



## **SEM Committee Annual Report 2010**

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## FOREWORD BY THE SEM COMMITTEE

The all-island Single Electricity Market (SEM) is the combination of two separate jurisdictional electricity markets in Ireland and Northern Ireland and is governed by the SEM Committee (SEMC). The SEMC consists of the Commission for Energy Regulation in Ireland, the Utility Regulator in Northern Ireland and an independent member. The SEMC is pleased to present the SEM Annual Report for 2010. The two regulatory authorities advanced a significant body of work in 2010. The developments in various work streams are detailed in this report.

The SEMC believes the market has worked well over the last three years and continues to deliver benefits to consumers through the use of efficient generation plant to meet demand across the whole island. The SEM model of setting prices in a transparent and cost reflective manner is not only assisting to promote competition and attract new investment, it has also resulted in improvements in the availability of generation plants.

Assisted by clear market rules and transparency, the SEMC is encouraged by the new Investments in the SEM. In 2010 almost 1000 MW of thermal generation capacity<sup>1</sup> was added to the All-Island generation capacity. In addition an authorization to construct a generating station was granted to Endesa Ireland for a 430 MW gas fired power station in Great Island Co Wexford. The SEMC is pleased to note that a number of new open cycle gas plant and pump storage units have expressed interest in entering the SEM over the next four years.<sup>2</sup> These new investments, together with the East-West interconnector, shall further contribute to the reduction of wholesale prices through increased competition and to enhance security of supply for consumers.

The System Marginal Price (SMP) in 2010 tended to rise and fall in alignment with rises and falls in the key underlying fuels (notably gas) and carbon price. This trend is inevitable due to the high dependence of generation on the island on fuel prices. The strong link between gas prices and SMP shows that electricity prices are primarily influenced by input costs and more specifically international fuel prices. By closely reflecting underlying fuel costs associated with power generation, wholesale prices in the SEM are as would be expected in an efficient market.

Typically electricity prices have continued to be higher over the winter months when electricity demand is high and fuel is usually more expensive. Gas fired units continue to contribute the largest share of the generating load and therefore the variations in the gas price had a significant impact on the SMP. During 2010 the SMP began to move back to levels last seen at the start of the SEM; this is largely in response to increases in wholesale gas prices. The average price of Directed Contracts for the 2010/11 tariff year was slightly lower than the previous year, and indeed also significantly lower than the peak 2007/08 period, in line with the movements in international fuel markets. In addition the daily price profile and broad trends in SMP have followed the broad trends in balancing prices published by Elexon for the British Electricity Trading and Transmission Arrangements (BETTA). These observations provide a level of assurance that there is no evidence to suggest manipulation of prices in the SEM.

In recognition of the advantages a highly liquid wholesale market can bring in terms of wholesale competition. The SEMC required the Regulatory Authorities (RAs) to commence a review of market power and contract liquidity in the SEM. The overall aim of this project has been to identify practical ways in which the RAs can further promote competition in the SEM by reducing or mitigating market power and or improving contract liquidity over the next

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<sup>1</sup> EirGrid SONI Generation Adequacy Report (2011-2020). Aghada CCGT 432 MW, Whitegate CCGT 445MW, Cushling OCGT 116MW.

<sup>2</sup> EirGrid SONI Generation Adequacy Report (2011-2020)

few years. This project included a review of the performance of the SEM market power mitigation measures to date and, looking forward to likely developments which could alter market power. These developments include increased interconnection and new market participants, for example, additional wind generation. A report on the findings of this review was published for consultation and the SEMC intend to make a decision on practical next steps in late 2011.

The SEMC is committed to the goal of integration with the European internal electricity market in line with the target models set out in the draft ACER Framework Guidelines on Capacity Allocation and Congestion Management (CACM). The objective for the SEM is to reach the target model in a manner which provides benefits for consumers and is cost effective. This will be a significant challenge and may require a transition to new market arrangements by the relevant target date in the network codes.

The SEMC is pleased to report that progress is being made in the meantime on the work relating to integration with neighbouring markets, with increased interconnection (in the form of the East West interconnector due to come on stream in 2012) and the emerging EU blueprint for a single European electricity market. The integration of the SEM with its neighboring electricity markets and ultimately with a pan European electricity market, is both a challenge and an opportunity for the development of the SEM over the coming years. At an EU level, there are a variety of developments taking place to ensure that potentially all European electricity markets harmonise their rules to allow for further integration between markets over the coming years. The Regulatory Authorities on behalf of the SEMC have been, and will continue to be, involved at EU level so that we can both influence and respond to developments in this area. In this regard the SEMC is keen to ensure the efficient use of both current and future interconnectors, particularly in view of increasing level of wind generation and the renewable targets.

The SEMC is committed to consulting with stakeholders as much as possible and providing them with clarity about the future direction of work in this area.

The SEMC recognises the increasing impact of renewables on the SEM and the need to maintain a sustainable, secure power system and a wholesale market that continues to meet key SEM objectives. A number of work streams are relevant in this regard, including that on principles of dispatch and the design of the Market Schedule in the SEM Trading and Settlement Code. The SEMC intends to make its final decision in 2011. In addition, the publication of the Facilitation of Renewables Studies by the System Operators, increases our understanding of the impact of increased renewables, specifically wind, on the all island power system and the SEMC is working with the System Operators to identify necessary work arising from these Studies and priorities in that regard.

The SEM has also facilitated greater retail competition to customers in Ireland and Northern Ireland. In Ireland over the last two years approximately 38% of all Irish electricity customers switched supplier, one of the highest seen in Europe. We believe the pool system, and the surety that a new entrant supplier has that they can purchase electricity from the pool when they need it has been an important factor in encouraging entry into supply markets. This has improved customer choice and put further downward movement on final electricity prices. A significant additional benefit for Northern Ireland consumers is that due to the implementation of SEM, the Utility Regulator was able to cancel certain unfavourable legacy generation contracts that are estimated to save consumers in excess of €100 million over the next five years.

The SEMC acknowledges the difficult economic climate and challenges continued to be faced by consumers and the energy sector as a whole. In this regard, the SEMC remains focused to protect the interests of consumers, to enhance security of supply and promote the development of a fair, efficient and competitive market on the island.

The SEMC will continue to oversee the development of the market over the coming years. It will balance the need for the market to change and evolve over time, with the provision of a high degree of regulatory certainty to the market. It is of the view that the longer term strategic development of the SEM should be based on the SEM objectives and the key external drivers impacting on the market, including increased intermittent generation, increased interconnection and moves toward regional integration of electricity markets across Europe.

## **1 ROLES AND RESPONSIBILITIES OF THE SEM COMMITTEE**

### **1.1 LEGAL ROLE OF SEM COMMITTEE**

The SEMC is the decision-making body which governs the single electricity market, (SEM) consisting of the Commission for Energy Regulation (CER) and the Northern Ireland Utility Regulator (UR), and an Independent member. Legislation was enacted in Ireland and Northern Ireland to establish and to give effect to the SEMC.

In Ireland, the relevant legislation is the Electricity Regulation (Amendment) (Single Electricity Market) Act 2007 which amends the Electricity Regulation Act 1999 to provide for the establishment and operation of a single competitive wholesale electricity market on the island of Ireland. Similar legislation providing a legal framework for the establishment and operation of the SEM in Northern Ireland is referred to as the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007.

The primary function of the SEMC is to decide as to the exercise of relevant functions of the Commission for Energy Regulation (CER) or Northern Ireland Authority for Utility Regulation (The Utility Regulator) in relation to SEM matters on behalf of the Regulatory Authorities (RAs). A matter is a SEM matter if the SEMC determines that the exercise of a relevant function of the CER or the Utility Regulator in relation to that matter materially affects, or is likely to materially affect, the SEM.

The objectives of the SEMC in carrying out its functions in relation to the SEM are set out in Section 9 of the Electricity Regulation (Amendment) (Single Electricity Market) Act 2007 and Section 9 of the Electricity (Single Wholesale Market) (Northern Ireland) Order 2007.

The principal objective of the SEMC is to protect the interests of consumers of electricity wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with the sale or purchase of electricity through the SEM.

### **1.2 MEMBERSHIP OF THE SEM COMMITTEE**

The Minister for Communications, Energy and Natural Resources and the Minister of Enterprise, Trade and Industry appoint the members of the SEMC. In 2010 the SEMC members were:

- Three representatives of the Commission for Energy Regulation (CER) –Michael G. Tutty, Dermot Nolan and Garrett Blaney;
- Three representatives of the Northern Ireland Authority for Utility Regulation (The Utility Regulator) - Iain Osborne, Alan Rainey, and Shane Lynch, and,
- One Independent Member, Ignacio Perez Arriaga and one Deputy Independent Member, José Sierra López.

The legislative framework provides for equality of voting between the RAs. The SEMC, therefore, consists of three voting blocks; one vote for the independent voting block (representing the Independent or Deputy Independent Member, as the case may be), one vote for the CER voting block (representing the three CER SEMC Members) and one vote for the Utility Regulator voting block (representing the three Utility Regulator SEMC Members).

### 1.3 GOVERNANCE STRUCTURE

In accordance with legislative requirements, the SEMC has established rules and procedures in relation to its meetings and decision making process (including voting arrangements) and the joint regulatory working arrangements for the RAs that support the decision making by regulatory authorities. These governance arrangements assist the SEMC to carry out its legal functions and duties.

The SEMC is the Decision making authority on all SEM matters and is supported an Oversight Committee, a Secretariat and a number of Joint Management Units (JMUs) which supervise and coordinate key regulatory work streams. In 2010 a number of Joint Project teams, with representatives from both RAs were established, to support the SEMC in its role.

As part of the SEMC's governance arrangements, the Oversight Committee was given delegated authority to carry out certain operational functions on behalf of the SEMC. The Oversight Committee deals with, among other matters:

- Implementation of SEMC policy;
- Management of all SEMC operational matters;
- Management of the JMUs and other SEM work;
- Reviewing policy matters to be decided by the SEMC; and,
- Developing SEM work plans and budgets for the SEMC.

The Oversight Committee is a subcommittee of the SEMC. It consists of senior staff members from both RA offices.

With the aim of improving efficiency in its operation and decision making process, the SEMC conducted a review of the working arrangements of the joint management units. Arising from this review, it was decided that revised governance and working arrangements should established. These are discussed later in the section 17 of this report.

Figure 1 shows a schematic of the high-level joint regulatory governance arrangements (applicable in 2010), put in place by the RAs to support the SEMC.

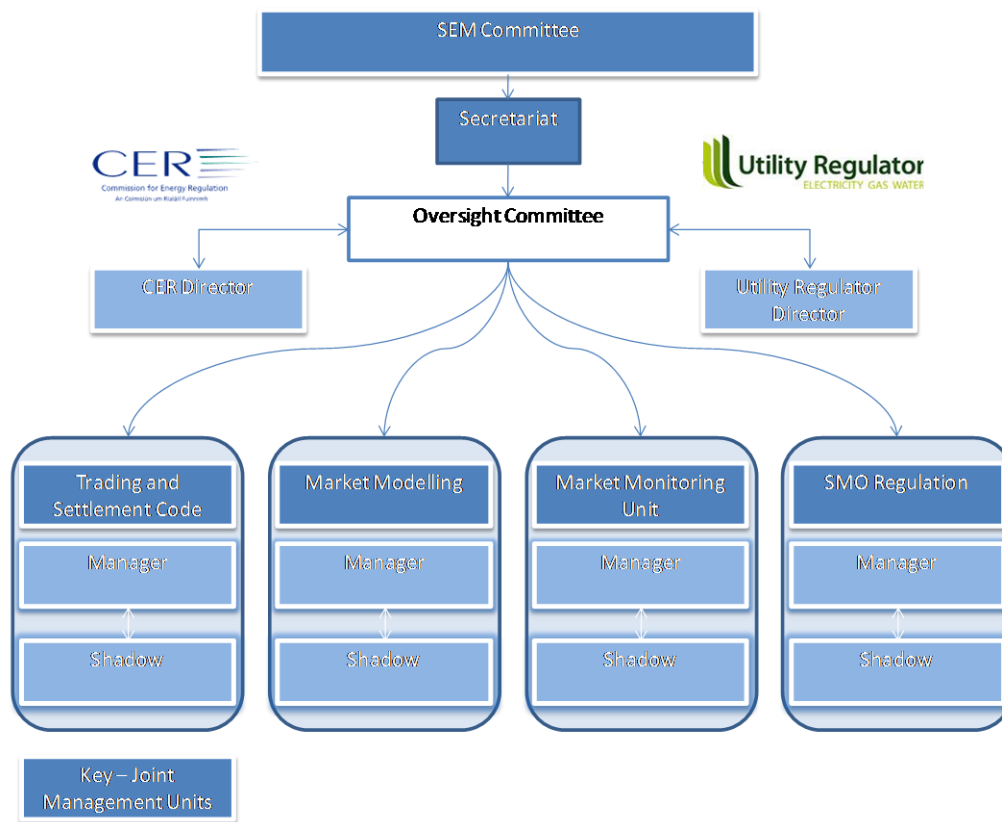


Figure 1: Schematic of the High-level Joint Regulatory Governance Arrangements

The RAs have established four areas as key SEM regulatory functions for which a designated Manager, overseeing a JMU, is assigned. Each manager, in respect of his or her particular JMU, reports to the Oversight Committee. This manager has responsibility for the planning, management and delivery of outputs of the JMU, co-ordinated with the relevant point of contact within the counterpart RA (shadow manager).

As mentioned above, the RAs also established joint project teams or special project teams, to progress work that did not strictly fall under the joint management units mentioned above or required special focus. These projects included: Dispatch and Scheduling and matters relating to trading and settlement code, Ancillary Services, Review of Locational Signals in the SEM (GTUOS and TLAFs), Demand Side Management (Demand Response) and review on market power and liquidity.

The paragraphs below provide an overview of the joint management units and joint projects.

### 1.3.1 TRADING AND SETTLEMENT CODE

The Wholesale Electricity Markets team, based in Dublin at the CER, oversees the SEM Trading and Settlement Code (the Code) which sets out the rules and procedures concerning the sale and purchase of wholesale electricity in Ireland and Northern Ireland. The SEM rules, and the market development of these rules, are managed by this team on behalf of the SEMC.

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### **1.3.2 MARKET MONITORING UNIT**

The Market Monitoring Unit (MMU), which is based in Belfast at the Utility Regulator, is responsible for reviewing the behaviour in the market on an ex-post basis. The MMU is responsible for investigating the exercise of market power, monitoring the compliance of market participants with the bidding code of practice and other market rules and reviewing prices reported in the market.

The MMU also manages the process for determining the revenues arising from Capacity Payments Mechanism and policy development in this area.

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### **1.3.3 MARKET MODELLING GROUP**

The Market Modeling Group (MMG), which is based in Dublin at the CER, is responsible for developing and/or monitoring various Contracts for Differences for participants in the SEM. Specifically the MMG sets the price, quantity and supplier eligibility of Directed Contracts, which is a key part of the SEMC's market power mitigation strategy, while it also takes an active role in encouraging the development of the Non-Directed Contracts market. In addition the MMG provides market forecasts of the SEM to the RAs the majority of which is short-term (one to two years) forecasting.

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### **1.3.4 SINGLE ELECTRICITY MARKET OPERATOR REGULATION**

This unit, which is based in Belfast at the Utility Regulator, oversees the regulation of the Single Electricity Market Operator (SEMO). SEMO, which administers the market functions of the SEM, is managed as a contractual joint venture between EirGrid and SONI and is licensed by the RAs. This unit is responsible for approving SEMO's revenue and tariffs, overseeing SEMO's license compliance and approving projects undertaken by SEMO.

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### **1.3.5 SEM RELATED - JOINT PROJECTS**

The RAs also established a number of joint project teams to advance work that needed to be progressed with an All-island approach but did not strictly fall under the joint management units mentioned above.

These projects included:

- Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code
- Framework for the Assessment of Material Harm to Customers
- All Island Harmonised Ancillary Services (HAS) and Other System Charges (OSC),
- Review of Locational Signals in the SEM (Generator Transmission Use of System Charges - GTUoS and Transmission Loss Adjustment Factors - TLAFs),

In summary, the SEMC is assisted in carrying out its decision-making responsibilities through work carried out by the Oversight Committee, the four Joint management units and Joint/Special Project teams.



