

Regular SEM Price Report

May – August 2013 inclusive

Information Paper

15th October 2013

SEM-13-070

1. Introduction

Since 1st November 2007 the Northern Ireland Authority for Utility Regulation (NIAUR or Utility Regulator) and the Commission for Energy Regulation (CER), together referred to as the Regulatory Authorities or RAs, have jointly regulated the all-Island wholesale electricity market known as the Single Electricity Market (SEM) covering both Northern Ireland and the Republic of Ireland. Further details on the project can be found on the AIP website at www.allislandproject.org.

The SEM includes a centralised gross pool (or spot) market which, given its mandatory nature for generators (above 10 MW) and suppliers, is fully liquid. In this pool electricity is bought and sold through a market clearing mechanism, whereby generators bid in their Short Run Marginal Cost (SRMC) and receive the System Marginal Price (SMP) for each trading period for their scheduled market quantities, as well as other revenue streams. Suppliers purchasing energy from the pool pay the SMP for each trading period along with other costs.

Fuel and carbon prices, especially the prices of natural gas, are the primary drivers of the SMP. Therefore, and to assist transparency in the market, the RAs publish a regular report showing, among other things, fuel and carbon prices, showing movements in prices over the preceding two years. This report also includes information on the movement in the SMP over the preceding two years and a forecast to the end of August 2014, as well as a comparison with the prices seen in wholesale electricity markets across a number of other European countries.

2. Fuel & Carbon Markets

The graphs below show the trends in spot and forward prices for gas, coal, oil and carbon for the two-year period from September 2011 to end August 2013. Fuel prices and especially day-ahead gas prices are the main driver for wholesale prices in the SEM.

Gas Prices - Sterling

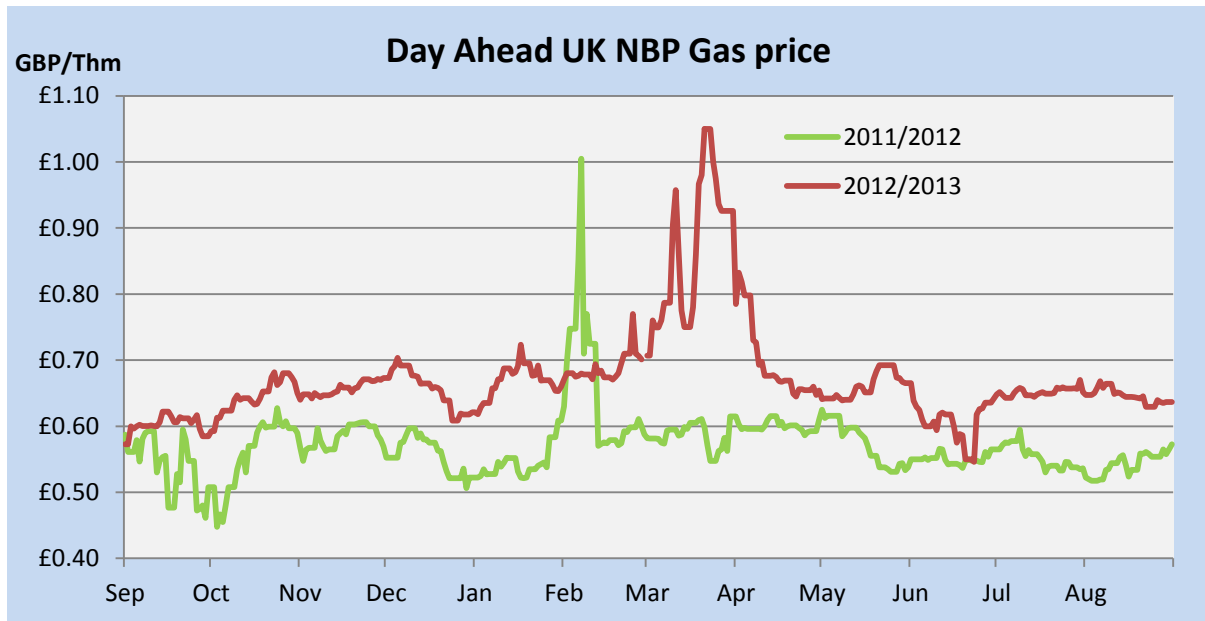
As can be seen from Figure 1 there have been two spikes in gas prices over the course of the past 2 years. The sharp increase in gas prices in early February 2012 was driven primarily by the cold weather, resulting in UK gas demand outstripping supplies and requiring storage withdrawals. Following this brief spike, gas prices returned to around 60 pence per therm (p/therm) and generally remained just below this up until the final quarter of 2012. Then, as we moved into the winter period, the day-ahead price increased, although the mild weather in late December brought the price down somewhat.

There was another price spike in March and April 2013 driven again by the unseasonal cold weather with higher than usual gas demand. An April NBP contract

has not traded at such highs since April 2009¹. From the end of April and throughout the summer prices returned to more typical levels for that time of year.

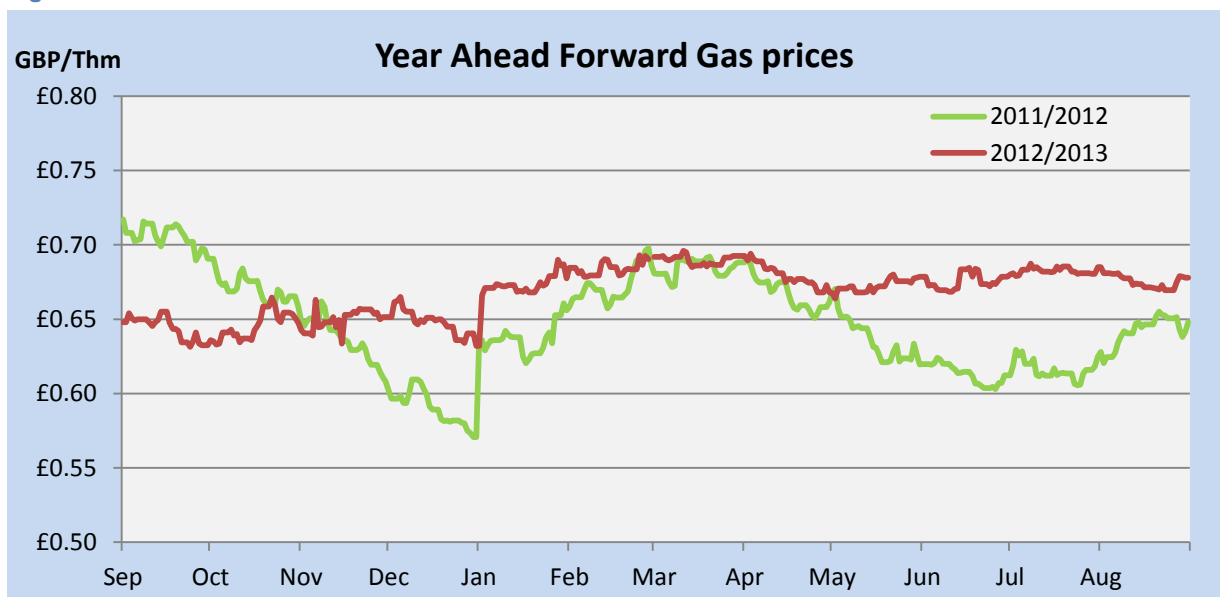
As can be seen from Table 1 overall in Sterling terms the day-ahead gas prices for the twelve months to August 2013 were higher than those experienced in the 12 months to August 2012, with the average daily price having increased by over 17%. The year ahead gas prices were also higher but only by just over 3%. Please also refer to Figure 2. It can be seen that the year-ahead prices did not show the same spikes as the day-ahead prices.

