clients pay € 1,500), while trading on the intraday market only costs € 10 000. Participants bidding in more than one area pay an additional annual fee of € 1 500 per country. In addition, Nord Pool Spot charges service fees to the relevant TSOs (IFA and NordNed) for a market coupling service as well as for the GB to GB coupling service.

The variable trading fees are €/MWh 0.04 and 0.11[28] on the day ahead and intraday markets, respectively (participants in the day-ahead market can waive the annual fee and pay a higher trading fee of €/MWh 0.13). The settlement fee is €/MWh 0.0015 and there is a currency fee of 0.01% of traded value. Participants pay an annual fixed fee of € 1 000 per country for electronic transmission of intraday market data.

[28] Additionally, there is a fee in the day-ahead market of 0.13 for small participants instead of the 0.11 fee

## 5 THE GB MARKET

Two power exchanges - APX UK and N2EX - compete for trade in the British market.

*a. APX UK*

APX UK (formerly UKPX) was established in 2000. APX UK is part of the APX Group and the market set up is similar to that of the APX Power NL and Belpex described above.

In 2012, APX UK had 65 members, including distributors, producers, traders, brokers and industrial end-users. APX UK is subject to regulation by the Financial Conduct Authority (FCA) as a Multilateral Trading Facility (MTF) operator; and is supervised by Ofgem under the UK Electricity and Gas (Market Integrity and Transparency) (Enforcements etc.) Regulations 2013 No. 1389.

Block orders allow members to link a freely definable set of consecutive hourly contracts, subject to the fill-or-kill principle of either a maximum payment condition (buyers) or a minimum income condition (sellers) (volumes may differ between hours). The APX UK day-ahead market is coupled to the day-ahead markets of APX Power NL, Belpex, Nord Pool Spot and the EPEX Spot markets in Germany and France.

The intraday market offers members the opportunity to continuously trade power products in half-hourly intervals as well as freely definable block orders APX UK also runs a so-called prompt market that offers continuous trade around the clock for a series of standardised contracts, including base and peak load day products, weekend products and combination blocks, covering periods of up to 4 weeks out.

In 2012, 4.8 TWh were traded on the APX UK day-ahead market and 13.7 TWh on the intraday and prompt markets.

Members pay an entrance fee of £5,000 for full access (i.e. to both the day-ahead, the intraday and the prompt markets). Then there is an annual fixed membership fee of £25,750; the annual clearing fee is £2,700; in addition there is a technical fee of £4,410. The variable trading fees are £0.015/MWh and £0.0475/MWh on the day-ahead and intraday/prompt markets, respectively (for intraday and prompt market orders exceeding four hours and made before 18.00 on the day before delivery the fee is £0.0125 MWh); the variable clearing fee is £0.005/MWh.

*b. N2EX*

Following a tender from the Futures & Options Association (FOA), an organisation set up by major UK electricity companies, Nord Pool Spot and NASDAQ OMX Commodities were chosen to set up a new power exchange in the UK. The N2EX market was launched 5 April 2011, offering trade in physical power products. N2EX has 40 members.

In the day-ahead market contracts for the following week are listed on Tuesdays and so, in effect, the market will have between 7 and 14 days open for bidding at

any given time. For each day's auction all orders must be received before 11.00 the day prior to delivery day and may contain up to 200 price steps, including the upper and lower price limits. Block orders may be used to link three or more hours with an all-or nothing condition. Flexible hourly bids may be used to place sales orders for a fixed volume and price, but without specifying the hour of delivery.

N2EX also runs a prompt market that offers continuous trade Monday to Friday 07.00 to 19.00 for a series of standardised contracts covering a period of 48 hours out up to seven days out.

N2EX no longer runs an intraday market. An intraday market is now offered through Elbas.

All products traded on N2EX physical markets are cleared in-house by Nord Pool Spot.

N2EX is entirely financed by member fees. Members pay a fixed fee of £22,000 9reduced to £14,000 for 2015) to trade on either of the physical markets, while the annual clearing fee is £4,000 (note that this is as a clearing client only and not a direct clearing fee). The variable trading and clearing fees are £0.0240/MWh for the day ahead market and for intraday contracts matched or registered before 19.00 on the day prior to the day delivery commences; the fee is £0.0500/MWh for intraday contracts matched or registered after 19.00 on the day prior to the beginning of the delivery day delivery.