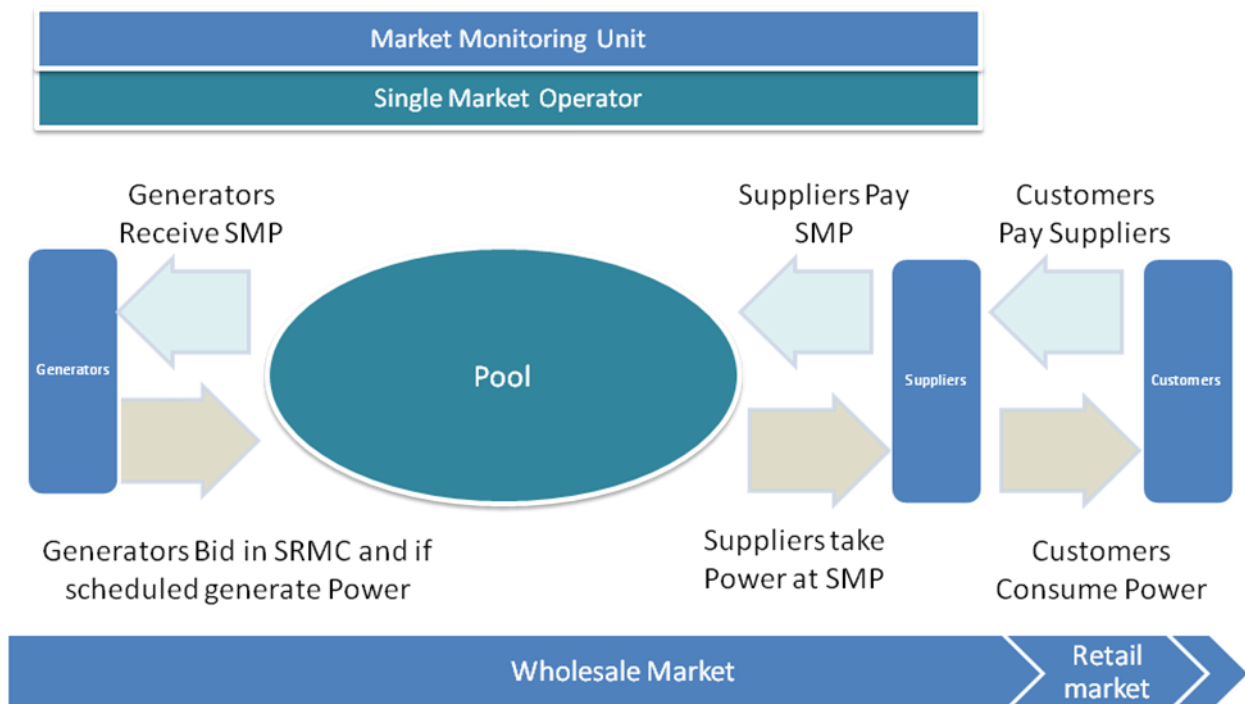
## 2 OVERVIEW OF THE SINGLE ELECTRICITY MARKET

The SEM is designed to provide for the least cost source of electricity generation to meet consumer demand at any one time across the island, while maximizing long term sustainability and reliability. Overall the SEM facilitates the running of the cheapest possible generators, determined by the stack of generation bids, to meet customer demands across the island.

The SEM includes a centralized all-island gross mandatory pool (or spot) market. In this pool electricity is bought and sold through a market clearing mechanism whereby generators bid in their marginal cost and receive the System Marginal Price (SMP) for each trading period for their scheduled dispatch quantities with the cheapest possible generators run to meet demand across the island. Generators also receive separate payments in the form of capacity payments for the provision of available generation and constraint payments for the difference between the market schedule and the system dispatch. Suppliers purchase energy from the pool pay the SMP for each trading period along with capacity costs and system charges. The SEM pool is illustrated below, while the SEM rules are set out in detail in the Trading and Settlement Code.

As part of the development of the SEM, the RAs developed a robust market power mitigation strategy to prevent market power being abused or distorting the SEM. The major focus of this strategy comprised the imposition of directed contracts on generators with significant market power, the imposition of a license condition on generators to adhere to a bidding code of practice and the establishment of the MMU to monitor participants' bidding behavior.

The Diagram below provides an illustration of how the SEM works. *Figure 2:*



## 2.1 PRICES AND DEMAND – TRENDS TO DATE

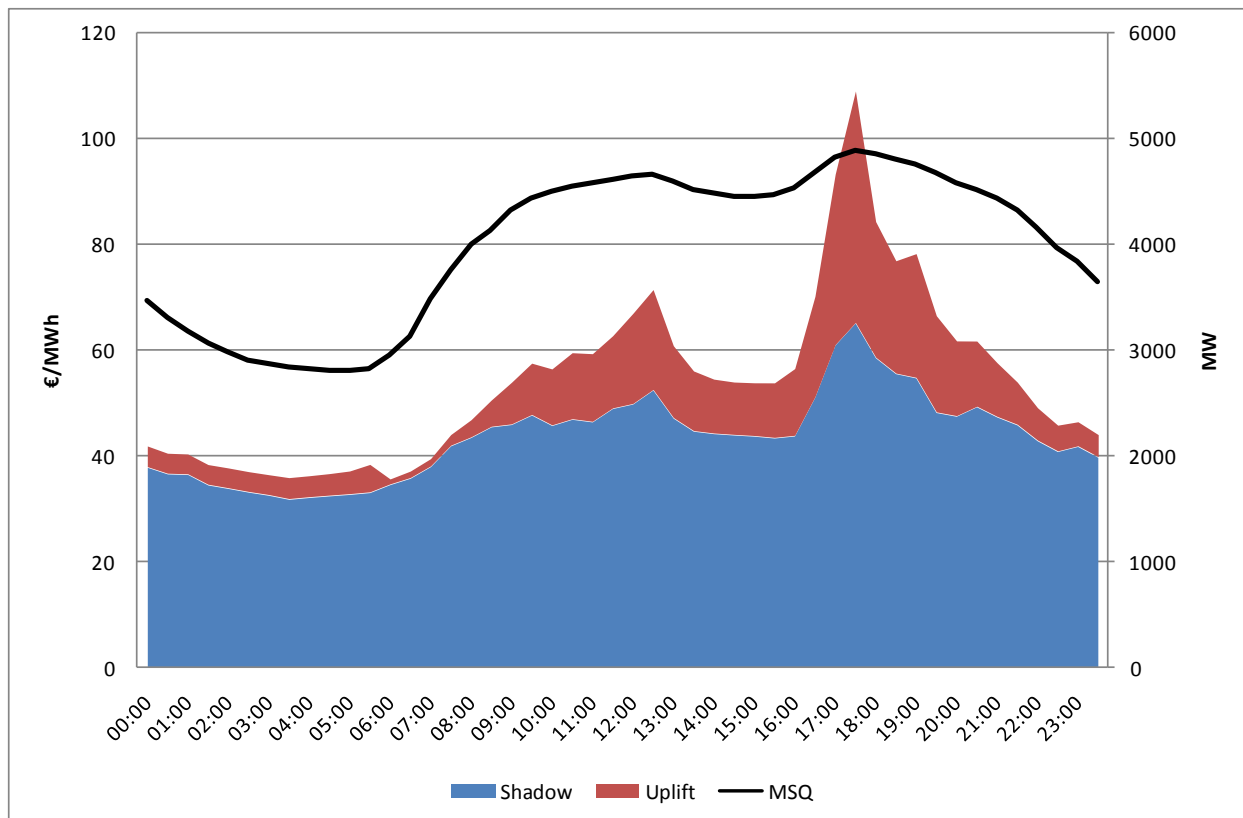
There are several prices in the SEM that are reviewed and monitored by Market Monitoring Unit. These include:

- System Marginal Price (SMP): the price at which each MWh of electricity is sold under the Trading and Settlement Code in any given Trading Period. It is calculated on a half-hourly basis and is measured in Euros per Megawatt-hour (€/MWh). The SMP is made up of the sum of the shadow price and uplift;
- Shadow Price: a component of the SMP for each Trading Period which reflects the short run marginal cost (SRMC) of the marginal generating unit.
- Uplift: a component of the SMP for each Trading Period which is calculated to reflect the Start-Up and No Load Cost element of Schedule Production Cost for relevant Generator Units.

In 2010, the system marginal price in the SEM moved from the low prices of 2009 back to levels closer to those last seen since the beginning of the all-island SEM in November 2007.

Figure 3 shows the average daily profile for 2010. It shows:

- The Shadow Price (blue area, measured on the left hand axis);
- Uplift (red area, measured on the left hand axis). The top of the red area represents the SMP at that time.
- The Load profile over the day in MW (black line, measured on the right-hand axis);



## Duration Curve

The load duration curve below illustrates the percentage of time that load or system demand measured in Megawatts is above a certain level.

Figure 4: Load Duration Curve for the Years 2009 and 2010 of the SEM. Source MMU

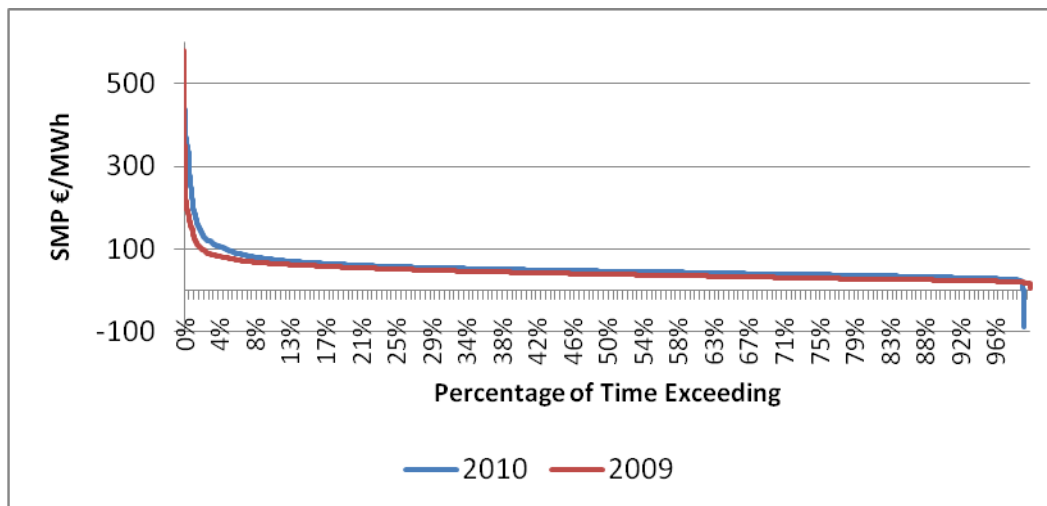
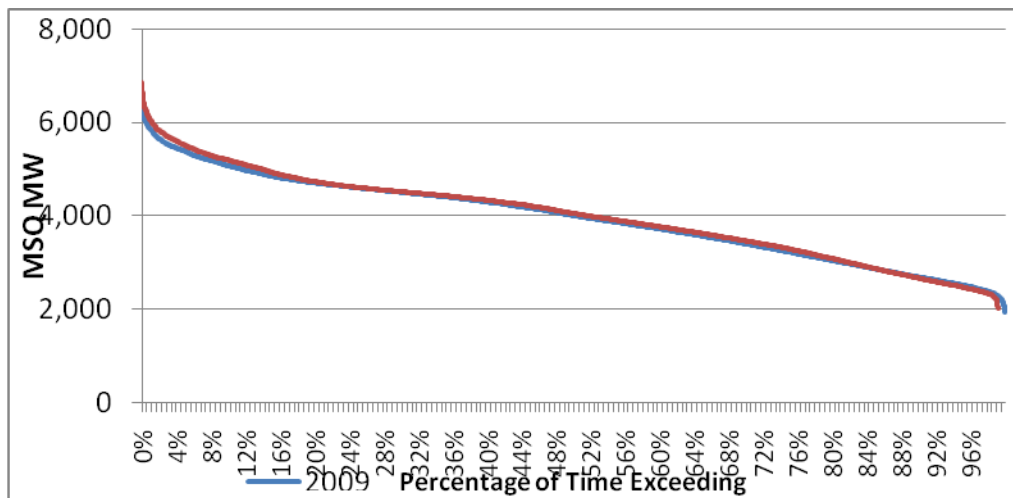


Figure 5: Price Duration Curve for the Years 2009 and 2010 of the SEM. Source MMU

The graph illustrates the propensity for price spikes in the SMP. The graph shows a sharp descent at first that stabilises into a smooth descent from around the 1% mark in 2009 and the 3% mark in 2010. In 2009 just over 2% of half-hourly price outcomes fall above €100/MWh and about 26% half-hours yielding values above €50/MWh while in 2010 5% prices fall above €100/MWh and 40% are above €50/MWh.

The table below shows the top ten incidences of SMP in 2010 and the split between the shadow price and uplift at that time.

Full Date	Period	SMP	SHADOW	Uplift	MSQ
24/07/2010	12:00:00	506.21	42.83	463.38	4089.33
24/07/2010	12:30:00	506.21	42.83	463.38	4091.94
06/12/2010	17:00:00	469.61	170.73	298.88	6422.08
25/11/2010	17:30:00	464.65	88.82	375.83	6096.54
26/12/2010	17:30:00	457.14	75.79	381.35	4783.67
08/12/2010	17:00:00	438.05	136.69	301.36	6520.45
08/12/2010	17:30:00	438.05	136.69	301.36	6552.55
06/10/2010	19:30:00	435.78	160.77	275.01	5009.33
11/03/2010	19:00:00	433.84	48.19	385.65	5669.4
29/10/2010	12:30:00	433.67	154.22	279.45	5094.74

Table 1: The top ten incidences of SMP in 2010. Source MMU

The top ten incidences of SMP in the 2010 occurred when the system margin (the level of available capacity above demand) was relatively tight.

On 24/07/2010 the Weighted Average SMP was €65.30/MWh. Maximum SMP was €506.21/MWh (12:00 to 13:00). Daily average MSQ was 3,334MW and maximum MSQ was 4,089MW (12:00 to 13:00), the peak SMP was caused by uplift associated with running Aghada CT1 @ 15MW for one hour.

The majority of the other top ten peaks were caused by the Kilroot peakers (power plants that generally run only when there is a high peak demand) being scheduled at the margin during peak periods for electricity.

The long term trend of SMP has largely followed trends in fuel prices and has increased in periods where the margin between demand and available capacity has been tight. Typically, electricity prices are higher over the winter months when electricity demand is high and fuel is usually more expensive. Gas fired units contribute the largest share of the generating load and therefore the variations in the gas price had a significant impact on the SMP. At the start of 2010 the price of the fuel types begin to realign and the market carried through any price changes from these fuel markets into the wholesale electricity price. During 2010 the SMP began to move back to levels last seen at the start of the SEM.

Table 2: The lowest ten incidences of SMP in 2010. Source MMU

Full Date	Period	SMP	SHADOW	Uplift	MSQ
21/09/2010	03:30:00	-88.12	-100	11.88	2553.64
27/09/2010	03:30:00	0	0	0	2373.09
01/10/2010	03:00:00	0	0	0	2365.77
01/10/2010	03:30:00	0	0	0	2334.86
01/10/2010	04:00:00	0	0	0	2317.71
02/10/2010	03:30:00	0	0	0	2310.47
14/09/2010	03:00:00	4.64	0	4.64	2341.33
14/09/2010	03:30:00	4.64	0	4.64	2326.29
12/11/2010	05:00:00	4.75	0	4.75	2867.37
14/09/2010	04:00:00	4.88	0	4.88	2322.58

These incidences of SMP in 2010 occurred when the system margin (the level of available capacity above demand) was relatively ample and at around 3:00 to 4:00 in the morning. In 2010 there was an incident of a negative SMP price for one period on 21/09/2010 at 03:30:00. This was a Price floor event – low demand, most plants at minimum generation. SEMO produced a Market Incident Report for 20 September 2010<sup>3</sup> detailing the explanation.

The figure below shows the average daily SMP from 1 November 2007 to 31 December 2010.

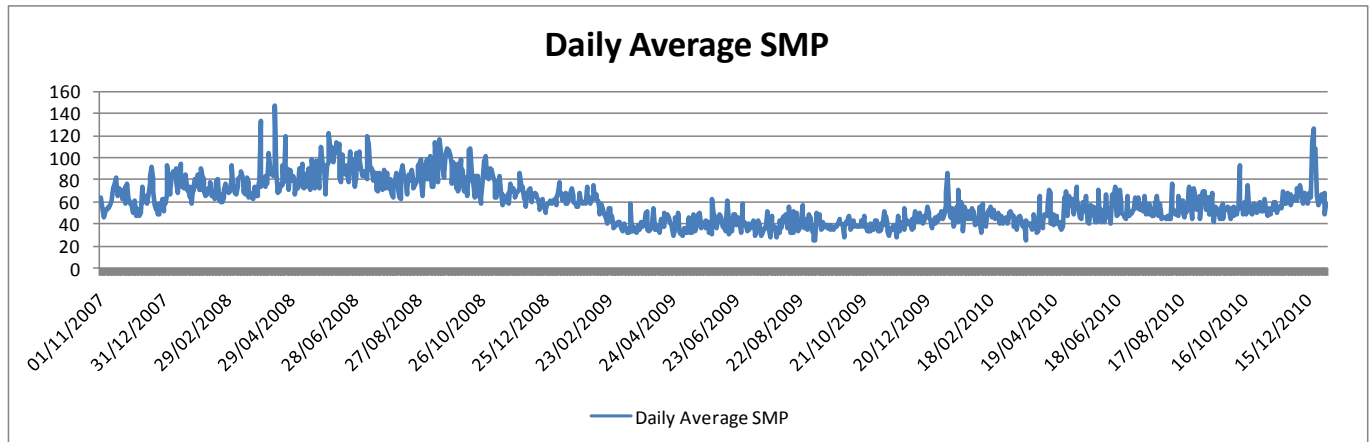


Figure 6 :Daily Average SMP since the start of the SEM. Source MMU

Since October 2008 the SMP has fallen from over €80/MWh to under €40/MWh for most of 2009 and to an average of over €50/MWh for 2010. The following figure looks at the monthly price trends since the start of the SEM.

