



SEM Committee Annual Report 2011

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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 currently consists of six members, two representing Commission for Energy Regulation in Ireland, two representing the Utility Regulator in Northern Ireland and two independent members. The SEMC is pleased to present the SEM Annual Report for 2011. The two regulatory authorities advanced a significant body of work in 2011. The developments in various workstreams are detailed in this report.

The SEMC believes the market has worked well since its introduction in November 2007 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.

The SEMC is committed to European integration in line with the target models set out in EC Directives and the ACER Framework Guidelines. The objective for SEM is to implement the target model in a manner which provides benefits for consumers and is cost effective. This will be a significant challenge and will require a transition to new market arrangements by the relevant target date.

The SEMC continues to drive the evolution of the SEM market to align with neighbouring markets. This is evidenced by increased interconnection (in the form of the East West interconnector due to come on stream in 2012), the developments within the France-UK-Ireland (FUI) region and the emerging EU blueprint for a single European electricity market. The integration of the SEM with its neighbouring 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.

The involvement of stakeholders in this evolving market is vital to enhance sound decision making with regard to the future direction of SEMC.

The SEMC is encouraged by the continued Investments in the SEM. The East-West interconnector opens in Quarter 3 2012 with up to 500MW capacity and will allow flows in both directions between Ireland and Great Britain. Furthermore the SEMC is pleased to note that four new open cycle gas turbine plants have agreed to connect to the system over the next four years, providing additional capacity of 349MW.¹ Both Governments have set a target of achieving 40% generation from renewable sources by 2020. The majority of this is likely to be from wind generation and the amount installed on the island has been increasing steadily and continued investment will be required to meet the 2020 target. These new investments will further contribute to the reduction of wholesale prices through increased competition and enhance security of supply for consumers.

¹ EirGrid SONI All-Island Generation Capacity Statement (2012-2021)

As expected 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 (approx 60%) and therefore the variations in the international fuel prices have a significant impact on the System Marginal Price (SMP). During 2011 the SMP increased compared to 2010 largely in response to increases in wholesale gas prices. In addition the daily price profile and broad trends in SMP have followed the broad movements 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 2011 the SEMC progressed the SEM market power and liquidity project, the overall aim of which was to identify practical ways to further promote competition in the SEM by reducing/mitigating market power and/or improving contract liquidity over the course of the next 10 years. This project included a review of the SEM market power mitigation measures as well as ESB's request to integrate its businesses. The review led to a proposed decision being published by the SEMC in November 2011, followed by a decision in February 2012² which brought the project to a conclusion from a policy perspective.

The increased emphasis on renewable energy and the need to maintain a sustainable, secure power system together with a wholesale market which meets key SEM objectives are key areas recognised by the SEMC. As a result the SEMC published a decision paper in August 2011 titled 'Principles of Dispatch and Design of the Market Schedule in the Trading and Settlement Code'.³ The SEMC continues to work with System Operators (SOs) to identify necessary work arising regarding the impact of increased renewable, specifically wind, on the all island power system. The SOs have established a programme of work entitled "Delivering a Secure Sustainable Electricity System (DS3)" which includes enhancing the portfolio performance, developing new operational policies and system tools to efficiently use the plant portfolio to the best of its capabilities, and regularly reviewing the needs of the system as the portfolio capability evolves.⁴

Consumers throughout the Island of Ireland are increasingly benefiting from greater retail competition, facilitated by the SEM, in terms of price, innovation and service standards. Northern Ireland saw the highest number of customers switching suppliers throughout each month of 2011 compared to 2010. This is due to the introduction of new suppliers and increased awareness of their presence on the marketplace. The Republic of Ireland continued to see consumers changing suppliers but at a lower rate than experienced in 2010 due to a more mature electricity retail market reflecting the fact that a large number of consumers had changed supplier previously.

The SEMC acknowledges the continued difficult economic climate and challenges to be faced by consumers and the energy sector as a whole. In this regard, the SEMC remains focused on its objectives including delivery of an efficient level of prices to all customers, enhancement of security of supply and promotion of the development of a fair, efficient and competitive market throughout the island.

² http://www.allislandproject.org/en/market_current_consultations.aspx?article=682a98fe-9c18-4c73-8fa3-57e75d24d85e&mode=author

³ http://www.allislandproject.org/en/renewable_decision_documents.aspx?article=77d0b4de-341a-4f10-847f-df2dee9ae674&mode=author

⁴ <http://www.eirgrid.com/operations/ds3/ds3programmeoffice/>

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 SEM Committee (SEMC) is the decision making authority on all Single Electricity Market (SEM) matters. The principal objective of the SEM Committee is to protect the interests of electricity consumers by promoting, when appropriate, effective competition in relation to the sale and purchase of Electricity within the SEM⁵.

In Ireland, the relevant legislation is the Electricity Regulation (Amendment) (Single Electricity Market) Act 2007 which provides 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. These legislations required the establishment of SEM Governance in the form of a SEM Committee.

The primary function of the SEMC is to determine the need to exercise relevant functions of the Commission for Energy Regulation (CER) or Northern Ireland Authority for Utility Regulation (The Utility Regulator) in relation to SEM matters.

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 2011 the SEMC members were:

- Two representatives of the Commission for Energy Regulation (CER) – Dermot Nolan and Garrett Blaney;
- Two representatives of the Northern Ireland Authority for Utility Regulation (The Utility Regulator) - 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 two CER SEMC Members) and one vote for the Utility Regulator voting block (representing the two 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

⁵ <http://www.legislation.gov.uk/nisi/2007/913/article/9?view=plain>

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 supported by an Oversight Committee, a Secretariat and during some of 2011 a number of Joint Management Units (JMUs) which supervised and coordinated key regulatory work streams were in place. A review of governance structure took place during 2011 and led to the introduction of new governance arrangements for SEM which are described in Section 1.4. The objective of this review was to streamline the operation and decision making processes thereby improving efficiencies.

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 Operational Work Streams 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.

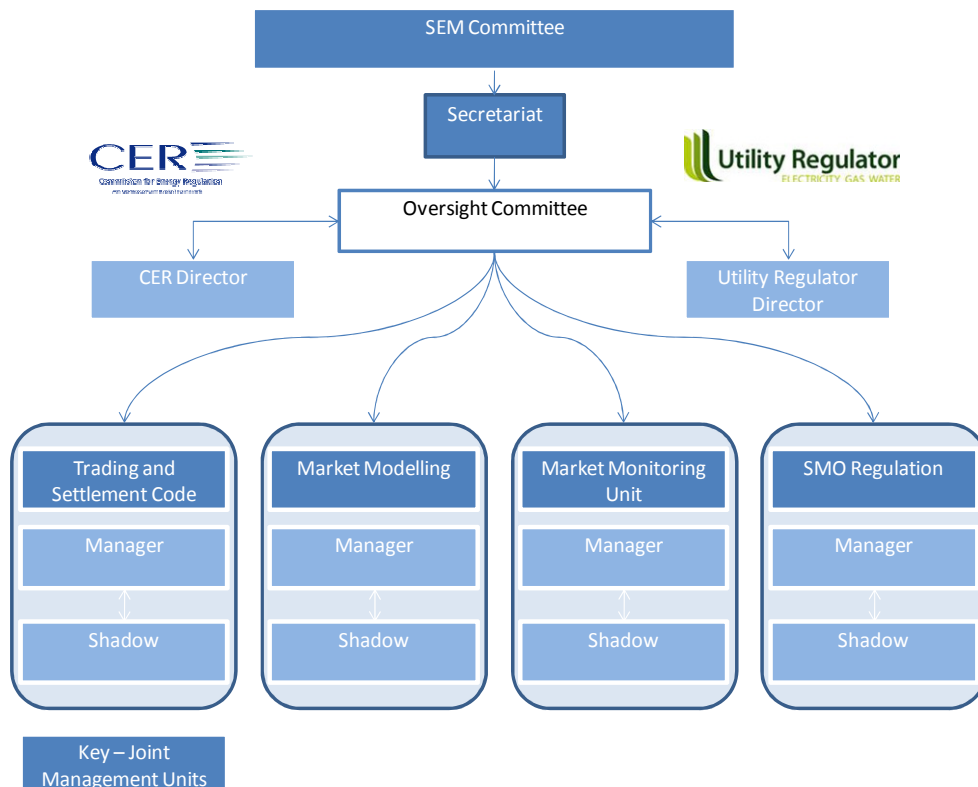


Figure 1: High-level Joint Regulatory Governance Arrangements applicable from start of 2011

The structure relevant to the majority of 2011 consisted of four areas as being key SEM regulatory functions for which a designated Manager, overseeing a JMU, was assigned. Each manager, in respect of his or her particular JMU, reported to the Oversight Committee. This manager had responsibility for the planning, management and delivery of outputs of the JMU and 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: Market Integration, Dispatch and Scheduling together with matters relating to Trading and Settlement Code, Ancillary Services and the Bidding Code of Practice, Review of Locational Signals in the SEM (GTUOS and TLAFs), Directed Contracts, Enduring Fuel Mix Disclosure Methodology 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.

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 developments in this area.

1.3.3 MARKET MODELLING GROUP

The Market Modelling 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.

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 licence compliance and approving projects undertaken by SEMO.

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).
- Market Power and Liquidity.
- Fuel Mix Disclosure calculation methodology.
- Market Integration

During 2011 the SEMC was assisted in carrying out its decision-making responsibilities through work carried out by the Oversight Committee, the four Joint Management Units, Operational Work Streams and Joint/Special Project teams.

1.4 SEM GOVERNANCE STRUCTURE GOING FORWARD

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 be established.

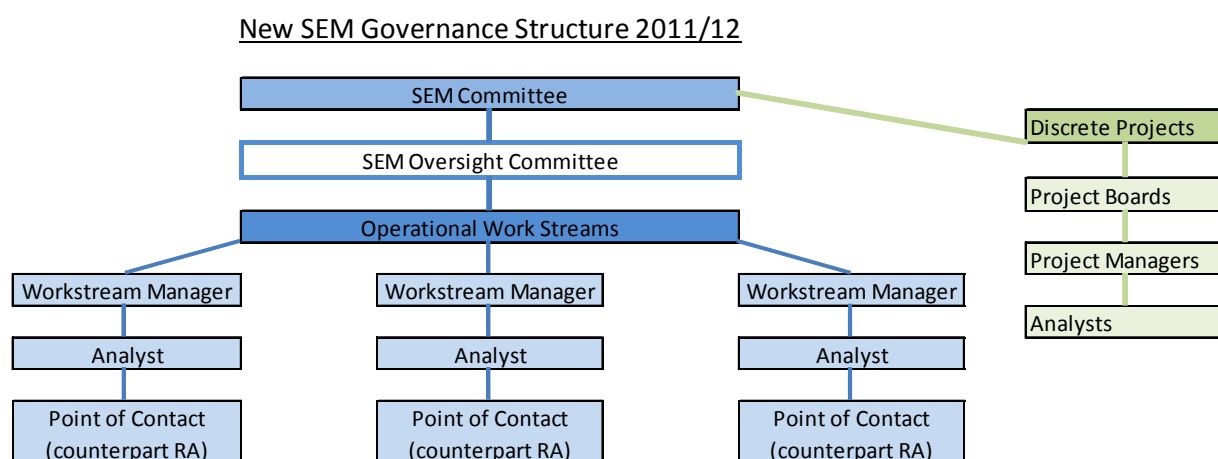


Figure 2 shows the high-level joint regulatory governance arrangements (applicable to latter part of 2011), put in place by the RAs to support the SEMC.

Two types of future working arrangements have been identified. The first relates to ongoing Operational Work Streams required for the efficient operation of the SEM. For each Work Stream a manager and analyst are assigned together with a Point of Contact from the counterpart RA. No shadowing arrangements apply as had done previously. The second working arrangement is for one off Project Boards to be established for strategic and development type projects. In order to ensure robust solutions are identified, the project teams will comprise representatives of both RA's.

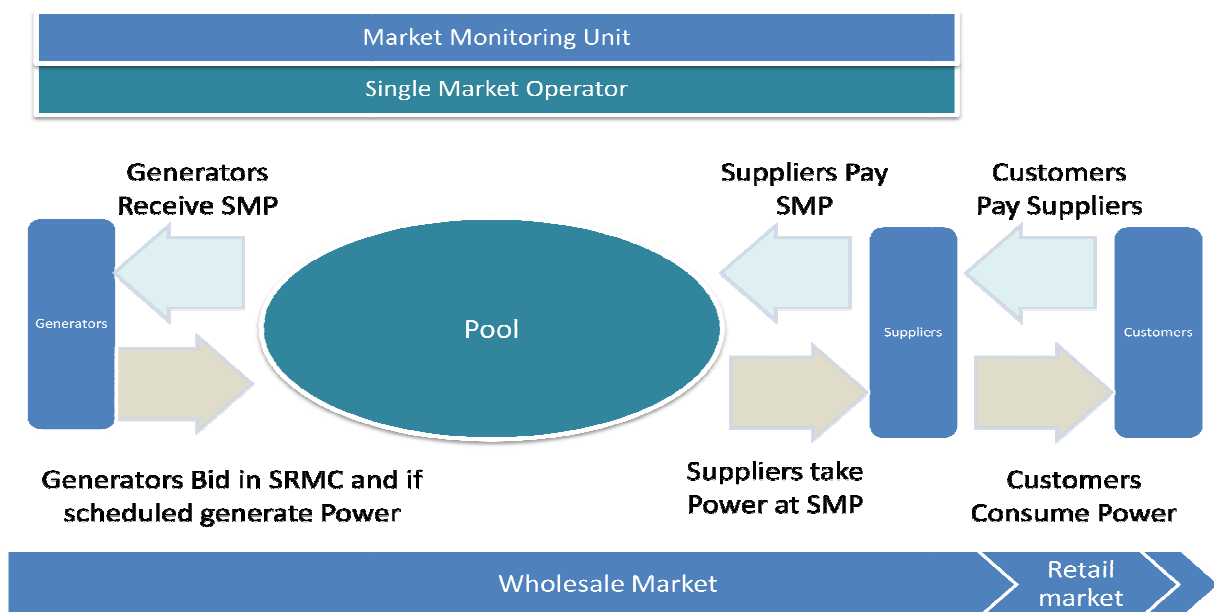
2 OVERVIEW OF THE SINGLE ELECTRICITY MARKET

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 merit order 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. 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 paying 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.

This pool is developed as part of a market power mitigation strategy to prevent abuse or distortion of the SEM. The major focus of this strategy comprised the imposition of Directed Contracts on generators with significant market power, the imposition of a licence condition on generators to adhere to a bidding code of practice and the establishment of the MMU to monitor participants' bidding behaviour.

Figure 3 below provides an illustration of how the SEM works.



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 2011, the System Marginal Price (SMP) in the SEM rose 15%, on average, against the 2010 SMP. This rise is due to various factors including gas prices which increased 32% on average counteracted with new generation (Aghada CCGT and Whitegate) and a 5% average fall in demand.

Figure 4 shows the average daily profile for 2011. 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 Megawatts (MW) black line, measured on the right-hand axis);

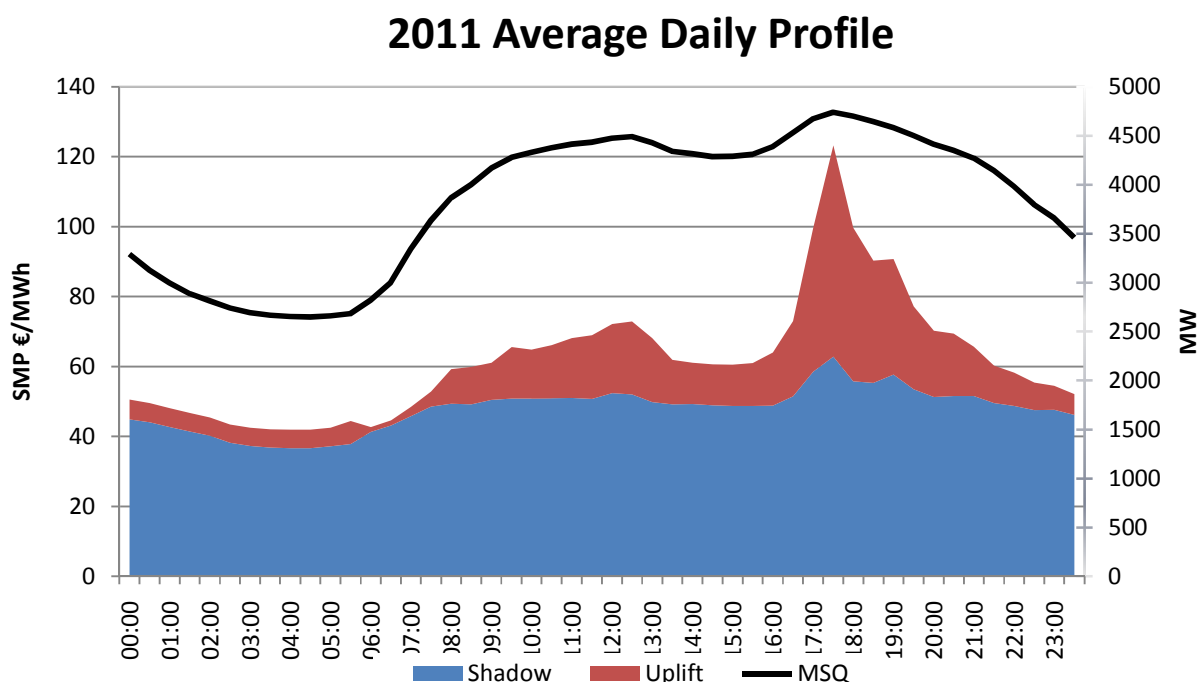


Figure 4: 2011 Average Daily Profile

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.