Figure -1



Source – Reuters

Figure -2



Source – Reuters

¹ <http://www.icis.com/heren/articles/2013/03/13/9649154/natural-gas-prices-fall-but-nbp-still-leads-way-as-april.html>

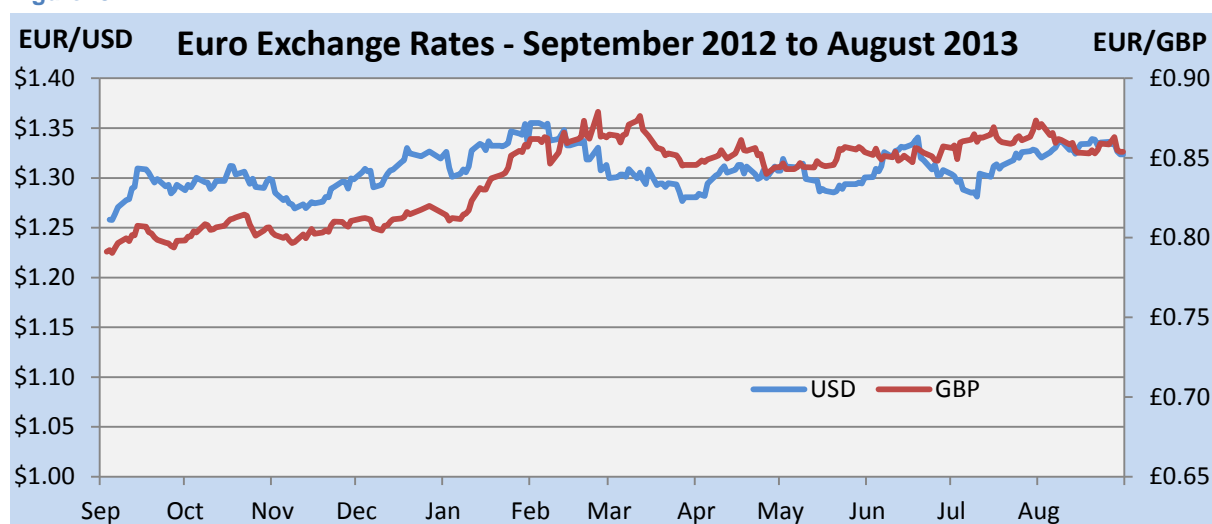
Table 1: Year on Year Change in UK NBP Gas Prices (September-August each year)

Average UK NBP Gas price	2011/12	2012/13	Change
Day Ahead Gas Price - GBP/Therm	0.57	0.67	17.65%
Year Ahead Gas Price – GBP/Therm	0.65	0.67	3.21%

Gas Prices – Euro

As can be seen from Figure 3 the value of the Euro increased against the US Dollar from over a year ago but largely fluctuated around \$1.30. There was a more marked increase against Sterling over the same period, which stabilised around the 85 pence from April of this year. However, taking the average daily exchange rate over the period September 2011 to August 2012 as compared with the same period in 2013, Table 2 shows that the Euro didn't change substantially against the Dollar or Sterling.

Figure -3



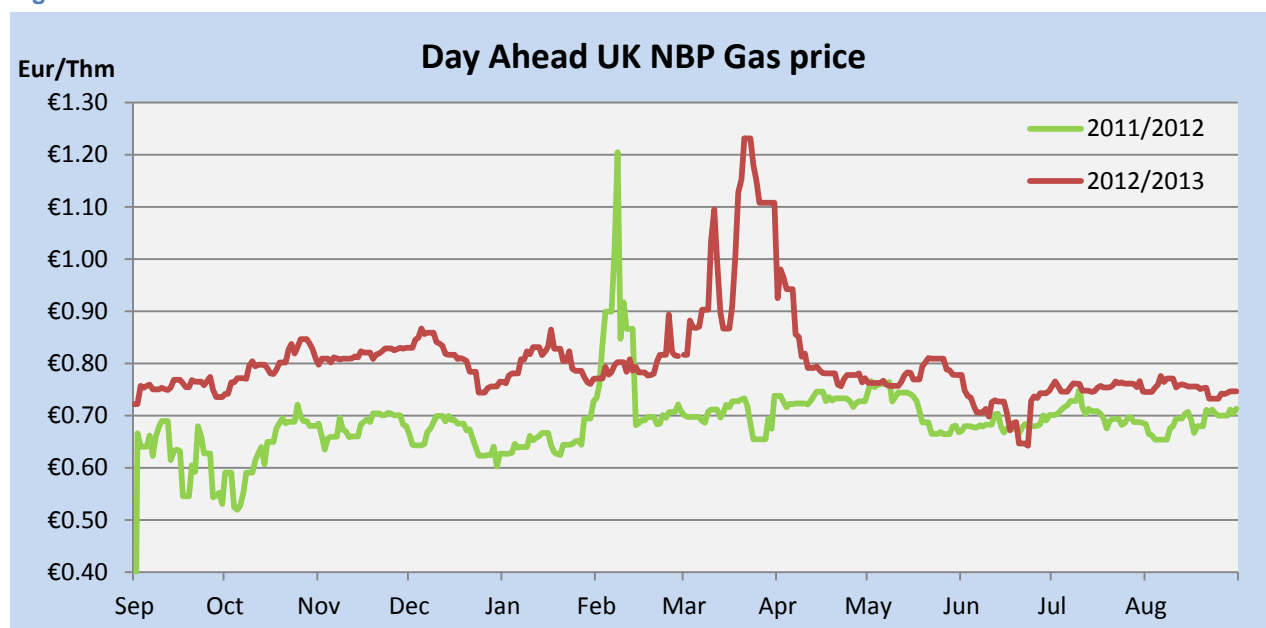
Source - ECB

Table 2: Year on Year Movement in Exchange Rates

Average Exchange Rates	2011/2012	2012/2013	Change on Year
EUR/USD Rate (€1 =)	\$1.31	\$1.31	0.18%
EUR/GBP Rate (€1 =)	£0.83	£0.84	1.01%