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<sup>3</sup><http://www.sem-o.com/Publications/General/Market%20Incident%20Report%20September%2020th%202010%20-%20V1%200.pdf>

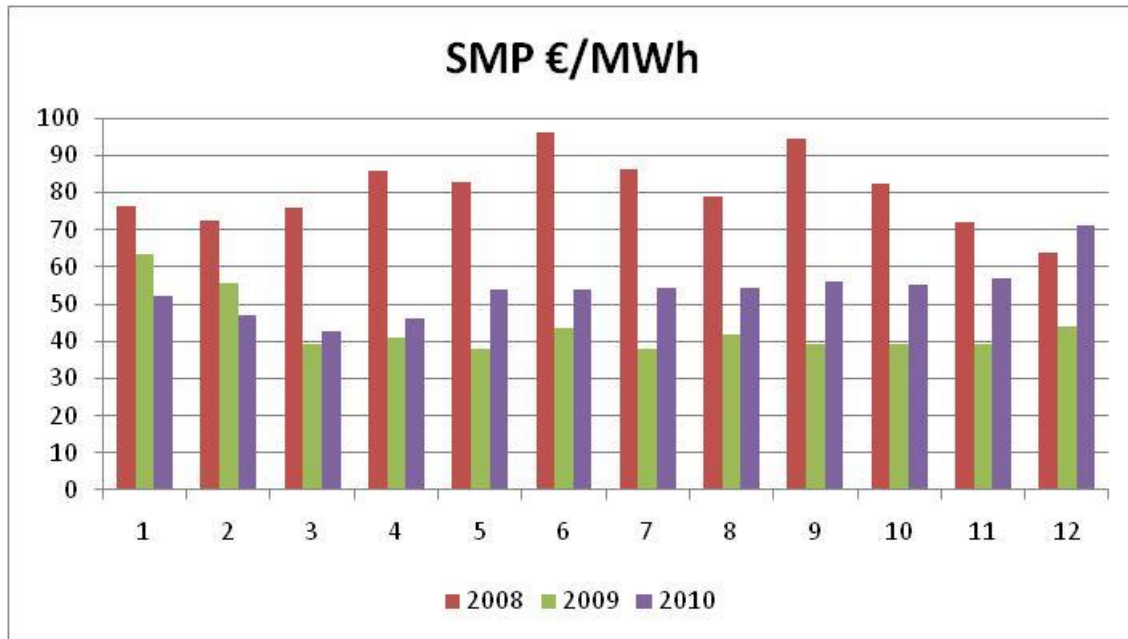


Figure 7: Monthly Average SMP Price History in the SEM

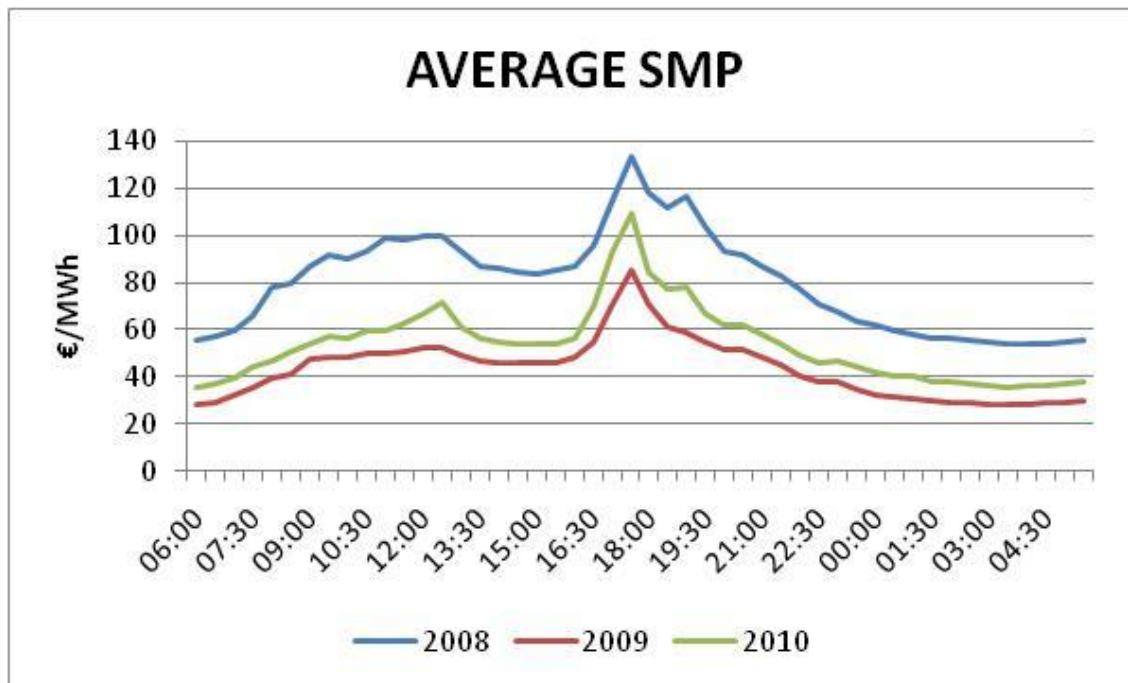


Figure 8: Average Daily SMP Profile History in the SEM. Source MMU

Figure 8 shows that the 2010 daily price profile is moving back to 2008 levels. The long term trend of SMP has largely followed trends in fuel prices and has increased in periods where the margin between demand and available capacity has been tight.

In summary the demand weighted average SMP over 2010 was €57/MWh, with a peak of €506.21/MWh occurring on 24/07/2010. The SMP has exhibited the following tendencies:

- The highest SMP points during the day tended to coincide with the highest demand periods during the day.
- SMP has tended to rise and fall across the study period in broad alignment with rises and falls in the key underlying fuels (most notably gas) and the carbon price.
- SMP has tended to rise and fall inversely with the Capacity Margin over the year. In other words, as the surplus capacity above what is required to serve the demand tightened, the SMP tended to rise (and vice-versa).
- The daily price profile and broad trends in SMP over the study period have shown a tendency to follow the broad trends in balancing prices published by Elexon for the British Electricity Trading and Transmission Arrangements (BETTA).

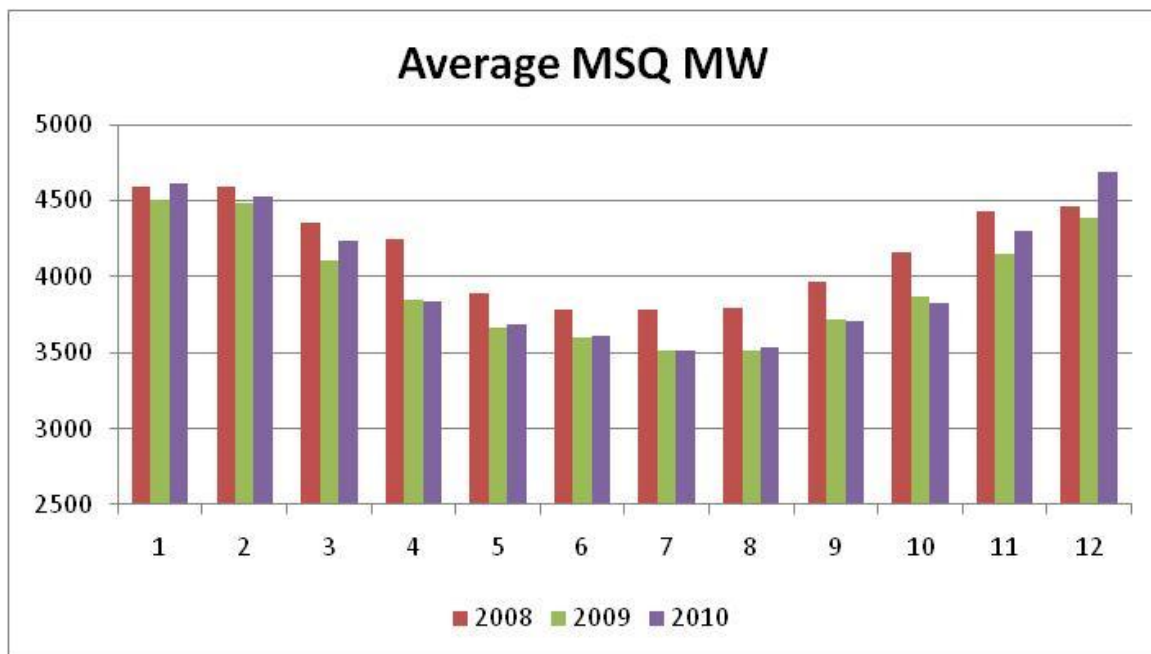


Figure 9: SEM System Demand. Source MMU

In the winter months, the daily demand profiles tended to show a strong spike in demand around the early evening period (17:30 to 18:00), while during the summer months the profiles exhibited a flatter shape, with the daily peaks occurring around 12:00.

The average MSQ had fallen in 2009. It fell about 5% to just below an average of 4,000MW and rose to just over 4,004MW in 2010. The increase in December 2010 is reflective of the cold spell that hit the island. The cold periods between the 20/12/2010 - 23/12/2010 and 06/01/2010 – 08/01/2010 saw the largest half hour peaks of demand. The top 10 incidences of MSQ averaged 6,740MW.

22 December 2010 saw a **daily average MSQ** of 5,350MW, the highest in the history of SEM (the previous highest daily average MSQ was in February 2010).

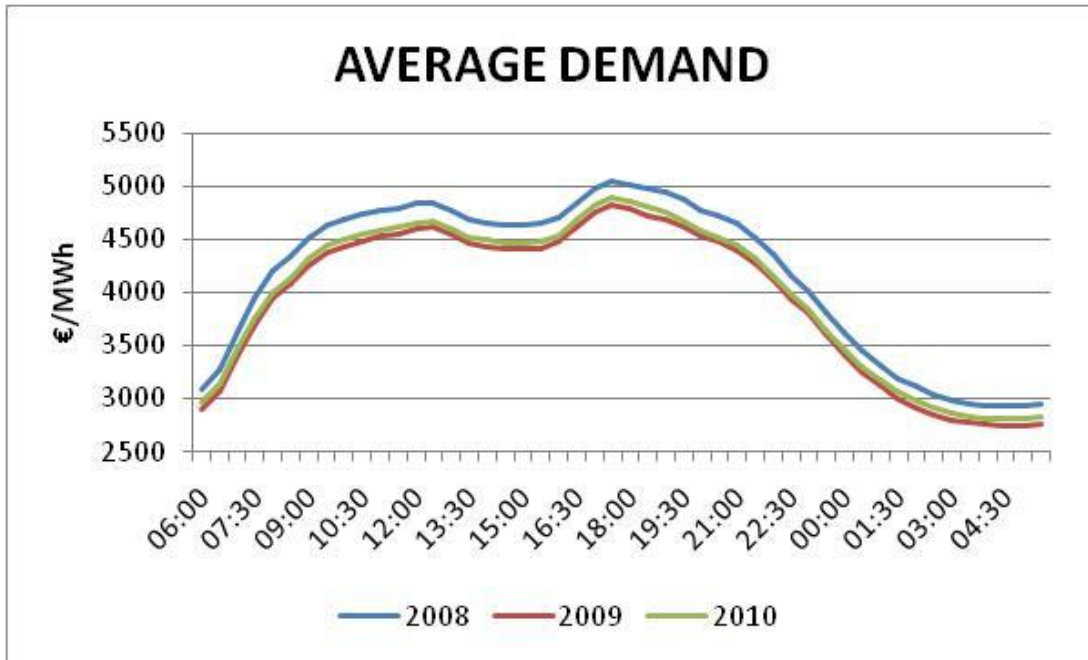


Figure 10: Average Daily Demand History in the SEM. Source MMU

The 2010 Daily Demand Profile is just above the 2009 level but still well below the 2008 levels reflecting the changes in demand as a result of the economic downturn.

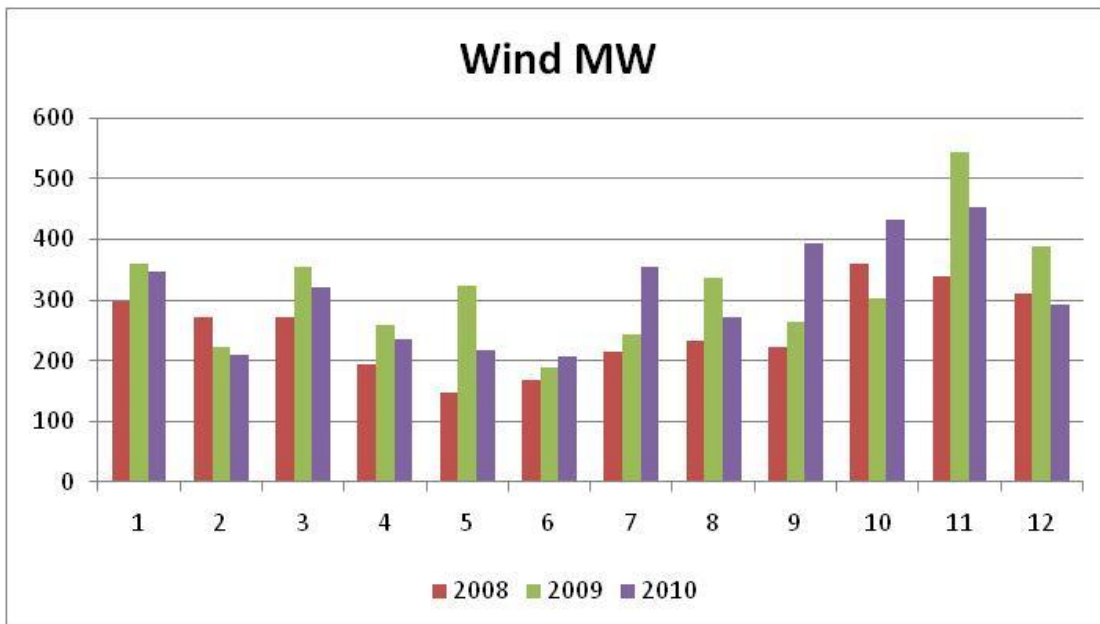


Figure 11: Average Monthly Market Wind in the SEM. Source MMU

The overall annual average market wind in the SEM for 2010 was similar to 2009.



It should be noted that both the demand and the average SMP have increased in 2010 (reflecting higher international fuel prices), as illustrated in the graph below which shows the 7 day average SMP against the 7 Day Average Gas price including Carbon.

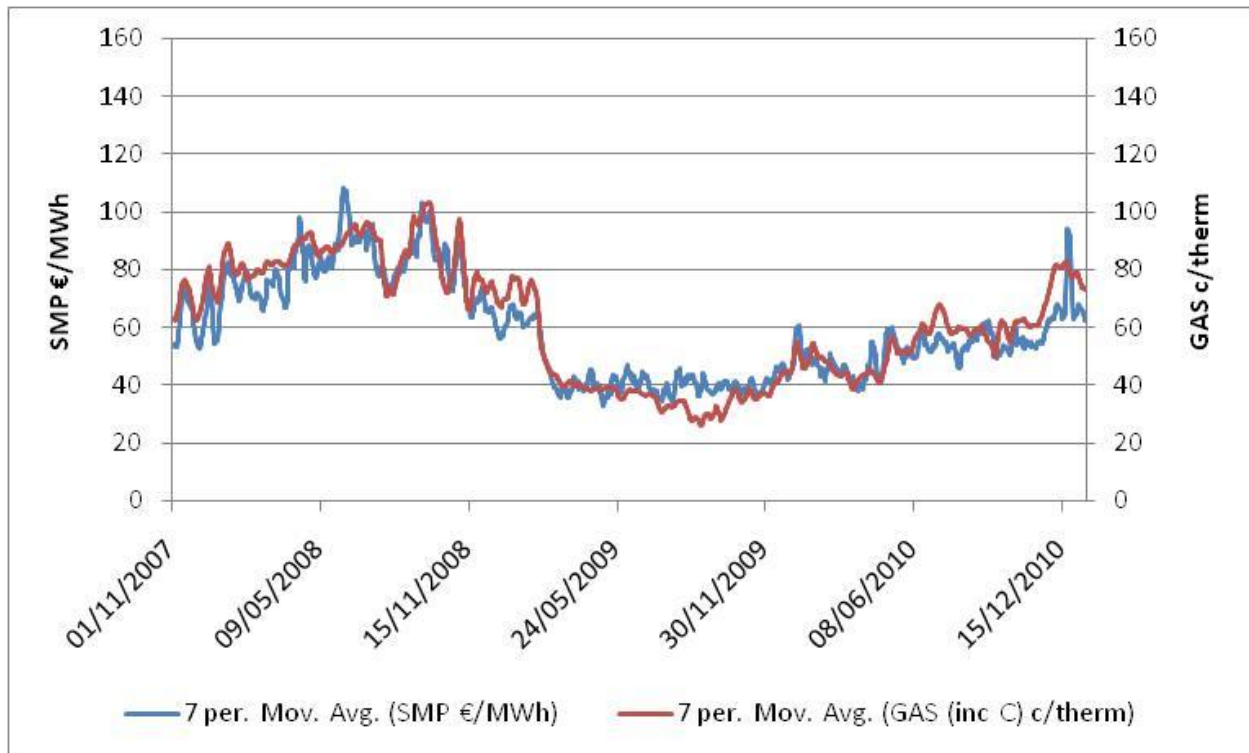


Figure 12: SMP Price History in the SEM and 7 Day Average Gas Price (including C). Source MMU

The Capacity Margin can be defined as the difference between the available Generation capacity and the system demand. The Capacity Margin varied throughout the period of the SEM, with the lowest ('tightest') margin periods occurring in June and October of 2008 when several large plants were on planned outage and also in December 2010.