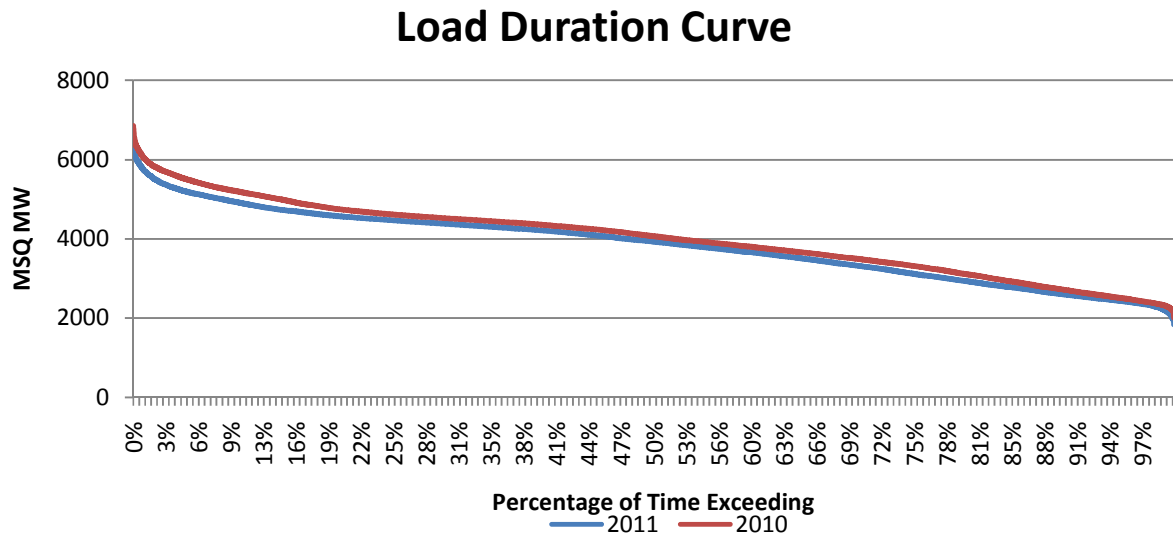


Figure 5: Load Duration Curve for the Years 2010 and 2011 of the SEM.

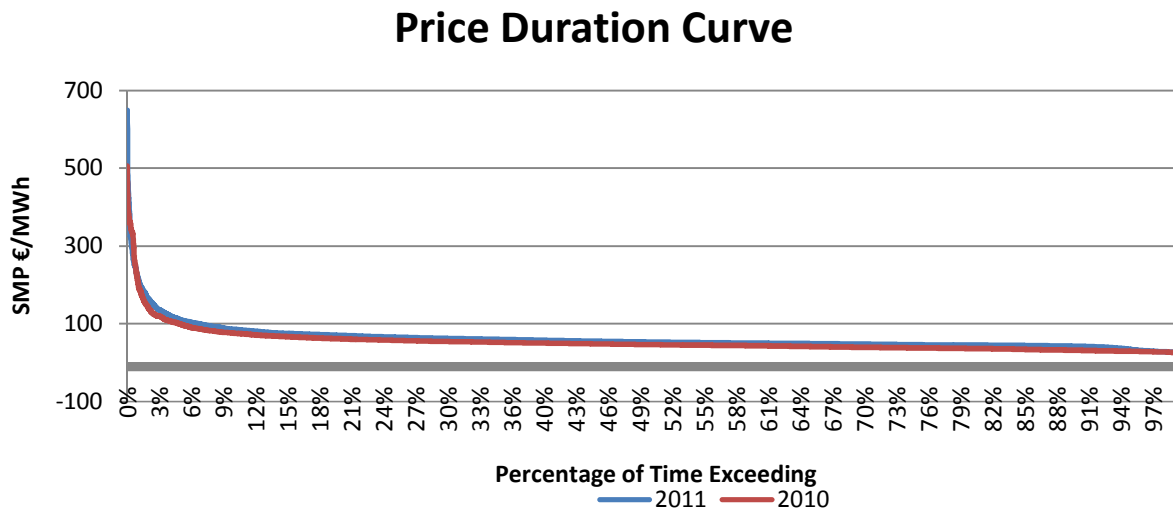


Figure 6: Price Duration Curve for the Years 2010 and 2011 of the SEM.

The graph illustrates the extent of price spikes in the SMP. The graph shows a sharp descent at first then stabilising into a smooth descent from around the 3% mark in 2010 and the 6% mark in 2011. In 2010 just over 5% of half-hourly price outcomes fall above €100/MWh and about 40% half-hours yielding values above €50/MWh while in

2011 7% prices fall above €100/MWh and 61% are above €50/MWh. 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 2010⁶ detailing the explanation.

The table below shows the top ten incidences of SMP in 2011 and the split between the shadow price and uplift at that time.

Table 1: The top ten incidences of SMP in 2011

Full Date	Period	SMP	SHADOW	Uplift	MSQ
08/04/2011	08:00:00	649.48	62.68	586.80	4616.13
05/04/2011	08:30:00	644.31	76.24	568.07	4391.10
10/04/2011	11:30:00	617.30	73.49	543.81	4002.88
12/10/2011	19:00:00	600.29	209.48	390.81	5231.50
17/02/2011	18:00:00	500.04	102.86	397.18	5846.73
16/03/2011	19:00:00	494.02	130.89	363.13	5495.01
25/12/2011	13:00:00	487.78	65.01	422.77	3955.99
07/12/2011	18:00:00	485.45	69.17	416.28	5935.08
07/12/2011	17:30:00	482.68	69.17	413.51	6042.92
17/12/2011	18:30:00	481.04	76.28	404.76	5527.35

Significant changes in the margin are directly related to changes in demand and the availability of plants. In the majority of the above top ten incidences a negative correlation can be seen when comparing the Margin and SMP for the same period in the SEM. In other words, demand has increased causing SMP to rise, while the margin reduced reflecting the decrease in excess capacity available.

The factors behind the top three SMP incidences during April 2011 were due mainly to baseload being off at Huntstown 2 and Tynagh (also Whitegate CCGT on 5th April 2011) and ‘peakers’ (power plants that generally run only when there is a high peak demand) being scheduled to meet the morning demand on these occasions. The ‘peakers’ on these occasions were Coolkeeragh and Cushing.

The majority of the other top ten peaks were caused by the ‘peakers’ being scheduled at the margin during expected 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. During 2011 the fuel price was generally aligned and the market carried through any price changes from these fuel markets into the wholesale electricity price. During 2011 the SMP began to move back to levels last

⁶<http://www.semo.com/Publications/General/Market%20Incident%20Report%20September%2020th%202010%20-%20V1%200.pdf>

seen late 2008. The SMP average for 2011 was €61.75 per MWh.

Table 2: The lowest ten incidences of SMP in 2011.

Full Date	Period	SMP	SHADOW	Uplift	MSQ
15/01/2011	05:00:00	0.00	0.00	0.00	2765.01
15/01/2011	05:30:00	0.00	0.00	0.00	2752.11
15/02/2011	04:30:00	0.00	0.00	0.00	2958.82
15/02/2011	05:00:00	0.00	0.00	0.00	2976.49
15/02/2011	05:30:00	0.00	0.00	0.00	3008.86
09/11/2011	02:30:00	0.00	0.00	0.00	2811.16
09/11/2011	03:00:00	0.00	0.00	0.00	2733.13
09/11/2011	03:30:00	0.00	0.00	0.00	2723.30
09/11/2011	04:30:00	0.00	0.00	0.00	2719.42
09/11/2011	05:00:00	0.00	0.00	0.00	2752.31

These incidences of SMP in 2010 occurred when the system margin (the level of available capacity above demand) was relatively ample as would be expected around 3:00 to 5:30 in the morning. On these occasions demand was being met by price takers such as wind and hydro hence the SMP being €0/MWh.

The figure below shows the average daily SMP over the 4 year period to 31 December 2011.

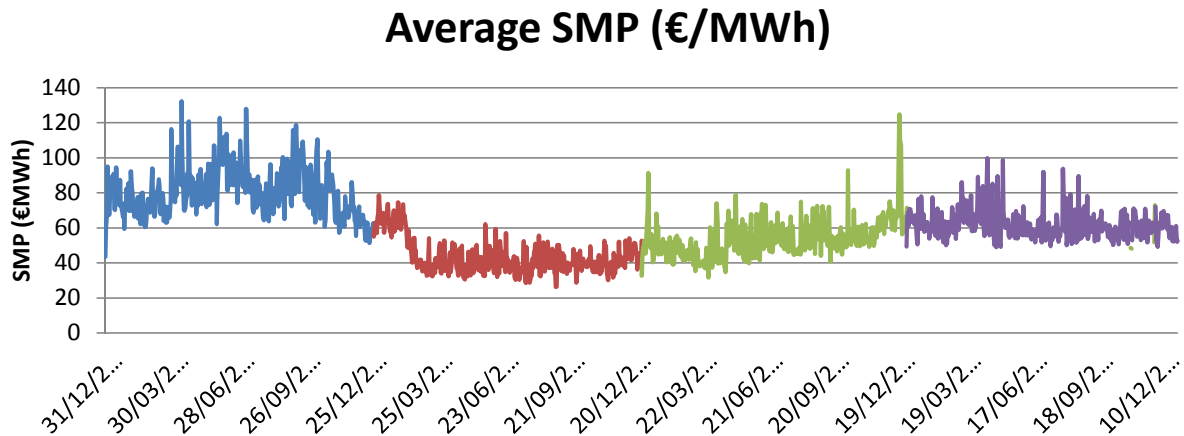


Figure 7 :Daily Average SMP since the start of the SEM.

Since October 2008 the SMP has fallen from over €80/MWh to under €40/MWh for most of 2009, averaging over €50/MWh for 2010 and steadily rising to an average of €62/MWh in 2011.

The following figure looks at the monthly price trends since the start of the SEM.

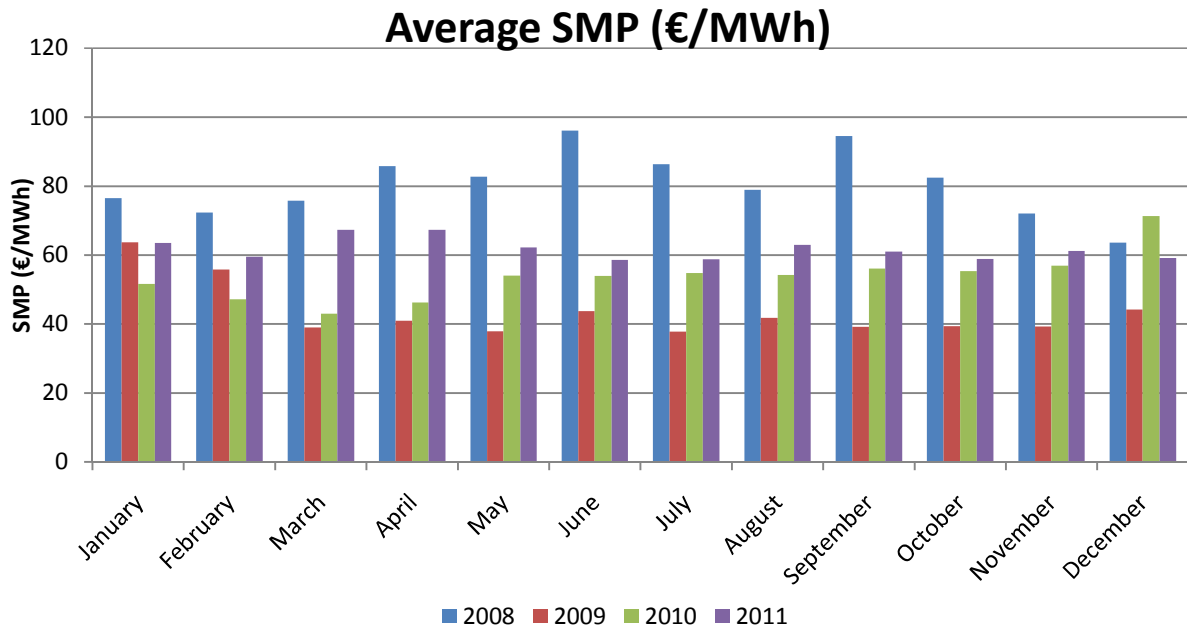


Figure 8: Monthly Average SMP Price History in the SEM

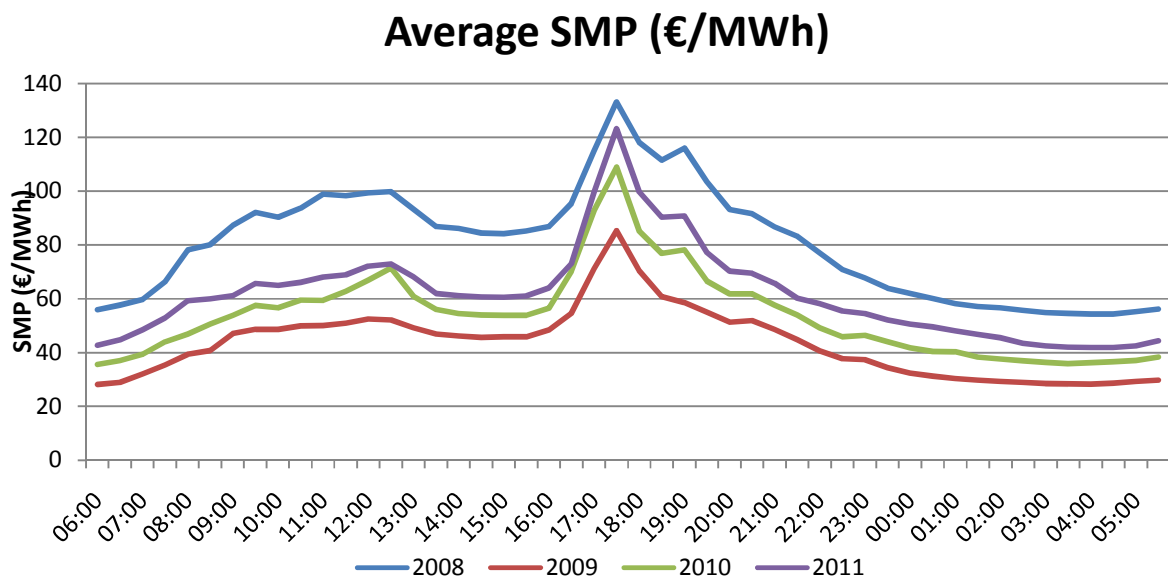


Figure 9: Average Daily SMP Profile History in the SEM

Figure 9 shows that the 2011 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 for 2011 was €62/MWh, with a peak of €649.48/MWh occurring on 08/04/2011. 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).