## 6 OMIE

In Spain, OMEL has operated a day-ahead spot market for physical delivery of electricity since 1998 and six exclusive intraday-auctions. Until recently, all energy which was not bilaterally traded had to go through OMEL to be eligible for capacity payments. Capacity payments are no longer linked to trading on the Spanish PX. However, PX participation is mandatory for the large generation companies so OMEL continues to have near-mandatory status.

On the creation of an Iberian market, OMEL became a holding company. OMEL owns 50 per cent of OMIE and 50 per cent of OMIP; and vice versa. OMIE runs the physical day ahead and intraday markets in Spain and Portugal; OMIP (the Portuguese power exchange) handles the Iberian futures market.

OMEL is independent of the Iberian system operators and is owned by a number of electricity sector and non-electricity sector entities, including banks. No single shareholder can own more than 5 per cent of the capital of OMIE, while electricity companies combined cannot hold more than 40 per cent.

As the electricity market operator, OMIE is regulated by Spain's Electricity Law 24/2013, on the Electricity Sector and, among others, by Decree 2019/1997, of 26 December 1997, which organises and regulates the electricity generation market. OMIE's market rules and modifications to them are approved by the Ministry of

Industry, Tourism and Trade. The National Energy Commission (CNE) is responsible for the regulation and supervision of the energy sector in Spain. However, it is only an advisory body. Enforcement powers reside with the Spanish Government.

The CNE was merged in mid-2013 with six other bodies to form the National Commission of Markets and Competition (CNMC). The objective of the CNMC is to promote competition and monitor the functioning of certain markets, including the energy markets. The CNMC) is independent of the Spanish Government.

Fees charged to OMIE market participants are determined on a yearly basis by the Spanish Government through a Ministerial Order. Fees are charged only to generators and are dependent on the amount of electricity generated in the previous year as well as the type of technology used in generation. No entry, annual or operating fees currently exist.

The current funding arrangements involve generators paying a certain percentage of installed capacity per month of installed capacity. The exact amount will depend on the technology of the generator. This is known as the coefficient of technology and is determined by Ministerial Order based on the number of hours each technology generated power in the previous year. Nuclear power currently uses the coefficient '87', meaning the tariff that nuclear generators pay per month is 0.87 x 16.21 = €14.1027/MW.

## 7 GME

*Gestore dei Mercati Energetici* (GME) is the company operating the power exchange in Italy. GME started operation in 2000 and, with the market beginning operation at end-March 2004, it now occupies a central position in the Italian power market (as well as the gas market).

GME is wholly owned by *Gestore dei Servizi Energetici* S.p.A. which the state-owned company which promotes and supports renewable energy sources in Italy. GSE is owned by the Ministry of Economy and Finance, which exercises its rights in consultation with the Ministry of Economic Development.

In common with other power exchanges in Europe, GME operates day ahead and intraday markets. But Italy is unusual in that the electricity market is split into several bidding zones on the generation side, though only one price area for load. Intraday trades are conducted in four consecutive auctions.

The number of participants at end-2013 was 212.

Volumes traded on the day ahead market in 2013 was about 290 TWh/year, representing 70 per cent of consumption. Italian physical day ahead volumes are strongly linked with the local capacity market as power plants have to place bids into day-ahead and balancing markets to receive capacity remuneration.

The GME day-ahead market is for the trading of electricity supply offers and

demand bids for each hour of the next day. All market members may participate in the day-ahead market. In this market, supply offers may only refer to injection points and demand bids only refer to withdrawal points or their combination. GME accepts offers/bids by merit order, taking into account the transmission limits notified by Terna S.p.A., the Italian TSO. Accepted supply offers are remunerated at the Zonal Clearing Price. Accepted demand bids are remunerated at the National Single Price (PUN). Accepted offers / bids determine the preliminary injection and withdrawal schedules of each offer point for the next day. Participation in this market is optional but strongly incentivised by the capacity remuneration system.

The energy regulator in Italy, *Autorità per l'Energia Elettrica e il Gas* (AEEG). AEEG is responsible, among others, for defining GME's rules for merit-order dispatch and market power control mechanisms.

