



## **The Single Electricity Market Update (Q2 2015)**

**SEM-15-072**

**September 2015**

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## INTRODUCTION

The Single Electricity Market (SEM) is the term that is used to describe the electricity market for the whole of Ireland.

This report provides an overview of the SEM and sets out recent trends in the market in relation to pricing, demand, scheduling and contract prices. It focuses in particular on the wholesale element of electricity prices, which makes up around 60% of customers' bills.

The report was prepared by the Market Monitoring Unit. The unit's role is to investigate the exercise of market power, monitor compliance of market participants with the Bidding Code of Practice and other market rules, and review market prices.

The report is structured in three sections:

1. An overview of how the market works and key trends.
2. Detailed market information.
3. Information on trends in directed contracts which are imposed by the regulatory authorities on the incumbent generators with market power in the SEM.

The information in this report is based on data that was provided by the Single Electricity Market Operator (SEMO), except where otherwise indicated.

We intend to publish this report on a quarterly basis. Any feedback or comments that stakeholders may have should be emailed to:

- Kevin Baron at [kevin.baron@uregni.gov.uk](mailto:kevin.baron@uregni.gov.uk).

### 3. OVERVIEW

**Wholesale costs:** Overall, wholesale electricity costs during the second quarter of this year (Q2 2015) were lower than those in the first quarter of 2015. The decrease in costs was largely driven by high levels of wind in May 2015. There was average of 805 MW generated by wind in this month, compared to an average of 454 MW in May 2014.

1. **System Marginal Prices (SMP):** SMP decreased from an average of €55/MWh in Q1 2015 to €53/MWh in Q2 2015. A key factor in this decrease was high wind levels observed in May. And average monthly demand decreased 12% on Q1 2015.
2. **SEM prices:** SEM prices have continued to follow a similar trend to those in the market in Great Britain (BETTA) and wholesale gas prices.
3. **SEM demand and price levels:** There exists a high correlation between the level of demand and the energy price in the SEM.
4. **Fuel mix:** Gas continues to be the dominant fuel in the SEM, contributing 37% (7% down on Q1 2015) of the fuel mix in Q2 2015. However the overall share of gas in the fuel mix over the past two years has seen gradual erosion from increasing proportions of energy being provided by wind power and through the interconnector units that connect SEM to BETTA in Great Britain. The decrease in Gas was counterbalanced by the increase in Wind (up 5% on Q1 2015) to a 20% total share. Coal usage increased by 1% to a 20% share of total fuel mix
5. **Constraint levels:** Constraints relative to Energy Payments decreased in Q2 2015 (8.5%) when compared to Q1 (10.5%). When comparing to the same period in 2014, Q2 figures are 1.3% lower for the quarter.
6. **Directed contracts:** On average, the prices of directed contract baseload, mid-merit and peak products for 2015 sold to date are between 9% to 10% lower, than those sold for 2014.

## 4. SUMMARY

This section provides a high-level analysis of trends that are observed across the main elements of the SEM:

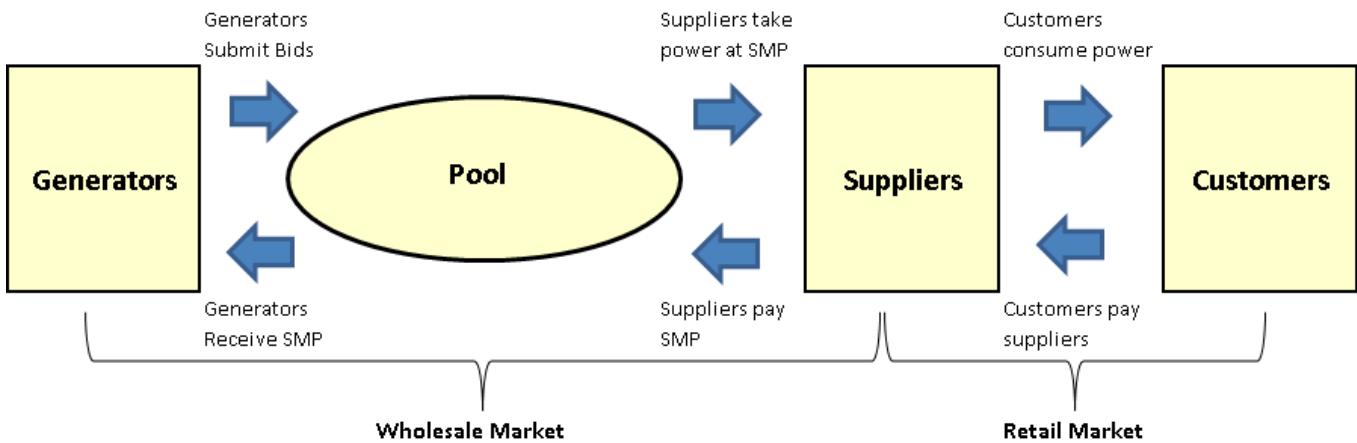
1. **Background to the SEM:** This section explains how the market works, and in particular the way in which generators bid to provide the required electricity.
2. **Electricity prices:** This section provides a high level breakdown of wholesale energy costs for the previous nine quarters.
3. **System marginal price (SMP) and demand:** This section provides information on the SMP and demand levels since 2010.
4. **Within day energy prices:** This section shows the average price and demand for each trading period in the previous nine quarters.
5. **SMP shadow Price & Uplift:** SMP can be broken down into two main areas - the Shadow Price and Uplift. This section looks at the impact of changes in these two areas on the SMP price for Q2 2015.
6. **Fuel mix:** This section outlines the changes in the type and proportion of fuels that were used for generation over the previous nine quarters.

## How the Single Electricity Market works

This section provides a brief overview of how the SEM operates. The SEM is the electricity market for the island of Ireland. It was introduced in November 2007. The SEM is jointly regulated by the Utility Regulator and the Commission for Regulation (referred to in this report as the Regulatory Authorities).

The SEM is a pool market through which all suppliers and generators above a minimum threshold must trade electricity. A market overview is shown below.

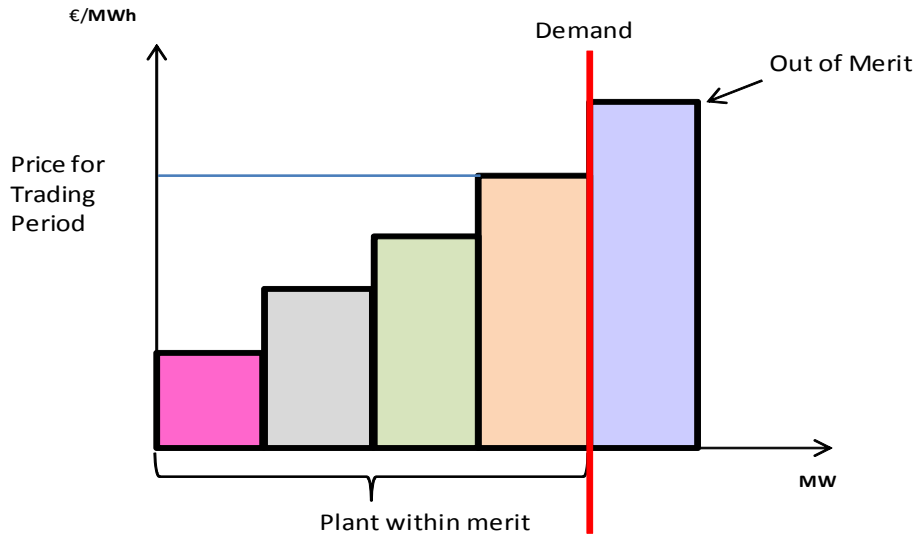
**Figure 1: Market Overview**



Generators submit bids to the market based on their short run marginal costs (as required by their licences and by the Bidding Code of Practice). These bids are mostly made up of fuel-related costs.

The SMP is determined for each half hour period, based on bids received from generators and customer demand. The SMP and schedule of generation is calculated by SEMO using optimisation software. Broadly speaking, bids that are submitted by the generators are stacked in order, starting with the least expensive, until demand is met. This process is illustrated in Figure 2:

**Figure 2: Market Schedule**



All generators that are scheduled (run in the market) are paid the same SMP for the energy they produce. Supply companies, which sell electricity to customers, pay the SMP for the electricity their customers consume.

Generators also receive Capacity Payments for any periods that they are available to generate. This contributes towards their fixed, long-term costs.

If there are constraints, a generator may be dispatched in a way that is different from the market schedule in order to balance supply and demand. These generators are said to be either 'constrained on' or 'constrained off'. Generators that are constrained off will pay back a payment and those that are constrained on will receive a payment. This ensures that generators are financially neutral for any differences between the market schedule and actual dispatch.

Settlement of the market is carried out by SEMO. This includes payment to generators and the invoicing of suppliers. The cost of operating SEMO is recovered from suppliers. This is a relatively small contributor to costs and is not covered in this report.