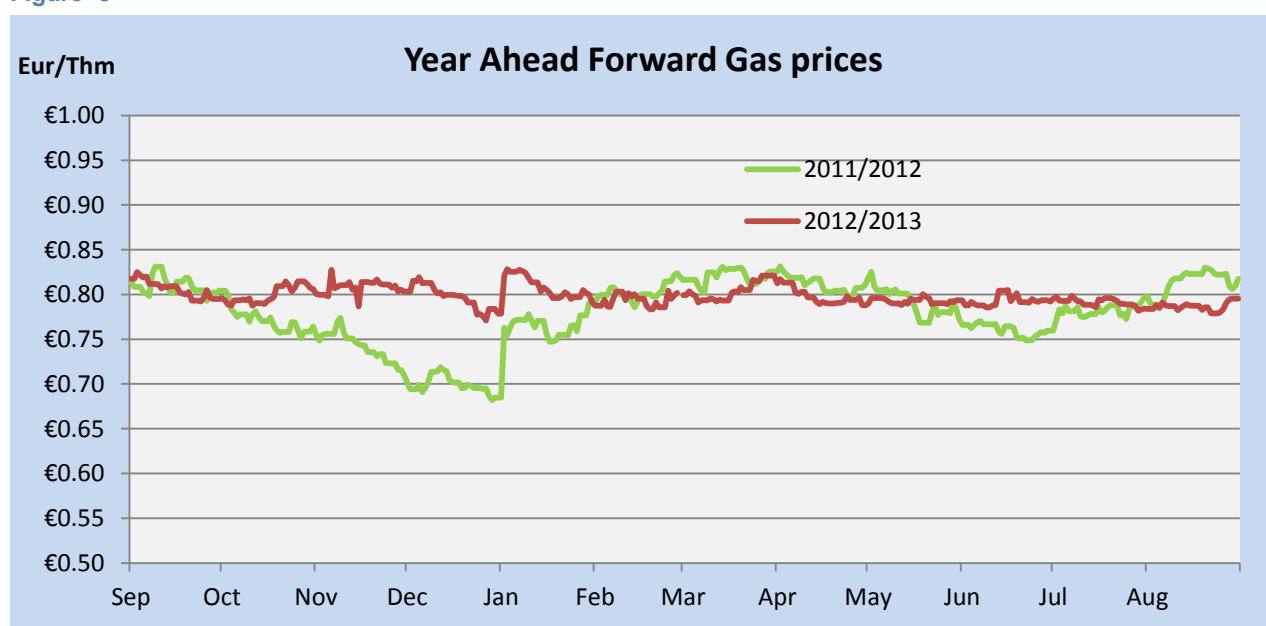
With over 90% of gas used in the SEM imported from Great Britain, Euro/Sterling exchange rate movements have a major impact on the price of gas and consequently the wholesale market price (SMP) in the SEM. However, due to the lack of significant change in this exchange rate over 2012/2013 compared to 2011/2012, it has not had a major impact on the price of gas in euro terms (day-ahead or year-ahead) during this period. In other words the trend in gas prices over this period in Euro terms is broadly similar to those shown earlier in Sterling terms. Please also refer to Figures 4 and 5 and Table 3 for details.

Figure -4



Source - Reuters

Figure -5



Source - Reuters

Table 3: Year on Year Change in Gas Prices in Euro Terms (September-August each year)

Average UK NBP Gas price	2011/12	2012/13	Change
Day Ahead Gas Price – EUR/Therm	0.69	0.80	16.48%
Year Ahead Gas Price – EUR/Therm	0.78	0.80	2.25%

Source - Reuters

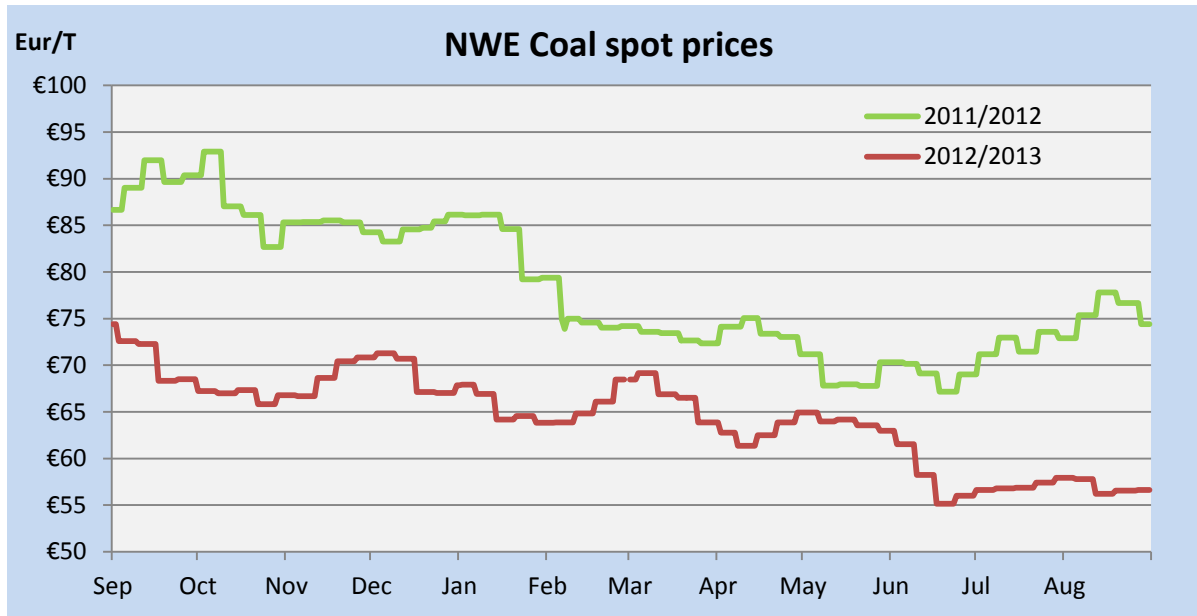
NWE Coal Prices – Euro

The period covered has seen the price of coal decrease relative to the previous period. There has been a steady decrease in both the spot and the year-ahead price for coal over the course of the period, continuing the trend reported in the previous report as can be seen from Figures 6 and 7. As highlighted in Table 4, spot prices for

coal in the period covered are down almost 18% compared to the previous period and year-ahead prices are down just under 16%.