## 8 HUPX

In accordance with the liberalization of Hungarian energy market, the Hungarian Power Exchange (HUPX) was launched in July 2010. HUPX Ltd. is wholly owned by the MAVIR, the state-owned electricity transmission system operator in Hungary. Once MAVIR's initial investments have been recovered, the shares of MAVIR in HUPX will be sold. Acquisition of shares in HUP. is subject to certain limitations set by the Electricity Act, namely no shareholder may acquire more than 25% of the registered capital or votes cast in HUPX, while, after the initial period, shares held by the TSO may not exceed 30% of the registered capital or the votes cast.

HUPX holds a licence issued by the Hungary Energy Office to operate a power exchange.

The HUPX began its operation in July 2010 with the launch of a day-ahead auction, in which 53 members are currently trading. In 2013 the total traded volume on HUPX DAM was 9 TWh, equivalent to about 20 % of the electricity consumption in that year.

Members of HUPX pay an entrance fee of €15,000 and annual fees of €12,000, payable in quarterly instalments. An additional fee of €6,600 is payable for the use of EPEX Trading System (providing two user accounts and their respective portfolios). The transaction fee is €0.05/MWh. [29]

European Commodity Clearing AG (ECC) acts as the clearing house for all transactions on HUPX.[30]

The Electricity Act in Hungary introduced a significant market power regime into

[29] HUPX uses the same trading systems as EPEX SPOT for running its day ahead market.

[30] In addition to HUPX, five power exchanges are using ECC as their clearing partner. ECC also provides clearing as well as physical and financial settlement of transactions concluded on APX-ENDEX (the Netherlands, Belgium, United Kingdom), the CEGH Gas Exchange (Vienna), EEX (Leipzig), EPEX Spot (Leipzig) and Powernext (Paris). Clearing and settlement of transactions registered for OTC clearing are also carried out by ECC on these exchanges.

the wholesale, retail and ancillary services markets. The Energy Office is responsible for conducting an assessment of significant market power on the relevant markets. The Energy Office may impose certain obligations on market players with significant market power, including an obligation to participate in transparent capacity auctions.

**Summary of Power Exchanges Governance in Europe**

| Great Britain | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Operator | 1a APX/1b N2EX | 1a APX/1b N2EX | Nat Grid | 2 Elexon |
| Ownership | APX – 70.84% TenneT (Dutch TSO owned by Dutch State)<br>29.16% Elia SA (Belgian TSO – 46.86% ownership free float on Euronext exchange, 45.21% Municipal, 2.52 % Municipal, 5.41% Belfus insurance) | N2EX – not a separate legal entity but a market place operated by Nord Pool Spot Commodities.<br>Nord Pool Spot owned by:<br>TSOs of Norway (28.8%),<br>Sweden (28.8%)<br>Finland (18.8%)<br>Denmark (18.8%)<br>Estonia (2%) Lithuania(2%)<br>Latvia (2%) | Private Company listed on LSE, one of FTSE 100 | Wholly owned (but not controlled) by National Grid |
| Licensed/Regulated | No | No | Yes | No (only indirectly) |
| Guaranteed Cost | No | No | Yes | Yes |

| Great Britain | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Recovery | | | | |
| EU Representation | APX & Nord Pool Spot members of PCR | APX & Nord Pool Spot members of PCR<br><br>TSO owners of Nord Pool members of ENTSOE | ENTSOE Member | ENTSOE Member |

Notes:

1a http://www.apxgroup.com/about-us/about-us/profile/
http://www.elia.be/~/media/files/Elia/publications-2/annual-report/Annual Report_2013.pdf
http://www.eliagroup.eu/en/investor-relations/shareholder-structure

1b https://www.n2ex.com/aboutn2ex
http://www.nordpoolspot.com/About-us/
http://www.nordpoolspot.com/Global/Download%20Center/Annual-report/annual-report_Nord-Pool-Spot_2013.pdf