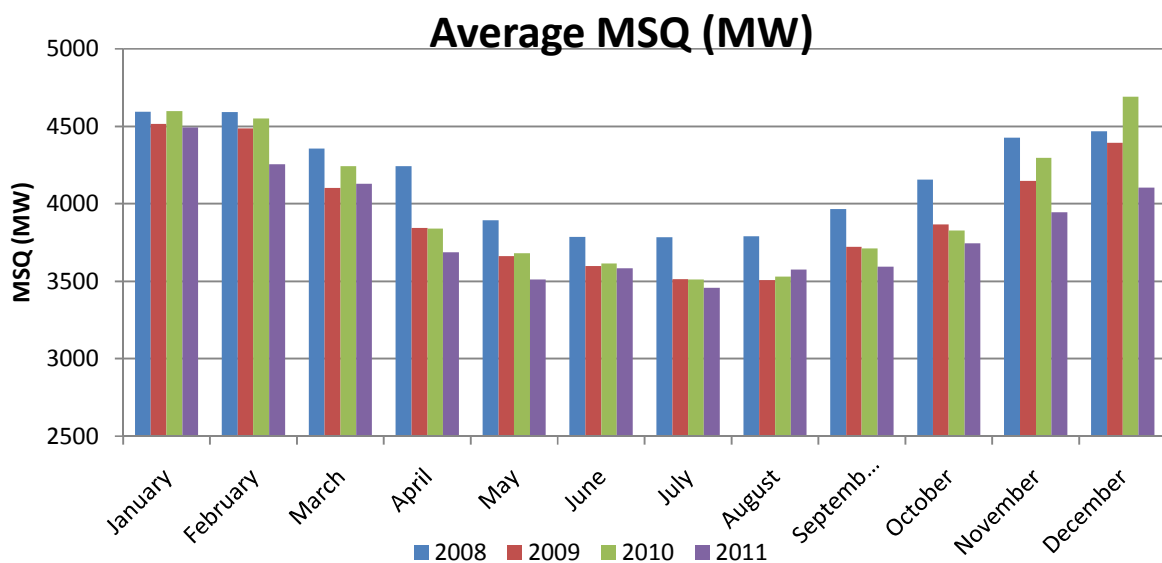


Figure 10: SEM System Demand

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 2011 MSQ of 3,839MW has fallen by 4% when compared with the average 2010 figure of just over 4,000MW. However when looking solely at the December comparison for both years there has been a drop of 12% in MSQ which is directly related to a much milder winter in 2011 compared to the cold 2010 winter.

21st January 2011 saw the highest **daily average MSQ** of 4,985MW during 2011. The highest **daily average MSQ** in the history of the SEM was 5350MW on 22nd December 2010.

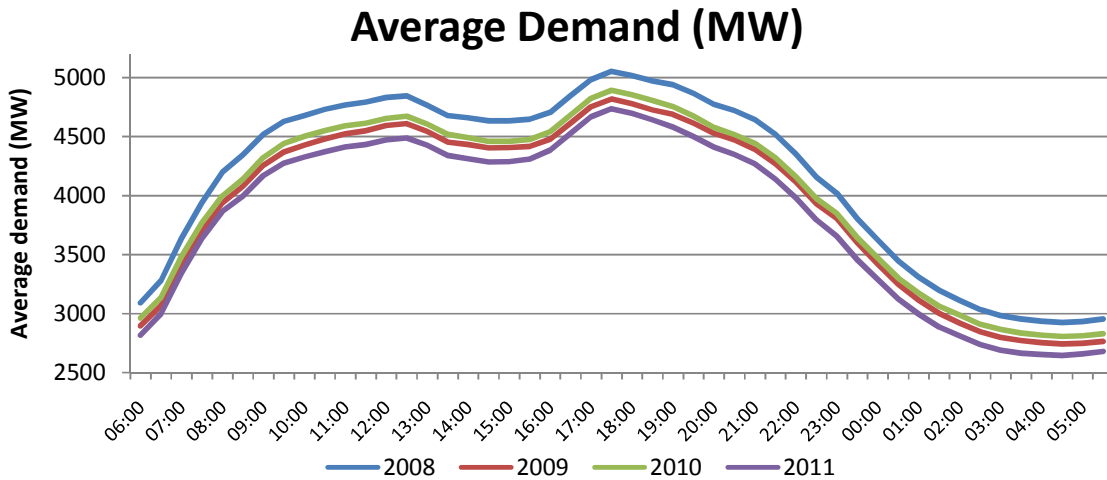


Figure 11: Average Daily Demand History in the SEM

The Daily Demand Profiles shows 2011 demand being consistently the lowest since the SEM began. This reflects the ongoing changes in demand as a result of the continued economic downturn.

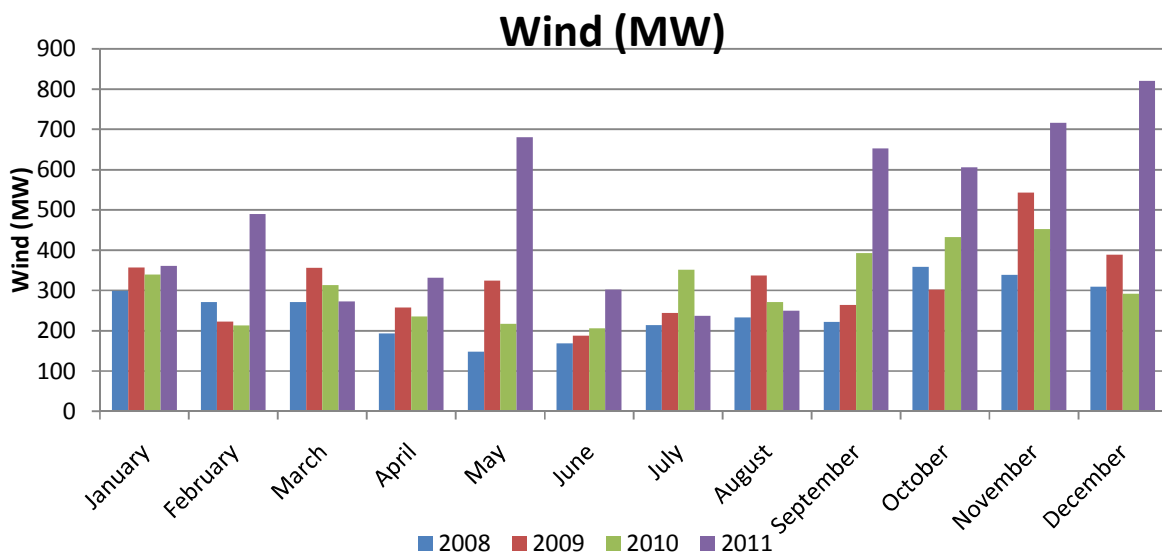


Figure 12: Average SEM Wind Generation 2008-2011

Within one year wind generation rose 53% to an average of 476MW for 2011 (Average 2010 310MW). Particular attention should be drawn to quarter 4 2011 during which the December 2011 average was 818MW.

Wind generation provided, on average, 12.4% of 2011 demand compared to 7.8% in 2010.

During 2011 the 7 day average SMP and 7 Day Average Gas price were relatively stable compared to the rises evidenced in 2009 and 2010. One notable exception was a price spike in both Gas and SMP during February 2011 directly related to the exceptionally cold winter. This is illustrated in the graph below which shows the 7 day average SMP against the 7 Day Average Gas price including Carbon.

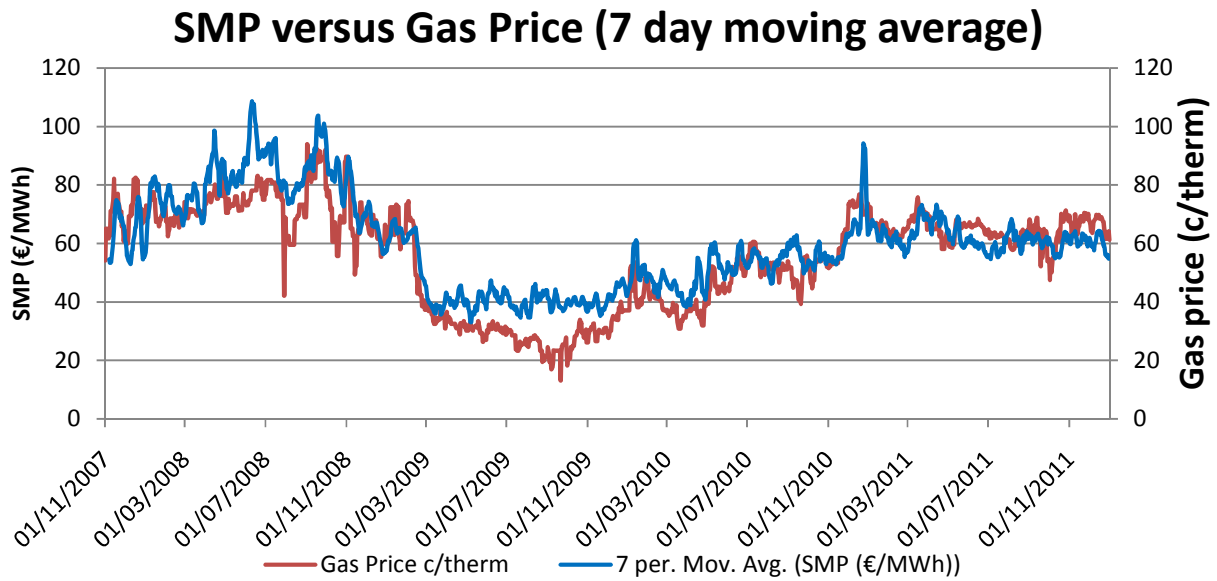


Figure 13: SMP Price History in the SEM and 7 Day Average Gas Price (including Carbon)

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 during the exceptionally cold winter.

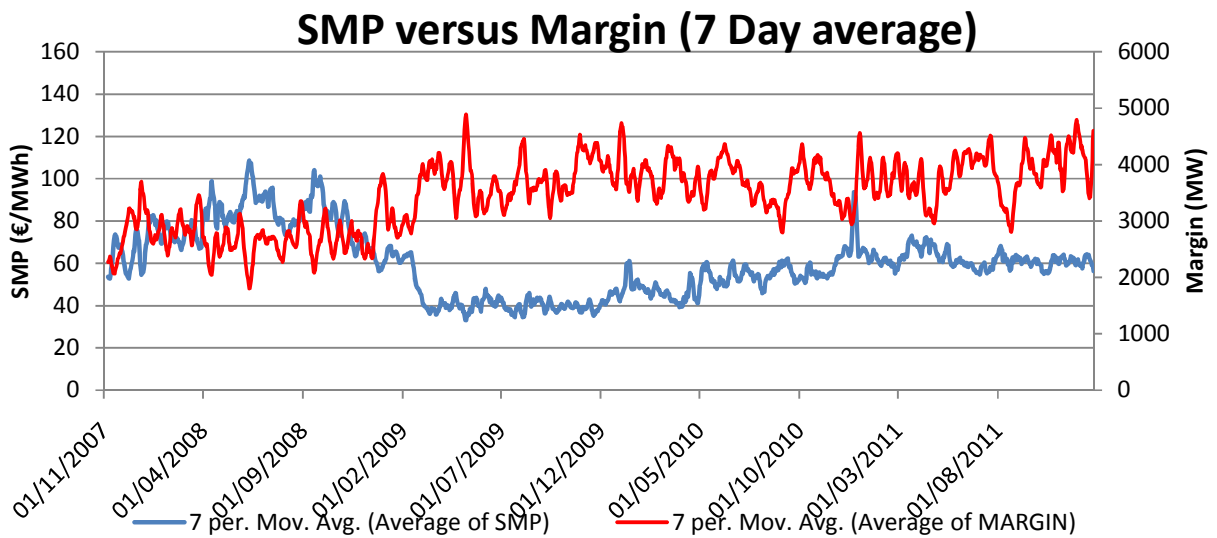


Figure 14: 7 Day Average SMP Price History in the SEM and 7 Day Average Margin

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 from Scotland to Northern Ireland. Moyle Interconnector's Northern Ireland to Scotland capacity has been increased from 80MW to 295MW which is hoped to provide increased opportunities for SEM generators.

In operating the Interconnector between Great Britain and Ireland, Moyle and the new East West interconnector (operational from 2012) 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. Moyle operates 2 poles which in total provide the maximum capacity of 450MW. A fault occurred on one of the poles on 26th June 2011 which meant Moyle was operating on reduced capacity as only 1 pole was available. On 24th August 2011 a further fault occurred on the second pole resulting in the Moyle interconnector being unavailable for the rest of 2011. Both these faults have been repaired; however, a further fault occurred on 23rd June 2012 has reduced available capacity on Moyle and is being investigated.

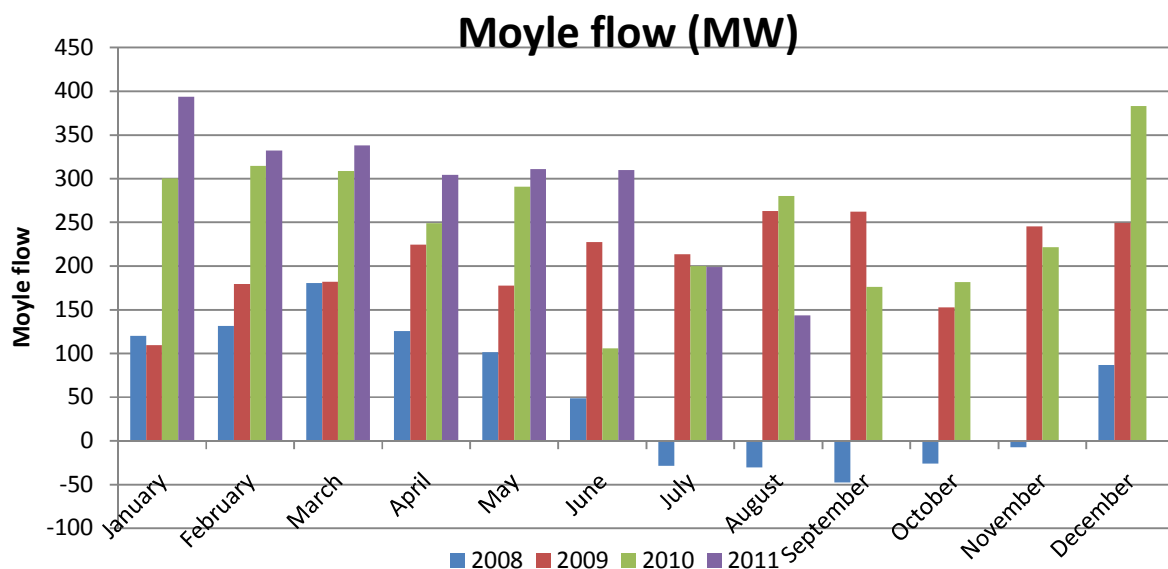


Figure 15: Average Monthly Moyle Flow

The MMU also monitors price comparisons between SEM and BETTA. 2011 saw increased flows via the interconnector during the first half of 2011 but then reduced flows as a result of the first fault and then unavailable due to the second fault. 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.

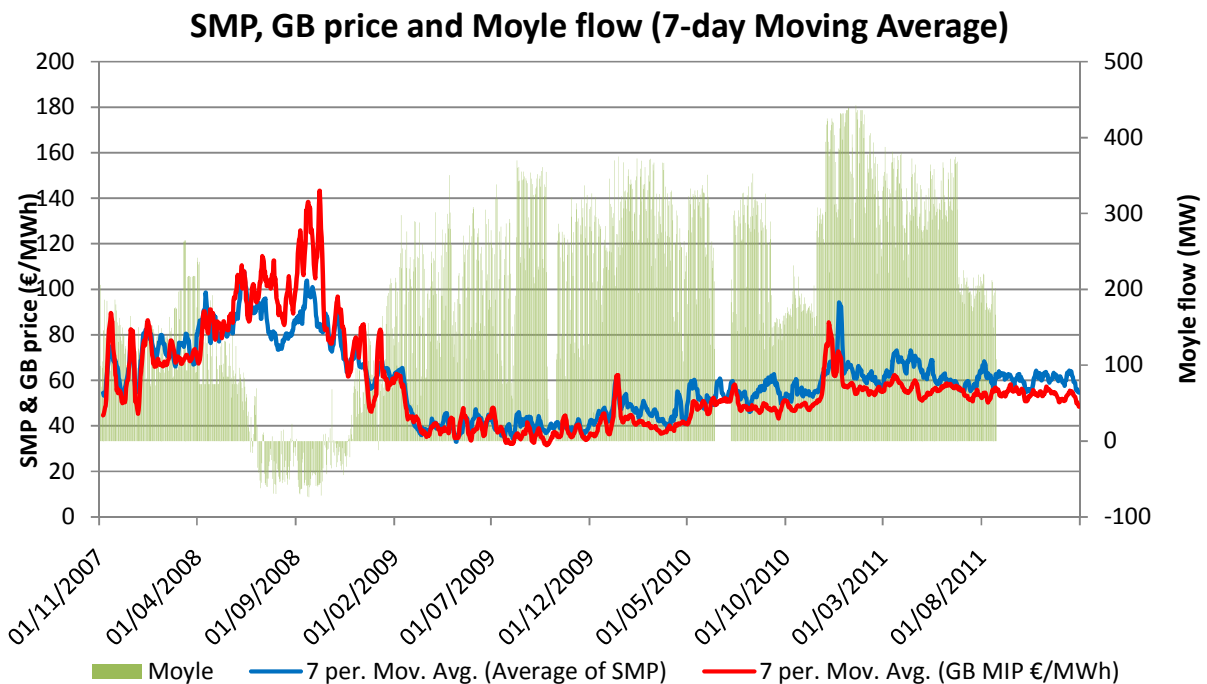


Figure 16: Moyle Flow, SMP Price and GB Price (7 day moving average)

3 MARKET MODELLING GROUP

Among other things, the RAs' Market Modelling 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 RAs' 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 SEM Committee. 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 2011 this unit's work included:

- In-house Validation of the forecasting model (PLEXOS) and the dataset for SEM covering 2011 and 2012.