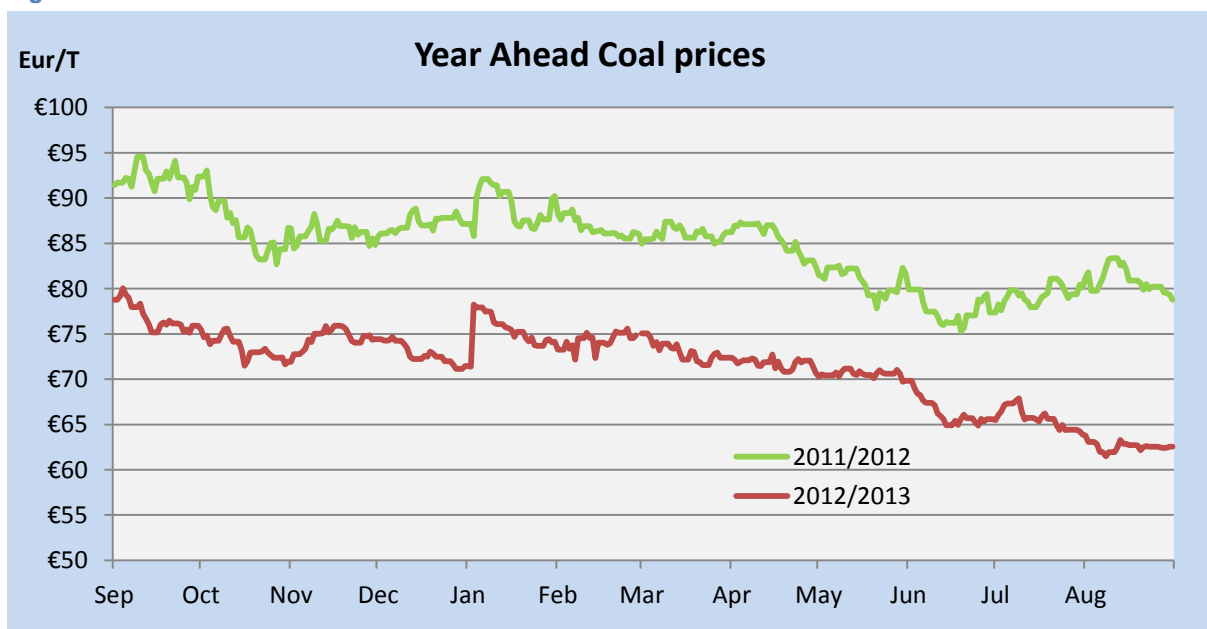
This decrease in prices over the course of the year has helped mitigate the upward pressure on the SMP from higher gas prices and has made coal plant more competitive in the SEM.

Figure -6



Source - Reuters

Figure -7



Source - Reuters

Table 4: Year on Year Change in Coal Prices (September-August)

Average UK NBP Gas price	2011/12	2012/13	Change
Coal Spot Prices (EUR/T)	78.24	64.30	-17.81%
Year Ahead Coal Prices (EUR/T)	84.86	71.40	-15.86%

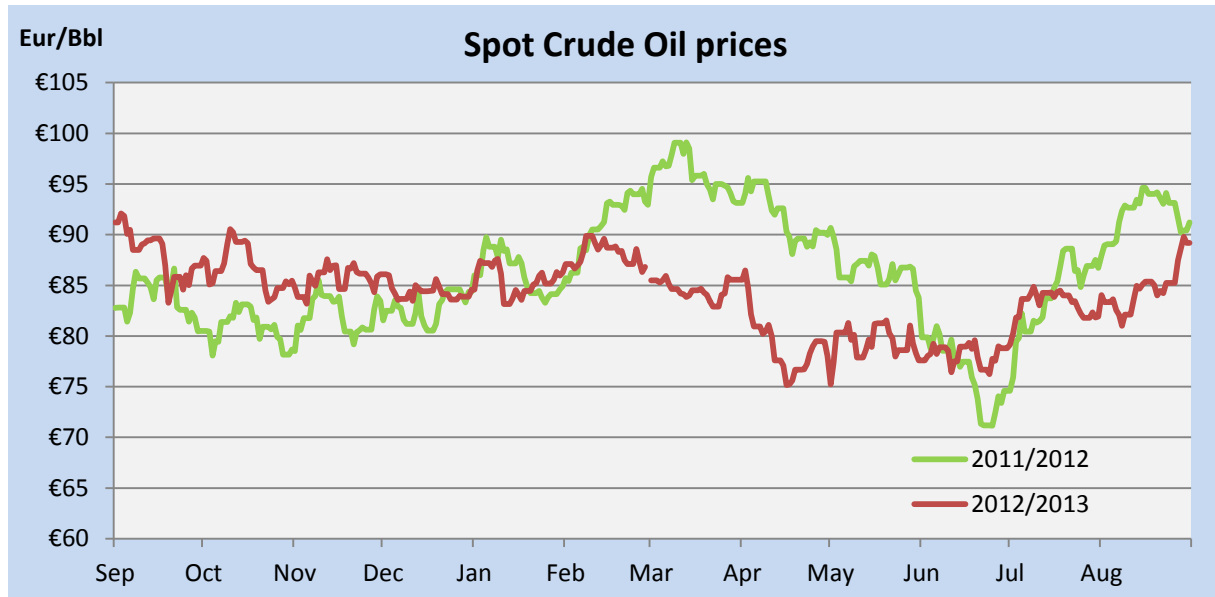
Source - Reuters

Oil Prices – Euro

Oil represents only a small fraction of the fuel mix in the SEM and consequently has little impact on the wholesale price. However, the movement in oil prices has been included here in order to provide a complete picture of trends in fuel prices and also due to the fact that oil prices can influence gas prices.

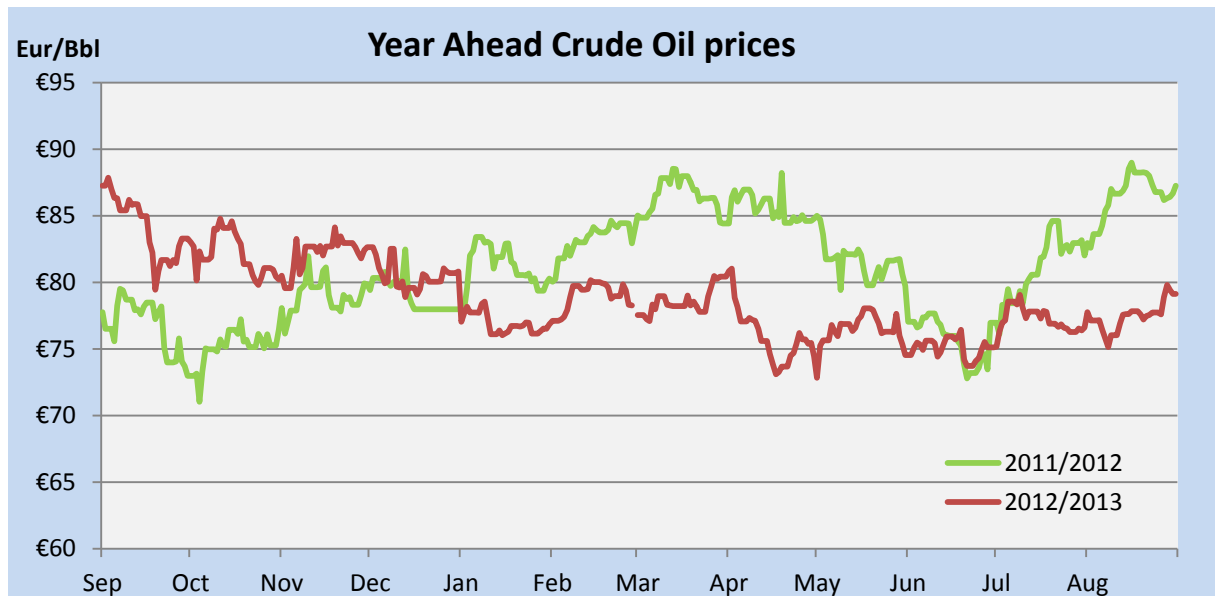
Figure 8 shows the spot prices, for the year to August, fluctuate around €85 a barrel with a notable dip to €75 in April before recovering to €90 at the end of August. The year-ahead oil prices showed a decline over the same period. As can be seen from Table 5, the average spot price for crude oil for 2012/2013 was over 2% lower than in the same period in 2011/2012 with the average year ahead price lower by the same amount.