## Electricity prices

The electricity prices that consumers pay are made up of a number of different charges. These can be broken down into three broad categories:

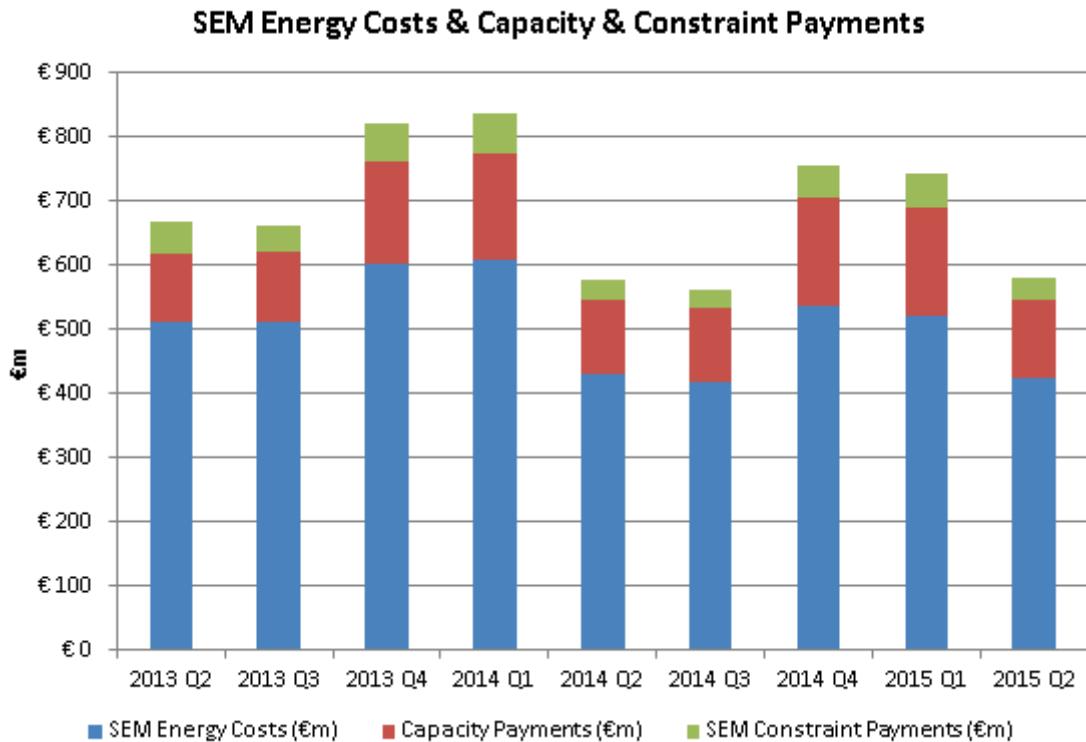
- wholesale costs (around 60%),
- network costs (around 30%), and
- supplier costs (around 10%).

This report focuses on the wholesale element of electricity prices.

The main elements of the SEM wholesale costs are:

- energy costs – these are the costs that are paid to generators for producing electricity;
- capacity costs – these are the costs that are paid to generators that are available to generate if requested;
- imperfections costs (or constraints) – these costs are largely associated with network and system constraints.

The graph below gives a breakdown of these costs over the previous nine quarters:



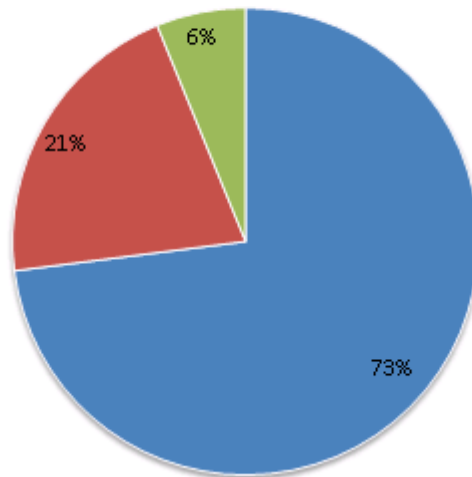


As the following chart shows, energy costs are the largest element of the overall wholesale cost. In the second quarter of 2015, 73% of total wholesale costs were attributable to energy costs (See pie chart below). The main driver behind the cost of energy is the price of fuel. As gas is the most common form of fuel that is used to generate electricity in the SEM, the wholesale gas price has a significant impact on energy costs. Other key factors include the level of demand, the volume of wind generation, coal prices, carbon prices, generation plant availability and interconnector flows from Great Britain.

### Energy Costs as a Percentage of Total Costs

#### 2015 Q2

■ SEM Energy Costs (€m)   ■ Capacity Payments (€m)   ■ SEM Constraint Payments (€m)



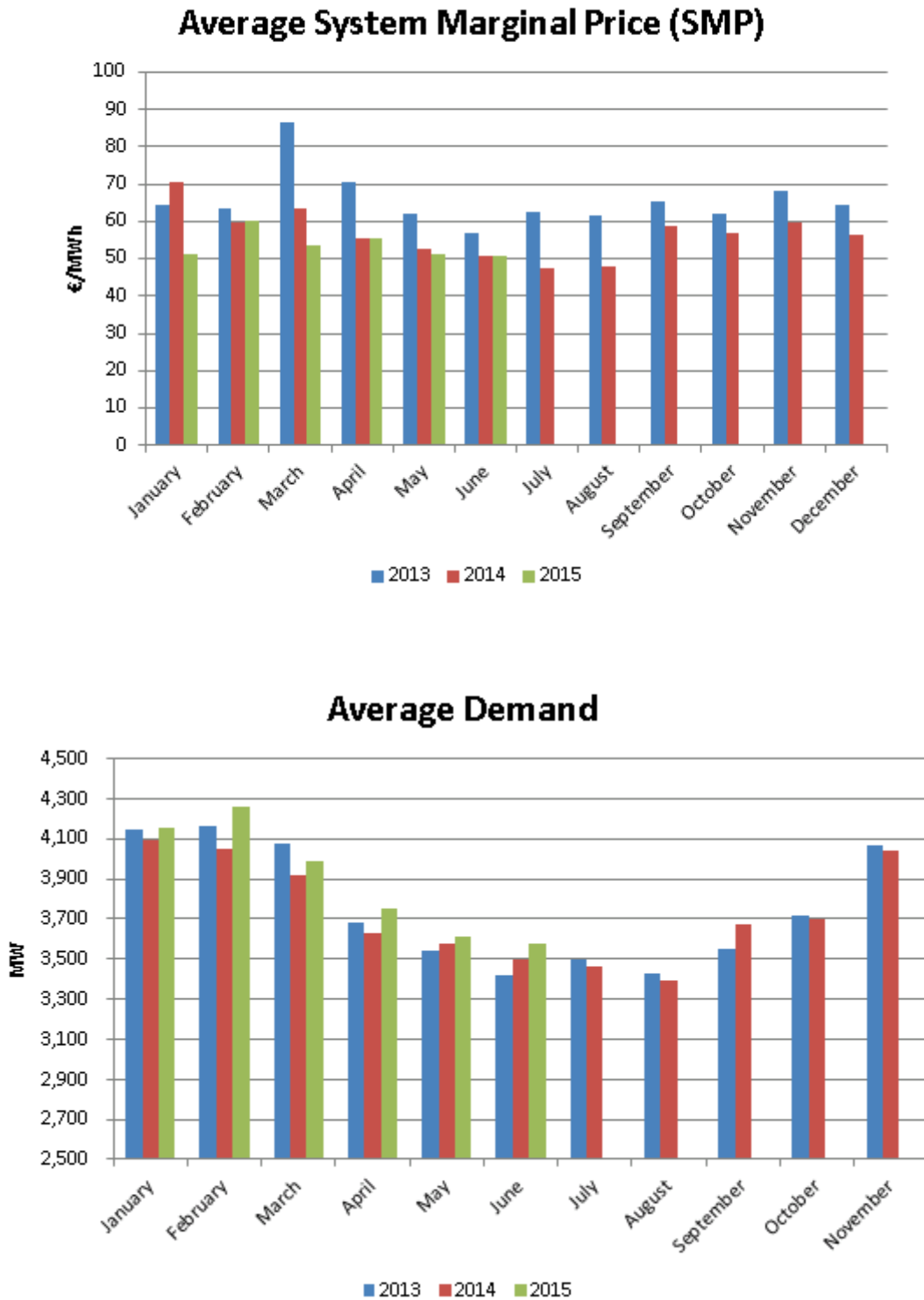
### System Marginal Price and Demand trends

SMP decreased from an average of slightly over €55/MWh in the first quarter of 2015 to €53/ MWh in the second quarter of this year.

Levels of demand decreased from an average of 4137 MW in Q1 2015 to 3645 MW in Q2 2015.

The following figures show the average monthly SMP and the demand recorded in the SEM since 2013.

Figure 4: System Marginal Price and Demand in the Single Electricity Market 2013 - 2015