- Quantification and Pricing of DCs, 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 contract year, i.e. from 1st October 2011 to 30th September 2012.
- 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.
- Progressing the SEM Market Power and Liquidity project.
- Analysis of generator financial performance in the SEM.
- Modelling support to the RAs to help inform their policy on the SEM.

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)⁷. 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 2011/12 tariff year which runs from October 2011 to September 2012 (in the second year of the market, both ESB PG and NIE PPB were required to offer DCs). Three DC products were required by the RAs to be offered by ESB PG—baseload, mid-merit and peak – in order to reduce market concentration in each segment for each quarter to a HHI of 1,150. No baseload contracts and no peak contracts were required in Q3 2012 and Q1 2012 respectively as the HHI in these segments for these quarters was already below 1,150.

Table 3: ESB PG Directed Contract Quantities (MW)

ESB PG Directed Contract Quantities (MW)			
Quarter	Baseload	Mid Merit	Peak
Q4 2011	209	104	36
Q1 2012	154	73	0
Q2 2012	119	99	n/a
Q3 2012	0	154	n/a

⁷ 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.

The quantities of DCs which ESB PG were required by the RAs to offer to eligible suppliers to meet this HHI threshold are shown in the Table 3 above:

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 17 below shows the volume of DCs that ESB PG and NIE PPB were required to offer from the beginning of the SEM, related to the predicted output of the ESB PG and NIE PPB plants. The chart shows an increase in the total volume of contracts in the second and third years, then a significant reduction in the fourth year, followed by a small increase last year.

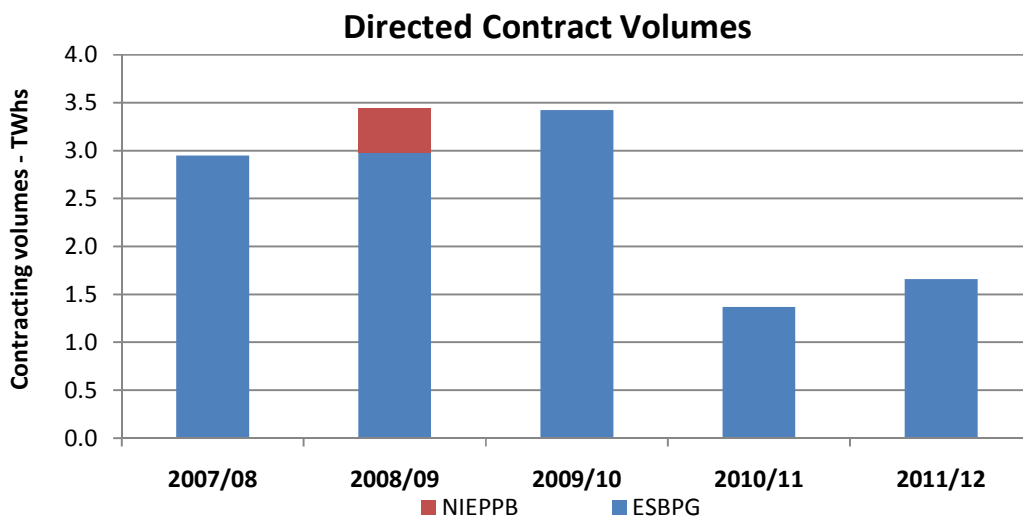


Figure 17 Directed Contract Volumes

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 all DC products 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	70.38	62.90
Mid Merit	77.36	69.13
Peak	104.03	92.97

As shown in Figure 18 below the average price of DCs sold for the 2011/12 tariff year was higher than the previous year but significantly lower than the peak 2008/09 period, in line with the movements in international fuel markets.

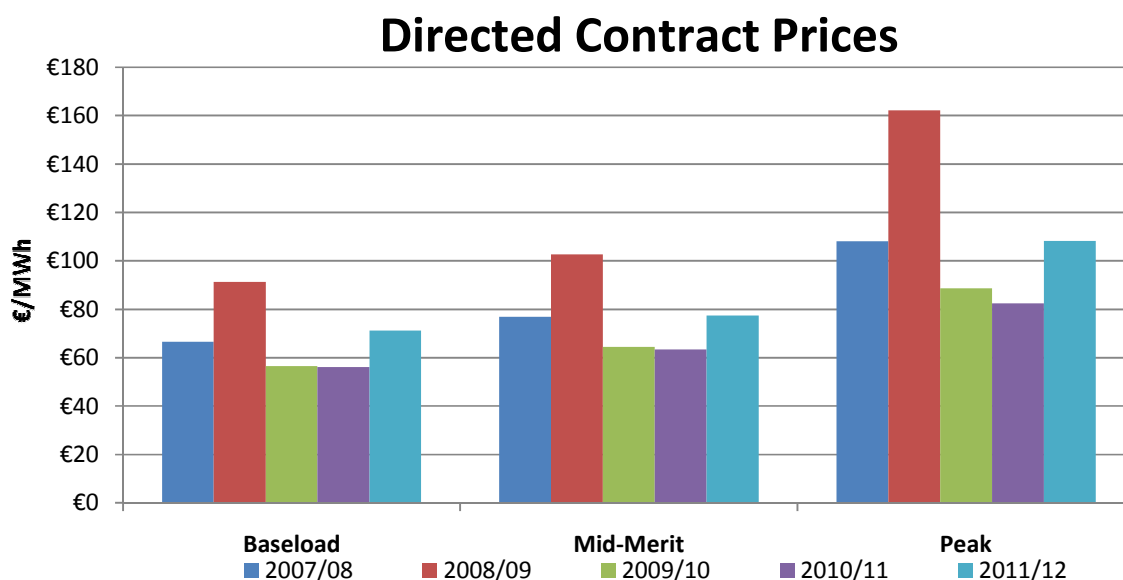


Figure 18: Directed Contracts Prices

3.2 PSO CONTRACTS

In addition to the above contracts, ESB PG also offered generation associated with 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 then auctioned off to suppliers. For the 2011/12 contract year the PSO-Related CfDs are being offered on a quarterly basis, with auctions occurring about a month ahead of the quarter in question. Contracts are being offered at monthly granularity with a mix of products between baseload, mid-merit 1 and mid-merit 2. This provides 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, licenced generators can also offer Non-Directed Contracts (NDCs) to the market, for example NDCs are regularly offered by ESB. 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. The RAs have also worked with participants on the development of a multi-lateral trading facility which went live in April 2009. In addition a new “Over the Counter” (OTC) trading facility commenced in 2011. This should help to assist liquidity, by allowing for suppliers and generators to interact more with respect to NDC price and quantities, assisting in price discovery.

3.4 SEM MARKET POWER AND LIQUIDITY

Following earlier consultations and a public workshop, in November 2011 the SEM Committee published a draft decision paper on Market Power and Liquidity. This proposed that the SEM Committee would:

- Maintain the Bidding Code of Practice, Market Monitoring Unit and Directed Contracts (BCoP, MMU and DCs) as key building blocks of a market power mitigation strategy within the SEM. If the spot market becomes significantly less concentrated in the future, the Committee would then review these market power mitigation measures.
- Not allow ESB vertical (generation-supply) integration for now, but allow the horizontal integration of ESB generation units from October 2012, i.e. of ESB PG and ESBI (Synergen and Coolkeeragh), given the low market power risks involved.
- Continue with the current 1,150 HHI level for the determination of DC volumes; DC volumes from the horizontal integration of ESB (referred to above) are expected to increase significantly from 2010/11 levels. That said, the SEM Committee will continue to monitor the market and if there is any evidence of market power being exercised and liquidity levels significantly falling, the Committee reserves the right to take further action, including the lowering of the HHI threshold.
- In relation to contract liquidity, not establish a market maker or to mandate contracts from generators at this time as liquidity is generally best developing “organically” through industry/market initiatives, such as the new “Over the Counter” (OTC) facility for NDCs. However, there may be a case for proceeding with such an approach in the future, in the context of the integration of SEM into European markets. The Regulatory Authorities’ Market Integration Project Team will lead this work and any initiatives in this area will be fully consulted on by the Regulatory Authorities at the appropriate time.

Generally there was a favourable market participant response to the draft decisions proposals. A final decision on this matter was issued by the SEM Committee in February 2012, with no substantial policy change from the draft decision.

3.5 GENERATOR FINANCIAL REPORTING

In December 2011 the Regulatory Authorities published a Consultation Paper setting out proposals for the collection and publication of information on generators' financial performance. This paper set out a proposed financial reporting template to be completed by generator companies with a combined capacity greater than or equal to 20MW. In addition, the paper set out timelines for the annual publication by the RAs of a report covering profit levels of generators operating in the SEM.

The purpose of the proposals set out in the consultation paper was to extend the reporting requirements of key generation companies and create a reporting template that assists with the RAs’ insight into the financial performance of generators. In addition the annual RA report would improve the level of market data available to all industry stakeholders, assisting market transparency.

The consultation closed in early February 2012 and the RAs received a total of 13 consultation responses. Following on from this, it is intended that a decision document will be published later in 2012, taking account of comments received to the public consultation.

3.6 WORK FOR THE MMG IN 2012

- Validation of the SEM PLEXOS model for the period 2012 to 2013.
- The determination and implementation of the DCs on the incumbent generations in the SEM.
- The establishment of PSO-related CfD reserve prices for auctions on a regular basis.
- Continued regular monitoring and reporting on contracts.
- Market Power and Liquidity – implement necessary licence changes providing for ESB generator integration from October 2012.
- Issue a decision on generator financial reporting requirements, and assess generator financial performance for the SEM Committee.
- Model SEM outcomes so as to inform SEM Committee policy in different areas of the SEM.

4 THE MARKET MONITORING UNIT

The Market Monitoring Unit (MMU) forms part of the Market Power Mitigation strategy developed by the RAs during 2006. 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 behaviour in the market is reviewed by the MMU 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 market operation to detect design flaws or structural problems and provide recommendations in the form of modifications to the Trading and Settlement Code which the RAs should initiate.
- Enforce the SEM Bidding Code of Practice (BCOP)⁸.
- 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.

⁸ [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>

- Serve as a platform for complaints from market participants with respect to, inter alia, market behaviour.
- Ensure that the monitoring programme will be conducted in an independent and objective manner.
- Active and timely monitoring of the SEM.
- 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.

4.1 REGULAR MONITORING AND REPORTING

The MMU conducts regular internal reports on the active monitoring of the SEM to the SEMC. As the SEM structure evolves 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 various reports throughout the year e.g. fortnightly and monthly 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 is processed and stored in databases. The MMU also provides statistical support to staff within the RAs acting as a source of data for their policy work, analysis and modelling.
- Policy development – the policy role of the MMU requires the unit to operate closely with other workstreams and to be fully aware of other ongoing work in the RAs. The policy function of the unit can require the MMU to report to the Oversight and SEM Committees on wider SEM design and harmonisation issues.
- Investigations and if necessary Enforcement.

4.2 INVESTIGATIONS AND ENFORCEMENT

During 2011 the MMU actively engaged in a number of discussions with several market participants regarding interpretation of the Bidding Code of Practice and several investigations have been conducted and concluded in this period. 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.

4.3 CARBON LEVY JUDICIAL REVIEW

On 8th October 2010 the SEM Committee issued Directions to Huntstown Power Company and Viridian Power Limited instructing these generators not to include any amount in respect of the Carbon Revenue Levy as enacted by the Electricity Regulation (Amendment) (Carbon Revenue Levy) Act 2010 paid or to be paid by it in its Commercial Offer Data in the Single Electricity Market (SEM). The Directions were issued pursuant to paragraph 7 of Condition 15 of each generators Licence to Generate. On 23rd February 2012 the Supreme Court in Ireland (Record Number 285/11) handed down, by a 3-2 majority, a Judgement which quashed these Directions. The leading judgement, delivered by Hardiman J. highlighted that the Carbon Revenue Levy is a biddable cost and that the cash value of that levy is its opportunity cost. On 25 May 2012 the Electricity Regulation (Carbon Revenue Levy) (Amendment) Act 2012 was enacted, ending the Carbon Revenue Levy period.

The SEM Committee is continuing to consider the implications of the judgment and may issue further communications or publish a consultation paper should that be considered necessary.

4.4 GENERATOR REVENUES

Revenue analysis is also a function of the MMU together with analysis of implied infra-marginal rents and capacity payments made to Generator Units. In carrying out such analysis the MMU, at a high level, examines the revenue streams for different plants and different technologies. This analysis is executed with the knowledge that there are limitations of the study due to businesses having different capital investments and capital/operational ratios.

In 2011 Generator revenues in the following charts are calculated by multiplying total MSQ by average SMP to give a percentage monthly breakdown by generator type. The total generation revenue for 2011 amounted to over €2 billion. Gas plants made up 64% of Generator revenues reflecting a decrease of 4% compared with 2010. A notable increase was in wind generator revenues which rose 4% to reflect a total of 11% wind generator revenue for 2011. Coal had 12% of generator revenues with the remaining plant types making up 13% of the revenues earned.

Further analysis of 2011 revenues, stated in terms of MWh show increases across all the various types of generation when compared with 2010 revenue figures. For example, on average, gas generation plant revenue per MWh rose 16%, coal revenue increased 9% (per MWh) and revenue from wind generation rose 15% (per MWh).

2011 Generator Type Revenue % Breakdown

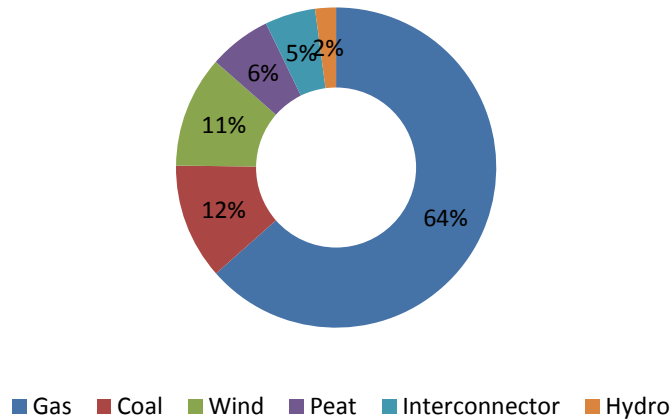


Figure 19: 2011 Generator Type Revenue % Breakdown.

Monthly Generation Revenue Breakdown

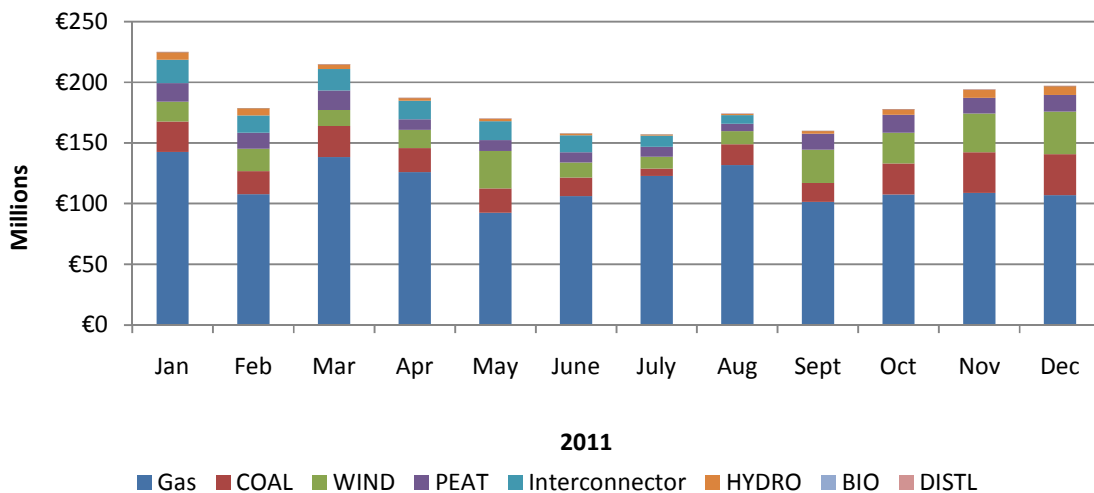


Figure 20: 2011 Generator Type Revenue Monthly Breakdown.