Figure -8



Source - Reuters, Brent Crude Oil

Figure -9



Source - Reuters, Brent Crude Oil

Table 5: Year on Year Change in Oil Prices (September-August)

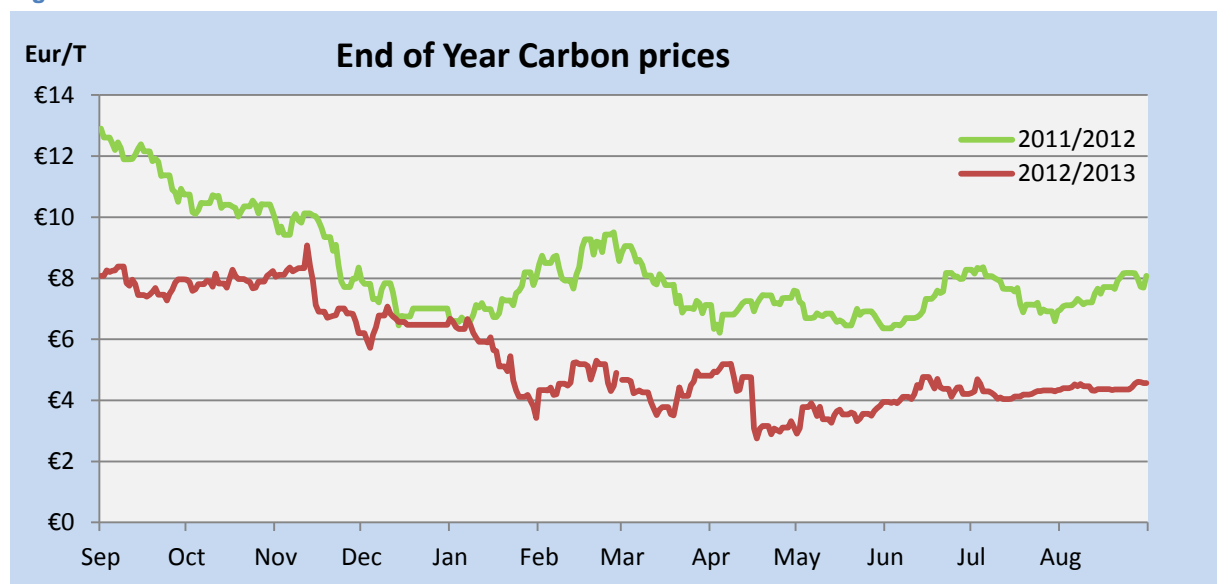
Average UK NBP Gas price	2011/12	2012/13	Change
Spot Crude Oil Prices (EUR/Bbl)	86.12	83.94	-2.53%
Year Ahead Crude Oil Prices (EUR/Bbl)	80.93	78.78	-2.66%

Source - Reuters

European Union Allowance (EUA)² Carbon Prices - Euro

The period from January 2013 saw a significant decrease in the price of carbon in terms of the end of year prices. Both end-of-year and year-ahead prices are considerably lower than the same period in 2011/2012. Taking the daily price for end-of-year carbon in Table 6 and Figures 10 and 11, the average price is over a third lower than in the previous period, with the year-ahead price lower by almost the same amount.

Figure -10

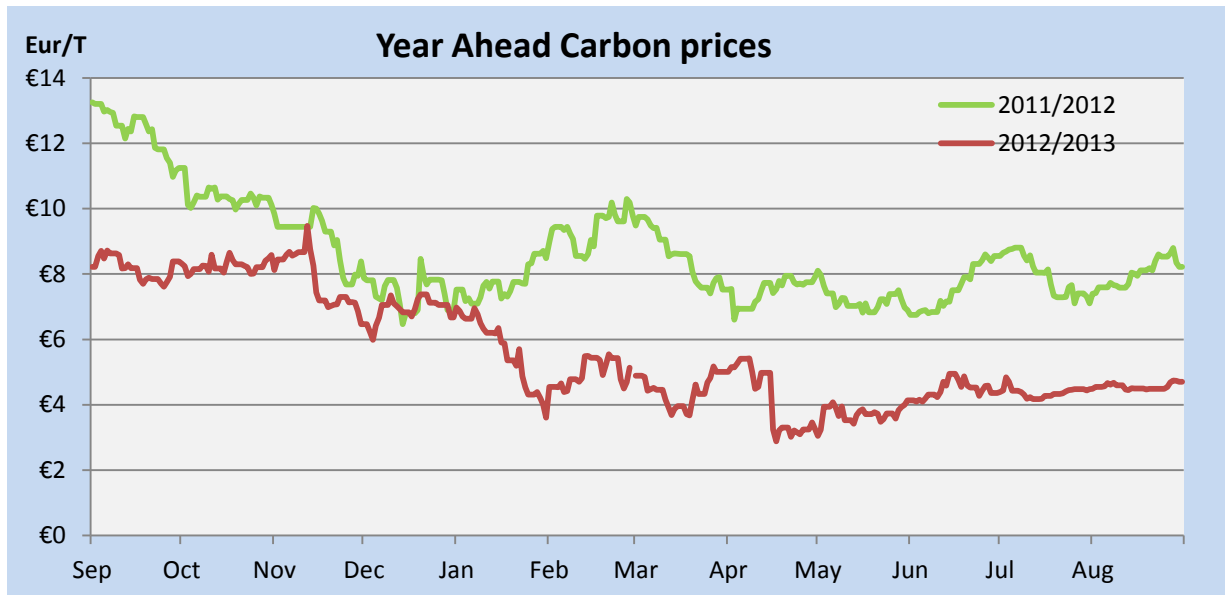


Source - ICE Futures

2

<https://www.theice.com/productguide/ProductSpec.shtml;jsessionid=A6E780D7A85FA2F6F07E3196C8DB432E?specId=197>

Figure -11



Source – ICE Futures

Table 6: Year on Year Change in Carbon Prices (September-August)

	2011/12	2012/13	Change
End of Year Carbon prices (EUR/T)	8.21	5.38	-34.44%
Year Ahead Carbon prices (EUR/T)	8.59	5.62	-34.50%