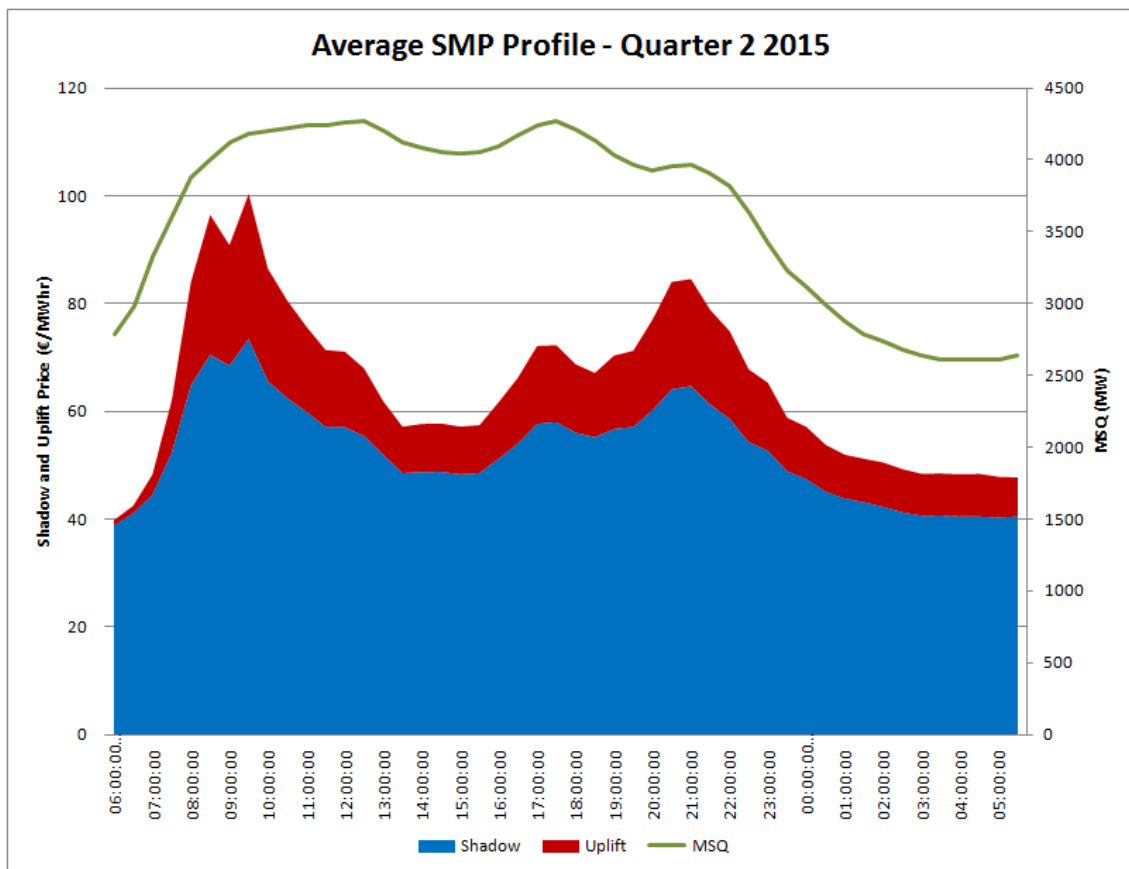


## Analysis of the System Marginal Price

The SMP is made up of the following main components:

- The Shadow Price often reflects the marginal cost of the most expensive generator that is scheduled by SEMO. This makes up the majority of SMP.
- Uplift usually relates to a generator’s Start-Up Costs and No Load costs (i.e. production costs that do not vary with the level of output). Uplift is incurred to ensure that all generators recover these costs over the Trading Day.

The figure below shows the average SMP profile, broken down by Shadow Price and Uplift for the previous quarter:



Please note graph above has been updated following a review of data – September 2016

## Share of generation by fuel type (fuel mix)

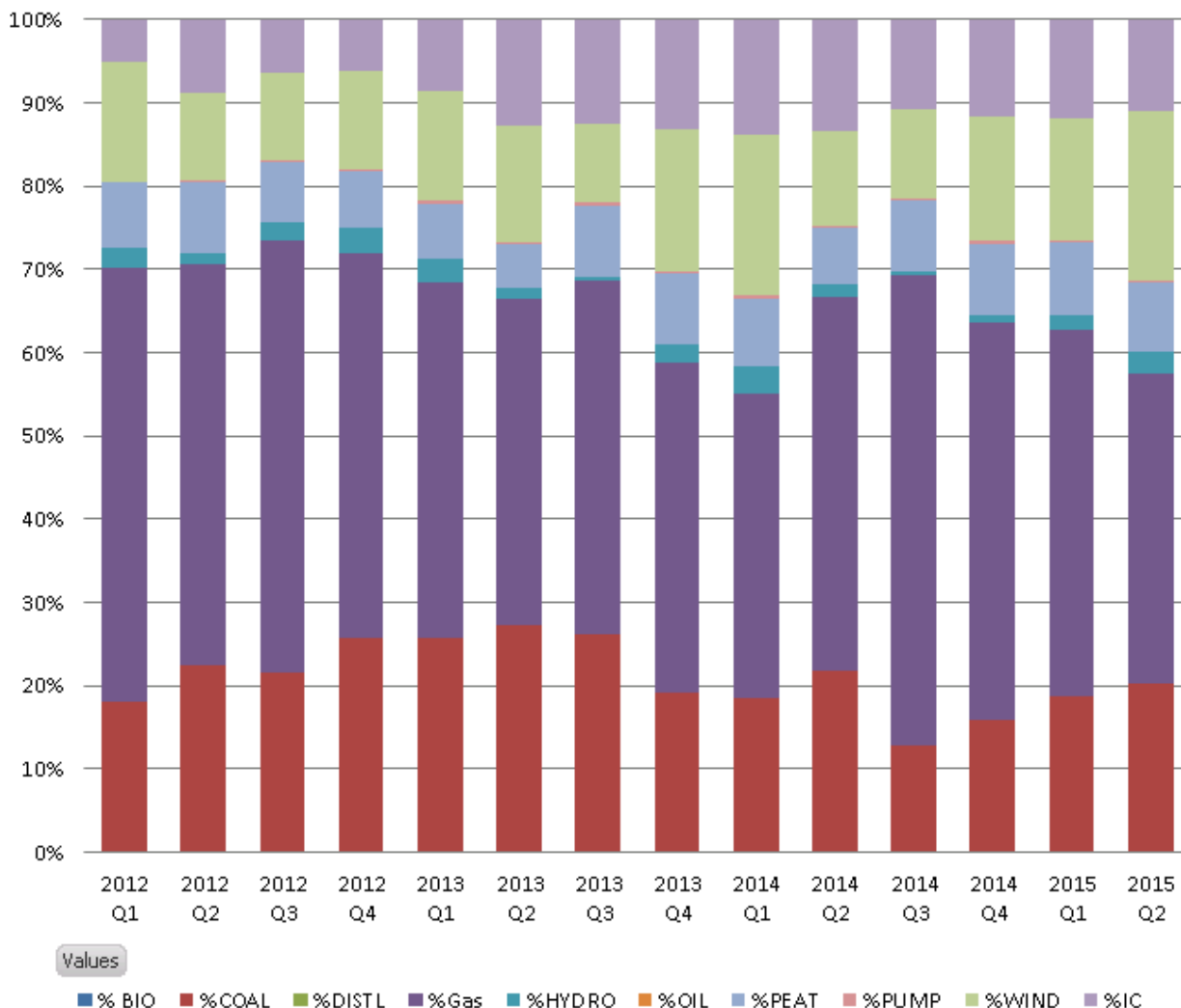
Gas is the most common fuel that is used for electricity production in the SEM. The figure below shows the average percentage of generation by each fuel type in each quarter since the first quarter of 2012.

A number of trends can be observed:

- In Q2 2014, gas represented 45% of the fuel mix. This has decreased to 37% in Q2 2015.
- The share of generation provided by Interconnector Units also decreased over the same period, standing at 13% in Q2 2014, decreasing to 11% in Q2 2015.
- Conversely, the share of generation provided by coal units increased over the period.
- Wind share decreased slightly from 22% to 20%.

**Figure 7: Fuel Mix in the Single Electricity Market Q1 2012 – Q2 2015**

**MSQ by Fuel Mix - Q2 2015**



## 5. DETAILED MARKET INFORMATION

### Summary

The following section provides more in-depth information on trends observed across the SEM:

1. **Dashboard.** This section builds on the previous chapter and explores quarterly trends that have been observed.
2. **Energy prices.** This section is presented in two main parts. The first covers the relationship between the SMP and prices in Great Britain (BETTA). The second covers the relationship between SMP and fuel/capacity prices.
3. **Market share.** This section looks at both the Market Schedule Quantity (MSQ<sup>3</sup>) and Dispatch Quantity (DQ<sup>4</sup>) by company.
4. **Constraints.** Levels of constraints in the SEM have increased considerably over the past nine months. This section analyses the cost to the consumer of constraint payments.
5. **Infra-marginal rent (IMR).** IMR is the difference between the price paid for generation and the cost to produce that generation. Levels of IMR are analysed and trends explained in this section.
6. **Interconnector Flows:** This section analyses the percentage of interconnector flows in the expected profitable direction.

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<sup>1</sup> MSQ is the market scheduled quantity of output of all generators in each trading period.

<sup>2</sup> DQ is the Dispatch Quantity defined as the level of active power dispatched by the relevant transmission system operator in each trading period.

**Figure 8: Single Electricity Market quarterly dashboard**

Quarterly Averages	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Change From last Quarter
SMP €/MWh	62	67	72	63	63	65	65	53	51	58	55	53	↘
% Change from previous Quarter	0%	7%	8%	-12%	0%	3%	0%	-18%	-3%	12%	-4%	-4%	
% Change from Quarter, previous year	2%	11%	16%	1%	1%	-2%	-10%	-16%	-18%	-11%	-15%	-1%	
Margin MW	5105	5552	5245	5421	5337	5536	5479	5073	5031	5785	6278	5125	↓
% Change from previous Quarter	9%	9%	-6%	3%	-2%	4%	-1%	-7%	-1%	15%	9%	-18%	
% Change from Quarter, previous year	12%	15%	12%	16%	5%	0%	4%	-6%	-6%	4%	15%	1%	
Demand MW	3444	3959	4132	3547	3492	3884	4021	3567	3506	3934	4137	3645	↓
% Change from previous Quarter	-5%	15%	4%	-14%	-2%	11%	4%	-11%	-2%	12%	5%	-12%	
% Change from Quarter, previous year	-2%	0%	2%	-2%	1%	-2%	-3%	1%	0%	1%	3%	2%	
Actual Availability MW	8549	9511	9377	8968	8829	9421	9500	8640	8537	9719	10415	8770	↓
% Change from previous Quarter	3%	11%	-1%	-4%	-2%	7%	1%	-9%	-1%	14%	7%	-16%	
% Change from Quarter, previous year	6%	8%	7%	8%	3%	-1%	1%	-4%	-3%	3%	10%	2%	
Shadow €/MWh	46	50	53	44	44	46	47	37	36	43	41	40	↘
% Change from previous Quarter	1%	8%	6%	-18%	2%	4%	2%	-21%	-3%	18%	-4%	-1%	
% Change from Quarter, previous year	3%	10%	14%	-5%	-4%	-8%	-11%	-15%	-18%	-7%	-13%	9%	
Uplift €/MWh	16	16	19	20	19	19	18	16	15	15	14	12	↓
% Change from previous Quarter	-4%	4%	13%	5%	-3%	-1%	-6%	-11%	-3%	-4%	-5%	-13%	
% Change from Quarter, previous year	0%	14%	22%	18%	19%	14%	-5%	-20%	-20%	-22%	-21%	-23%	
Interconnector (Total)	219	245	355	449	443	513	552	439	346	443	366	233	↓
Moyle			205	190	111	197	244	128	65	294	253	202	
EWIC			150	259	331	315	307	311	281	149	113	31	
% Change from previous Quarter	-32%	12%	45%	27%	-1%	16%	8%	-20%	-21%	28%	-17%	-36%	
% Change from Quarter, previous year	91%	-	71%	39%	102%	109%	55%	20%	-15%	-53%	-34%	-47%	
Wind MW (produced)	368	468	555	502	330	666	783	410	371	801	919	646	↓
% Change from previous Quarter	-3%	27%	19%	-10%	-34%	102%	18%	-48%	-9%	116%	15%	-30%	
% Change from Quarter, previous year	-3%	-35%	-4%	32%	-10%	42%	41%	-18%	12%	20%	17%	58%	

Note: The wind figures presented in this table do not cover production from wind farms which are not part of the SEM.