4.5 DISPATCH BALANCING COSTS

Dispatch Balancing Costs (DBC) represents the constraint costs within the SEM and form the vast majority of the annual Imperfections Allowance. Constraint costs occur when the actual instructions issued to generators ('actual dispatch') differs from the market determined schedule of generation to meet demand ('market schedule'). Actual dispatch will deviate from the market schedule for reasons of, inter alia, transmission constraints, ensuring the continued security and stability of the transmission system, and operating the system in real time compared to the 'perfect foresight' of the Day + 4 (D+4) market schedule software run (managing renewables which are an inherently variable resource is more difficult in real time, for example). The Dispatch Balancing Allowance for 1 October 2010 to 30 September 2011 was set ex-ante at €110.5 million. However, the ex-post final amount for the

same period was €159.2m. The variance between ex-ante and ex-post is recovered in the following tariff year 2011-12 via the K factor mechanism.

The key factors for this significant increase included:

- Fuel costs rising significantly in 2011 from those seen in 2010. While all costs increased, distillate and oil costs saw a greater rise, thus widening the gap between gas/coal and oil/distillate fired units. As a result, the cost of constraining-on out-of-merit generation for reserve, transmission and/or system security constraints was greater.
- Forced outages of generators and key reserve providers e.g. Turlough Hill on outage for full 2010/2011 tariff year;
- Moyle Interconnector operating at half capacity for almost 2 months of the 2010/2011 tariff year;
- Reduction in reserve provision for some generators in Ireland during the tariff year; and
- The severe winter experienced during late 2010/early 2011 resulted in increased system demand compared with the TSO forecasted winter peak.

The graph below shows the Dispatch Balancing Cost weekly profile for the year October 2010 to September 2011. The red dotted line is the TSO weekly budget for DBC costs, while the blue bars show actual costs. It is clear from the graph that actual costs exceeded budgeted allowance for the vast majority of the tariff year.

Profile of Actual Dispatch Balancing Costs for Tariff Year 2010-11

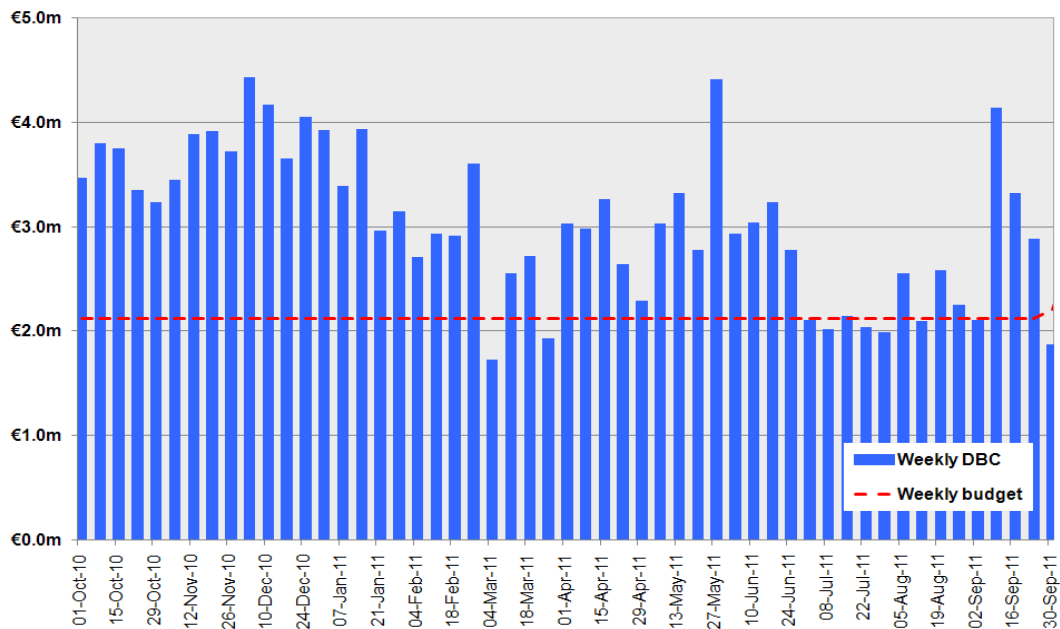


Figure 21: Actual v Budget Dispatch Balancing Costs for tariff year 2010-11(Source: EirGrid/SONI)

The SEM Committee and Regulatory Authorities have acted upon their concerns, also mirrored by participants and other stakeholders, around the increasing constraint costs. An incentivisation scheme has been devised with the

objective of enhancing the monitoring and control of these costs. Detail on the incentivisation scheme is provided in section 9.6 of this report under SEM Related Developments.

4.5.1 NORTH-SOUTH TIE-LINE CONSTRAINT

The North-South tie-line provides cross-border interconnection between Northern Ireland and Ireland. Increasing and expanding cross border interconnection through the building of the second North-South tie-line will greatly enhance the flow of electricity throughout the island of Ireland. This is deemed necessary to facilitate a more stable, secure and efficient all-island system. It is anticipated that the implementation of a second North-South tie-line will increase the interconnector power carrying capacity to the region of 1,500 MW in total.

In the absence of the second tie-line consumers are facing higher costs due to a less than optimal dispatch resulting in higher production costs and the requirement for a larger overall amount of installed generation capacity to meet the security of supply standards in both jurisdictions. The SEM Committee has asked the System Operators (SOs), EirGrid and SONI, to estimate the cost of not having the second tie-line in place. While the SOs have indicated that it is difficult to disaggregate all of the complex factors which influence the Single Electricity Market they estimate that the benefits currently being lost in 2011 due to the absence of a second North South line are in the order of €20m per annum.

However there is considerable uncertainty regarding the timeframe for implementation, as has been experienced to date. During 2011 the project was still in the Northern Ireland planning process (planning application submitted December 2009) and has received considerable resistance to date. In May 2011 the application was referred to the Planning Appeals Commission (PAC). Subsequently a public enquiry commenced 6 March 2012 but was adjourned indefinitely on 29 March 2012.

In Ireland, the application submitted by EirGrid for the section of the project in the Republic of Ireland was withdrawn in June 2010. A re-evaluation process commenced and EirGrid engaged in an eight week period consultation with stakeholders closing June 2011. The Department of Communications, Energy and Natural resources (DCENR) established an International Expert Commission in July 2011 to review and report on a case for, and costs of, undergrounding (all or part of) Meath-Tyrone 400KV power lines. This report was published January 2012⁹.

The implementation of the additional tie-line in 2017 would reduce security of supply risks. However should the tie-line be further delayed this increases the security of supply risk specific to Northern Ireland in the medium to long term.

Given all of the above: the importance of the second tie-line to facilitate a more stable, secure and efficient all island electricity system, the loss of benefits in not having it in place and how it would enhance security of supply, particularly in Northern Ireland, the SEM Committee wishes to see the proposed second North South tie-line delivered.

⁹ <http://www.dcenr.gov.ie/Energy/Electricity+Transmission+Grid/Meath+---+Tyrone+Report.htm>

4.6 FUTURE WORK FOR THE MMU

The MMU's future resources will be channelled mainly towards:-

- Continuing regular and timely monitoring and reporting on SEM spot electricity market.
- Continuing regular liaison with participants and Transmission System Operators.
- Develop and implement upgraded MMU IT systems.
- Monitoring Licence Compliance.
- Completion of Governance arrangements and procedures for the MMU.
- Investigations, Enforcements etc.

5 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 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 currently calculated by the Regulatory Authorities on an annual basis.

The objectives of the CPM, as defined in the paper 'Capacity Payment Mechanism and Reserve Charging High Level Decision Paper' (SEM-53-05)¹⁰ are:

- **Capacity Adequacy/ Reliability of the system**
The CPM must encourage both the construction and maintained availability of capacity in the SEM. Security of the system, in both the long and short-term will be the core feature of any CPM.
- **Price Stability**
The CPM should reduce market uncertainty compared to an energy only market, taking some of the volatility out of the energy market.
- **Simplicity**
The CPM should be transparent, predictable and simple to administer, in order to lower the risk premium required by investors in generation. A complex mechanism will reduce investor confidence in the market and increase implementation costs.

¹⁰<http://www.allislandproject.org/en/capacity-payments-decision.aspx?article=aa084bc6-3d33-4c7f-91a4-903a34011106>

- **Efficient price signals for Long Term Investments**

In theory it would be possible to incentivise vast amounts of capacity over and above that necessary for system security in the SEM, although the cost of implementing such a scheme may be unacceptable to customers. The CPM should meet the criterion in this section at the lowest reasonable cost. Revenues earned by generators should still efficiently signal appropriate market entry and exit.

- **Susceptibility to Gaming**

The CPM should not be susceptible to gaming and, ideally, should not rely unduly on non-compliance penalties.

- **Fairness**

The CPM should not unfairly discriminate between participants. An appropriate CPM will maintain reasonable proportionality between the payments made to achieve capacity adequacy and the benefits received from attaining capacity adequacy. Buyers in the SEM should pay in proportion to the benefits they receive.

During 2011 the CPM team’s work included:

- Decision on annual capacity payment pot for 2012
- Conclusion of the Medium Term Review of the CPM

5.1 CAPACITY REQUIREMENT AND ACPS FOR 2012

During 2011 the annual exercise took place to establish the capacity pot for 2012. As with previous years this involved establishing the fixed costs of a Best New Entrant peaking plant in the market and the TSO’s calculation of the capacity requirement for the year ahead to meet the adequacy standard. These two numbers determine the size of the capacity pot required. The pot decreased by 3.09% for 2012 compared to 2011. This can be seen in the table below, which shows the Annual Capacity Payment Pots for the Years 2007 to 2012.

Table 5: Annual Capacity Payment Pots for the Trading 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	450.52	-
2008	79.77	7,211	575.22	27.68%
2009	87.12	7,356	640.85	11.41%
2010	80.74	6,826	551.13	-14.00%
2011	78.73	6,922	544.96	-1.12%
2012	76.34	6,918	528.12	-3.09%

Annual Capacity Payment Sum & Capacity Requirement

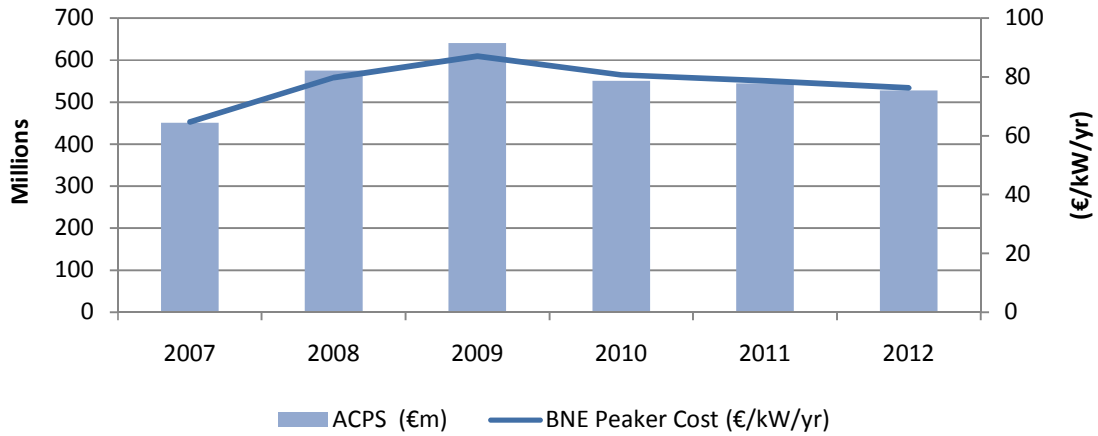


Figure 22 : Historic levels of Capacity Requirement and Annual Capacity Payment Sum (ACPS)

2011 CPM Monthly Split

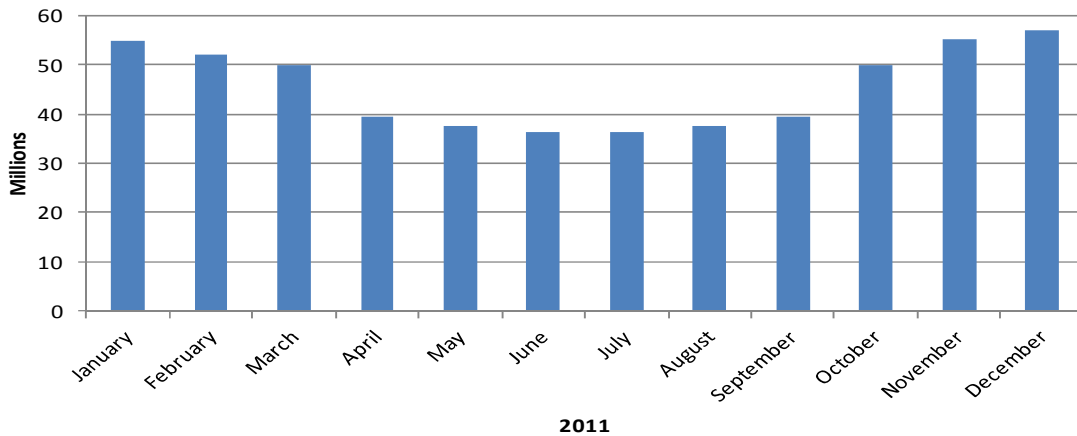


Figure 23: Monthly split of the ACPS of €544.96m in 2011

The following figures fuller illustrate the breakdown of capacity payments in 2011.