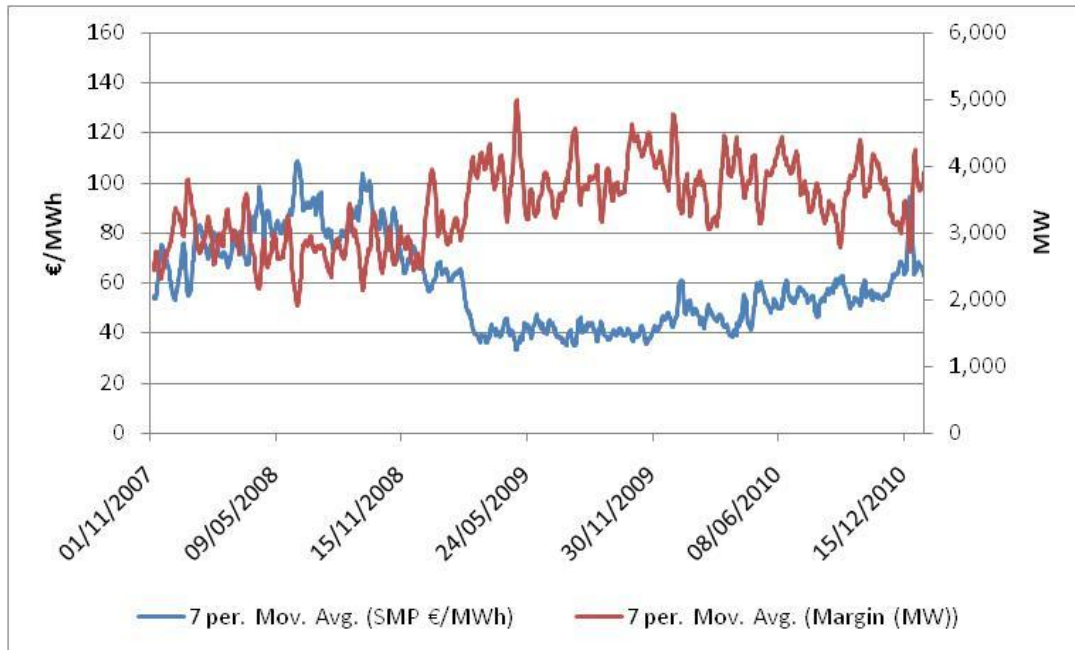


Figure 13. 7 Day Average SMP Price History in the SEM and 7 Day Average Margin. Source MMU

### INTERCONNECTOR FLOWS

The SEM is presently connected to the British Energy Trading and Transmission Arrangements (BETTA) via the Moyle interconnector, a submarine cable running between Scotland and Northern Ireland with a maximum capacity of 450MW.

In operating the Interconnector between Great Britain and Ireland, Moyle and the new East West interconnector will be providing Generators in Great Britain with access to the SEM (and conversely Generators in Ireland access to BETTA). The following graph shows the Monthly Moyle Flows since 2008. Note in Sept 2010 Moyle had a forced outage in one of its cables which was back to full capacity on 18/11/2010.

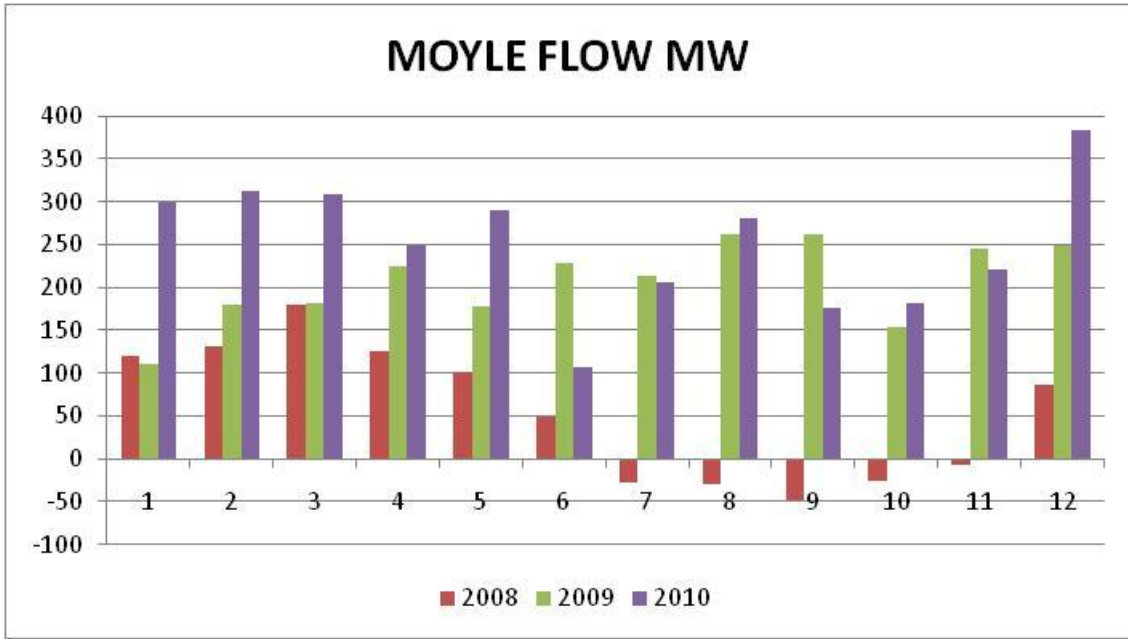


Figure 14: Average Monthly Moyle Flow. Source MMU

The MMU also monitors prices comparisons between SEM and BETTA. 2010 saw increased flows via the interconnector. The graph below illustrates the trends in prices since the start of the SEM, and displays the relationship between the flows on the interconnector - in relation to prices in SEM and BETTA.

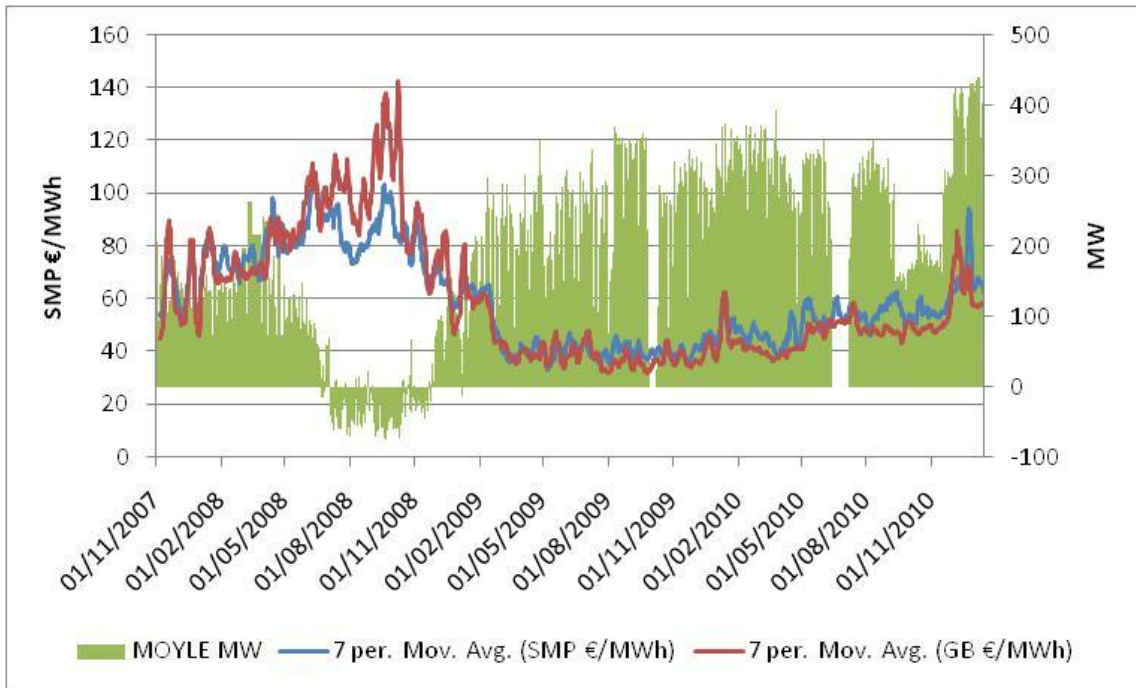


Figure 15: Moyle Flow, SMP Price and GB Price. Source MMU

### 3 MARKET MODELING GROUP

The Market Modeling Group (MMG) is responsible for developing and monitoring various Contracts for Differences (CfDs) for participants in the SEM. Specifically, the MMG sets the price, quantity and supplier eligibility of Directed Contracts (DCs).

The majority of the MMG's forecasting is over the short term (1 to 2 years), which is used to quantify and price DCs, although some medium and long-term forecasting is also carried out to inform the Regulatory Authorities' policy decisions.

#### 3.1 SEM DIRECTED CONTRACTS

As part of the SEM Market Power Mitigation Strategy, the RAs MMG implements a suite of DCs on behalf of the SEMC. Market Power is defined as the ability of a market participant acting independently, to raise (or reduce) market prices consistently and profitably above (or below) competitive levels for a sustained period of time. DCs are designed to significantly reduce the incentive on the incumbent generators to submit bids in the SEM above competitive levels or withhold capacity in order to influence SEM spot prices or future contract prices.

During 2010 this unit's work included:

- Validation of the forecasting model (PLEXOS) and the dataset for SEM covering 2010 and 2011;
- Quantification and Pricing of Directed Contracts, for eligible suppliers, imposed on the incumbent generators (ESB Power Generation & NIE Energy Power Procurement Business) in the SEM as part of the Market Power Mitigation Strategy, covering the next tariff year, i.e. from 1<sup>st</sup> October 2010 to 30<sup>th</sup> September 2011;
- Setting of auction reserve prices for Public Service Obligation (PSO) related CfDs;
- Monitoring the volume and prices of Non-Directed Contracts, which are typically offered by the incumbent generators (ESB Power Generation & NIE Energy Power Procurement Business) over and above the mandatory Directed Contracts, covering the tariff year 1<sup>st</sup> October 2010 to 30<sup>th</sup> September 2011;
- Modeling support to the RAs to help inform their policy on the SEM.
- A review of market power and contract liquidity in the SEM. The overall aim of this project has been to identify practical ways in which the RAs can further promote competition in the SEM by reducing/mitigating market power and/or improving contract liquidity over the course of the next 10 years.

The key regulatory objective is to encourage the development of a robust, transparent and cost-effective means for the trading of risk management products in the market to the ultimate advantage of All-Island consumers.

### 3.1.1 QUANTITIES OF DIRECTED CONTRACTS

The quantities of DCs imposed on the incumbent generators are set to achieve a desired concentration level in the SEM as measured by the Herfindahl-Hirschman Index (HHI)<sup>4</sup>. A HHI threshold of 1,150 was chosen by the RAs and, at this HHI level, only ESB Power Generation (ESB PG) were required to sell DCs for the 2010/11 tariff year which runs from October 2010 to September 2011 (in the second year of the market, both ESB PG and NIE PPB were required to offer DCs). Two DC products were required by the RAs to be offered by ESBPG—mid-merit and peak – in order to reduce market concentration in each segment for each quarter to a HHI of 1,150. Baseload contracts were not required to be offered as the HHI in Baseload hours was already less than 1,150 in each quarter.

**Table 3: ESB PG Directed Contract Quantities (MW)**

The quantities of DCs which ESBPG were required by the RAs to offer to eligible suppliers to meet this HHI threshold are shown in the table across:

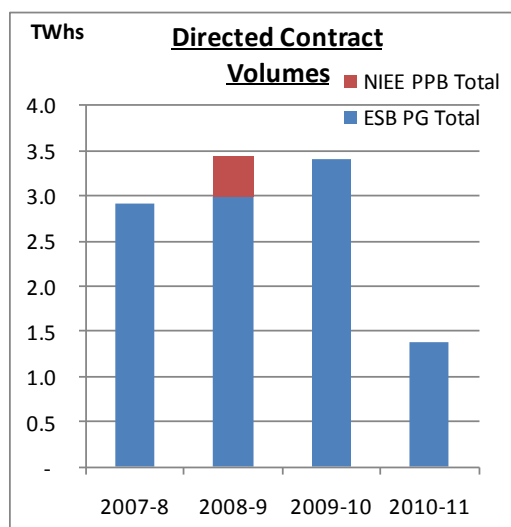
ESB PG Directed Contract Quantities (MW)			
Quarter	Baseload	Mid Merit	Peak
Q4 2010	0	188	306
Q1 2011	0	155	202
Q2 2011	0	312	n/a
Q3 2011	0	211	n/a

The contracts were sold to eligible suppliers in two separate subscription processes by ESB PG. These consisted of a Primary Subscription Window and a Supplemental Subscription Window in which any unsold contracts were offered to those suppliers who had bought their full share in the Primary Subscription Window. Figure 16

shows the volume of DCs that ESB PG and NIE PPB were required to offer from the beginning of the SEM. The chart shows an increase in the total volume of contracts in the second and third years, followed by a significant reduction in the fourth year. This reduction was as a result of reduced forecast market share for ESB PG compared to previous years, especially in base load hours.

<sup>4</sup> The Herfindahl-Hirschman Index (HHI) is defined as the sum of the squares of the market shares of the 50 largest firms (or summed over all the firms if there are fewer than 50) within an industry, where the market shares can be expressed as fractions or whole number percentages.

Figure 16 Directed Contract Volumes



### 3.1.2 PRICING OF DIRECTED CONTRACTS

The prices of the DCs were determined each day during the subscription period using forward fuel and carbon prices and regression formulas determined by the RAs through econometric analysis. These formulas were designed to mimic the results of the validated SEM PLEXOS model.

Using this methodology, the average prices for each DC product are shown in Euros and Sterling below in Table 4:

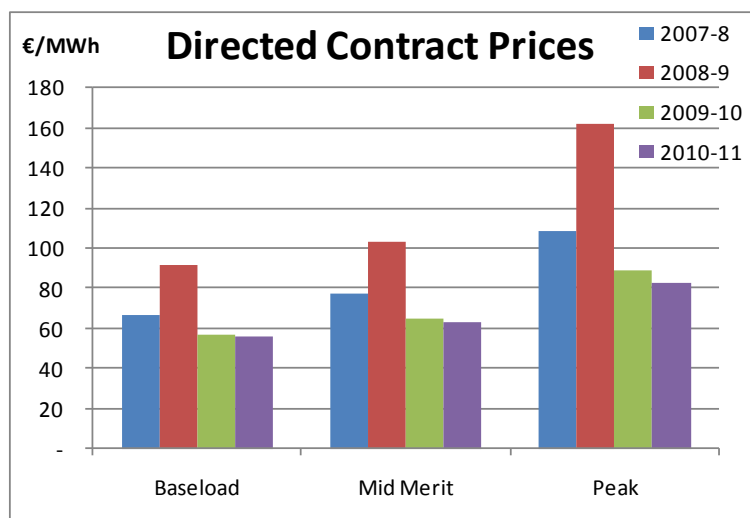
Table 4: Average prices for each DC product in Euros and Sterling

Product	€/MWh	£/MWh
Baseload	56.12	48.10
Mid Merit	63.36	54.31
Peak	82.39	70.62

No Base load contracts were offered but the baseload price from the DC Regression Formulas is shown for reference.

As shown the figure below the average price of Directed Contracts for the 2010/11 tariff year was slightly lower than the previous year, and indeed also significantly lower than the peak 2007/08 period, in line with the movements in international fuel markets.

Figure 17: Directed Contracts Prices



### 3.2 PSO CONTRACTS

In addition to the above contracts, ESB PG also offered generation backed by the Irish Public Service Obligation (PSO). The RAs determine the reserve prices (using the Validated PLEXOS model and up-to-date forward fuel prices) that these products are offered to the market at and they are auctioned off to suppliers. For the 2010/'11 tariff year, 1/3 of the PSO-related CfD quantity was offered annually, 1/3 bi-annually and 1/3 quarterly, with a mix of products offered between baseload, mid-merit-1 and mid-merit-2. This provided market participants with a good choice and mix of offerings/products.

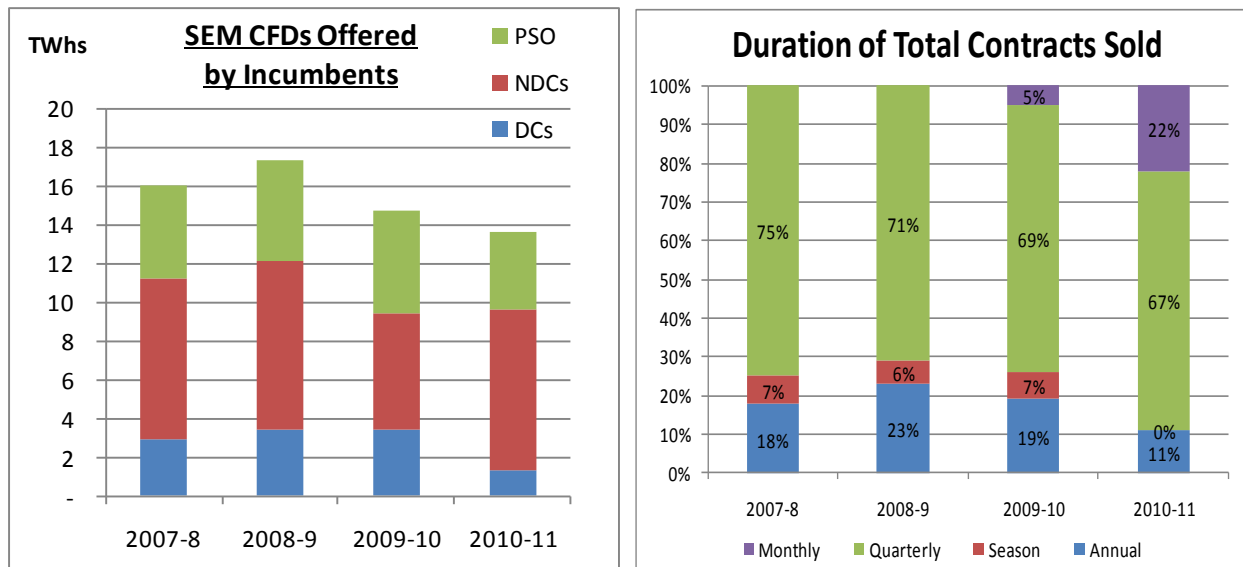
### 3.3 SEM NON-DIRECTED CONTRACTS

While the RAs legal remit on behalf of the SEMC largely extends to DCs, licensed generators can also offer Non-Directed Contracts (NDCs) to the market. The RAs do not set the price or quantity of NDCs as they are agreed on a bilateral basis between market participants. They do however take an active role in the monitoring and development of the NDC market by assessing the reasonableness of prices during the ESB PG and NIE PPB auction processes. The RAs have also worked with participants on the development of a multi-lateral trading facility which went live in April 2009. Tests are planned in 2011 for the development of an Over the Counter (OTC) market in SEM power that will be an addition to the existing auction platform results<sup>5</sup>.