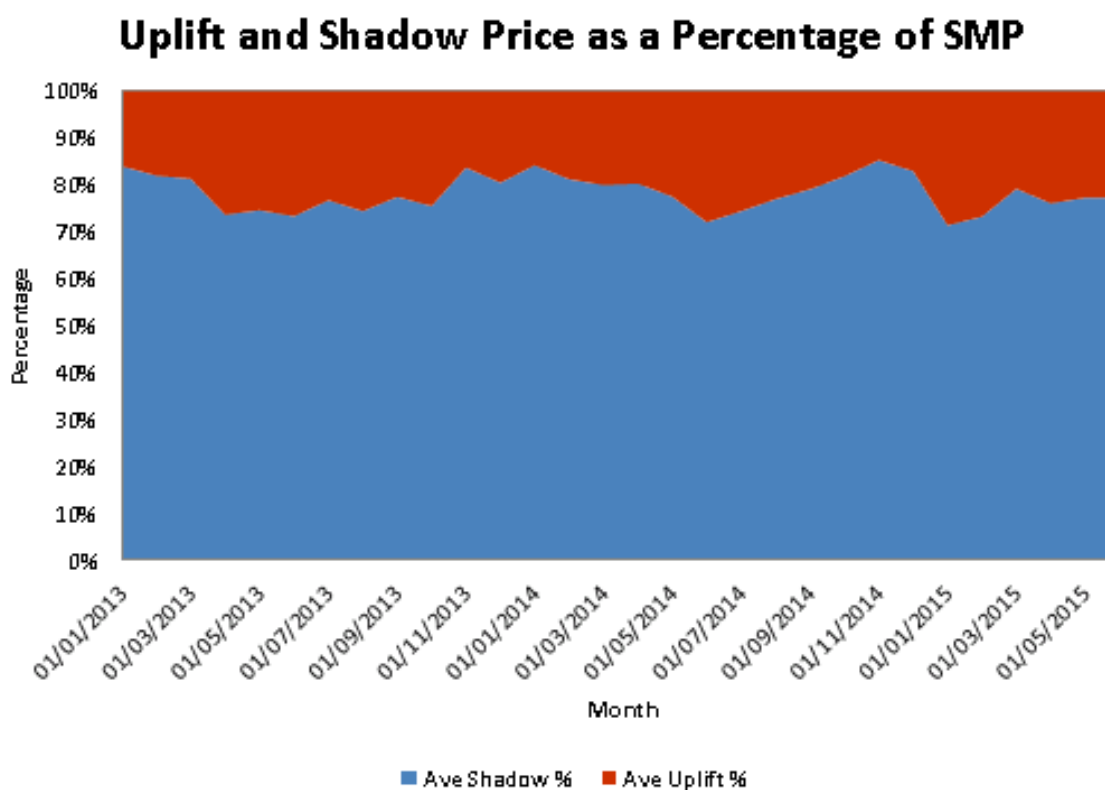
### Commentary

- The average SMP during Q2 2015 was €53/MWh, €2/MWh lower than in Q1 2015. SMP was also €53/MWh for Q2 2014 as this quarter. Comparing this to Q2 2013, SMP has fallen by €10/MWh (a 16% decrease).
- Levels of demand have remained generally stable over the past nine quarters, with the usual seasonal fluctuations being observed. Like for like comparison with 2014 and 2013 shows a 2% and 3% increase in demand respectively.
- Margin levels have largely fluctuated over the last nine quarters; Q2 2015 was down 18% on Q1 2015. This decrease was driven largely by a reduction in Availability. When compared to the same quarter previous year there is an increase of 1%.
- Actual Availability is down by 16% on Q1 2015. When compared to the same quarter in 2014; there has been a 1.5% increase.
- The Shadow Price has decreased the quarter, from €41/MWh in Q1 2015 to €40/MWh in Q2 2015.
- Average Uplift has slightly decreased over the past quarter from €14/MWh in Q1 2015 to €12/MWh in Q2 2015.

## Energy price trends

The SMP comprises two components – the Shadow Price and Uplift. The monthly SMP since January 2013, broken down by these two elements, is shown below in Figure 9. In Q1 2015, the proportion of Uplift (as a percentage of SMP) increased on the previous quarter (Q4 2014) but has largely remained constant as a proportion of SMP in Q2 2015.

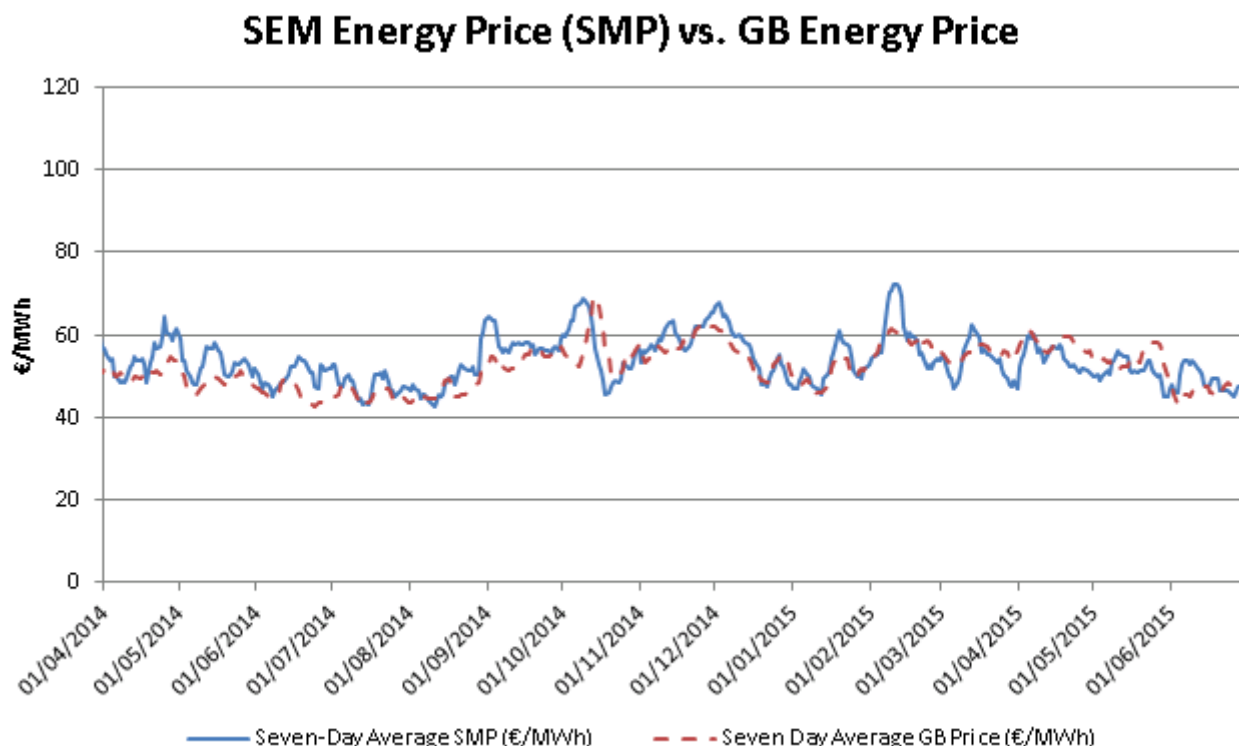
Figure 9: Average monthly Uplift



The two interconnectors that operate in the SEM (Moyle and EWIC) are both connected to the network in Great Britain (BETTA). A price comparison between the two markets is shown in the figure below:



Figure 10: Price comparison between the Single Electricity Market and BETTA

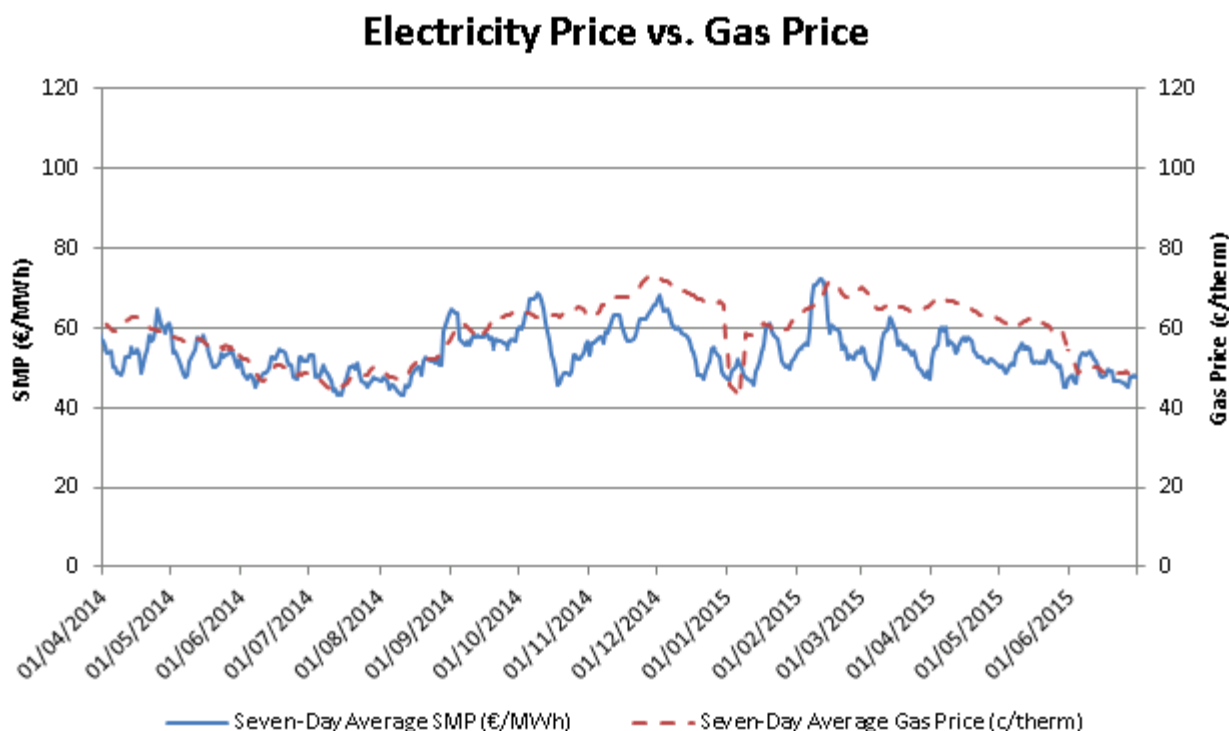


The SEM prices shown above do not include Capacity Payments made to generators. The profile and trend of historic market prices in both markets is broadly similar, and there is a high degree of correlation between the two. This gives some confidence that SEM prices are not unreasonable.

Gas has been dominant in the generation fuel mix since the SEM was established. As a result the profile of electricity prices has tended to follow that of the price of gas. While this continues to be the case today, in general the proportion of gas in the fuel mix has started to decrease.

The figure below shows the relationship between gas prices and electricity price in the SEM.

Figure 11: System Marginal Price and Gas Price comparison

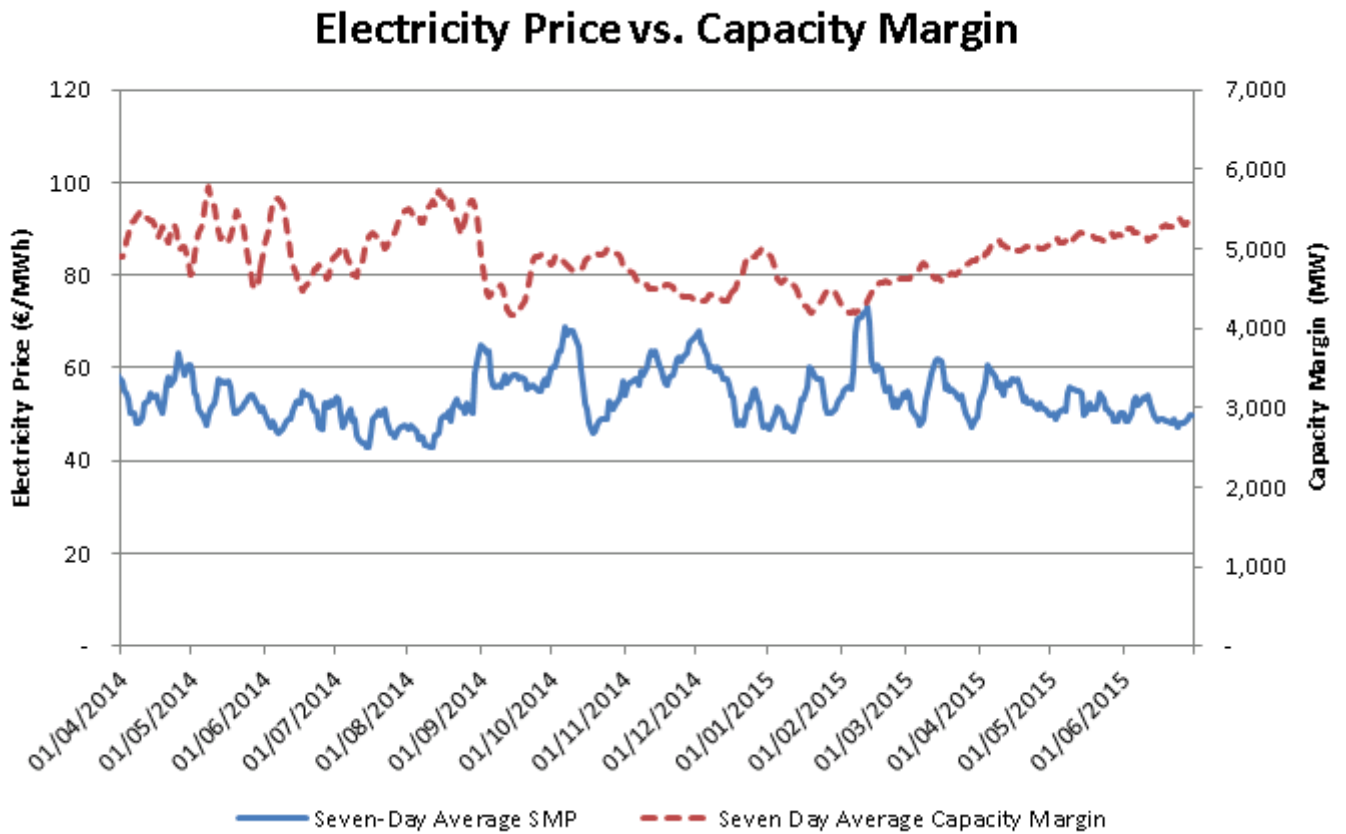


Though historically closely linked, recent quarters have seen a decrease in the correlation between the Gas price and SMP. This can, in part, be attributed to the rise in other fuel sources. This can be seen in the previous chapter of this report in the 100% fuel mix bar chart.

Another factor that can have an impact on the SMP is the capacity margin. This is the amount by which the total available generation exceeds the level of demand in any period. The lower the capacity margin the more likely it is there will be a need for more expensive generators to be run in the market. This will have the effect of increasing SMP.

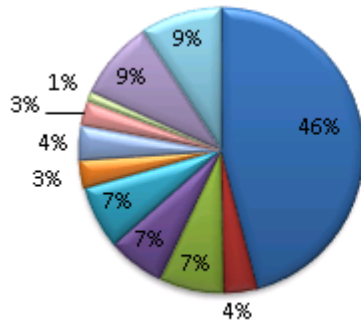
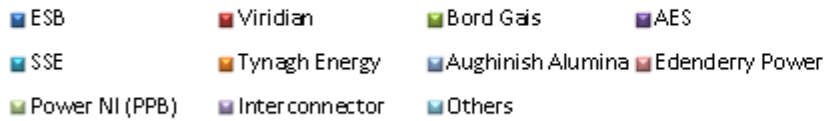
From an all-island perspective there appears to be a healthy capacity margin over the period. The figure below shows that on average there is close to 5,000MW of spare generation capacity in the market. Electricity prices and capacity margin in the SEM have displayed signs of an inverted relationship historically. Spikes in SMP have generally occurred at times of lower levels of excess capacity.

Figure 12: System Marginal Price and Capacity Margin comparison

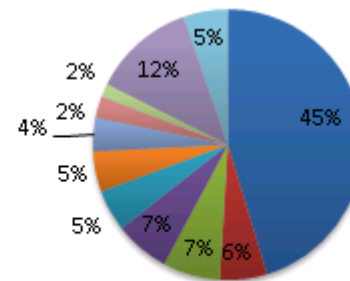


**Figure 13a: Market Schedule Quantity by generation owner**  
**Market Schedule Quantity**

**Q2 2015**



**Previous 8 Quarters**



The SEM operates on an unconstrained basis and is settled by the SEMO on an ex post basis. This can lead to differences between the market schedule and the real time dispatch of generating units. This is due to the System Operator dispatching generating units in real time under additional constraints that are not included in the market engine.

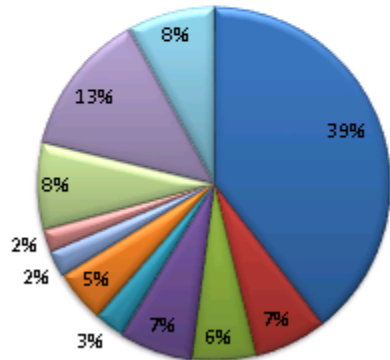
The pie charts compare the share of MSQ and DQ by generation owner between the previous eight quarters and the latest quarter.