Source – Reuters

3. Electricity Markets

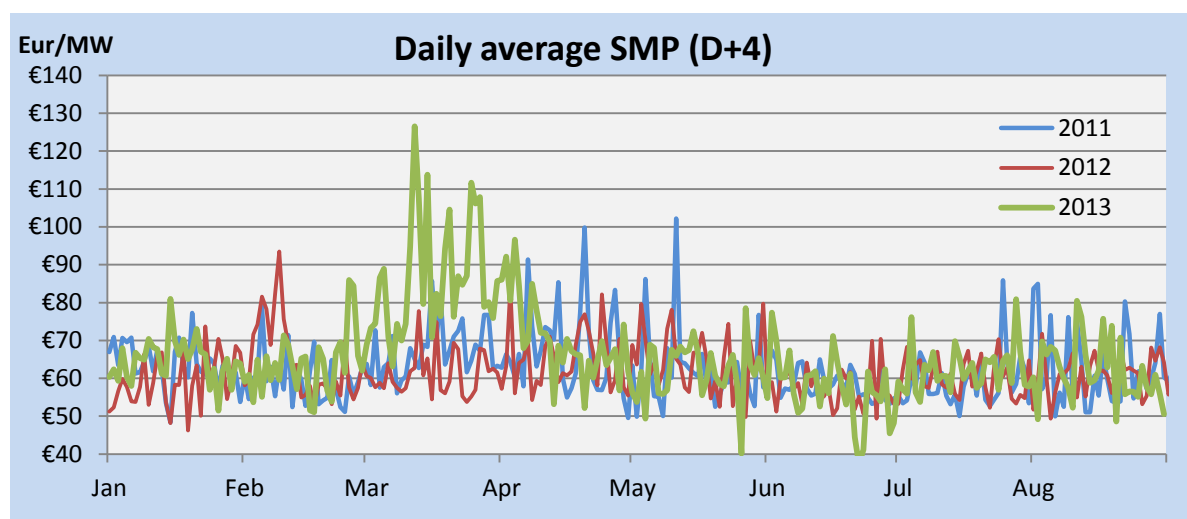
3.1 SEM Wholesale Market Prices

Fuel prices and especially gas prices are the main driver for wholesale prices in the SEM. As a result we can see how fuel prices impact on the SMP in the table and graphs below. Figure 12 shows the movement in the daily average SMP over the course of the period in question, while Figure 13 shows the monthly average outturn SMP, with a forecast monthly price included to the end of September 2014.

As illustrated in Figure 13 and shown in Table 8 the SMP increased in 2012 and it is forecast³ to increase also for 2013. The actual and forecast SMP is in line with the increase in gas prices over the course of 2012/13 as well as the increase in year-ahead prices (as reported on above). This increase was tempered by decreases in both coal and carbon prices. The annual forecast average SMP up to September 2014 is of a similar order to the out-turn SMP for the year up to August 2013⁴.

The two Figures also illustrates how the SMP is lower over the summer months as demand decreases, plus how SMP has shown a sharp increase from the beginning of the year followed by a sharp decrease (2013 Outturn, January to August), spiking in March 2013 due in large part to the gas price spike then (see earlier).

Figure -12



Source - SEMO

³ The forecast SMP was carried out using the RAs Round 5 (R5) SEM Plexos Forecast Model 2013-14 (see the link below) and fuel prices from 12th September 2013.

http://www.allislandproject.org/en/market_decision_documents.aspx?article=862948e4-e60f-40e6-b876-d1a34d1c496c

⁴ This reflects a similarity in spot and year-ahead gas prices, as shown in Table 3.

Figure -13

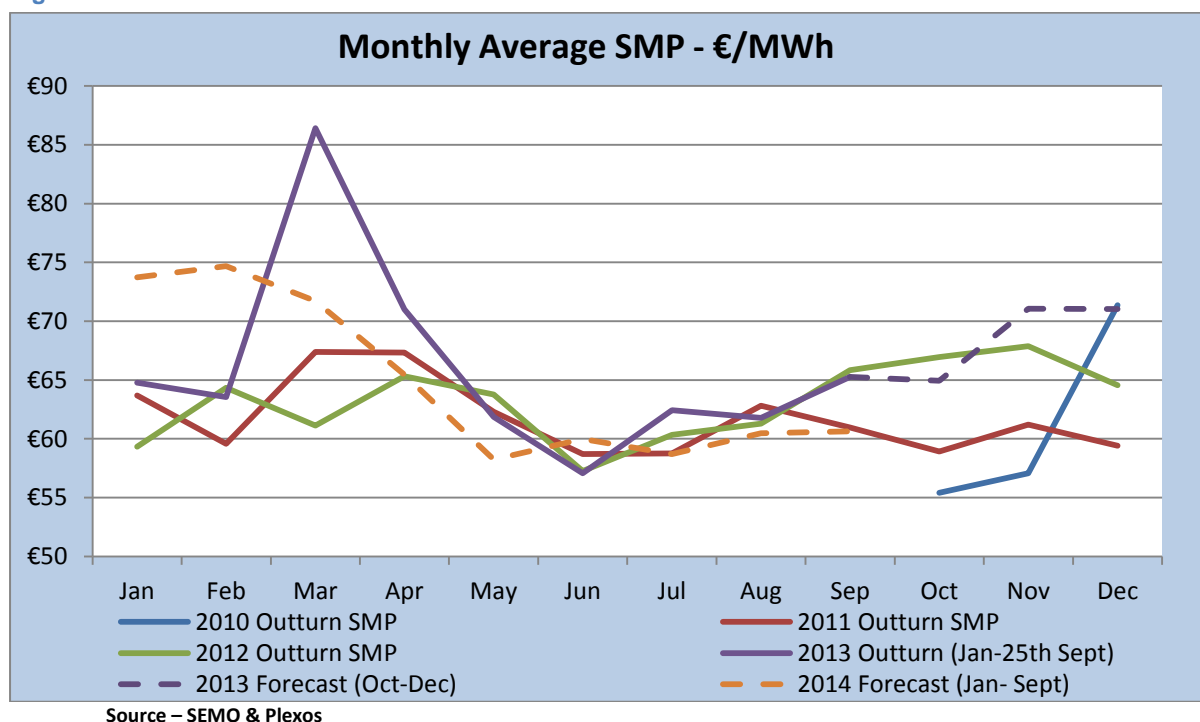


Table 8: Year on Year Change in SMP

	€/MWh	Change (Year on Year)
Average SMP - 2011	€ 61.77	
Average SMP - 2012	€ 63.15	2.24%
Average Forecast SMP - 2013 (Actual to 25 th September plus forecast for rest of 2013)	€ 66.77	5.73%

3.2 SEM & European Wholesale Market Prices

Figures 14 and 15 below show the wholesale prices that generators across Europe have been paid (per MWh) for the 12 months to August 2013 and Table 9 shows the average price in each market for the year to August in 2012 and 2013. As can be seen from the table and graphs the SEM is at the upper end of the prices across European markets. This is the same as was reported on in the previous report. This is not unexpected given the island's size and reliance on imported fossil fuels. It is also important to note that other markets may not include all energy and capacity costs in the same manner as the SEM. As a result it may not be completely accurate to make direct comparisons between the SEM day-ahead prices and those in other EU markets.