The charts below show the latest total volume of CfDs offered/sold for the 2010/'11 tariff year in SEM, divided between Directed Contracts, Non-Directed Contracts and PSO-related CfDs, compared to previous tariff years. The reduction in Directed Contracts is related to a reduction in ESB PG's modeled generation output as referred to earlier. The chart below on the right shows the duration of the contracts sold for the 2010/'11 tariff year (again using latest figures), compared to previous tariff years. There was a large increase in the proportion of monthly contracts offered this year, providing suppliers with more opportunity to be flexible in the quantity of contracts purchased.

<sup>5</sup> [Results from 2009 NDC and PSO auctions](#)

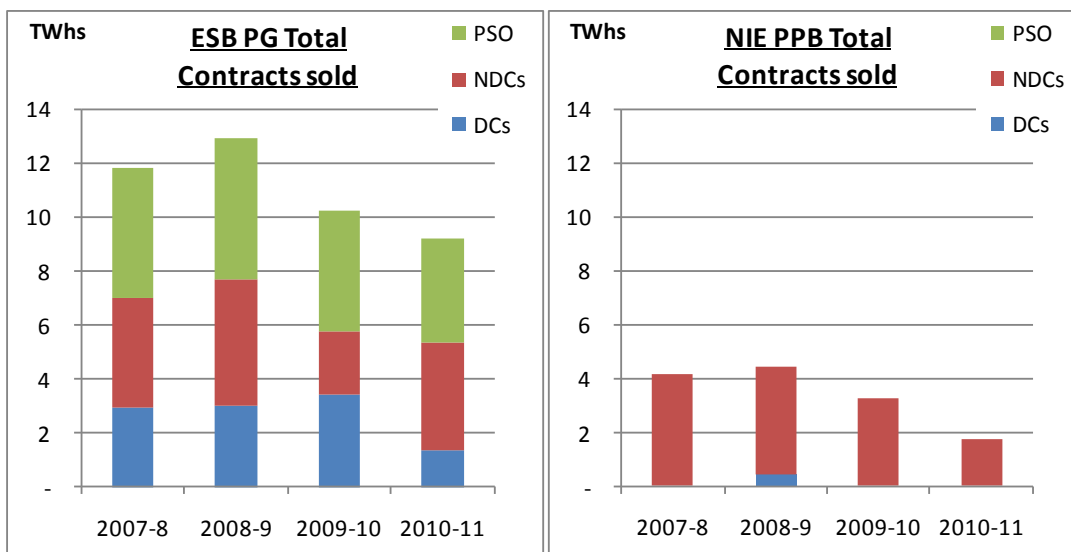
Figure 18 - Contracts Offered/Sold in SEM



The below figures show the latest known total volume of contracts sold by the two incumbent generators, ESB PG and NIEE PPB, for the past 3 years.

Figure 19: Volume of contracts Sold by ESB PG

Figure 20: Volume of contracts Sold by NIE PPB



## 4 MARKET POWER AND LIQUIDITY IN THE SEM

In Q2 2010 the RAs commenced a review of market power and contract liquidity in the SEM. The overall aim of this project has been to identify practical ways in which the RAs can further promote competition in the SEM by reducing/mitigating market power and/or improving contract liquidity over the next few years. This project included a review of the performance of the SEM market power mitigation measures in the context of experience to date and, looking forward, likely developments in the SEM which could alter market power. These



developments include increased interconnection and new market participants (including, for example, wind generation).

The project also examined measures which might be necessary to mitigate any potential adverse effects on market power and/or liquidity resulting from the various components of ESB's proposed re-integration. In July 2010 the RAs appointed consultants, CEPA, to assist the RAs by undertaking an independent review of market power and liquidity in SEM. In August the RAs then published a "State of the Nation" paper whose purpose was to:

- Inform market participants of the scope of the review project;
- Provide a factual overview of the design and operation of the SEM, in particular:
  - The market power mitigation strategy adopted to date by the RAs;
  - The operation of the market since the inception of the SEM, particularly levels of market power in the spot and forward contract markets, as well as forward contract liquidity; and
  - Seek any initial ideas from market participants on the policy issues being examined as part of this review project.

In December, having taken on board the comments received to the RAs' "State of the Nation" paper as well as input from the RAs on factual matters and modelling of market outcomes to 2020, CEPA completed its independent review of market power and liquidity in the SEM. CEPA's report, along with an RA cover paper, was published for consultation on 16<sup>th</sup> December 2010. The report also included contract liquidity proposals from ESB.

On 18<sup>th</sup> January 2011 the RAs held a public workshop in the CER office to explain the CEPA paper and discuss industry views. The SEMC published for consultation a report on the findings of this review and intend to make a decision on practical next steps in late 2011.

## 5 THE MARKET MONITORING UNIT

The Market Monitoring Unit (MMU) forms part of the Market Power Mitigation strategy developed by the RAs during 2006. It is one of four identified Joint Management Units (JMU) located within the RAs. The MMU is based in Belfast at the Utility Regulator. It is also involved in projects not associated with monitoring, reporting or investigations, such as the Capacity Payments Mechanism (CPM) which involves managing the process for determining the revenues arising from the CPM and policy development in this area.

The MMU reviews the behaviour in the market on an ex-post basis. This includes investigating the exercise of market power, monitoring the compliance of market participants with the bidding code of practice and other market rules and reviewing prices reported in the market.

The role of the MMU currently consists of the following responsibilities:

- Monitor and report on issues relating to the SEM spot electricity market to ensure that it produces the outcomes which would be expected in a competitive market;
- Evaluate the operation of the market to detect design flaws or structural problems and make recommendations as to modifications to the Trading and Settlement Code which the RAs should initiate;

- Enforce the SEM Bidding Code of Practice (BCOP)<sup>6</sup>;
- Conduct investigations into the exercise of market power – including but not limited to the violations of bidding principles or other markets rules and reporting alleged infractions of market rules to the RAs for enforcement action;
- Serve as an interface for complaints from market participants; and
- Ensure that the monitoring programme will be conducted in an independent and objective manner.
- Active monitoring of the SEM;
- Acting as the point of contact within the RAs for well documented complaints that upon investigation appear to have a sound basis; and,
- Making recommendations, as necessary, to modifications to the Trading and Settlement Code which the RAs wish to initiate.
- Medium and long-term forecasting is also carried out to support the Regulatory Authorities’ policy decisions.

The MMU continuously reviews generator participants’ behaviour in the market including investigations into the exercise of market power, monitoring the compliance of market participants with the bidding code of practice and other market rules. The MMU is also the point of contact for participants who wish to register complaints relating to market behaviour.

## 5.1 REGULAR MONITORING AND REPORTING

The MMU conducts regular internal reports on the active monitoring of the SEM to the SEMC. As the SEM structure develops and competition increases, the SEMC and the MMU will monitor the market bidding principles and consider appropriate modifications, if needed, given that their primary aim is to detect and report the abuse of market power. It is important to emphasise that any future changes to the bidding principles will be measured against the impact on the robustness of other parts of the market design, and be considered in the light of the SEM Objectives.

The MMU’s functions and communications with other parts of the RAs can be summarised as follows:

- Reporting – including producing daily, fortnightly, monthly and annual reports and presentations to RA staff, the Oversight Committee and the SEMC.
- Statistical analysis and data – the MMU receives large quantities of market data from the Single Electricity Market Operator (SEMO), which they process and store in databases. Staff within the RAs also use the MMU as a source of data and statistical analysis for their policy work, analysis and modelling.
- Policy development – the policy role of the MMU requires the unit to operate closely with other JMUs and to be fully aware of other ongoing work in the RAs. The policy function of the unit can also require the MMU to report to the Oversight and SEMCs on wider SEM design and harmonisation issues.
- Investigations and Enforcement.

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<sup>6</sup> [SEM-07-430](http://www.allislandproject.org/en/market-power-consultation.aspx?article=44d688de-8ac1-4bd3-846c-06d0f3b85ef8) - <http://www.allislandproject.org/en/market-power-consultation.aspx?article=44d688de-8ac1-4bd3-846c-06d0f3b85ef8>

## 5.2 INVESTIGATIONS AND ENFORCEMENT

During 2010 the MMU actively engaged in a number of discussions with several market participants regarding interpretation of the Bidding Code of Practice. Several investigations have been conducted and concluded and a number of Consultation Papers were developed on the foot of policy issues that arose.

These Investigations typically involve a combination of technical issues, policy and process which the MMU need to communicate to internal stakeholders including RA Directors, SEM Oversight Committee and the SEMC.

The MMU is also expected to monitor the exertion of market power by strategically withholding capacity from the market, including examining patterns of unit outages over time to see if the timing of outages created uplift to bidder revenues.

## 5.3 GOVERNANCE ARRANGEMENTS

On 23 December 2010, the Regulatory Authorities published a Consultation Paper on the proposed processes by which the MMU will conduct formal investigations and informal inquiries.

In late 2009, the MMU commenced a review of its Governance arrangements. After about two years since SEM Go-Live (November 2007), the aim of the review was to assess how well the Unit is performing its functions and to identify areas of monitoring that could be improved. Part of this review included a questionnaire for market participants to provide their suggestions and views on the operation of the MMU. The MMU subsequently drafted a consultation on its current procedures for launching an investigation, and written a process manual on the process it should follow when conducting an investigation.

Following this review, on 23 December 2010, the Regulatory Authorities published a Consultation Paper on the proposed processes by which the MMU will conduct formal investigations and informal inquiries<sup>7</sup>. Comments on this paper were provided to the MMU at the end of February 2011. These are being reviewed and a Process Manual decision paper will be published in the near future, following Decision by the SEMC.

## 5.4 GENERATOR REVENUES

The MMU also carries out analysis on the revenues, implied infra-marginal rents and capacity payments made to Generator Units. In carrying out such analysis the MMU also examines, at a high level, the revenue streams for different technologies and different plants. In carrying out such analysis, the MMU recognizes that limitations of its study in that business have different capital intensities and capital/operational ratios. Furthermore such a study does not examine costs and revenues incurred by participants outside of the SEM.

In 2010 Generator revenues in the following charts are calculated by multiplying total MSQ by average SMP to give a % and monthly breakdown by generator type. In 2010 this amounted to over €2,000m. Gas plants made up 68% of the Generator revenues where as Coal had 11% followed by Wind with 7%, the remaining plant types made up 14% of the revenues earned.

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<sup>7</sup> The Consultation Paper and Process Manual are available at [http://www.allislandproject.org/en/mmu\\_current\\_consultations.aspx?article=2df98a0a-017b-40fa-b889-472262223b33](http://www.allislandproject.org/en/mmu_current_consultations.aspx?article=2df98a0a-017b-40fa-b889-472262223b33)

## 2010 Generator Type Revenue % Breakdown.

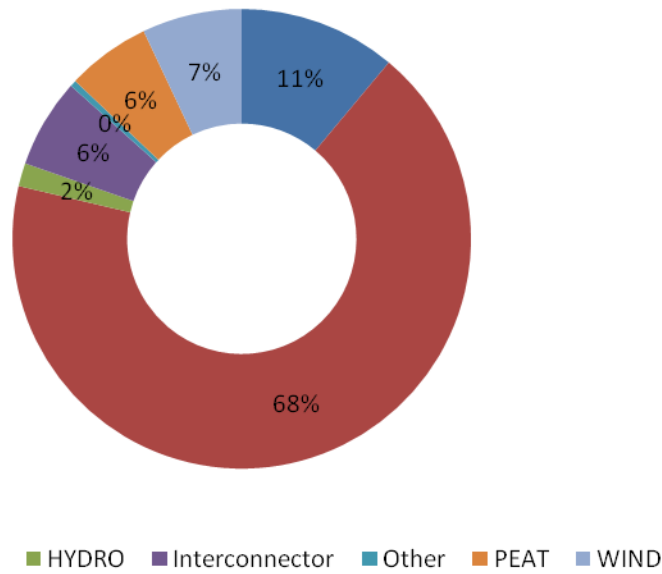


Figure 21: 2010 Generator Type Revenue % Breakdown.

## 2010 Monthly Generator Revenues

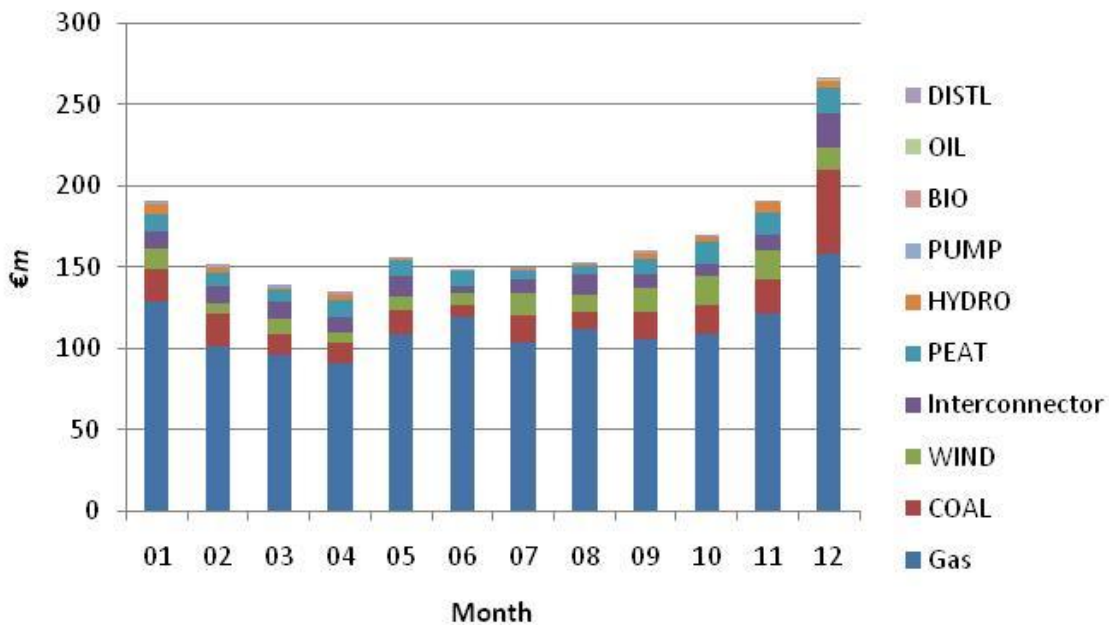


Figure 22: 2010 Generator Type Revenue Monthly Breakdown.

## 5.5 FUTURE WORK FOR THE MMU

The MMU's future resources will be channeled mainly towards;

- Continuing regular monitoring and reporting;
- Continuing regular liaison with participants and operators;
- Completion of Governance arrangements and procedures for the MMU
- Investigations, Enforcements etc

## 6 SEM CAPACITY PAYMENTS MECHANISM

The Capacity Payments Mechanism (CPM) falls under the Joint Regulatory Arrangements and lies under the administration of the SEMC. The SEMC considers the CPM to be a key feature of the SEM design and is mindful that the CPM provides signals for new entry/investment and should reward plant and capacity in accordance with its performance.

The CPM was designed in liaison with interested parties through extensive consultation. It is a fixed revenue system whereby Generators are paid regulated quantities (Capacity Payments) of money for providing available generation capacity to the market. The money is sourced by concurrent Capacity Charges levied on all Suppliers that purchase energy from the pool. The core of the CPM takes the form of a fixed annual sum of money, called the Annual Capacity Payments Sum (ACPS) which is calculated by the Regulatory Authorities on an annual basis.

During 2010 the CPM team's work included:

- Decision on annual capacity payment pot for 2011
- Progress on medium term review of the CPM

### 6.1.1 QUANTIFICATION OF THE ACPS

The regulatory exercise undertaken annually to quantify the ACPS involves the calculation of two key parameters which are multiplied together; a **Price component** and a **Volume component**:

$$ACPS (\text{€}) = Price (\text{€/MW}) \times Volume (MW)$$

The Price is set by reference to the annual Fixed Costs of a Best New Entrant Peaking Unit. The volume is set by reference to the Capacity required to exactly meet the Generation Security Standard.

## 6.2 CAPACITY REQUIREMENT AND ACPS FOR 2011

During 2010 the annual exercise took place to establish the capacity pot for 2011. This involved establishing the fixed costs of a Best New Entrant peaking plant in the market and also EirGrid's and SONI's calculation of the capacity requirement for the year ahead to meet the adequacy standard. These two numbers fed into the size of the capacity pot required. The pot decreased by 1.1% for 2011 compared to 2010. This can be seen in the table below, which shows the Annual Capacity Payment Pots for the Years 2007 to 2012.