Figure 13b: Dispatch Quantity by generation owner

Dispatch Quantity

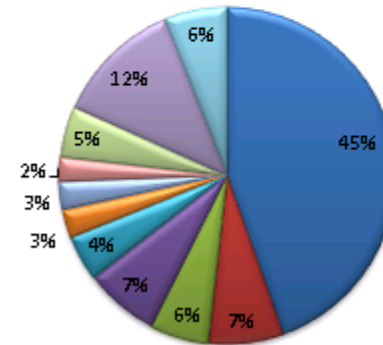
Q2 2015

- ESB
- SSE
- Power NI (PPB)
- Viridian
- Tynagh Energy
- Interconnector
- Bard Gais
- Aughinish Alumina
- Others
- AES
- Edenderry Power



Previous 8 Quarters

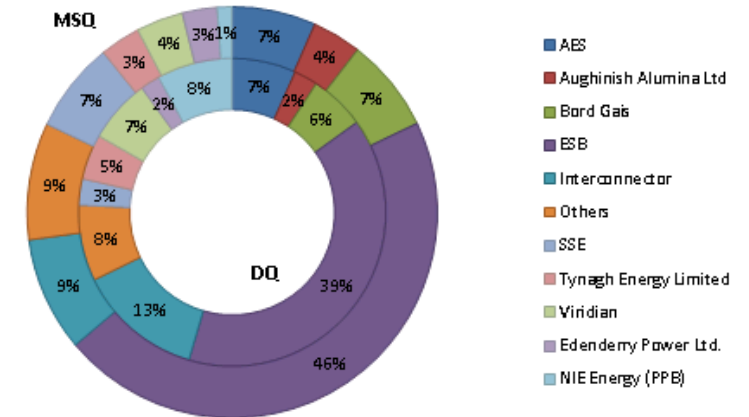
- ESB
- SSE
- Power NI (PPB)
- Viridian
- Tynagh Energy
- Interconnector
- Bard Gais
- Aughinish Alumina
- Others
- AES
- Edenderry Power



**Figure 13c: Q2 2015 Dispatch Quantity versus Market Scheduled Quantity by generation owner**

Owner	DQ	DQ %	MSQ	MSQ %
AES	1,280,939	7%	1,147,549	7%
Aughinish Alu	473,837	2%	672,316	4%
Bord Gais	1,111,791	6%	1,285,669	7%
ESB	7,507,747	39%	7,986,852	46%
Interconnecto	2,512,467	13%	1,567,305	9%
Others	1,521,599	8%	1,599,828	9%
SSE	521,599	3%	1,237,460	7%
Tynagh Energy	904,632	5%	555,645	3%
Viridian	1,279,493	7%	643,037	4%
Edenderry Pov	391,313	2%	475,646	3%
NIE Energy (PP	1,511,340	8%	203,574	1%
Total	19,016,757	100%	17,374,881	100%

**DQ vs MSQ for Q2 2015 by Generation Owner**



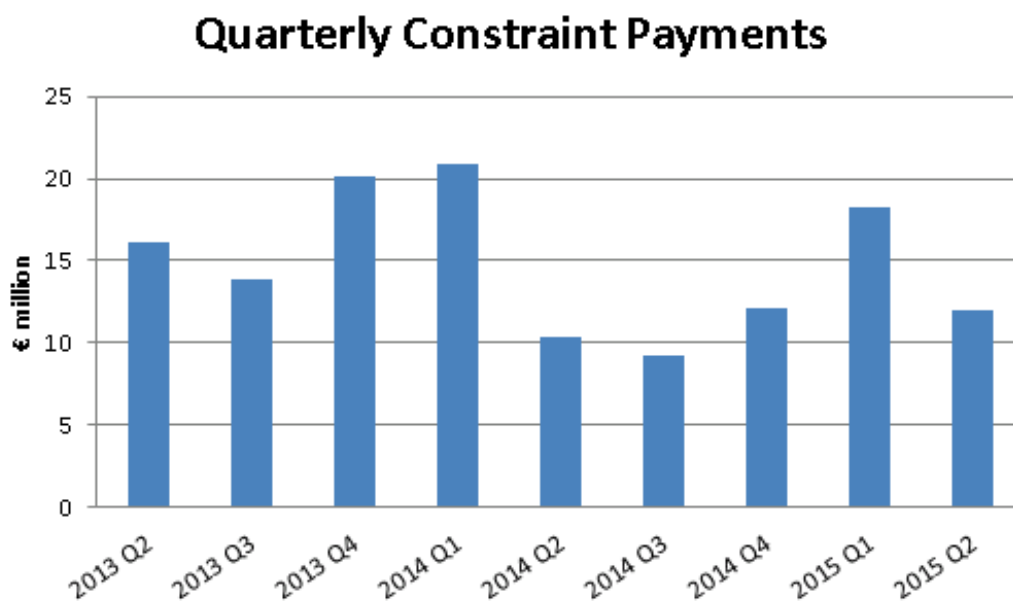
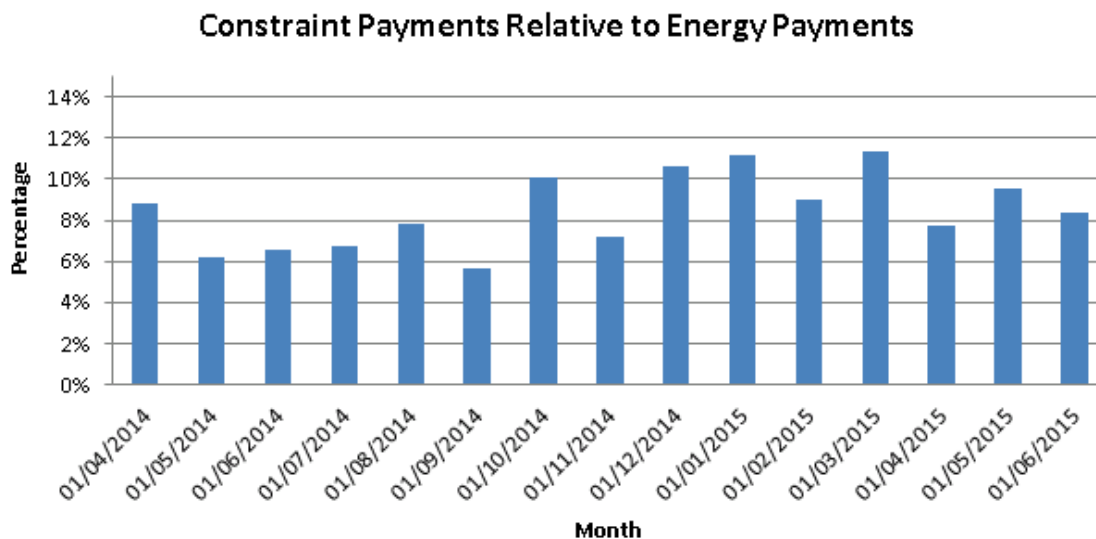
If there is a difference between the market schedule and the real-time dispatch the System Operators must dispatch generator units in real time under additional constraints not considered by the market engine. Transmission constraints and the need to provide reserve on the network are some of causes. Constraint payments keep generators financially neutral against these differences.

To balance supply and demand, constraining off will always result in generators being constrained on, and vice versa. Units constrained off will pay back a constraint payment and the corresponding units that are constrained on will receive a payment.

The figure below shows the proportion of constraint payments relative to energy payments since July 2014.

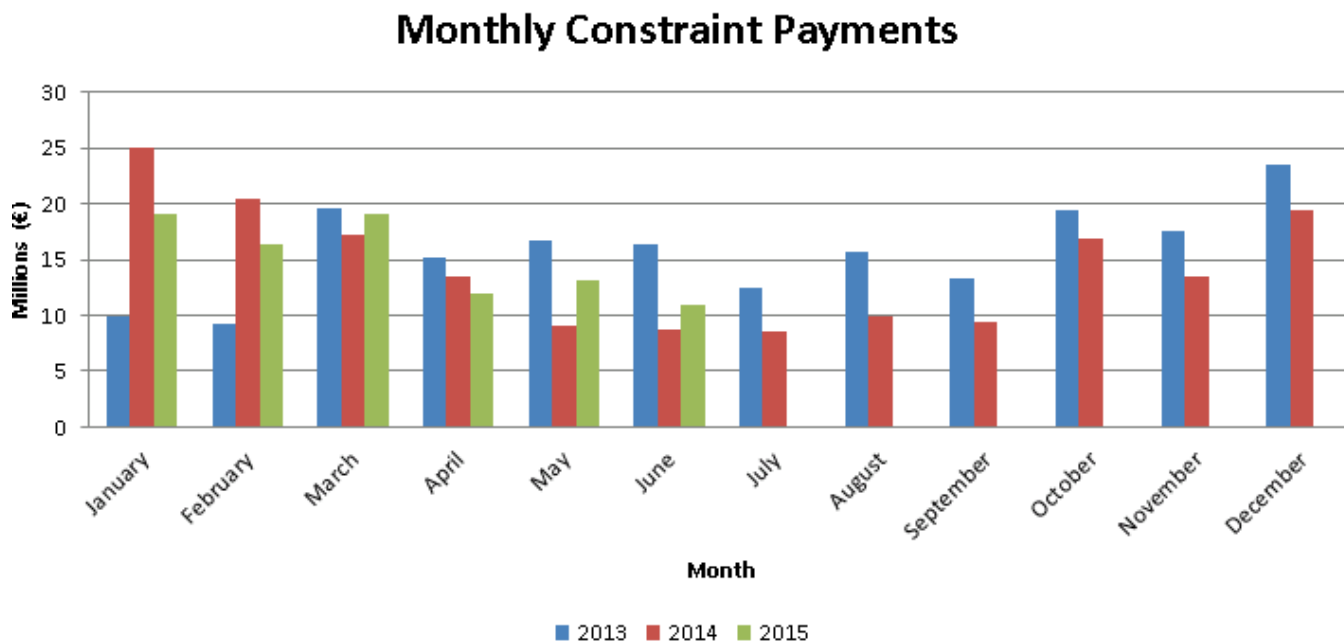
## Constraint cost trends

Figure 14: Percentage of Constraint Payments relative to Energy Payments 2014 - 2015



In Q2 2015, constraints costs relative to energy payments were on average 8.5%. The previous quarter averaged 11%.