2 http://www.elexon.co.uk/wp-content/uploads/2011/10/ELXON_Limted_Report_and-Financial_Statements_YE-31-March-2014-VFINAL.pdf

| Norway | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Operator | Nordpool Spot | Nordpool Spot | 3 Statnett | Statnett |
| Ownership | Nord Pool Spot owned by:<br>TSOs of Norway (28.8%),<br>Sweden (28.8%)<br>Finland (18.8%)<br>Denmark (18.8%)<br>Estonia (2%) Lithuania (2%)<br>Latvia (2%) | Nord Pool Spot owned by:<br>TSOs of Norway (28.8%),<br>Sweden (28.8%)<br>Finland (18.8%)<br>Denmark (18.8%)<br>Estonia (2%) Lithuania (2%)<br>Latvia (2%) | State owned enterprise owned by Ministry of Petroleum and Energy | State owned enterprise owned by Ministry of Petroleum and Energy |
| Licensed/Regulated | Regulatory Authority: Norwegian Water Resources and Energy Directorate (NVE). NVE also issues the market place concession and the Norwegian Ministry of Petroleum | Regulatory Authority: Norwegian Water Resources and Energy Directorate (NVE). NVE also issues the market place concession and the Norwegian Ministry of Petroleum | Yes | Yes |

| Norway | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| | and Energy also permits Nord Pool Spot to organise physical exchanges of power with neighbouring countries | and Energy also permits Nord Pool Spot to organise physical exchanges of power with neighbouring countries | | |
| Guaranteed Cost Recovery | Income based on fees | Income based on fees | Yes | Yes |
| EU Representation | PCR Committee Member TSO owners of Nord Pool members of ENTSOE | PCR Committee Member TSO owners of Nord Pool members of ENTSOE | ENTSOE Member | ENTSOE Member |

Notes:

3

http://www.nve.no/en/Electricity-market/Transmission-Tariffs1/

http://www.statnett.no/en/About-Statnett/

| Spain | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Operator | 4 OMIE | OMIE | 5 Red Electra | Red Electra |
| Ownership | Half of OMIE's stock is owned by | Half of OMIE's stock is owned by | 20% currently owned by | |

| Spain | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| | OMEL and the other half by Portuguese company OMIP, which is now 100% owned by OMEL. For OMEL ownership see note 4a below. | OMEL and the other half by Portuguese company OMIP, which is now 100% owned by OMEL.<br><br>For OMEL ownership see note 4a below. | state company SEPI, while remaining ownership by a single individual or legal person is limited in law - see note 5 below | |
| Licensed/Regulated | No. Regulated by Royal decree 2019/1997 and the Electricity Market Operation Rules | No. Regulated by Royal decree 2019/1997 and the Electricity Market Operation Rules | Yes | |
| Guaranteed Cost Recovery | No | No | Yes | |
| EU Representation | PCR Committee Member | PCR Committee Member | ENTSOE Member | ENTSOE Member |

Notes:

4
http://www.website.teste321.ren.pt/RelatorioContas2010/en/ManagementrepoOMIPandOMIClear.html
http://uk.practicallaw.com/4-529-8116?q=*&qp=&qo=&qe=

4a
http://www.omelholding.es/en/omel-holding-en/informaticompany/shareholders

5
http://www.ree.es/sites/default/files/downloadable/ree_consolidated_annual_accounts_2013.pdf
http://ec.europa.eu/energy/gas_electricity/interpretative_notes/doc/certification/2012_021_es_en.pdf

| **France** | **DAM** | **IDM** | **BAM** | **Imbalance Settlement** |
|---|---|---|---|---|
| Operator | 6 EPEX Spot | EPEX Spot | RTE | 7 RTE |
| Ownership | Epex Spot SE is owned:<br><br>1.50% EEX Power Exchange which is 56.14% owned by Eurex Zurich AG which is owned by Deutsche Boerse AG (95% owned by institutional and 5% private investors)<br><br>2. 50% Powernext which is owned by a number of TSOs and Energy utility companies | Epex Spot SE is owned:<br><br>1.50% EEX Power Exchange which is 56.14% owned by Eurex Zurich AG which is owned by Deutsche Boerse AG (95% owned by institutional and 5% private investors)<br><br>2. 50% Powernext which is owned by a number of TSOs and Energy utility companies | State owned limited company owned by EDF Group | State owned limited company owned by EDF Group |

| France | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Licensed/Regulated | No | No | Yes | Yes |
| Guaranteed Cost Recovery | No | No | Yes | Yes |
| EU Representation | Member of PCR. Supervisory Board contains TSO members. Two TSOs that are members of ENTSOE sit on the Exchange Council. | Member of PCR. Supervisory Board contains TSO members. Two TSOs that are members of ENTSOE sit on the Exchange Council. | ENTSOE Member | ENTSOE Member |