Year	BNE Peaker Cost (€/kW/yr)	Capacity Requirement (MW)	ACPS (€m)	ACPS Change (% Yr on Yr)
2007	64.73	6,960	450.5	-
2008	79.77	7,211	575.2	27.7%
2009	87.12	7,356	640.9	11.4%
2010	80.74	6,826	551.1	-14.0%
2011	78.73	6,922	544.9	-1.1%
2012	74.8	6,942	519.7	-4.6%

Table 5 - Annual Capacity Payment Pots for the Trading Years 2007 to 2011. Source MMU.

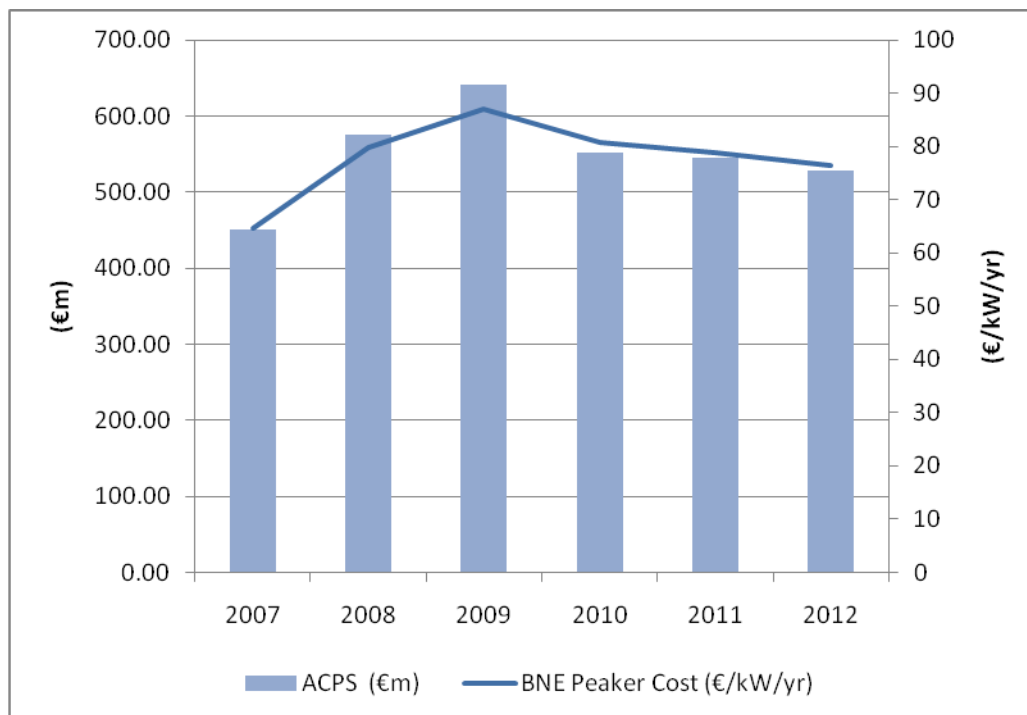


Figure 23 : Historic levels of Capacity Requirement and Annual Capacity Payment Sum.

### 6.3 CPM MEDIUM TERM REVIEW

In April 2009 the SEMC published a consultation paper documenting the scope of work that the Committee proposed to carry out in relation to a medium term review of the Capacity Payment Mechanism (CPM). The main purpose of this review is to examine if the current design of the CPM can be further improved to optimally meet its objectives. The SEMC wishes to satisfy that the correct signals and appropriate incentives or rewards are inherent

in the design, so as to meet its objectives optimally. In particular it is mindful that the CPM provides signals for new entry/investment and should reward plant and capacity in accordance with its performance.

On 17 November 2009 the SEMC published an information paper which set out the various work streams that form part of the medium term review. During 2010 work continued on the medium term review of the CPM. To date the RAs have published 3 consultation / discussion papers. The SEMC in July 2010 published a Discussion Paper on the historical aspects of the CPM Medium Term Review (SEM/10/046)<sup>8</sup>. The paper covers the Work Packages 1-5 of the Medium Term Review.

- Work Package 1 - Historical Analysis of CPM
- Work Package 2 - Review of Capacity Requirement
- Work Package 3 - Deduction of IMR & AS & BNE Peaker Plant Options
- Work Package 4 - BNE Peaker Plant Fuel Options
- Work Package 5 - Exchange Rate for CPM

In October 2010 the SEMC published a Consultation Paper as part of the Medium Term Review of the Capacity Payment Mechanism on Work Package 7 - BNE Calculation Methodology (SEM-10-068<sup>9</sup>). The BNE plant cost is a major determinant in the calculation of the capacity pot. The paper looked at potential measures to introduce more stability to the BNE calculation. One potential option put forward was to keep certain elements of the BNE calculation constant for a number of years.

The paper looked at the following areas;

- CPM Design in other Regions and International experiences in delivering adequate capacity
- BNE Calculation Methodology 2006
- Summary of the Options in the BNE Calculation Methodology Review 2009 - option 2, 5 and 6
- Indexing Methods
- Impact of Options on WACC Calculations

A large number of responses were received to the consultation paper, the majority of which agreed that the CPM is a key feature of the SEM design and should be retained to provide investment signals. The CPM team will review all responses. In April 2011 the SEMC published the final Consultation Paper (SEM/11/019)<sup>10</sup> looking at the final outstanding work packages. The paper looked at the following areas;

- Work Package 6 - Treatment of Generator types in the CPM,
- Work Package 8 - Incentives for Generators,
- Work Package 9 - Timing and distribution of Capacity Payments,
- Work Package 10 - Impact of the CPM on Customers.

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<sup>8</sup> [http://www.allislandproject.org/en/cp\\_current-consultations.aspx?article=88df8ce4-9a8c-4694-b93b-2c52d3c9d89f](http://www.allislandproject.org/en/cp_current-consultations.aspx?article=88df8ce4-9a8c-4694-b93b-2c52d3c9d89f)

<sup>9</sup> [http://www.allislandproject.org/en/cp\\_current-consultations.aspx?article=91842a30-b0a9-4dfd-803f-792b545aa30e](http://www.allislandproject.org/en/cp_current-consultations.aspx?article=91842a30-b0a9-4dfd-803f-792b545aa30e)

<sup>10</sup> [http://www.allislandproject.org/en/cp\\_current-consultations.aspx?article=31822151-f6da-4f5a-9fba-61739dd35f98](http://www.allislandproject.org/en/cp_current-consultations.aspx?article=31822151-f6da-4f5a-9fba-61739dd35f98)

As part of the investigation into the Medium term review the RAs procured consultancy support from Poyry for some aspects of the work required. Poyry produced a detailed report, which is attached in Appendix 1 of the final consultation paper, providing a number of alternative options and possible improvements to the RAs, identifying the pros and cons of the different solutions and how the recommendations meet the objectives of the CPM. The report details the performance of the current CPM design, the performance of the CPM in future years and offers options for reform.

The above work packages of the CPM review constitute a comprehensive review of the CPM that provide robust analysis on various aspects of the CPM, in many aspects based on actual data. The detailed and robust nature of analysis has taken longer than anticipated to complete however, the results will provide valuable information on how best to make targeted improvements to the CPM. It is intended that a Decision on the medium term review will be made in late 2011.

## 6.4 NEXT STEPS MEDIUM TERM REVIEW OF CPM

In 2011, the Regulatory Authorities will progress the following remaining work packages of the medium term review:

- Treatment of Generator types in the CPM;
- Incentives for Generators;
- Timing and distribution of Capacity Payments;
- Option for Caps and Floors; and,
- Impact of the CPM on Customers.

Following on from the final Consultation Paper it is intended that a final decision will be made on the medium term review towards the end of 2011. It is currently planned that any changes to the CPM will take effect from the start of 2013.

Further details on the Decision Documents / Information Notes can be found on the AIP website<sup>11</sup>.

The SEMC appreciates all the inputs and feedback from Market Participants, and considers the CPM to be a key feature of the SEM design and the concept of the CPM should remain in place.

## 7 SEM TRADING AND SETTLEMENT CODE

The Trading and Settlement Code team, based in Dublin, manages the SEM rules and the development of these rules on behalf of the SEMC, with the central focus of this role being on the SEM Trading and Settlement Code (the Code). The Code is a multilateral contract which sets out the rules and procedures concerning the sale and purchase of wholesale electricity in Ireland and Northern Ireland. The Code was designated by the RAs on 3 July 2007 and can be modified from time to time thereafter, in accordance with procedures set out in the Code.

The role of the Code Modifications Committee, which comprises representatives from industry participants, is, among other things, to consider and report on proposed modifications to the Code.

### 7.1 MODIFICATIONS COMMITTEE

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<sup>11</sup> [http://www.allislandproject.org/en/cp\\_decision\\_documents.aspx](http://www.allislandproject.org/en/cp_decision_documents.aspx)



There were seven meetings of the Modifications Committee held during 2010. The Modifications Committee, guided by the Secretariat, continues to function well. Additionally there were a number of Modification Working Groups meetings held to develop certain modifications

The Modifications Committee issues a Modification Recommendation Report to the RAs and the SEMC subsequently issues a decision on the proposed modification. The following can be found on the Single Electricity Market Operator's (SEMO) website<sup>12</sup>:

- All modification proposals submitted to date;
- All the SEMC decisions made on Modifications Proposals thus far; and,
- The latest version of the Code.
- Working groups are being used effectively by the Modifications Committee to develop more complex Modification Proposals. In addition, the Modification Recommendation Reports are produced in a more timely fashion. In 2010, 43 Modification Proposals were raised, down from 46 in 2009.

## 7.2 KEY CODE MODIFICATIONS

Over the course of 2010, 43 Modification Proposals were raised and considered by the Modifications Committee. Many of these were recommended for approval by the Modifications Committee and then approved for implementation by the SEMC. A significant Code Modification which was recommended for approval by the Modifications Committee in 2010 and subsequently approved by the SEMC was Global Settlement (Mod\_34\_09). This Modification, which is being implemented in the market systems in Q2 2011, seeks to achieve equal treatment in relation to all Supplier Units in relation to the Error Supplier Units.

### 7.2.1 TRADING AND SETTLEMENT CODE PARAMETERS

The Regulatory Authorities consulted on several policy-related Code parameters including the market price cap and market price floor and the Uplift parameter values to apply in 2011; these remained unchanged from the 2010 values, with the Market Price Cap set at €1,000/MWhr and the Market Price Floor set at -€100/MWhr for 2011. In addition, in 2010 the Regulatory Authorities consulted upon and approved the following operational parameters to apply in 2011:

- Credit Cover parameters;
- MSP Software parameters;
- Annual Capacity Exchange Rate;
- Uninstructed Imbalances parameters; and,

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<sup>12</sup> [http://www.sem-o.com/modifications\\_committee/](http://www.sem-o.com/modifications_committee/)

- Flattening Power Factor.

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### 7.2.2 2010 MARKET AUDIT

There is a requirement under the Trading and Settlement Code to carry out an annual audit of the Code. The audit covers operation, implementation, trading arrangements and procedures and processes under the Code. In addition, the 2010 Market Audit was extended to include a limited examination of certain activities of the MDPs and SOs including generation metering and dispatch instructions performed on an Agreed upon Procedures basis

The 2010 Market Audit found that SEMO and the Interconnector Administrator have in all material respects, complied with the Code and relevant Agreed procedures as set out in the Market Audit Terms of Reference.

## 8 EUROPEAN MARKET INTEGRATION

The SEMC, as part of their work plan for 2010, tasked the Regulatory Authorities to progress market integration with neighbouring markets in light of increased interconnection (in the form of the East West interconnector due to come on stream in mid 2012) and emerging EU blueprint for a single European electricity market.

Following extensive consultation in 2009 on the integration of the SEM with its neighboring markets and the costs and benefits of increased interconnection, the SEMC issued a Decision Paper (SEM-10-11) in March 2010 on the approach for integrating the SEM into the wider regional and European electricity markets. The SEMC's decision established a programme of regulatory work with the aim of maximising the efficient use of existing and future interconnectors between the SEM and its neighbouring markets. This was in the context of the wider integration of European electricity markets and within the parameters of the current SEM design.

During 2010, the SEM RAs, in conjunction with neighbouring regulators in the France-UK-Ireland region, drove progress on the key cross-border policy issues identified in the Decision Paper.

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### 8.1.1 DEVELOPMENTS AT EUROPEAN LEVEL

The SEMC is committed to ensuring that the future direction of the SEM design is coordinated with the emerging EU target models as set out in the draft ACER Framework Guidelines on Capacity Allocation and Congestion Management and associated network codes. Throughout 2010, the SEMC, through representation on European Regulatory Body (ERGEG) extensively inputted into the developing EU target models with the aim of ensuring that these take into account the specific characteristics of the electricity system and market in Ireland and Northern Ireland.

The current target for the single European electricity market is 2014 and the SEMC will continue to influence and input into the development of the detailed design of the associated cross-border guidelines and codes. In the coming years, as the SEM adapts to the EU models, it will be necessary to ensure in parallel that the market design remains robust to allow national and EU targets for renewable generation to be reached by 2020 and that market design changes are to the benefit of consumers through competitive prices and increased supply security.

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### 8.1.2 INTRA DAY CAPACITY ALLOCATION

The SEMC Decision set out that a Modification to the Trading and Settlement Code to facilitate intra-day trading in the SEM should be developed and submitted to the SEMC by the end of 2010. This Modification was to address

specific issues raised by the European Commission relating to the SEM regarding the inability for market participants to 'take part in intraday trade after the issuing of the indicated or actual day-ahead production schedules' and the apparent lack of coordination of congestion management procedures.

On 16th March 2010, the Regulatory Authorities submitted Modification 18\_10 Intra-Day Trading to the Modifications Committee for their consideration. The Modification was subsequently developed through the course of seven working group meetings with market participants. The Modifications Committee unanimously approved the high level design of the Modification on 25th November 2010.

On the 3 March 2011, the SEM Regulatory Authorities approved the implementation of an intra day congestion management mechanism in the SEM. Along with providing opportunities for market participants to trade intra day in the SEM and across interconnectors on SEM borders, the rule changes will also provide for netting of interconnector capacity intra day and UIOLI/UOSI provisions. Intra day trading will thus be in place in the SEM (and therefore the Moyle and East West Interconnectors) from mid 2012. The regulators in the SEM see the introduction of intra day trading in the SEM as a significant step forward in the efficient use of cross border capacity as the level of wind generation increases on the island.

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### **8.1.3 DAY AHEAD CAPACITY ALLOCATION**

The SEMC Decision provided that the RAs investigate the options for Day Ahead Market Coupling of the SEM to other markets and the extent to which this could be achieved without changing the high level design of the SEM. In August 2010, the RAs appointed Pöyry Management Consulting (UK) Ltd, to carry out this investigation and produce a report to the SEMC.

Pöyry developed six conceptual options for a day-ahead trading solution. All of the options proposed would keep the gross mandatory characteristic of the SEM to the extent that generators would still have to offer their whole generation into to the SEM. The volumes traded in the day ahead market would have firm volumes and prices and the final payments for generators and suppliers would be comprised of two components: day ahead and expost SEM. The specific options identified in the paper should not be regarded as an indication of any proposals that SEMC would consider in the future.

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### **8.1.4 LONG TERM AND FORWARD CAPACITY ALLOCATION**

The RAs have been pro-actively working with the National Regulatory Authorities and TSOs in the France-UK-Ireland region on the co-ordination of long term cross border capacity allocation and are committed to improving consistency within the region, and, where appropriate, with other regions. There will of necessity be some differences in the coordination of long term capacity allocation in the FUI region. The RAs are committed to minimising these differences in the short term and removing them altogether in the long term through the full incorporation of the region into a single European auction platform with common allocation rules and procedures.

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### **8.1.5 SHORT TERM OBJECTIVE**

In the short- term, two parallel processes are being undertaken:

1. The procurement of a common auction platform by Moyle and the East West Interconnector and associated access rules consultation and approval processes. The auction platform will become operational on Moyle from Q3 2011 and on East West from commercial go-live in Q3 2012.

2. Implementation of the 'quick wins' identified in the FUI TSO Long Term auction coordination project on all interconnectors in the region. These include common: capacity products; contractual frameworks; conditions for participating in auctions; business processes; terminology and definitions (e.g. force majeure) and a coordinated auction schedule. These quick wins will be implemented by September 2011.

Regulators will grant approval of interconnector access rules only if these have been shown to meet the coordination requirements of the CMG. Detailed evidence of this will be sought from interconnector licensees as part of the approval process and any differences in the rules for capacity allocation will be required to be fully explained and justified.

Thus, this first stage of coordination will be implemented on all interconnectors in the FUI region by September 2011 when the Moyle and East West interconnectors are due to submit their access rules for regulatory approval.

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#### **8.1.6 LONG TERM OBJECTIVE**

As part of work to meet the emerging target model for forward capacity allocation, the FUI region will develop its thinking on the most appropriate and efficient means of joining a single European platform for long term capacity allocation.

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#### **8.1.7 BARRIERS TO TRADE**

In their 2009 Interconnector Issues Paper (SEM-09-042), the RAs identified a number of barriers to trading on the Moyle interconnector. Several of these have now been removed or mitigated:

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#### **8.1.8 REMOVAL OF TNUOUS CHARGES FOR GB INTERCONNECTORS**

Ofgem made a decision on 4 October 2010 not to veto the National Grid Electricity (NGET) Transmission proposal to modify the Use of System Charging Methodology in GB such that Interconnectors are not treated as generation or demand and thus not liable for either TNUoS demand or generation charges. It is expected that this will lead to increased flows across the Moyle interconnector.