Figure 15: Monthly Constraint Payments 2013 - 2015



During Q2 2015, the average constraint costs remained below those observed in Q2 2014 in April only. This could be attributed to a number of reasons such as lower fuel prices that have been observed. This would result in decreasing short run marginal costs paid out to constrained generators.

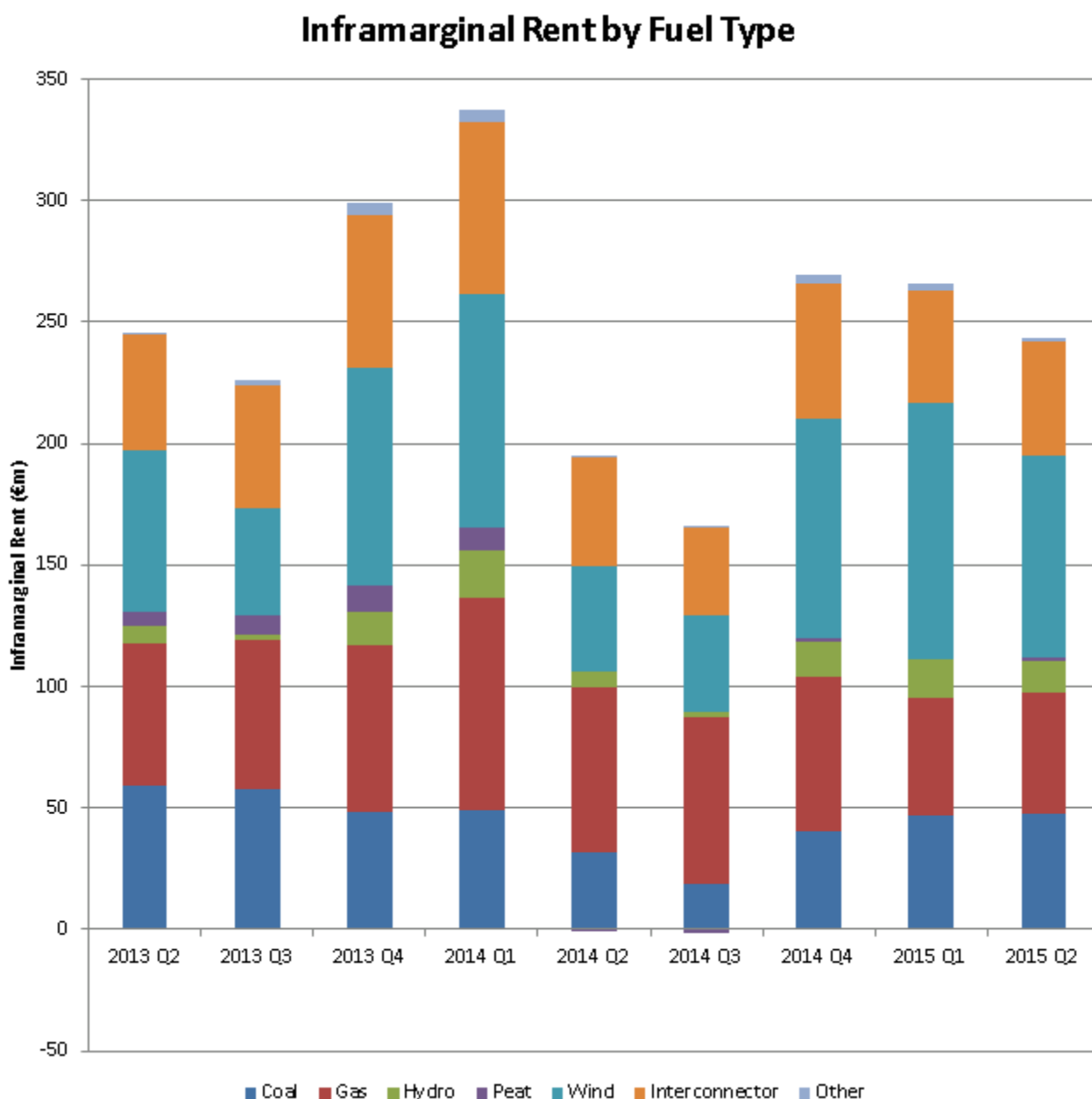


## Infra-marginal rent (IMR) trends

IMR is the difference between the price paid for generation and the cost to produce that generation. All scheduled generators whose bids are less than the SMP for the period will earn varying levels of IMR, depending on their bid price.

The following chart shows the levels of IMR received by fuel type.

**Figure 16: Quarterly breakdown of Infra Marginal Rent by Fuel Type**



A number of trends can be observed from this information (previous quarter in red).

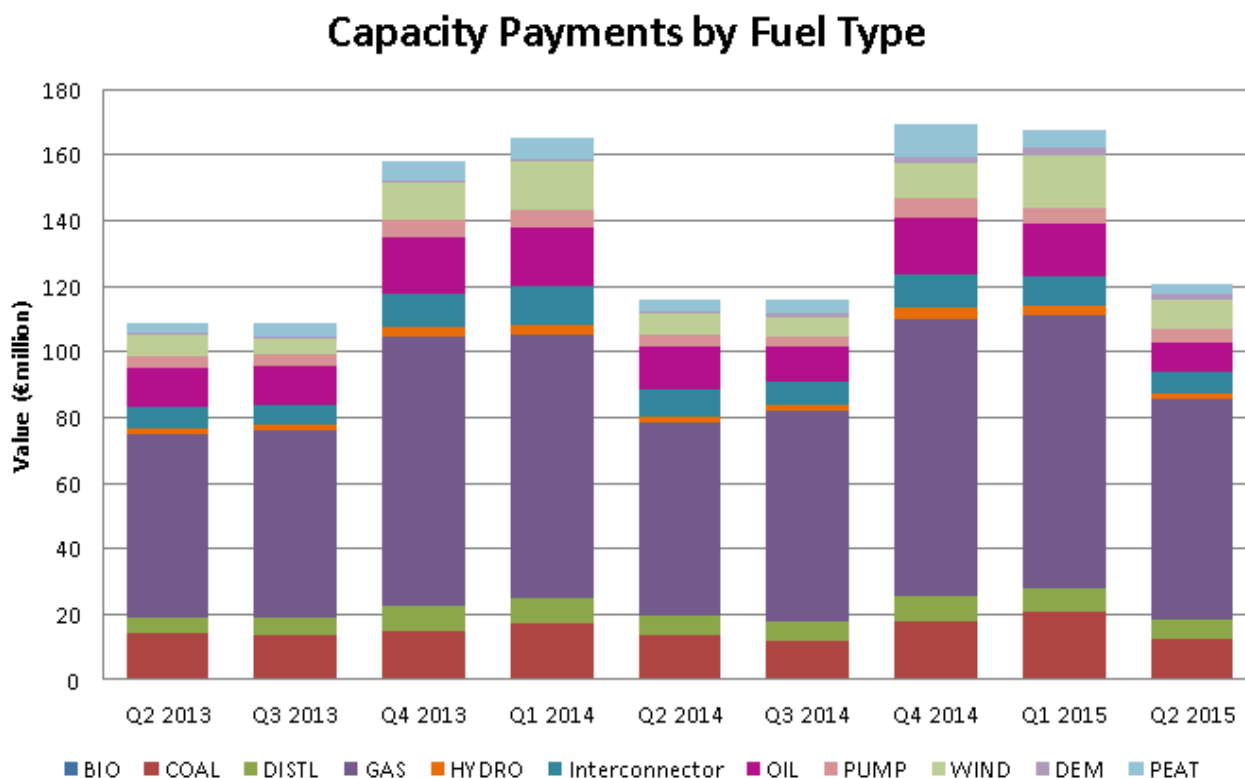
- Wind generation makes up a large share of IMR when compared with its percentage of the fuel mix. In the latest quarter (Q2 2015), wind accounted for €84m (€105m) of IMR which represents 34% (40%) of the total. In Q2 2015, wind generation accounted for 20% (15%) of the MSQ.
- Gas and coal generation made up 40% (38%) of IMR collectively in Q2 2015.

## Capacity revenues

All generators receive capacity payments when they are available. These are paid on a monthly basis from a predetermined Annual Capacity Payment Sum, which is €575m in the 2015 Trading Year.

The figure below shows the capacity payments by fuel type for each quarter since the start of 2013.