Notes:
6
http://www.eex.com/blob/13380/777a273d1aaf03fae27194c8f6b8004c/eex-gb-2012-en-pdf-data.pdf

http://deutscheboerse.com/dbg/dispatch/en/kir/dbg_nav/investor_relations/20_The_Share/40_Shareholder_Structure?horizontal=page0_DBCOM_SP_IR-Aktionaersstruktur

http://www.powernext.com/index.php#sk;tp=app;n=page;f=getPage;t=page;fp=system_name:Shareholders;lang=en_US;m=Powernext_Group

http://www.epexspot.com/en/company-info/exchange_council/role_of_the_exchange_council

7
http://www.rte-france.com/en/our-activities/our-expertise2/supply-demand-balance/the-balance-responsible-system

http://www.cre.fr/en/presentation/powers

| Italy | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Operator | 8 GME | GME | 9 Terna | 10 GME |
| Ownership | The sole shareholder is Gestore dei Servizi Energetici (GSE), whose shareholder in the Ministry of Economy and Finance and which exercises its rights as agreed with the Ministry of Economic Development | The sole shareholder is Gestore dei Servizi Energetici (GSE), whose shareholder in the Ministry of Economy and Finance and which exercises its rights as agreed with the Ministry of Economic Development | Terna is a PLC listed on the Italian Stock Exchange 29.85% owned by Cassa Depositi e Prestiti, which is 80.1 % owned by Italian Government, and exercises de facto control over Terna. | |
| Licensed/Regulated | No. Rules of market defined by GME and approved by Ministry after hearing views of Regulator (AEEG) | No. Rules of market defined by GME and approved by Ministry after hearing views of Regulator (AEEG) | Yes | Yes |
| Guaranteed Cost Recovery | No | No | Yes | No |
| EU Representation | PCR Committee Member | PCR Committee Member | ENTSOE Member | ENTSOE Member |

Notes:

8
http://www.mercatoelettrico.org/en/MenuBiblioteca/documenti/20131105RelazioneAnnuale2012_en.pdf

http://www.risk.net/energy-risk/glossary/2040221/gestore-del-mercato-elettrico-gme

9
http://ec.europa.eu/energy/gas_electricity/interpretative_notes/doc/certification/2012_052_it_en.pdf

http://www.cassaddpp.it/en/company-profile/mission-and-role/mission-and-role.html

10
http://www.energy-community.org/pls/portal/docs/2486177.PDF

http://www.energy-community.org/pls/portal/docs/854177.PDF

| **Hungary** | **DAM** | **IDM** | **BAM** | **Imbalance Settlement** |
|---|---|---|---|---|
| Operator | HUPX | HUPX | 11 MAVIR | MAVIR |
| Ownership | TSO 100% | TSO 100% | Owned mainly by Hungarian Electricity Limited, which is owned by the MVM ZRt, the main shareholder of which is MNV Zrt which is a private company limited by shares , 99.9% of which are held by the Hungarian State | |

| Hungary | DAM | IDM | BAM | Imbalance Settlement |
|---|---|---|---|---|
| Licensed/Regulated | Yes | Yes | Yes | |
| Guaranteed Cost Recovery | Yes | Yes | Yes | |
| EU Representation | Not directly – owner member of ENTSOE | Not directly – owner member of ENTSOE | ENTSOE Member | ENTSOE Member |

Notes:

11
http://www.mavir.hu/documents/10262/188527086/annual_report_2012.pdf/0a2c26bf-f349-403d-a584-7cf09783b9c0

http://www.mvm.hu/en/information/reports/Documents/MVM_KONSZ_2013_web_09_19eng.pdf

http://www.mvm.hu/en/information/reports/Documents/IFRS_eng.pdf

http://www.mondaq.com/x/199604/Oil+Gas+Electricity/Wholesale+Electricity+Trading+In+Hungary+A+Basic+Primer+To+Electricity+And+Gas+Wholesale+Trading