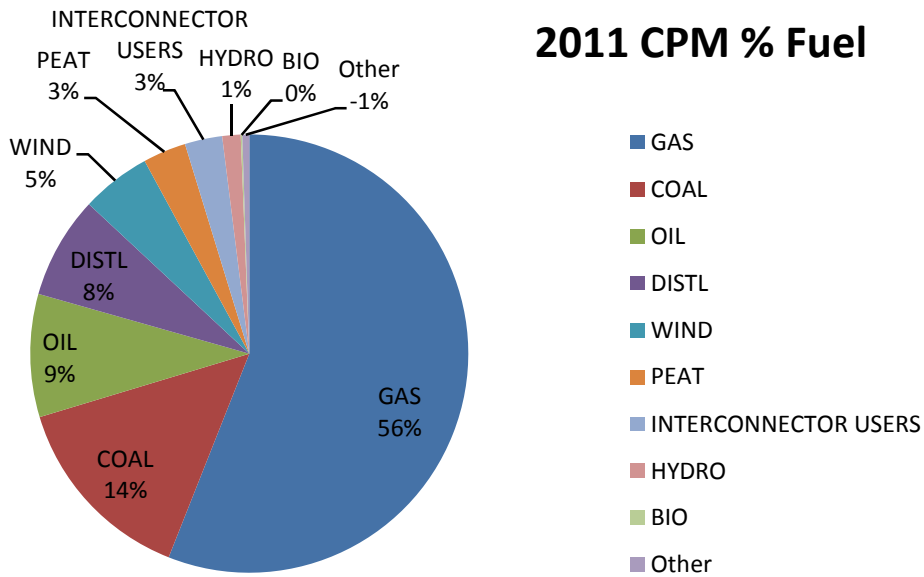


Figure 24: 2011 CPM Fuel Percentages

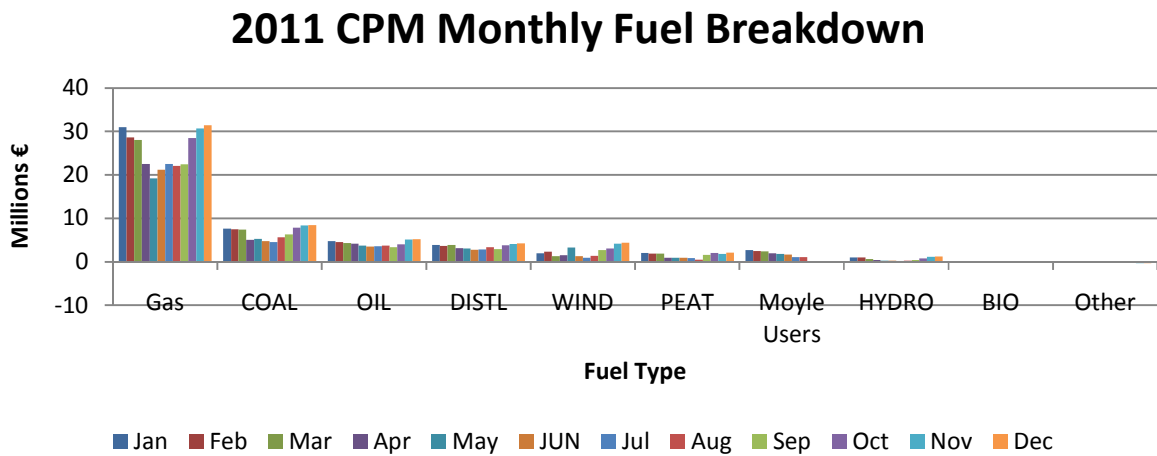


Figure 25: 2011 Monthly Fuel Breakdown

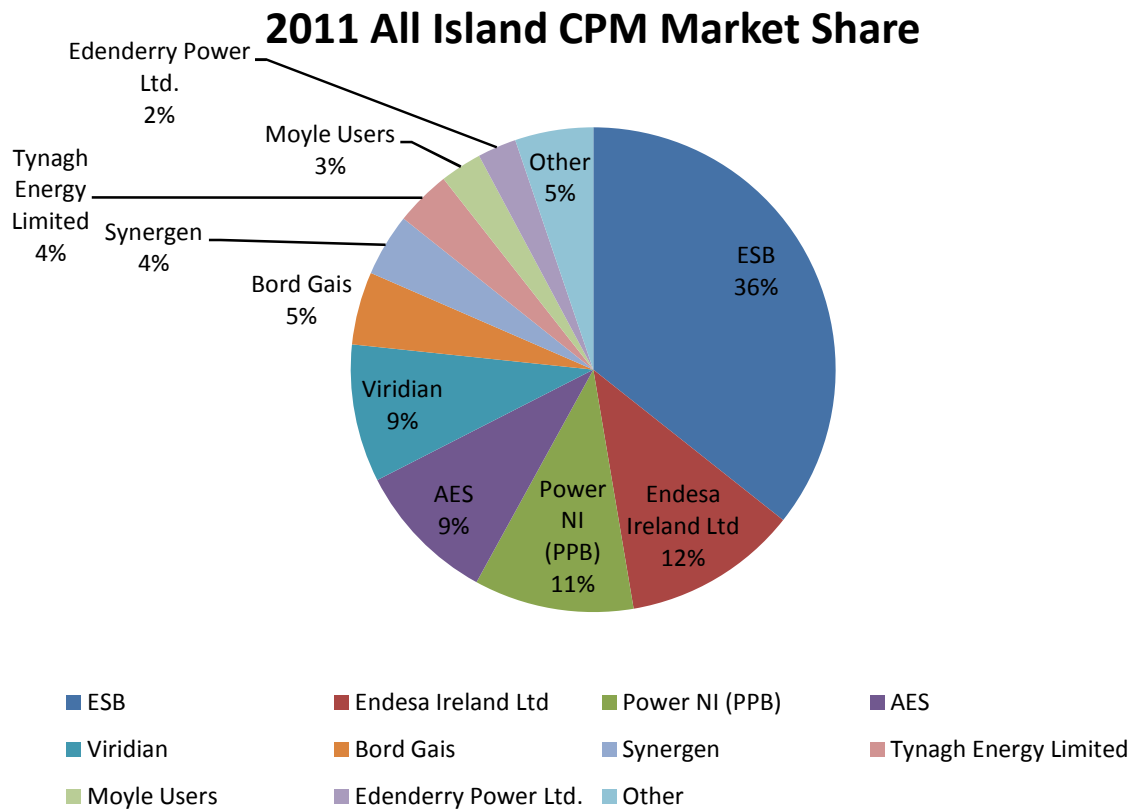


Figure 26: CPM market share broken down in 2011

5.2 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 was 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.

At the start of the CPM Medium Term Review 10 Work packages were decided upon:

- 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 - Best New Entrant (BNE) Peaker Plant Fuel Options

- Work Package 5 - Exchange Rate for CPM
- Work Package 6 -Treatment of All Generator Types in CPM
- Work Package 7 - BNE Calculation Methodology
- Work Package 8 - Incentives for Generators
- Work Package 9 - Timing & Distribution of Capacity Payments
- Work Package 10 - Impact of CPM on Customers

During 2011 work continued on the medium term review of the CPM. Further to the two Discussion papers published in 2010, a final discussion paper on Work Package 6 onwards and a Draft Decision Paper were published in 2011.

Nine responses were received for SEM-10-046 (Work Package 1 -5), sixteen for SEM-10-068 (Work Package 7) and 22 received for SEM-11-019 (Work Package 6 onwards). These Discussion papers can be found on the All Island Project website.¹¹ The Draft Decision Paper (SEM-11-088) was published in November 2011. In that paper the SEM Committee stated its proposed decisions and asked for comments.

Key highlight points from the CPM Medium Term Review Draft Decision Paper were:

- The current CPM is generally working well and that there is no compelling need to make major changes to the current design and methodology.
- The SEM Committee do not believe that the design of the distribution allocation should be materially changed.
- The SEM Committee believes that the current 30%, 40% and 30% ratio of respectively the Fixed Ex-ante, Variable Ex-Ante and Variable Ex-Post weighting components gives the appropriate balance between a short term signal to provide the required capacity during periods of tight capacity margin, and the longer term certainty over capacity revenues for generators.
- The Forced Outage Probability (FOP) % in the Capacity Requirement calculation should be increased to 5.91%.
- Infra Marginal Rent (IMR) will be deducted from the BNE Cost of the Annual Capacity Payment Sum (ACPS) on an annual basis.
- The BNE calculation Methodology will be introduced to calculate the BNE in 2013 and keep the BNE Peaker Cost (€/kW/yr) in place for a 3 year period, with a level of indexing in 2014 and 2015. The Capacity Requirement will be recalculated annually.
- SEM Committee were recommending increasing the Flattening Power Factor (FPF) to 0.5%.

Views were invited regarding any and all aspects of the draft proposals put forward in the draft decision paper. The comments received regarding the main elements for these proposed decisions and a final SEM Committee Decision paper was published on the 6th March 2012 (SEM-12-016¹²).

¹¹ http://www.allislandproject.org/en/cp_current-consultations.aspx?article=31822151-f6da-4f5a-9fba-61739dd35f98

¹² http://www.allislandproject.org/en/cp_decision_documents.aspx?article=5ce2db5f-6c79-4454-9779-53dd7fae8dba&mode=author

There were no changes from the proposals contained in the draft decision. The SEM Committee decided that the proposals put forward in the Draft Decision paper will be implemented in the 2013 determination of the Best New Entrant Fixed Cost (BNE FC) and the Annual Capacity Payment Sum (ACPS).

The main outputs of the CPM Medium Term review were;

- Infra Marginal Rent (IMR) will be deducted from the BNE,
- The FOP % in the Capacity Requirement calculation will be increased to 5.91%,
- The BNE will be calculated in 2013 and the BNE Peaker Cost (€/kW/yr) will be in place for a 3 year period.

Several elements both domestic and European could also impact the ACPS during this 3 year period. In 2012 the TSOs in cooperation with the Regulatory Authorities will be undertaking a Systems Services Review (DS3¹³) multi-stage consultation process. The proposals / services identified may impact the AS revenues earned by the BNE over the 3 year period. As part of the CPM process going forward the Regulatory Authorities reserve the option to review the AS reduction in future years of this period, if they believe it is appropriate to do so.

The European Integration timelines may also impact the 3 year timeline. The Regulatory Authorities will also review the CPM BNE calculation again in the spring of 2015 to determine if the timeline will be extended based on the latest European model.

Following on from the review 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.

5.3 NEXT STEPS OF THE CPM

In 2012, the Regulatory Authorities will progress in the 2013 determination of the Best New Entrant Fixed Cost (BNE FC) and the Annual Capacity Payment Sum (ACPS) implementing the changes highlighted in the medium term review.

Further details on the Decision Documents / Information Notes can be found on the AIP website¹⁴.

Throughout the medium term review, the SEM Committee agreed with respondent's comments that the landscape has changed since the review began; this includes changes in the investment environment, the legislative environment, the Third Package, the Electricity Market Reform (EMR) and the European Framework Guidelines and Network Codes. The SEM Committee are aware that there will be consideration in the near future for developments towards agreement and to ensure compliance on the target model for a European electricity market model. On the 24th January 2012 the SEM Committee published a Consultation paper entitled "Proposals for Implementation of the European Target Model for the Single Electricity Market"¹⁵. The purpose of the paper is to

¹³ <http://www.eirgrid.com/operations/ds3/>

¹⁴ http://www.allislandproject.org/en/cp_decision_documents.aspx

¹⁵ http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=41f5681a-ef37-41ca-ab7d-7a1bdd7db385

seek views on a number of options for implementing the European Electricity Target Model in Ireland and Northern Ireland in a manner that is consistent with national and EU policy objectives. Further work in 2012 will inter-act the CPM and the Market Integration work stream.

If fundamental changes to the CPM High Level Design are envisaged within the Market Integration work stream these will be further consulted upon.

6 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 Modifications Committee, which comprises representatives from industry participants, considers and reports on their recommendations on proposed modifications to the Code to SEM Regulatory Authorities.

6.1 MODIFICATIONS COMMITTEE

There were six meetings of the Modifications Committee held during 2011. 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, more detailed modifications.

The Modifications Committee issues Modification Final Recommendation Reports (FRRs) on proposed changes to the Code 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) website¹⁶:

- Modification proposals submitted to date;
- SEMC decisions made on Modifications Proposals thus far;
- Latest version of the Code; and
- Minutes and Reports from all Modifications Committee meetings and Working Groups.

6.2 KEY CODE MODIFICATIONS

During 2011, 34 Modification Proposals were raised and considered by the Modifications Committee, down from 43 in 2010. The majority of these were recommended for approval by the Modifications Committee and then subsequently approved for implementation by the SEMC. One significant Code Modification which was voted for approval by the Modifications Committee in 2011 was the facilitation of Intra Day Trading in SEM (Mod_18_10).

¹⁶ http://www.sem-o.com/modifications_committee/

This Modification was approved by the SEM Committee in February 2012 and will allow increased opportunities for participants to trade in SEM within the day and in particular will create new opportunities for the allocation of unused Interconnector Capacity. This will allow more efficient use of the interconnectors in SEM and will also ensure Member State compliance with the legal requirements of European Regulation 714/2009 and the Congestion Management Guidelines contained therein. Intraday Trading will be implemented in the Central Market Systems in July 2012.

6.2.1 TRADING AND SETTLEMENT CODE PARAMETERS

As required, the SEM Committee consulted on several policy-related Code parameters including the market price cap, market price floor and the Uplift parameter values to apply in 2012; these remained unchanged from the 2011 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 2011 the SEM Committee consulted upon and approved the Operational Parameters to apply in 2012.

6.2.2 2011 MARKET AUDIT

There is a requirement under the Trading and Settlement Code to carry out an annual audit of the Code. The audit terms of reference is consulted on by the RAs and can cover operations, implementation, trading arrangements and procedures and processes under the Code. In addition, the 2011 Market Audit covered the Market Operator (SEMO) and the Interconnector Administrator including a limited examination of interval demand side feeds from Meter Data Providers and System Operators including generation metering and dispatch instructions performed on an 'Agreed upon Procedures' basis. The results of the 2011 Market Audit was presented to the SEM Committee in April 2012. The audit opinion concluded that SEMO in its role as market operator 'have in all material respects, complied with the Code and relevant Agreed Procedures as defined in the "Terms of Reference for the 2011 Market Audit" published by the Regulatory Authorities on 19 September 2011.'

7 EUROPEAN MARKET INTEGRATION

In 2011, the SEM Committee continued to progress work relating to increasing electricity market integration and consider issues for SEM in relation to implementing the target model. This work is being achieved through membership of the France, UK and Ireland (FUI) electricity regional initiative groups and through membership of the Agency for Cooperation of Energy Regulators (ACER).

ACER was established as part of the Third Energy Package in 2009 and one of its key tasks is to further the development of the single European electricity market (which all Member States have committed to) through the development of Framework Guidelines in key areas including cross border trading arrangements, and requirements on generators. These Framework Guidelines will form the basis for Network Codes that will be developed by the European Network of Transmission System Operators (ENTSOE) and will become binding on member states through the commitology process.

7.1.1 FUI

One of the key work items completed by the FUI regional group of Regulators during 2011 was the approval of coordinated interconnector access rules across Interconnectors in the region. The access rules for FUI interconnectors were coordinated as extensively as possible given differing trading systems in SEM / BETTA and in the French market. Coordination of access rules for Interconnectors is required by European congestion management rules. Following consideration the final access rules for Moyle and East West interconnectors were approved by the SEM Committee and Ofgem in October 2011.

7.1.2 ACER

The SEM Committee is represented at various ACER working groups and task forces through the membership of CER and Ofgem. In 2011 four ACER Framework Guidelines relating to policies on Grid Connections, System operation, Capacity and Congestion Management and Balancing were progressed and SEMC views on these issues were shared with ACER colleagues by the RAs.

- The Framework Guideline on Grid Connections seek to set minimum standards for network connections in order to maintain system security, availability and the proper functioning of the electricity market from a technical point of view.
- The Framework Guideline on System Operation aims at setting out clear and objective principles for the development of network code(s) on system operation covering the complete area of activities for operating an electric power network, including security, control and quality in terms of fixed technical standards, principles and procedures, but also the synchronous operation of interconnected power systems.
- The Framework Guideline on Electricity Balancing aims to integrate balancing markets in order to contribute to system security and increase market efficiency at EU level.
- The Framework Guideline on Capacity and Congestion Management seeks to establish a competitive Internal Energy Market in the EU by ensuring non-discriminatory access to the networks and cross-border trade over interconnections between control areas.

In addition the European Commission is developing Guidelines on Governance of Market Coupling Arrangements between Member States and Transparency. The SEM Committee comments on these guidelines through ACER participation.

7.1.3 SEM EUROPEAN MARKET INTEGRATION PROJECT

Fully integrating the Single Electricity Market in its current form into the emerging EU internal electricity market will pose a significant challenge for SEM, in particular for the day ahead and intraday target models set out in the *ACER Framework Guidelines for Capacity Allocation and Congestion Management (CACM)*.

Since the CACM consultation concluded in June 2011 and following the SEMC response to this, the RAs worked with ACER to acknowledge the difficulty associated with reaching the target models considering the present SEM design through insertion of drafting which would allow for SEM to transition to the target model. This facilitation

of additional time for SEM to meet the target model is accommodated in the final draft CACM adopted by the Commission.

SEM Committee at their July 2011 meeting asked that the RAs lead a project team involving the SEM TSOs and the SEM Market Operator (SEMO) with the initial objective of providing a report to the RAs and the SEM Committee by December 2011 on the identification of feasible options for SEM to pursue to comply with the target models for the internal electricity market by 2016.

A project initiation document related to this work was published by the SEM Committee on the 8th August 2011.¹⁷

To date, this project has involved significant engagement with relevant European stakeholders, particularly regulators and Transmission System Operators/Power Exchanges in the FUI region and elsewhere. Furthermore given the importance of this project for future SEM design, regular briefings have been given to the respective Member States and a number of workshops held for market participants.

The SEM Committee's consultation paper "Proposals for Implementation of the European Target Model for the Single Electricity Market" (SEM-12-004) was published on 24th January 2012. The Consultation Paper set out a description of the SEM, the European context and Target Model Proposed, Evolutionary and Revolutionary Options for Target Model Implementation and legal and governance issues. Consultation responses were due on 20th April 2012 and work will continue on the project throughout 2012 to reach decisions on next steps in cooperation with the respective Government departments, DCENR and DETI.

8 SINGLE ELECTRICITY MARKET OPERATOR REGULATION

8.1 ROLE OF SEMO

The development of the SEM, in 2007, 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".