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#### **8.1.9 MOYLE CAPACITY ALLOCATION**

Up until the end of 2010, only 80 MW of capacity in the direction of Northern Ireland – GB has been available on the Moyle Interconnector as a result of security of supply concerns in Northern Ireland and transmission constraints in Scotland.

The RAs have been working with Ofgem to address this barrier to trade. On 17th January 2011, The Utility Regulator approved an increase in the Maximum Export Capacity (Northern Ireland – GB) for the Moyle Interconnector from 80 MW to 295 MW (287 MW for the annual period 2nd May to 29th August).

## 9 SINGLE ELECTRICITY MARKET OPERATOR REGULATION

### 9.1 ROLE & ESTABLISHMENT OF SEMO

The development of the SEM led to a requirement for a Single Electricity Market Operator (SEMO) to administer the market. With this in mind the RAs approved the intention of EirGrid and SONI, the transmission system operators for Ireland and Northern Ireland respectively, to establish SEMO on a contractual Joint Venture basis.

SEMO's role in the market is explicitly defined in the Trading and Settlement Code (the Code), which sets out the rules, procedures and terms and conditions which all parties, including SEMO, must adhere to in order to participate in the SEM. In addition, both EirGrid and SONI must comply with the conditions imposed by their respective MO licence.

As defined in section 1.3 of the Code, SEMO's role can be summarised as being "to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner".

SEMO's performance thus far is detailed in the monthly Market Operator reports which are available from SEMO's website (<http://www.sem-o.com>). In summary, SEMO has performed well and continues to administer the market effectively.

The SEMO (Single Electricity Market Operator) Regulation unit, based in Belfast, is responsible for approving SEMO's revenues and tariffs, overseeing SEMO's licence compliance, and approving projects run by SEMO. During 2010, following consultation, the Regulatory Authorities determined SEMO's revenues and costs for the three-year period from October 2010 to September 2013.

### 9.2 SEMO REGULATION

The SEMO Regulation team, based in the Utility Regulator, is responsible for all regulatory activities regarding SEMO. The key activities carried out by this team since market the SEM commenced are detailed below:

#### 9.2.1 MARKET OPERATOR LICENCE COMPLIANCE

The SEMO Regulation team monitors the status of both MO licences (SONI and Eirgrid) on an ongoing basis to ensure that the requirements of the licence are being met and managed. SEMO are required to produce deliverables on an annual basis and the regular checks and communication with SEMO have, in the main, ensured the timely delivery of these licence requirements.

#### 9.2.2 COMMUNICATION WITH SEMO

The SEMO Regulation team has built up a good working relationship with all sections of the SEMO organisation. The relationships have developed through participation in industry meetings such as the Modifications Committee Meetings, Market Operator User Group Meetings and Market Operator Special Topic Meetings. There is also a regular monthly meeting between SEMO and RAs which covers all aspects of SEMO Regulation activities such as licence compliance and the status of any ongoing projects being managed by SEMO. In addition to the above, quarterly meetings between SEMO management and the relevant RA Directors, cover strategic areas and major

projects, along with an overview of the financial status of SEMO. The regular meetings have resulted in an open and cooperative relationship being developed between SEMO and SEMO Regulation team.

## **9.3 SEMO PROJECTS**

A key area of work for the SEMO Regulation team is to work closely with SEMO in relation to projects that require regulatory approval for cost recovery. The main projects that have occurred within the period 2009/2010 are detailed below.

### **9.3.1 SEMO'S REVENUES AND TARIFFS 2010 – 2013**

The SEMO Regulation team was the key point of contact for the development of SEMO's revenues and tariffs for the period October 2010 to September 2013. Key activities and deliverables included:

- Analysis of SEMO's revenue submission;
- Analysis of constraints and other high value costs; and,
- Approval of the SEMO costs for the tariff year.

The economy in both jurisdictions, Northern Ireland and Republic of Ireland, are facing extremely challenging times. Most businesses are currently optimising their operations in order to find opportunities for more cost-effective processes and organizational structures. Therefore, in order to ensure cost-effectiveness and sustainability over the current tariff period, the SEMO Regulation team undertook a rigorous analysis of each cost component from SEMO's submission.

### **9.3.2 INTRA DAY TRADING – COST RECOVERY**

At its January meeting the SEMC approved the proposals presented for implementing Intra Day Trading in the SEM in mid 2012 and its associated costs.

The SEMC approved the ITD costs in principle but asked the responsible team to assess the submission, attempt to reduce if possible, and make recommendations for the method of cost recovery and incentivisation.

The RAs have completed the analysis and in agreement with SEMO introduced a strong set of incentives for minimization of the projects cost. As a result it is expected that the outturn costs of the project will be to some extent lower than it has been anticipated on SEMO's submission.

### **9.3.3 TSC MODIFICATIONS PANEL**

In addition to the above activities, the SEMO Regulation team has a shadow role in relation to work carried out on the Code, which is led from the CER. This work entails attending Code Modifications meetings, reviewing Final Recommendation Report on Modifications, with a particular focus on Modifications that may incur a financial cost.

## 10 SEM RELATED DEVELOPMENTS

As mentioned previously in this report, the SEMC established a number of Joint Project teams to progress a number of areas that needed to be considered on an all-island basis. This section looks at progress made in these work streams in 2010.

Items covered include:

- SEM Locational Signals
- Harmonised Ancillary Services and Other System Charges
- Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code
- Demand Side Response

### 10.1 SEM LOCATIONAL SIGNALS

In January 2009, the Regulatory Authorities in cooperation with the Transmission System Operators (TSOs) - EirGrid for Ireland and SONI for Northern Ireland - initiated a review of locational signals on the all-island transmission network. These signals related to generator transmission use of system charges (G-TUoS) and transmission loss adjustment factors (TLAFs) as follows:

- G-TUoS: These are use of system charges paid for by generators to cover their usage of the transmission network. Presently in Ireland, G-TUoS levels paid by generators vary by location, based on load flow modelling to determine each generators use of the system. In Northern Ireland a different methodology is used with a common non-locationally varying charge per MW being applied to generators. This workstream aimed to provide for the harmonisation of G-TUoS charging on the island.
- TLAFs: Loss of electricity occurs as electricity is transported across networks from the point of generation to the point of demand. Transmission loss factors are applied to generators primarily to assist in delivering efficient dispatch of generation but also as a mechanism of accounting for total system losses. Harmonised all-island transmission losses arrangements were already introduced as part of SEM implementation. However the Regulatory Authorities decided to review the current harmonised methodology due to the volatility from year-to-year in TLAF figures, an issue likely to increase with greater levels of wind on the system, as well as the fact that the TLAF figures did not always promote efficient dispatch as they were calculated in advance of each year.

In May 2009 the TSOs published a consultation paper which presented a range of potential methodology options in respect of G-TUoS and TLAFs. In November 2009 the TSOs published a further consultation paper in which they set out their preferred options for both G-TUoS and TLAFs. In September 2010 the SEMC published a decision paper on all-island TLAF arrangements for the tariff year 2010/2011. The SEMC decided that a compressed TLAF, which would reduce volatility associated with TLAFs, would be implemented for all Generators from 1<sup>st</sup> October 2010.

This paper also required the RAs to carry out an impact analysis on “Splitting”, which is the separation of TLAFs in the market schedule from the dispatch schedule, with a view to implementing splitting as the enduring solution for TLAFs in the SEM, on 1 October 2011, if the case for splitting was proven through the impact analysis. The SEMC published the Terms of Reference for the Splitting impact analysis project in February 2011, with modelling being

carried out by the MMU and the TSOs. The adoption of Splitting will be subject to final approval by the SEMC based on the output and results of the impact analysis, with the decision being based on the criteria outlined in the SEMC's Terms of Reference for Splitting Impact Analysis. The SEMC indicated in its decision on TLAFs for 2010/11 that it favored a stable signal in the market schedule, while efficiency in the dispatch schedule is valued.

With regard to all-island G-TUoS, the SEMC decided in December 2010 that a part postalised/part locational charge would be introduced for all Generators from 1<sup>st</sup> October 2011. Further work by the RAs and TSOs is needed in 2011 to refine the details of the approach outlined in the G-TUoS decision paper and produce indicative tariffs. It is planned that harmonized Generator TUoS tariffs will be implemented across the island on 1 October 2011.

### **10.1.1 LOCATIONAL SIGNALS NEXT STEPS**

A significant body of work is planned for 2011 in order to complete the Locational Signals workstream. With regard to TLAFs, the MMU will lead on the modelling to be carried out for the impact analysis of "Splitting". A number of different loss factor scenarios over a number of different test years will be modeled with the results compared against the SEMC's approved set of criteria for splitting. Please refer to the Terms of Reference for this project which were published in February 2011 (SEM-11-006).

For G-TUoS, the SEMC decision on All-Island Generator Use of System Charging (SEM-10-081) published in December 2010 outlined at a high level the SEMC's approved methodology for G-TUoS tariffs. The paper requested that the RAs and TSOs continue to work together to develop the detailed methodology for these tariffs as well as to produce indicative G-TUoS tariffs for consultation. In addition to this, the SEMC decided that a separate consultation on the TUoS charging threshold for distribution connected generators should be carried out. A work programme to complete the G-TUoS aspect of the Locational Signals project has been put in place, with the new G-TUoS tariffs due to be implemented on 1 October 2011.

## **10.2 HARMONISED ANCILLARY SERVICES AND OTHER SYSTEM CHANGES**

Ancillary services are services procured by the TSOs on a regulated basis from generators or others to ensure the secure operation of the transmission system. Ancillary Services in the SEM at present primarily refer to reserve, black start and reactive power.

A joint Regulatory Authority/TSO project was carried out throughout 2008 and 2009 resulting in harmonisation of the arrangements for the procurement of these services across the island from 1<sup>st</sup> February 2010. The new all-island arrangements also included harmonisation of arrangements relating to generator trips and short-notice declarations and they also introduced Generator Performance Incentives (GPIs), which incentivised generators to comply with key Grid Code areas. Overall, the objectives of the new harmonised all-island arrangements were to:

- Remove any potential distortion caused by differing payment rates and mechanisms;
- Create a common methodology for the provision of ancillary services that will apply on an all-Island basis;
- Promote more competitive provision of ancillary services;
- Encourage more efficient utilisation of these services by the TSOs; and,
- Ensure that the services are procured and utilised on an efficient, non-discriminatory all-island basis.



During 2010, the RAs also carried out the first annual review of the Harmonised Ancillary Services rates and Other System Charges and updated rates and charges were approved for 2010/11. Full details of these approved rates and charges can be found on the TSO's websites.

Following on from the Facilitation of Renewables Studies the SEMC formally requested in November 2010 that the TSOs provide a considered position on the implications that results of this study would have on the secure, reliable and efficient operation of the all-island power system in the coming years. This response, which was submitted to the Regulatory Authorities in May 2011, contains an analysis of the current and future performance needs of the power systems. It also contains TSOs' proposed plan of actions to systematically address the challenges posed by the changing composition of the generation portfolio arising from EU and national policies regarding climate change and renewable targets. This will be further progressed by the TSOs and RAs in 2011.

### **10.2.1 HARMONISED ANCILLARY SERVICES AND OTHER SYSTEM CHANGES NEXT STEPS**

The RAs intend to carry out the second annual review of the Harmonised Ancillary Services rates and Other System Charges in 2011. Under the approved arrangements, the TSOs propose and consult on any changes to existing rates and charges, which will be approved (or amended) by the SEMC following recommendation by the TSOs. It is expected that consultation on Harmonised Ancillary Services Rates and Other System Charges for 2011/12 will be carried out in April 2011, with approval in August 2011. The TSOs also intend to consult on proposed new Ancillary Services and Other System Charges, reflective of the need to obtain some additional flexibility and additional reserve from service providers.

In addition, the TSOs submitted a report to the SEMC in May 2011, in response to the SEMC's request for a report and position regarding the required work to follow up on the TSOs' Facilitation of Renewables Studies. The RAs and SEMC will consider this report when it is received with a view to putting in place a future work programme to address the challenges of operating the all island system with increasing levels of asynchronous renewable penetration.

## **10.3 PRINCIPLES OF DISPATCH AND THE DESIGN OF THE MARKET SCHEDULE IN THE TRADING AND SETTLEMENT CODE**

In 2008 the SEMC published a discussion paper setting out key issues arising from increasing levels of wind generation on the island of Ireland and potential solutions to those issues in the context of the SEM. Following receipt of comments, a paper was published in Autumn of that year setting out initial responses to those comments and next steps. One area of further work identified here was the need to further consult on relevant scheduling and dispatch matters. This was progressed with the publication of a consultation paper (SEM-09-073) in July of 2009 regarding principles of dispatch and the design of the market schedule under the Trading and Settlement Code. Following receipt and consideration of responses to the consultation paper, in September 2010 the SEMC published a proposed decision paper (SEM-10-060) regarding the matters previously consulted upon.

An industry forum regarding this work stream was held on 12<sup>th</sup> October 2010 in Dundalk, affording industry and interested parties a chance to comment on the proposed decision paper and proposed positions outlined therein. A joint presentation was given by the regulatory authorities on the issues under consideration in the work stream, along with a number of presentations by attending parties regarding their views on the relevant matters. All presentations are published on the all island project website. A final decision paper is planned for publication in 2011.

## 10.4 DEMAND SIDE MANAGEMENT (DEMAND RESPONSE)

The SEMC and the RAs understand that demand response has the potential to be an important element of the all-island market, delivering economic and environmental benefits. In a future with, at certain times, high availability of generation from renewable sources, it will be important for demand to be able to flex freely to use the inexpensive and low carbon electricity when available. This could largely mitigate the need for capital intensive storage schemes. On shorter timescales it will be necessary for the TSOs simply to balance the system. To this end the RAs initiated a programme to develop a coordinated and sustainable demand response on the island of Ireland. The RAs have worked with industry and other stakeholders to produce a Demand Side Vision that integrates the various workstreams.

The programme began in December 2009 and included:

- International best practice review
  - Characteristics of the demand side on the island;
  - International review of DSR case studies;
  - Evaluation of the DSR potential on the island.
- Development of 2020 Vision, gap analysis and policy pathways, including demand side vision workshop.
- Public consultation setting out a future vision for DSM in Ireland
- Report on final recommendations for implementation (SEM/11/022) which was published on the 27<sup>th</sup> May

The final report set out a list of High, Medium and Low value recommendations, as well as timelines for their implementation in order to bring about the Demand Side Vision, which consists of a world in which electricity consumers make informed choices about their use of electricity in the short term and their selection of appliances in the longer term. Consumers would face appropriate incentives to “invest” (perhaps in terms of effort rather than financially) in methods which would allow them to better manage their consumption. Demand would play an active part in the process of system balancing and market price formation through a combination of autonomous response to expected market prices, dynamic response to market prices over a range of timescales and the inclusion of some dispatchable demand (and distributed generation) in the centralised processes of price formation and dispatch.

While noting that there are already a number of areas where work is underway in bringing about a market environment that facilitates active demand side participation, both in terms of domestic and business customers, the report set out a further thirteen steps to be undertaken by the RAs with regard to the development of demand side participation on the island.

Much still needs to be done in order to remove the remaining barriers and engage customers. The RAs recognise the potential for demand side measures to deliver significant economic and environmental benefits to the All-Island market. To this end the RAs will conduct an annual review of progress with respect to the delivering the recommendations of the Demand Side Vision 2020 and publish its report. The SEMC is fully committed to the delivery of the Demand Side Vision and intends to review progress with respect to the delivery of the recommendations within this report on an annual basis.

## 11 RETAIL MARKETS AND THE SEM

### 11.1 DEVELOPMENT OF POLICY TO ALIGN RETAIL MARKETS

The retail markets Northern Ireland and Ireland currently operate on a jurisdictional basis with an understanding of the need for harmonised goals, where appropriate and cost effective, in relation to energy retail markets. In 2006, the RAs highlighted a number of goals in the Memorandum of Understanding<sup>13</sup>, which stated that:

“CER and the Utility Regulator will apply a transparent, consistent and harmonised approach to the regulation of the wholesale and retail markets in a manner which supports effective competition and equal treatment of participants and customers regardless of their location. Such approach will encompass application of the same principles of regulation to:

- NIE Energy Supply in Northern Ireland and ESB Customer Supply in Ireland:
  - Ring fencing arrangements Tariff/revenue regulation;
  - Economic Purchasing Obligations;
  - Operation of PSO arrangements.
- For all suppliers:
  - Supplier switching arrangements/requirements;
  - Codes of practice.

Retail competition in energy can deliver benefits for consumers, so long as it is developed efficiently and according to a model that suits the conditions in both jurisdictions. These benefits might include:

- **Price benefits** – from creating competitive pressure to reduce costs in supply, and to procure better;
- **Innovation** – new suppliers, with experience in other markets, are likely to bring to market different products that extend consumer choice. This will likely include dual fuel options;
- **Service standards** – Competitive pressures, combined with effective industry systems, should enable high service standards to be delivered flexibly and cost effectively. Regulation can only effectively set a single standard which might be the average of consumers’ wishes, while competition can allow different supplier and product offerings to differentiate service levels, with prices varying accordingly.