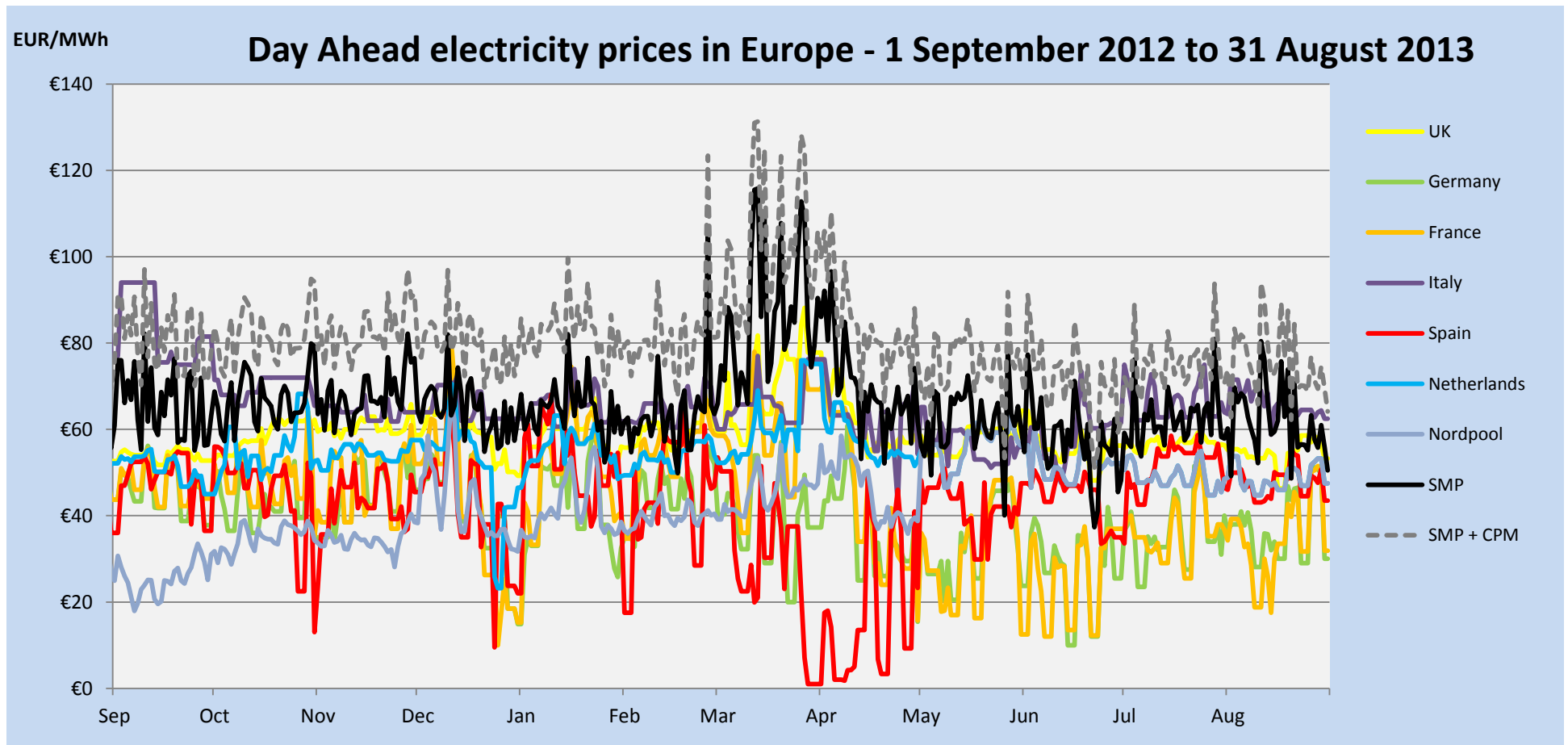
Table 9: European Wholesale Prices

Average Wholesale Price - Price - €/MWh			
Market	2012 (Jan-Aug)	2013 (Jan-Aug)	Change
SEM + CPM	€76.27	€80.84	6%
Italy	€79.65	€63.22	-21%
SEM	€61.50	€66.09	7%
UK	€53.84	€59.24	10%
Netherlands	€47.62	€54.17	14%
Spain	€49.20	€40.90	-17%
France	€45.91	€41.65	-9%
Germany	€45.21	€36.81	-19%
Nordpool	€29.61	€47.32	60%

The graphs below show two lines for SEM prices, one including capacity payments and one without.

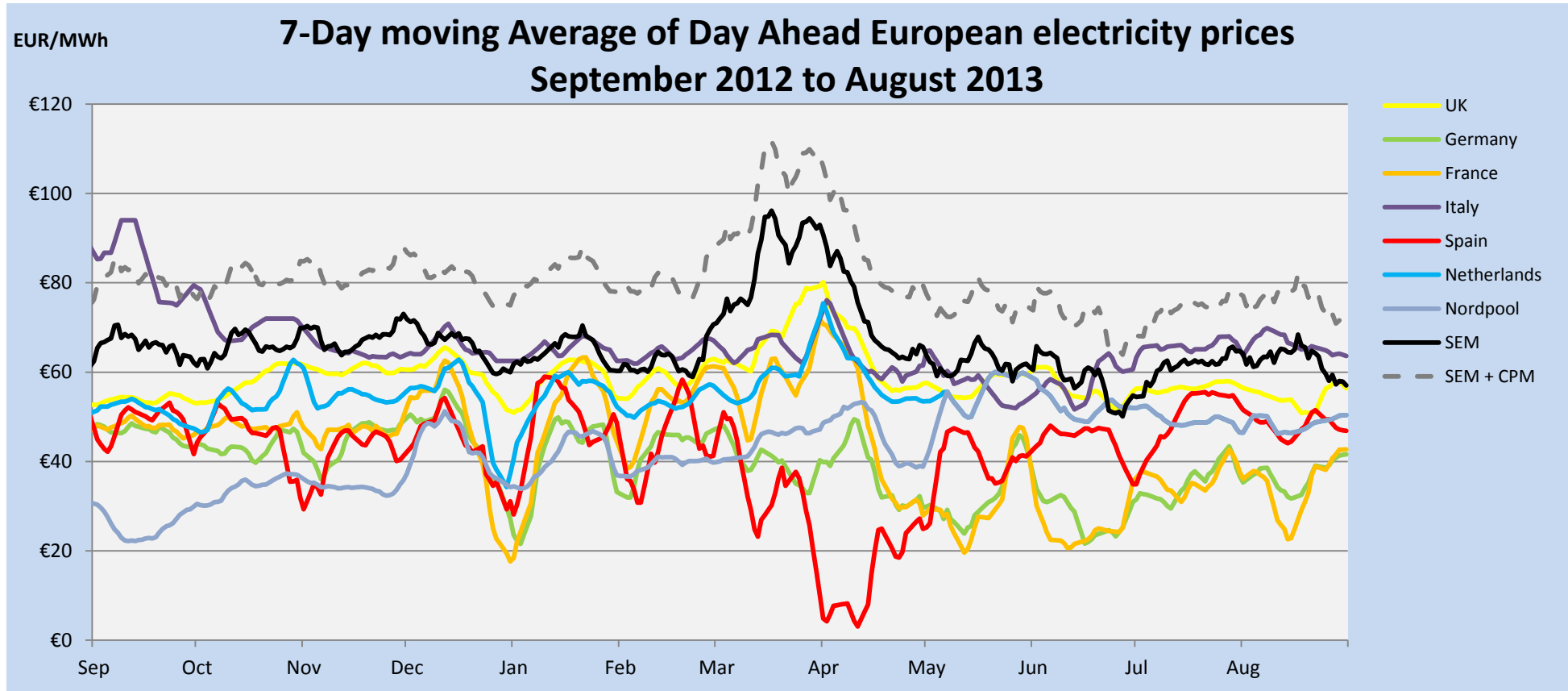
One event to note is the spike in prices seen in March/April, which was primarily due to the cold weather conditions across Europe.