¹⁷ http://www.allislandproject.org/en/TS_Decision_Documents.aspx?article=c67daa67-ab4a-4ff8-8098-32a8edbf91e&mode=author

SEMO publishes a monthly Market Operator report in accordance with clause 2.144 of the Trading and Settlement Code. These reports are available from SEMO's website (<http://www.sem-o.com>). In summary, SEMO continues to administer the market in an appropriate and effective manner.

8.2 SEMO REGULATION

The SEMO Regulation unit acts on behalf of both Regulators, via the SEM Committee, and is based in Belfast. Its function is to monitor SEMO's licence compliance, price control, general performance and appropriate approval of market system developments. The Regulatory Authorities have set SEMO's revenue and tariffs for the three year period October 2010 to September 2013. Below is an outline of the key activities carried out by the team:

8.2.1 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 correctly. Furthermore, SEMO are required to produce an annual Compliance Report to the Regulatory Authorities.

8.3 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 2010/2011 are detailed below:

8.3.1 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, continues to face extremely challenging times. Most businesses are seeking ways to optimise their operations by identifying and implementing opportunities for more cost-effective processes and organizational structures. This approach was applied to the current tariff period whereby the SEMO Regulation team undertook a rigorous analysis of each cost component from SEMO's submission to ensure cost-effectiveness and sustainability throughout the three year period.

8.3.2 TSC MODIFICATIONS PANEL

In addition to the above activities, the SEMO Regulation team had 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.

8.3.3 INTRA DAY TRADING – COST RECOVERY AND IMPLEMENTATION PLAN

The SEMC, after assessment by the SEMO Regulation team, approved the ITD project costs submission by SEMO in Sept 2011. The costs centre on necessary Hardware and Software requirements together with Functional costs relating to design, testing and documentation.

In preparation for Intraday 'Go live' SEMO have carried out considerable ground work to make the transition as smooth as possible, both internally and externally with the involvement of market participants and other stakeholders. This has included producing an extensive Market Participant Update Document (MPUD)¹⁸ which aims to assist Market Participants in building their systems to interface with the SEM Central Market Systems with particular focus on the communication and reporting channels.

The Modification Committee, in accordance with AP12 of the Trading and Settlement Code, established an Intra-Day Working Group which has met regularly since 2010 to prepare modifications proposals in respect of Intra-day trading. A modification proposal 18_10: Intra-day trading was approved by SEMC during February 2012 focusing mainly on interconnector users and their access to the maximum available transfer capacity.

Furthermore Intra Day training was provided during March 2012 at a number of locations throughout Ireland for Market Participants and stakeholders to attend to gain a better understanding of the requirements necessary to successfully partake in the Intra Day Market.

Extensive testing of the system continued during May 2012 onwards when the Market trial was carried out in the months leading up to 'Go live' in July 2012.

9 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 2011.

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
- TSO Certification
- Dispatch Balancing Costs Incentivisation

¹⁸ [http://www.sem-o.com/FeaturedItems/Pages/MarketParticipantUpdateDocument\(MPUD\)-SEMR200.aspx](http://www.sem-o.com/FeaturedItems/Pages/MarketParticipantUpdateDocument(MPUD)-SEMR200.aspx)

- Market Power and Liquidity
- DS3 Programme – Delivering a Secure, Sustainable Electricity System

9.1 SEM LOCATIONAL SIGNALS

9.1.1 TRANSMISSION LOSS ADJUSTMENT FACTORS (TLAFS)

In February 2011 the SEM Committee published its Terms of Reference for an impact assessment on the proposed splitting of the treatment of losses in the market schedule from that in the dispatch schedule (SEM-11-006). Following on from this, the Market Monitoring Unit (MMU) on behalf of the SEM Committee carried out the TLAF modelling analysis in line with the requirements of the Terms of Reference. This modelling was completed in May 2011 and the results of the modelling presented to the SEM Committee at its meeting on 26 July 2011. The SEM Committee requested that a full and detailed consultation on the TLAF splitting analysis and modelling results be carried out in advance of it moving to a decision on this work stream.

On 18th November 2011 the SEM Committee published a paper (Treatment of Losses in the SEM, SEM-11-067) to report on the results of the TLAFs splitting impact analysis in the SEM and to carry out a full public consultation on this matter. The consultation period ended on the 27th January 2012. The SEM Committee also encouraged market participants to carry out their own TLAF modelling and to include full details of their modelling in their submissions on this consultation.

The SEMC intends that this workstream will be completed in 2012 with the application of enduring solution to TLAFs 1st October 2012.

9.1.2 GENERATOR TUOS (G-TUOS)

On 29th September 2011, the SEMC published its decision paper (SEM-11-078) on the review of Generator Transmission Use of System Charging (G-TUoS) and the accompanying all-island G-TUoS tariffs for 2011/12. This workstream was part of the Locational Signals project. This decision paper followed a decision by the SEMC in late 2010 (SEM-10-081) in relation to the G-TUoS arrangements and further consultations in 2011 on some of the details of the methodology. The SEM Committee's decision involved the development and implementation of a "dynamic" forward looking locational signal model of tariffing for Generators, as outlined in "All-Island Generator Transmission Use of System Charging" decision paper (SEM-10-081).

In making its decision on G-TUoS tariffs for 2011/12, the SEMC also requested that the TSOs would carry out further analysis and produce a report for the SEMC in 2012 with regard to possible changes to the approved G-TUoS model.

This workstream will be completed in 2012 with the application of enduring solution to TLAFs effective from 1st October 2012.

9.2 HARMONISED ANCILLARY SERVICES AND OTHER SYSTEM CHARGES

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 refer to reserve, black start, reactive power, reduced time to synchronise, flexible multi mode operation, lower minimum generation, static frequency reserve and synchronous compensation.

All-island arrangements for Harmonised Ancillary Services and Other System Charges went live on 1st February 2010. The all-island harmonisation arrangements ensure services are procured and utilised on an efficient, non-discriminatory all-island basis. Most services are currently contracted on a bilateral basis. The RAs have requested that the TSOs seek to develop these bilateral arrangements into harmonised services where possible.

9.3 PRINCIPLES OF DISPATCH AND THE DESIGN OF THE MARKET SCHEDULE IN THE TRADING AND SETTLEMENT CODE

The wide ranging and complex principles of dispatch and market schedule have been under review the last few years. The purpose was to consider appropriate changes in the context of a high and rapidly increasing penetration of renewable generation, notably wind, together with the fundamental purposes of dispatch and the market schedule, a key component of the Trading and Settlement Code.

The SEM Committee's decisions regarding matters raised in the Consultation Paper are in the Decision Paper (SEM-11-062) which was published on 26 August 2011. Very briefly, the key issues included:

- the construction of the Market Schedule,
- the resulting allocation of infra marginal rents,
- principles underlying the dispatch process,
- interpretation and application of the principles of priority dispatch,
- the case of differentiating between categories of generation qualifying for priority dispatch,
- the case for 'deemed' firm access, and
- treatment of Variable Price Takers in the Market Schedule.

Any follow on work arising from decisions in this paper will be progressed by relevant SEM joint management units and plans for such work will be put in place and notified to industry in due course.

A separate consultation was issued on the framework for the assessment of 'material harm' to SEM customers and a decision paper on this framework was published on 6 October 2011 (SEM-11-084). The SEM Committee's decision is to monitor the market using the constraint metrics proposed in the consultation paper along with reporting on the levels of curtailment that occur within the market. The SEM Committee will publish the above on an annual basis setting out the findings of the monitoring, the trends and indications of possible drivers for the changes/trends in each metric.

In 2011, the SEM Committee also consulted on Tie-breaks in dispatch arising out of the Scheduling and Dispatch Decision. The Decision paper (SEM-11-105) 'Treatment of Price Taking Generation in Tie Breaks in Dispatch in the SEM and Associated Issues' was published on 21 December 2011 and outlined the decisions relating to constraint and curtailment in tie-break situations only. Further consideration of the treatment of curtailment in Tie-break situations is likely in 2012.

9.4 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 be a cost effective way of assisting the delivery of efficient energy balancing in the SEM and may help to largely mitigate the need for capital intensive 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 27th May 2011.

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.

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 and publish its first report on progress with respect to delivering the recommendations of the Demand Side Vision 2020 in 2012. 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.

9.5 TSO CERTIFICATION

The European Commission's Third Internal Energy Market Package is designed to facilitate progress towards the creation of a single EU gas market and electricity market which will result in a more efficient and competitive market, increased consumer choice and contribute to security of supply and sustainability. Directive 2009/72/EC identified the need to remove incentives to discrimination in access to the transmission system and encourage investment in the system through separation of the transmission network from generation and supply. To ensure compliance with the requirements of the Directive a Transmission System Operator (TSO) is required to be certified on one of the four grounds set out in the Directive.

The first ground is that the TSO is not owned or controlled by a person who also owns or controls generation or supply interests. This complete separation of ownership of the transmission network from ownership of generation and supply is known as 'full ownership unbundling'. Where nevertheless the transmission system is owned by a vertically integrated undertaking (VIU), which owns generation or supply interests, the TSO may be certified as an Independent System Operator where the operation of the TSO is carried out by a person independent in ownership from the VIU. The third ground is that of an Independent Transmission Operator (ITO) in which the TSO is owned by a VIU but there are ring fencing arrangements to ensure the effective independence of the TSO. The fourth ground is an application under Article 9(9) of the Directive which requires that the TSO belongs to a VIU but also that the arrangements in place clearly guarantee more effective independence of the TSO than the requirements of an ITO.

The SEM Committee decided in May 2011 that the issue of TSO certification in Northern Ireland was a SEM matter and that it was therefore responsible for the process of certification in accordance with the legislative provisions in Northern Ireland. Following this, in November 2011, the SEMC decided that TSO Certification in Ireland was a SEM matter.

The SEM Committee published guidance to applicants in Northern Ireland in December 2011 and for applicants in Ireland in February 2012. The guidance set out the relevant grounds available to applicants in Ireland and Northern Ireland, the information required to allow a decision by the SEM Committee to be taken and the timescale for the process. The final decision of the SEM Committee on a certification application shall take the utmost account of the opinion of the European Commission and in the case of an Article 9(9) application the European Commission will take the final decision.

The SEM Committee intends that the process of certification and the changes to the TSO licences this will require shall be completed in 2012.

9.6 DISPATCH BALANCING COSTS(DBC) – INCENTIVISATION

Dispatch Balancing Costs (DBC) represent the vast majority of the Imperfections Allowance, a significant cost which is passed on to the all-island customer. In the previous tariff period (1 October 2009 to 30 September 2010) DBC represented nearly 5% of the entire value of the SEM. The RAs decided to consult on incentivising the TSOs to manage all-island DBC (SEM-11-048).

The purpose of this consultation paper was to gain feedback from stakeholders regarding incentivisation including the design parameters, rewards and penalties. It is important to note that any incentivisation mechanism would only be applicable to aspects which TSO's have control and therefore uncontrollable factors (eg unforeseen long-term outages) will not have an impact on the reward/penalty. The consultation paper outlined a potential DBC incentive mechanism based on rewards and penalties around ex-ante outcomes.

The SEMC has decided to introduce an all-island DBC incentive mechanism from 1 October 2012 onwards, to operate on an annual basis.

9.7 MARKET POWER AND LIQUIDITY

In 2010 the Regulatory Authorities (RAs), on behalf of the SEM Committee, commenced a review of market power and contract liquidity in the SEM. The overall aim of this project was 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.

On 25th November 2011 the SEM Committee published a draft decision (SEM-11-089), along with a report from CEPA consultants. The purpose of this draft decision paper was to:

- Summarise the key comments received to CEPA's report and provide SEM Committee responses
- Provide an update on recent developments relevant to market power and liquidity
- Provide the SEM Committee's view regarding issues, inter alia, market power mitigation measures and contract liquidity.

Please see section 3.4 earlier for more information. A decision paper on this matter was published on 1st February 2012¹⁹.

9.8 DS3 – DELIVERING A SECURE, SUSTAINABLE ELECTRICITY SYSTEM

Following on from the Facilitation Of Renewables Studies, the Regulatory Authorities (RAs) requested that the Transmission System Operators (TSOs) carry out further analysis and put in place a programme of actions in order

¹⁹ http://www.allislandproject.org/en/market_current_consultations.aspx?article=682a98fe-9c18-4c73-8fa3-57e75d24d85e&mode=author

to address the system operation challenges identified, bearing in mind renewable commitments and the requirements of Directive 2009/29/EC (“the Renewables Directive”).

The TSOs have now put in place a programme of work to resolve the challenges and concerns identified in the FORS studies and the SPS report. This programme is called the “DS3 Programme – Delivering a Secure, Sustainable Electricity System”. The review of system services will be one of the key workstreams in the DS3 project. It involves the TSOs undertaking a detailed analysis of the requirements of the electricity system on the island of Ireland for system services to support the secure and reliable operation of the system as levels of non-synchronous wind penetration increase.

The RA’s role in this workstream is to review and consider the options and proposals put forward by the TSOs (and also by the industry) and to make a decision through the SEM Committee on the outcome of the DS3 System Services review. The SEMC is also involved in monitoring progress throughout the programme and ensuring that the interests of the all-island customer are protected.

The overall programme contains 11 separate workstreams. Delivery and implementation of the DS3 programme is the responsibility of the TSOs. The RAs role is to act in an oversight manner and to make decisions in key areas of relevance to the regulatory framework on the island. For full details of the DS3 programme, please refer to the Eirgrid website for the DS3 programme office²⁰.

The DS3 overview document provides a brief overview of what the programme involves and the activities which will be undertaken in each of the 11 workstreams²¹. The workstream Programme Plans are;

- DS3 RoCoF
- DS3 System Services
- DS3 Voltage Control
- DS3 WSAT
- DS3 DSM
- DS3 Frequency Control
- DS3 Grid Code
- DS3 Model Development Studies
- DS3 Performance Monitoring Testing
- DS3 Renewable Data

Full details on the DS3 system services review, including the timelines and milestones for the review are outlined in the project plan for the DS3 system services review²².

The first consultation (lead by the TSOs) on the DS3 system services review commenced in December 2011. This was a high level consultation seeking views from interested parties on a range of questions related to the provision of system services²³. The second consultation is being developed by the TSOs and will be presented in 2012 to the SEM Committee for publication. This consultation will provide information on the new services which the TSOs believe will be required for the system in 2020. One of the outcomes of the DS3 program would be a redistribution of revenue for the services required to enable the system to meet the renewable targets by 2020.

²⁰ <http://www.eirgrid.com/operations/ds3/ds3programmeoffice/>

²¹ <http://www.eirgrid.com/media/DS3%20Programme%20Overview.pdf>

²² <http://www.eirgrid.com/media/DS3%20System%20Services.pdf>

²³ [http://www.eirgrid.com/media/System%20Services%20Consultation%20\(Preliminary\).pdf](http://www.eirgrid.com/media/System%20Services%20Consultation%20(Preliminary).pdf)

10 RETAIL MARKETS AND THE SEM

10.1 DEVELOPMENT OF POLICY TO ALIGN RETAIL MARKETS

The retail markets in Northern Ireland and Ireland operate on a completely separate jurisdictional and policy making basis; but with an understanding of the need for technical harmonisation, where appropriate and cost effective, in relation to electricity retail market systems and processes.

It is the position of both RAs that effective retail competition in energy can potentially 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.

The retail markets North and South have different structures; licensing regimes, retail market systems, metering infrastructure and tariffs but are also at different levels of maturity in terms of competition. In parallel with the launch of the SEM, and in full consultation with industry players, there were a number of initiatives to harmonise the approach to some aspects of retail market technical operation in Northern Ireland and Ireland. Over the last year the RAs, in conjunction with the network operators and industry participants, have been progressing work at delivering substantially harmonised retail market messaging schemas and associated technology, in order to facilitate energy suppliers in operating more seamlessly across the whole island. This work is nearing completion and the common harmonised approach is being 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 during 2012. Implementation of the harmonised approach requires revised market procedures for both Northern Ireland and the Republic of Ireland. These changes are currently being put in place and have been worked up and delivered with all Suppliers prior to implementation of the harmonised processes in each jurisdiction in 2012.