North and South have retail markets with different structures e.g. licensing regimes, retail market systems, metering infrastructure and tariffs. With the launch of the SEM and the SEMC there were a number of initiatives to harmonise the approach to the regulation of the retail markets in Northern Ireland and Ireland. Work is ongoing between the RAs on a common harmonised approach to market messaging and supplier interfaces which is

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<sup>13</sup> <http://www.official-documents.gov.uk/document/cm70/7002/7002.pdf>

important for ease of supplier operation across the island. This common harmonised approach will be delivered under the Retail Market Harmonisation Project.

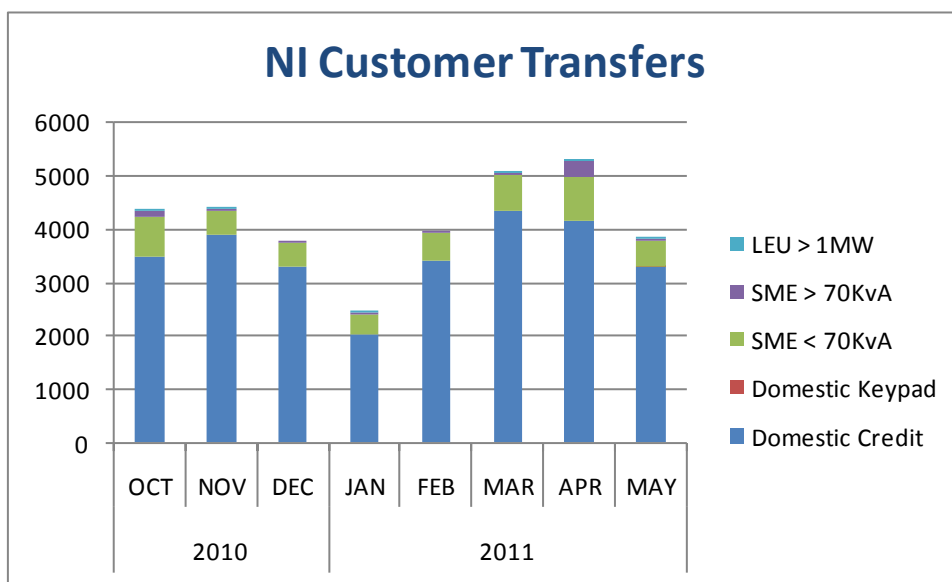
In the context that the automated central market systems in the Republic of Ireland have successfully supported the development of competition, facilitating over one million customer switches, the schema and processes in place in the Republic of Ireland were taken as a starting point for harmonisation. Where NI schema and processes were beneficial to the all-island market as a whole, they were adopted.

The first stage of the project - defining a set of harmonised market messages and associated Supplier facing processes – is drawing to a close with its completion envisaged in the first half of 2011. Implementation of the harmonised approach will require revised market procedures for both Northern Ireland and the Republic of Ireland. As part of the second stage of the Project, these changes are currently in preparation and will be agreed with all Suppliers prior to implementation of the harmonised processes in each jurisdiction in 2012.

### 11.1.1 DEVELOPMENT OF COMPETITION

Competition in the market for I&C customers has been operating for several years now in NI. However, domestic level competition in electricity began in NI in June 2010 with the arrival of Airtricity into the market to compete with the previous monopoly supply incumbent (NIEES). Figure 16 shows the recent monthly evolution in electricity customer transfers in Northern Ireland (in terms of customer gains by market sectors). Recently we have seen the beginning of domestic switching in the keypad (prepayment) domestic market segment.

Figure 24 evolution in electricity customer transfers in Northern Ireland.



Source: NIE T&D

The regulatory framework created to support full market opening in the Republic of Ireland in 2005, provided the right environment for competition to develop, increasing since then in both the business and domestic markets. This led to one of the highest switching rates in Europe in 2010 (see Figure 17). Further to these sustained positive changes in the electricity market and consultation with the industry, the CER published a decision paper on a Roadmap to Deregulation (CER 10/058) in April 2010. Therein, the CER set out the criteria for deregulation of the

business and domestic retail electricity markets. Based on the fulfilment of these criteria, as established by the Competition Review (CER/10/059), deregulation of all three business markets; Large Energy Users, Medium and Small Sized Business, occurred on 1<sup>st</sup> October 2010. As to the domestic market, the criteria for the deregulation included a requirement for ESB Customer Supply's market share to be no greater than 60%. This was higher than the 50 % threshold specified for the business market segments. The 60% threshold was conditional on ESB providing the CER with a satisfactory commitment for the rebranding of ESB supply companies prior to the deregulation of the domestic market. Market monitoring indicated that these criteria would be met and deregulation of the domestic market would occur in Q1 of 2011. This duly transpired on 4<sup>th</sup> April 2011.

Figure 25 Switching activity in the Electricity markets in the Republic of Ireland.

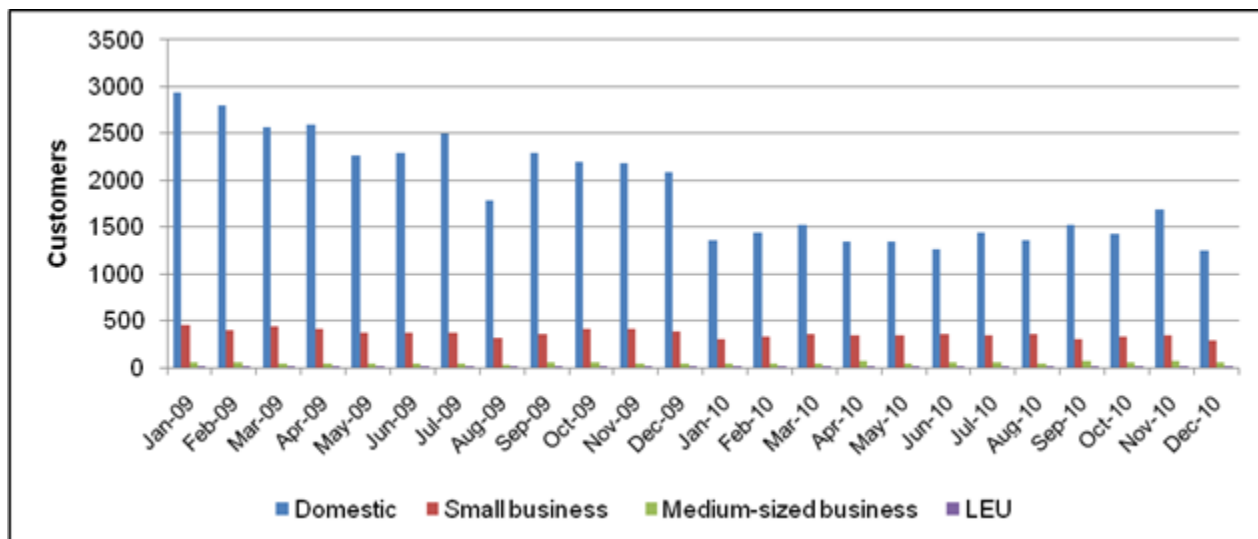


Figure 25: ROI Evolution in electricity customer transfers

### 11.1.2 CURRENT RETAIL TARIFFS

Supply tariffs in NI remain regulated for all domestic customers and the smaller I&C customers. This is primarily because the supply incumbent (NIEES) remains dominant in these market sectors. After due scrutiny of allowed efficient cost levels, the UR completed the 2010 yearly review of regulated electricity tariffs,

To protect customers from undue price volatility, in the 2010 review it was decided that it would be prudent to freeze the tariff at its 2009 level. Freezing the tariff meant that there was a mechanism to absorb any unexpected rise in the forecast energy cost. We also committed to commence monitoring the NIEES under or over recovery position throughout the tariff year (Oct – Sept) on a monthly basis and the potential for the need for an in- year tariff review during 2011.

In the event, an in-year review has not been required, and a new set of regulated supply tariffs will be set to be in place for 1<sup>st</sup> October 2011.

In Ireland, for the first nine months of 2010 the retail tariffs charged to all customers by ESB Customer Supply<sup>14</sup> as the Public Electricity Supplier (PES) were regulated by the CER. On the 1<sup>st</sup> October 2010 all business markets were deregulated and therefore after that date regulated tariffs applied only to those domestic customers served by PES. There were no changes to regulated tariffs in 2010 during the period up to 1st October. After this period and as previously stated, business tariffs were no longer regulated. The remaining regulated tariffs, those for domestic customers of PES, saw an increase on 1st October of just under 5% due to an increase in the PSO Levy.

## 12 REVISED WORKING ARRANGEMENTS OF JOINT MANAGEMENT UNITS

In 2010 the SEMC initiated a review of the working arrangements of its joint management units with the aim of improving efficiency in the delivery and decision making process of SEM work streams. Two types of future working arrangements have been identified.

The first relates to ongoing operational work streams that are required for the efficient ongoing operation of the SEM. For these operational work streams the current “shadow arrangement” will be discontinued. The second working arrangement is for once off strategic and development type projects. In order to ensure robust solutions are identified, the project teams will comprise representatives of both RA’s. The revised working arrangements will be finalised and implemented in 2011.

## 13 FUTURE WORK PLAN FOR THE SEM

The SEMC has agreed a significant work plan for 2011, which involves further development of the market. Some of the main items included on this work plan are set out below.

### 13.1 MARKET MODELLING GROUP

- Validation of the SEM PLEXOS model for the period 2011 to 2012.
- The Determination and implementation of the Directed Contracts on the incumbent generations in the SEM.
- The establishment of PSO-related CfD reserve prices for auctions covering both the 2010-11 and the 2011-12 tariff years.
- Liquidity and market power - A public workshop to explain the CEPA paper was held by the RAs in the CER office in January 2011. The deadline for comments on the consultation closed in March 2011 and the SEMC is expected to make a decision on the matter in later in 2011.
- Continuing regular monitoring and reporting on contracts.
- Modelling SEM outcomes so as to inform RA policy in different areas of the SEM.

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<sup>14</sup> As a criteria of deregulation of the domestic market, ESB Customer Supply as a supply business of ESB has now been rebranded as Electric Ireland.

## 13.2 CPM MEDIUM TERM REVIEW AND 2011 BNE CALCULATION

In 2011 the RAs will progress to complete work on the medium term review of the CPM and assess the objectives of the CPM to ensure they are being met in an appropriate manner.

Any options proposed will be considered in terms of whether they would significantly change the design of the SEM and if they will compliment the objectives of the SEM. The SEMC is mindful not to propose options that are disproportionately expensive or different to the current design relative to the benefits the changes would create. It is intended that a Decision on medium term review will be made toward the end of 2011. A Draft Decision on the Annual Capacity Payment Sum and the Fixed Cost of a BNE Peaking Plant, for 2012 has been published.

## 13.3 SEMO REGULATION

In response to legislative requirements and policy considerations, potential future changes to electricity market provisions in the SEM may emerge. Currently, there are a number of such initiatives which potentially represent future changes to the current market arrangements. The SEMO Regulation team, on behalf of the SEMC, will focus on the effects on SEMO and Central Market Systems.

## 13.4 DEMAND SIDE RESPONSE

The Demand Response has the potential to be an important element of the all-island market, delivering economic and environmental benefits; it entails actions that influence the quantity or patterns of use of energy consumed by end users, such as actions targeting reduction of peak demand during periods when energy-supply systems are constrained. Following consultation we will be setting out a future vision for DSM in Ireland and a defined set of measures to achieve this. Recommendations for implementation will be issued as final SEMC Decision paper.

## 13.5 PRINCIPLES OF DISPATCH & THE DESIGN OF THE MARKET SCHEDULE IN THE TRADING & SETTLEMENT CODE

The SEMC plan to issue a decision relating to this project in the summer of 2011.

## 13.6 MARKET POWER AND LIQUIDITY IN SEM.

The SEMC will continue to monitor the offering of Directed Contracts and Non-Directed Contracts in the year 2011 (subject to any changes - see the next paragraph). The RAs regularly engage with market participants on their views on this process with the ultimate aim of facilitating them and customers to manage risks in the market. The SEMC expects to decide on market power and liquidity work stream late 2011. This may well have impacts on contracting work undertaken by the RAs for 2011 and beyond.

## 13.7 EUROPEAN MARKET INTEGRATION

The SEMC is committed to the goal of integration in the European internal electricity market in line with the target models set out in the draft ACER Framework Guidelines on Capacity Allocation and Congestion Management

(CACM). The objective for the SEM is to comply with the target model in a manner which provides benefits for consumers and is cost effective. This will be a significant challenge and may require a transition to new market arrangements by the relevant target date in the network codes.

During the course of 2011, the SEMC shall establish a project led by RAs involving the TSOs and SEMO on options to implement CACM target models with consultation with market participants and relevant stakeholders in the FUI region. The SEMC will make a decision by the end of 2012 on the feasible options for SEM to pursue in to give effect to compliance with the target model. This project will engage with relevant European stakeholders in the development of options and report to a dedicated SEMC project steering committee. The focus of the work will be on the two main features of the target models: day ahead and intra day congestion management and capacity allocation:

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### **13.7.1 DAY AHEAD**

The priority for the SEMC is to balance the benefits of quick implementation against the potentially significant costs of market coupling. The SEMC will instruct the project to investigate two broad options to implement market coupling between SEM and GB in line with the North West Europe (NWE) project that entails: (i) minimum changes to the design of SEM but may require some degree of flexibility in the day-ahead network code (ii) more substantial changes to the SEM design which would involve higher costs for consumers, but ensure greater consistency with the anticipated CACM day ahead network code.

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### **13.7.2 INTRA DAY**

The North West Europe Group plans to introduce an implicit intraday solution by the end of 2012 and implement the CACM FG target model by 2014. As set out above, an intraday solution has been agreed for SEM interconnectors and will be in place by mid 2012. The SEMC will ensure that the project develops an efficient intraday solution between SEM and GB/NWE focusing on developing options for extending the NWE intraday solution to SEM and ensuring consistency with the anticipated CACM intra day network code.

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### **13.7.3 FORWARD**

Furthermore, as part of work to meet the emerging target model for forward capacity allocation, the SEMC, in close cooperation with Ofgem and the Commission de régulation de l'énergie will ensure that Access rules for the Moyle and East West interconnectors are compliant with the provisions of the cross border Regulation through its review and approval process due in September 2011. The SEMC will also develop with its FUI colleagues its thinking on the most appropriate and efficient means of joining a single European platform for long term capacity allocation.

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## **13.8 GENERATOR TRANSMISSION USE OF SYSTEM TARIFFS**

The SEMC published its decision in December 2010 to implement harmonized all island Generator TUoS tariffs from 1 October 2011. In order to implement this decision a body of work remains to be completed during 2011. The RAs and TSOs have developed a plan to develop and consult on the detailed methodology for all island G-TUoS tariffs as well as to consult on the indicative tariffs which are produced. In addition to this, a consultation on the G-TUoS charging threshold for distribution connected generator will also be carried out while other aspects of the detailed implementation of the SEMC decision will also be considered in advance of final implementation.



### 13.9 TRANSMISSION LOSS ADJUSTMENT FACTOR

The SEMC published a Terms of Reference for the Splitting Impact Analysis in early 2011. The next steps for this work stream will include modelling to determine if splitting should be implemented or not. A number of different loss factor scenarios over a number of different test years will be modelled with the results compared against the SEMC's approved set of criteria for splitting. An impact analysis on splitting will also be carried out to determine whether splitting should be implemented as the enduring solution for the treatment of transmission losses in the SEM.

### 13.10 HARMONISED ANCILLARY SERVICES AND OTHER SYSTEM CHARGES

The second annual review of the Harmonised Ancillary Services rates and Other System Charges will be carried out in 2011. The TSO's will consult on proposed changes to the rates and charges. The SEMC will make its decision on the proposed rates and charges in Q3 2011 with the revised rates to be implemented on 1 October 2011.

## 14 APPENDIX

### 14.1 ACRONYMS

ACPS	Annual Capacity Payments Sum
AGU	Aggregated Generating Unit
AS	Ancillary Services
BCOP	Bidding Code of Practice
BETTA	British Energy Trading & Transmission Arrangements (GB wholesale electricity market)
BNE	Best New Entrant
CER	Commission for Energy Regulation
COD	Commercial Offer Data
CMS	Central Market Systems
CPM	Capacity Payments Mechanism
DC	Directed Contracts
DCENR	Department of Communications, Energy and Natural Resources
DETI	Department of Enterprise, Trade and Investment
DLAF	Distribution Loss Adjustment Factors
DSR	Demand Side Response
DSU	Demand Side Units
JMU	Joint Management Unit
LR	Lagrangian Relaxation
MDP	Metered Data Provider
MIC	Maximum Import Capacity
MIP	Mixed Integer Programming
MIUN	Modified Interconnector Unit Nomination
MMG	Market Modelling Group
MMU	Market Monitoring Unit
MO	Market Operator
MOUG	Market Operator User Group
MSDP	Market System Development Plan
MSP	Market scheduling and Pricing Software
MW	Megawatt
NIAUR	Northern Ireland Authority for Utility Regulation – The Utility Regulator
NDC	Non-Directed Contracts
PES	Public Electricity Supplier
PFLOOR	Market Price Floor
PSO	Public Service Obligation
RAs	Regulatory Authorities
SEM	Single Electricity Market
SEMC	Single Electricity Market Committee
SEMO	Single Electricity Market Operator
SMP	Single Marginal Price
SO	System Operator
SONI	System Operator of Northern Ireland
SRMC	Short Run Marginal Cost
TLAF	Transmission Loss Adjustment Factors
TOD	Technical offer Data
TSO	Transmission System Operator
TUoS	Transmission Use of System