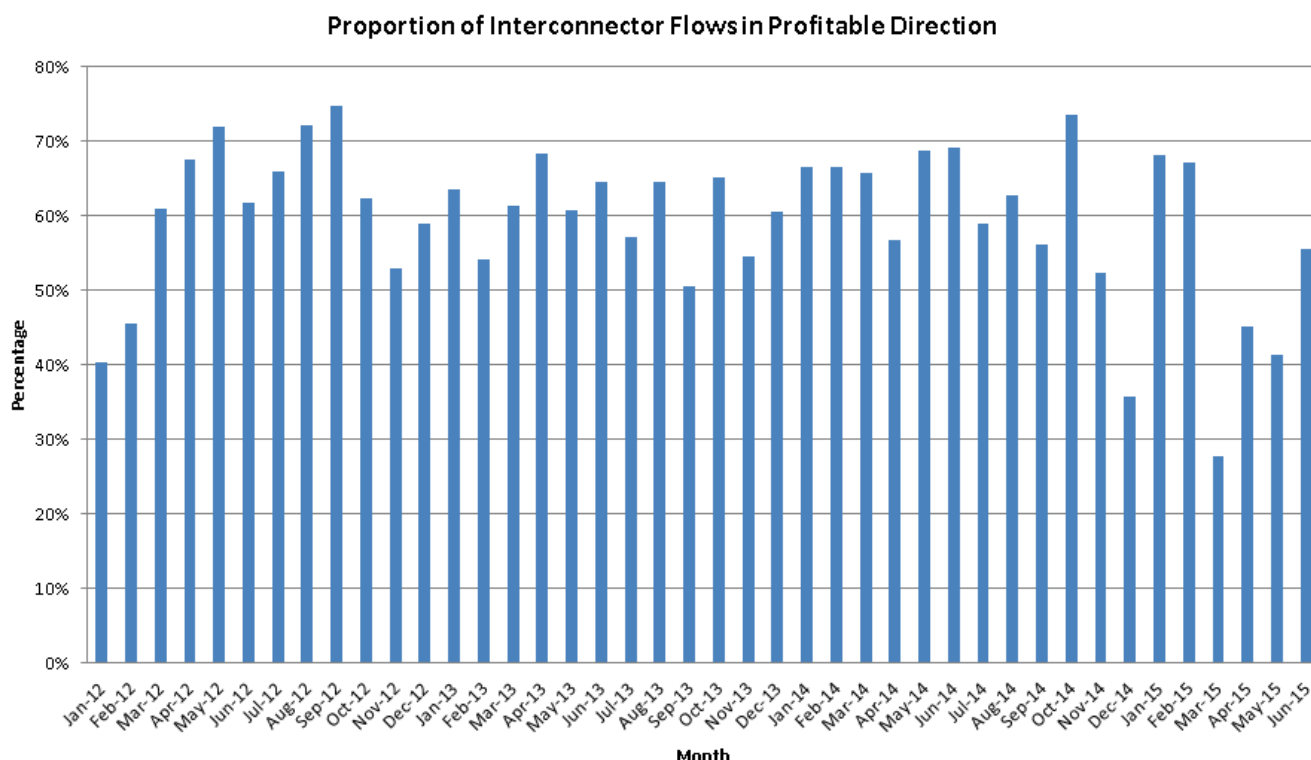
Figure 17: Quarterly breakdown of Capacity Payments by Fuel Type



The size of the capacity payments reflects both the availability and volume of installed MW capacity of each fuel type. As can be seen, gas generators are the largest recipient of capacity payments. This is because of their high levels of availability and the large volume of gas generation in the SEM.

### Interconnector flows

The following figure illustrates the percentage of times in a month that the interconnector flows in the expected profitable direction (i.e. from Great Britain to the SEM if the SEM price is higher and vice versa).



The figure highlights that interconnector flows do not always flow in the expected profitable direction. There are a number of reasons behind this, including the fact that different structures currently exist in the two markets. At present the market price in Great Britain is set using an ex ante price, whereas the SEM market is set using ex post prices. The two sets of prices often differ, which exposes traders to varying degrees of risk. It is expected that these arrangements may change once the I-SEM has been implemented and there is further harmonisation of the markets. On average the flow of energy in the profitable direction in the second quarter of 2015 was 47% .

## 6. DIRECTED CONTRACTS

In November 2012 the regulatory authorities published an information note<sup>6</sup> on contracting in the SEM from 2007 to 2013. The note provided details about the different contract products offered as well as the volume of contracts sold each year. The note also showed the trends in prices over the past number of years, both in terms of fuels and contracts. This included information on the price and volume of directed contracts sold.

In April 2012 the regulatory authorities published the decision<sup>7</sup> on the format of directed contracts for 2012/13 and beyond. The decision was to move away from holding directed contract subscriptions on an annual basis<sup>8</sup> and instead to have rolling quarterly subscriptions. With the move to quarterly subscriptions, it is appropriate that information on the price and volumes of directed contracts should be provided on a more regular basis than the annual contracting report.

The tables and figures below provide information on the price and volume of directed contracts subscriptions, using the same format as the contracting report. The information includes the latest subscription round, round 13 which was held in June 2015. Each subsequent quarterly price report will include the latest subscription results.

The contract volumes for 2016 show the volume of contracts sold to date and do not represent the full volume of contracts that are likely to be sold for the period. As a result of the DC subscriptions moving to a rolling quarterly schedule, the full volume for each quarterly product (e.g., Baseload Q1 2016) will be sold over a year. The table below shows the proportion of the expected total directed contracts volumes that have been sold for those years to date.

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<sup>3</sup> Contracting in the SEM 2007-2013 – SEM/12/100

<sup>4</sup> Directed Contracts Implementation for 2012/13 and Beyond – SEM/12/026

<sup>5</sup> Following the traditional tariff year from Q4 in year one to Q3 in year two.

Expected Volumes of DCs Offered to Date					
<b>Q1 2014</b>	<b>Q2 2014</b>	<b>Q3 2014</b>	<b>Q4 2014</b>	<b>Q1 2015</b>	<b>Q2 2015</b>
<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Q3 2015</b>	<b>Q4 2015</b>	<b>Q1 2016</b>	<b>Q2 2016</b>	<b>Q3 2016</b>	<b>Q4 2016</b>
<b>100%</b>	<b>100%</b>	<b>75%</b>	<b>50%</b>	<b>25%</b>	

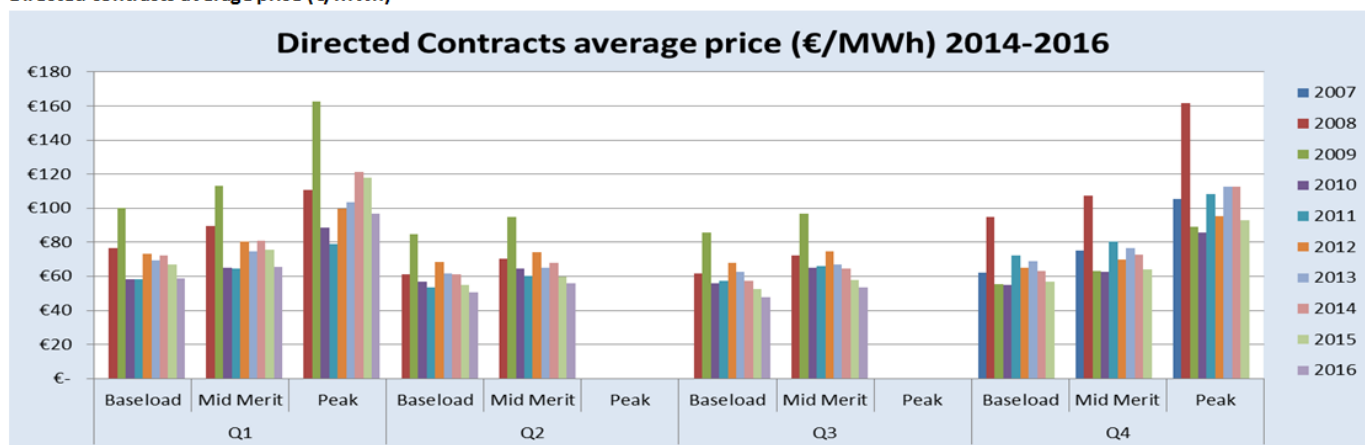
On average, the prices of directed contract baseload, mid-merit and peak products for 2015 sold to date are between 9% & 10% lower, than those sold for 2014. The volume of directed contracts doubled from 2012 to 2013. This was mainly due to the horizontal integration of ESB's power generation. The volumes for 2015 were just 2% lower than 2014 and 13% above 2013.

## Directed contracts average price (€/MWh), 2007-2016

Directed contracts average price (€/MWh), 2007-2016

DC Average Price (€/MWh), 2007-2016												
Year	Q1			Q2			Q3			Q4		
	Baseload	Mid Merit	Peak	Baseload	Mid Merit	Peak	Baseload	Mid Merit	Peak	Baseload	Mid Merit	Peak
2007										€ 62	€ 75	€ 106
2008	€ 76	€ 90	€ 111	€ 61	€ 70		€ 61	€ 72		€ 95	€ 107	€ 162
2009	€ 100	€ 113	€ 163	€ 85	€ 95		€ 86	€ 97		€ 55	€ 63	€ 89
2010	€ 58	€ 65	€ 88	€ 57	€ 64		€ 56	€ 65		€ 55	€ 62	€ 86
2011	€ 58	€ 65	€ 79	€ 54	€ 60		€ 58	€ 66		€ 72	€ 80	€ 108
2012	€ 73	€ 80	€ 100	€ 68	€ 74		€ 68	€ 74		€ 65	€ 70	€ 95
2013	€ 69	€ 75	€ 104	€ 62	€ 65		€ 63	€ 67		€ 69	€ 76	€ 113
2014	€ 72	€ 81	€ 121	€ 61	€ 68		€ 57	€ 64		€ 63	€ 73	€ 113
2015	€ 67	€ 76	€ 118	€ 55	€ 60		€ 52	€ 58		€ 57	€ 64	€ 93
2016	€ 59	€ 66	€ 97	€ 51	€ 56		€ 48	€ 54				

Directed contracts average price (€/MWh)



## 7. ACRONYMS

<b>AA</b>	Actual availability
<b>DQ</b>	Dispatch quantity
<b>BETTA</b>	British Electricity Trading and Transport Arrangements
<b>ESB PG</b>	Electricity Supply Board Power Generation
<b>EWIC</b>	East West Interconnector Company
<b>GB</b>	Great Britain
<b>IMR</b>	Infra marginal rent
<b>I-SEM</b>	Integrated Single Electricity Market
<b>MLH</b>	Material level of harm
<b>MSQ</b>	Market scheduled quantity
<b>NI</b>	Northern Ireland
<b>Power NI Energy PPB</b>	PowerNI Energy Power Procurement Business
<b>PQ</b>	Price quantity pair
<b>ROI</b>	(Republic of) Ireland
<b>SEMO</b>	Single Electricity Market Operator
<b>SMP</b>	System marginal price
<b>TSOs</b>	Transmission System Operators