10.1.1 DEVELOPMENT OF COMPETITION

Competition in the market for Industry and Commercial (I&C) customers has been operating for several years now in Northern Ireland (NI). In the domestic sector, the market was opened in 2007, but competition only began in June 2010 with the arrival of Airtricity into the domestic market to compete with the previous monopoly supply incumbent (Power NI, formerly NIEES). Since then, other suppliers have entered the domestic electricity market in

NI. Budget Energy started to supply in June 2011, and Electric Ireland (formerly ESB Supply) entered the domestic market in October 2011. Figure 27 shows the recent monthly evolution in electricity customer transfers in Northern Ireland (in terms of changes of supplier –CoS’s).The so-called Enduring Solution project was delivered during 2012 in Northern Ireland and, amongst other project goals, delivers fully unconstrained switching systems for all customer groups.

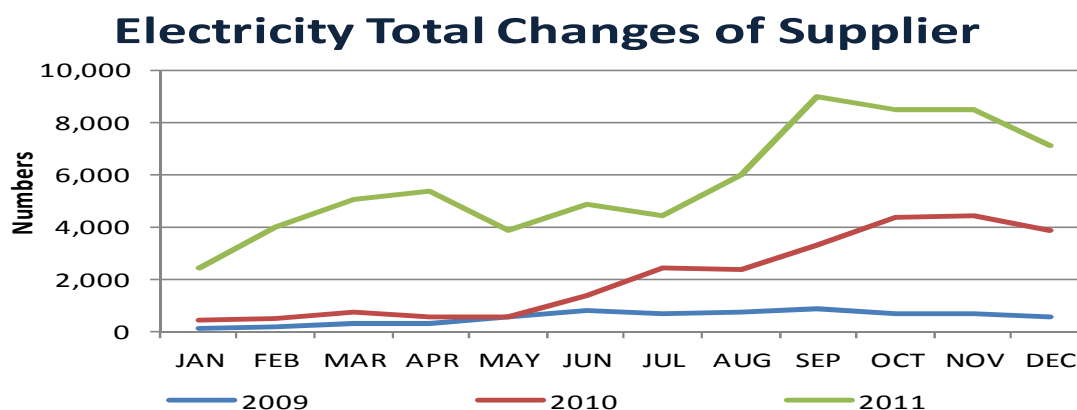


Figure 27: Evolution in Electricity Customer Transfers in Northern Ireland (Source NIE T&D)

During 2012 the Utility Regulator issued (following consultation in 2011) its final position paper on Retail Market Regulatory Policy. This set out the Utility Regulator’s view of how the regulatory framework should be set to deal with the development of retail competition in Northern Ireland. The final position was influenced by our statutory duties, analysis of the retail competition landscape in NI (and RoI and GB), and our view on how best to maintain customer protection in the coming years.

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 switching since then in both the business and domestic markets (see Figure 28). This led to one of the highest 2009 switching rates in Europe, as reported in the 2010 VaasaETT World Energy Retail Market Rankings Report. 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 1st October 2010 and the domestic market on 4th April 2011. In the domestic market, the criteria for the deregulation included a requirement for ESB Customer Supply’s market share to be no greater than 60%, and 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. ESB supply companies were rebranded as Electric Ireland in 2011.

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 4th April 2011.

ROI Electricity Total Change of Supplier

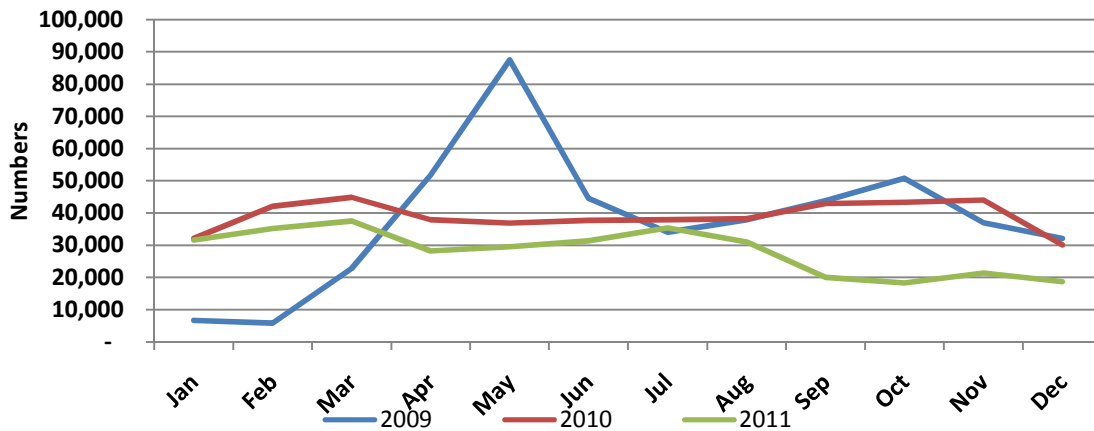


Figure 28: Switching activity in the Electricity Markets in the Republic of Ireland

10.1.2 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 (Power NI) remains dominant in these market sectors. After due scrutiny of allowed efficient cost levels, the UR completed the 2011 yearly review of regulated electricity tariffs.

As a result of rising wholesale costs, in the 2011 review it was decided that it would be necessary to increase regulated tariffs chargeable by the incumbent. The UR actively monitors the Power NI 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 2012.

On the 1st October 2010 all business markets in Ireland were deregulated, and on 4th April 2011 the domestic market was deregulated. Therefore the CER no longer reviews or approves regulated tariffs. All suppliers are free to set their own tariffs, and while this is a positive step in terms of the development of market innovation and competition, competition can bring complexity. Therefore the CER published a consultation on a framework for accrediting price comparison websites. In its final decision the CER set out the requirements for an accredited website to demonstrate independence, impartiality, accuracy and transparency in its presentation of tariff comparisons. The first website was accredited on 29th March 2012.

11 FUTURE WORK PLAN FOR THE SEM

Continued development of the market is the main driver behind the Forwards Work Plans for 2012 agreed by SEMC. Below are the main items included in this work plan.

11.1 DS3 PROGRAMME: DELIVERING A SECURE, SUSTAINABLE ELECTRICAL SYSTEM

This programme aims to ensure the continued operation of the electricity system to secure supply in a sustainable and economic manner with increasing utilisation of renewable generation. This incorporates eleven workstreams each with separate project plans to capture all aspects of the electricity market.

11.2 EUROPEAN MARKET INTEGRATION

SEMC is committed to implementing the target model in SEM. This will further the objective of increased integration of SEM with neighbouring markets and also the commitment of member States to an internal energy market across Europe.

However it is likely that significant design changes will be required to SEM to further these objectives. SEMC intends to continue to have a project dedicated to this key workstream during 2012 and to make such changes in a manner which benefits customers and minimises costs.

During 2012 the SEM project team will consider the responses received to its consultation paper (SEM-12-004) with a view to publishing in 2012 a paper on the proposed next steps in the process which should contain recommendations for Government Departments.

The consultation paper outlined the target model requirements, the issues for SEM present design in achieving them and considered whether SEM could evolve to implementing the target model or whether more significant change would be required. Other issues covered in the paper included SEM performance to date, the benefits of the target model for SEM and the assessment framework and objectives SEMC would look to in reaching future decisions on the project.

SEM RAs shall also continue to actively work through ACER membership to influence the outcomes of Framework Guidelines and network codes which will determine the final version of the target model.

ACER has acknowledged the significant modifications associated with reaching the Target Model, given the present SEM design, and has provided a two year transitional period for Island systems with central dispatch therefore extending adoption to the Target Model by 2016²⁴.

11.2.1 INTRA DAY

A key driver for the need for an efficient intraday market is the anticipated increase in renewable generation. As intermittent generation (mainly wind and solar) increases as a percentage of the European generation mix, it will be essential that market design allows for shorter gate closure times and adequate intra-day arrangements to

²⁴ Section 1.2 of the CACM 'The CACM Network Code(s) may provide for transitional arrangements for the day-ahead and the intra-day markets of island systems with central dispatch, as long as these transitional arrangements:

- are justified on the basis of a cost-benefit analysis; - do not unduly affect other jurisdictions;
- guarantee a reasonable degree of integration with the markets in adjacent jurisdictions;
- do not extend beyond 2016.

The transitional arrangements shall be proposed by the relevant NRA(s) for inclusion by ENTSO-E in the CACM Network Code(s). The NRA(s) shall provide ACER with the information required for assessing that the above conditions are met

facilitate an efficient market place. It is a requirement of European Union Regulation 714/2009²⁵ to have a facility to allow participants to bid for unused capacity on interconnector intraday. This significant change to the Code will facilitate this.

Considerable progress has been made in preparation for 'Go Live' of intraday trading. SEMO have organised Intra Day Trading market participant training days in March followed by 2 months of Market Trials before 'going live' in July 2012.

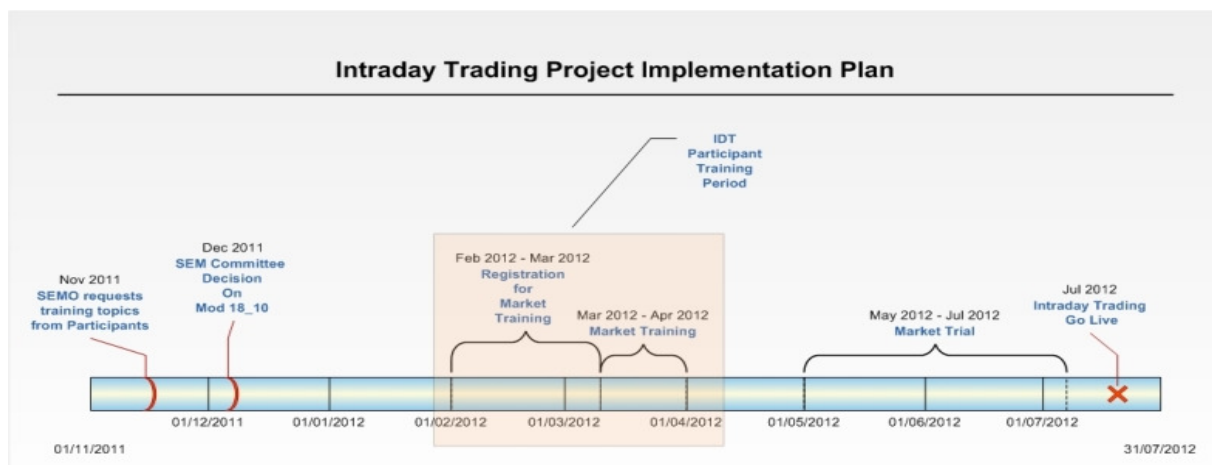


Figure 29: Intraday Trading Implementation timetable (Source SEMO)

11.3 DEMAND SIDE VISION 2020

- To develop a strategic Demand Response Programme for the Island of Ireland by working with Industry and other stakeholders.
- Introduction of firm day ahead pricing in the SEM and allowing the support of demand side participation.
- Implement procedures as identified in the Demand Side Action Plan.

11.4 TRADING & SETTLEMENT CODE MODIFICATIONS

Set annual Trading and Settlement Code policy parameters and operational parameters.

- Review and analyse thoroughly all modification proposals and recommendations.
- Present modification proposals and provide constructive regulatory input to Modifications Committee.
- Monitor the implementation of the Intra-Day Solution.

²⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0015:0035:EN:PDF>

11.5 GENERATOR AVAILABILITY CONSULTATION

This investigation into generator and outturn availability is deemed necessary to identify the differences in current practice between EirGrid and SONI and to then identify the best practice. These findings will be issued on a consultation paper by TSOs and recommendations submitted to RA's for review. The RA's will prepare a decision paper to present to SEMC.

11.6 CONNECTION POLICY

The objective is to implement the SEM Committee's decision regarding transmission connection policy as part of the development of Off-shore Policy NI.

11.7 HARMONISED ANCILLARY SERVICES AND OTHER SYSTEM CHARGES

An annual review of the Harmonised Ancillary Services rates and Other System Charges will be performed in 2012. The TSOs will consult on proposed changes to the rates and charges. These proposed rates and charges will be presented to the SEMC and finalised rates will be effective from 1st October 2012.

11.8 ANNUAL CPM AND 2013 BNE CALCULATION

To work with the TSOs to calculate the fixed costs of the Best New Entrant Peaking Plant for the Capacity Payments Mechanism in the Single Electricity Market trading year 2013.

11.9 DISPATCH BALANCING COSTS

SEM Committee is to approve decision paper to allow the implementation of a new incentive mechanism on EirGrid and SONI to reduce Dispatch Balancing Costs. This incentive is expected to be effective from 1st October 2012.

11.10 GENERATOR TRANSMISSION USE OF SYSTEM METHODOLOGY REVIEW PROJECT

Following on from the GTUoS Charging Decision Paper published by the SEMC in September 2011 a methodology review is required for specific aspects of the All Island GTUoS Methodology Statement published by the TSO's as part of the SEMC commitment to GTUoS harmonisation.

As part of the aim for G-TUoS harmonisation a review is required in conjunction with TSOs in relation to specific aspects of the All Ireland Generator Transmission Use of System charging arrangements.

11.11 TRANSMISSION LOSS ADJUSTMENT FACTOR (TLAF)

As a result of the Decision by the SEM Committee on 'Treatment of Losses in the SEM'²⁶, which investigated the impact on consumers of splitting the use of TLAFs in the Market from their use in the actual generation dispatch, the SEMC requested RA's to consider if further modelling is deemed necessary to facilitate an informed future decision.

11.12 TSO CERTIFICATION

The SEMC is currently actively involved with liaising with the European Union regarding TSO Certification to ensure certification is in line with EC proforma. Applications are required from ESB, NIE and Moyle.

11.13 SEMO REGULATION

Continued regulation of SEMO in the following main areas:

- reviewing quarterly financial reports against price control in place.
- Licence compliance reviews.
- Assess key performance indicators.
- Financial monitoring of additional expenditure requests.

11.14 MARKET MODELLING GROUP

- Validation of the SEM PLEXOS model for the period 2012 to 2013.
- Implementation of a suite of Directed Contracts for eligible suppliers.
- Set the Irish PSO-related CfD reserve prices for 2012 and report on progress of Non Directed Contract market segment.
- Assess TSOs forecasts on Dispatch Balancing Costs and their management of these costs.
- Provide analysis and report on generating companies profitability and financial profiles including medium terms forecasts.
- Perform modelling requirements for SEM Committee and report on findings.
- Attend EU working groups and provide updates on EU Market Power Developments with respect to REMIT (Regulation on wholesale Energy Market Integrity and Transparency).

11.15 MARKET MONITORING UNIT

- Develop the MMU IT systems to cope with data changes as a result of intraday trading.
- Develop database/reporting tools for consumer impact measures for Material Level of Harm monitoring.
- Continue regular monitoring and reporting on generator bidding and SEM market outcomes.

²⁶ SEM-11-067 http://www.allislandproject.org/en/sem_publications.aspx?year=2011§ion=2

- Provide analysis and reports on market activity on an ex-post basis.
- Monitor Licence compliance
- Conduct investigations into the exercise of market power and other specific issues as requested by SEMC.

11.16 DISCLOSURE IN THE SEM: ENDURING SOLUTION TO FUEL MIX DISCLOSURE

- Implementation on enduring solution to fuel mix disclosure to be carried out by SEMO in accordance with SEMC Decision.

12 APPENDIX

12.1 ACRONYMS

ACER	Agency for the Cooperation of Energy Regulators
ACPS	Annual Capacity Payments Sum
AIP	All Island Project
AS	Ancillary Services
BCOP	Bidding Code of Practice
BETTA	British Energy Trading & Transmission Arrangements (GB wholesale electricity market)
BNE	Best New Entrant
CACM	Capacity Allocation and Congestion Management
CER	Commission for Energy Regulation
CfD	Contract for Differences
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
EMR	Electricity Market Reform
FOP	Forced Outage Probability
FUI	France-UK-Ireland
GB	Great Britain
GTUoS	Generator Transmission Use of System
HAS	Haromised Ancillary Services
IMR	InfraMarginal Rent
ITO	Independent Transmission Operator
JMU	Joint Management Unit
JR	Judicial Review
LR	Lagrangian Relaxation
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
MWh	Megawatt hour
NRA	National Regulatory Authorities
NI	Northern Ireland
NIAUR	Northern Ireland Authority for Utility Regulation – The Utility Regulator
NDC	Non-Directed Contracts
PSO	Public Service Obligation
PX	Power Exchange
RAs	Regulatory Authorities
REMIT	Regulation on wholesale Energy Market Integrity and Transparency
RoI	Republic of Ireland
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
TSO	Transmission System Operator
TUoS	Transmission Use of System
VIU	Vertically Integrated Undertaking