Figure -14



Source – Reuters & SEMO

Figure -15



Source – Reuters & SEMO

4. Directed Contracts

In November 2012 the RAs published an information note⁵ on contracting in the SEM from 2007 to 2013. The report provided details on the different contract products offered as well as the volume of contracts sold each year. In addition the report showed the price trends over the past number of years, both in terms of fuels and contracts. This included information on the price and volume of Directed Contracts (DCs) sold.

In April 2012 the RAs published the decision⁶ on the format of DCs for 2012/13 and beyond. The paper set out the decision to move away from holding DC auctions on an annual basis⁷ and instead to have rolling quarterly auctions. With the move to quarterly DC auctions, it is appropriate that information on the price and volumes of DCs be provided on a more regular basis than the annual contracting report.

The below tables and graphs, using the same format as the contracting report, provide information on the price and volume of DC auctions. The information includes the latest round of auctions held in September 2013 and each subsequent quarterly price report will include the latest results from DC auctions, in order to provide up to date information to stakeholders.

It is worth noting that the contract volumes for 2014 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 the DC auctions moved to a system of rolling quarterly auctions, the full volume for each quarter will be sold over a period of time. Table 10 below shows the portion of the expected total DC volumes that have been sold for those years to date.

Table 10:

Expected Volumes of DCs Offered to Date					
Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014
100%	100%	100%	100%	100%	75%
Q3 2014	Q4 2014				
50%	25%				

On average DC baseload prices for 2014 are marginally lower, 3%, than those in 2013, while the mid merit and peak prices for the same period are on average higher by 2% and 7% respectively. The volume of DCs doubled in 2013 from 2012, due mainly to the horizontal integration of ESB's power generation. A similar volume is likely to continue for 2014 although the full volume has yet to be determined through the on-going quarterly DC process.

⁵ Contracting in the SEM 2007-2013 – SEM/12/100

⁶ Directed Contracts Implementation for 2012/'13 and Beyond – SEM/12/026

⁷ Following the traditional tariff year from Q4 in year one to Q3 in year two.

Table 11: Directed Contracts Average Price (€/MWh), 2007-2014

DC's average price (€/MWh)												
	Q1			Q2			Q3			Q4		
	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak
2007										62.31	75.05	105.51
2008	76.42	89.73	110.77	61.13	70.45			72.22		94.91	107.30	161.89
2009	100.00	112.94	162.51	84.79	94.28		85.50	96.55		55.31	63.25	89.07
2010	58.10	65.03	88.44	56.65	64.41		56.00	65.09		55.19	62.49	85.65
2011	58.14	64.66	79.12	53.60	60.12		57.53	66.18		72.13	80.28	108.28
2012	73.15	80.26		68.33	74.39			74.49		64.89	69.70	95.17
2013	69.29	74.53	103.63	61.66	64.90		62.60	67.07		68.82	76.43	112.56
2014	72.10	80.32	118.16	59.66	66.34		58.04	65.30		65.70	75.24	113.62

Figure 16: Directed Contracts Average Price (€/MWh)

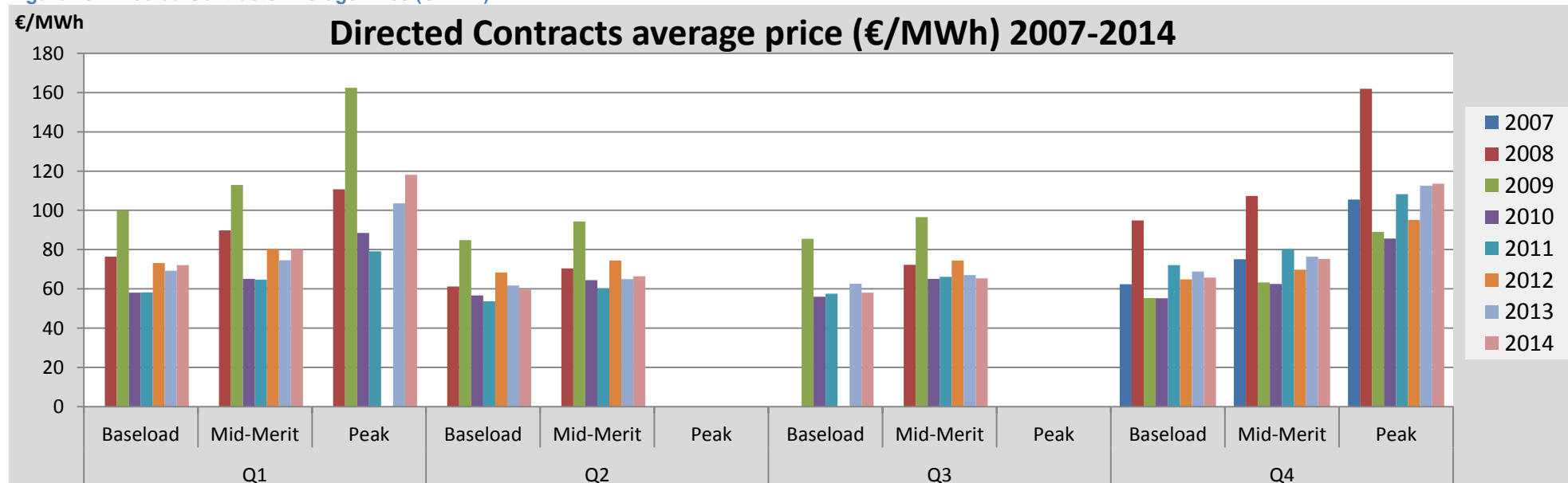


Table 12: Directed Contracts Volumes (GWh), 2007-2014

DC's volume (GWh)													
	Q1			Q2			Q3			Q4			Total
	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	Baseload	Mid-Merit	Peak	TWh
2007										351.95	121.66	90.29	0.56
2008	586.79	194.20	76.09	156.59	603.64	-	-	767.05	-	537.29	186.24	169.27	3.28
2009	604.80	48.64	176.03	517.60	294.15	-	289.08	621.16	-	492.16	311.51	73.64	3.43
2010	557.02	234.63	61.92	524.38	452.23	-	581.15	135.43	-		259.28	112.60	2.92
2011		209.30	72.72		423.30			291.01		461.68	143.10	13.25	1.61
2012	336.17	101.62	-	259.89	130.49	-	-	213.90	-	545.62	-	60.72	1.65
2013	643.37	-	-	788.42	19.08	-	622.65	80.36	-	868.13	142.04	50.78	3.21
2014	680.07	349.75	90.36	587.50	86.85	-	525.53	-	-	212.04	-	9.20	2.54

Figure 17: DC Volumes (GWh)

