P304 – WORKGROUP PAR250 ANALYSIS

EXECUTIVE SUMMARY

BSC Modification P304 'Reduction in PAR from 500MWh to 250MWh' proposes to reduce the Price Average Reference (PAR) volume to 250MWh to make System Prices (cash-out prices) more marginal when they are calculated using the Main Price (see Appendix 1 for the effect of PAR in the Main Price calculation).

This analysis assesses the impact of PAR250 on imbalance prices based on historical data starting from 2010 (post P217 implementation). We have also re-run the Settlement Trading Charge calculation using the PAR250 imbalance prices to assess the impact on BSC Parties. Please note that this analysis does not take into account behavioural changes as a result of PAR250.

ELEXON's analysis shows that reducing the PAR volume to 250MWh will sharpen the Main Price when the period Net Imbalance Volume (NIV) is greater than 250MWh or less than -250MWh. This means that there will be an increase in System Buy Price (SBP) when the System is short and a decrease in System Sell Price (SSP) when the System is long. The Main Price will not be affected for Settlement Periods with a NIV between +/- 250MWh inclusive. This supports the intention of Ofgem's EBSCR Policy; to make the Main Price a more accurate signal of scarcity on the system.

We have applied the PAR250 imbalance prices to BSC Parties' historical Imbalance Volumes to assess the impacts of Imbalance Charges and Residual Cashflow Reallocation Cashflow (RCRC) on BSC Parties. The findings show that, although vertically integrated Parties and independent generators would have paid higher Imbalance Charges due to higher imbalance prices, these costs would be netted off by higher receivable RCRC in the majority of the Periods. Our analysis also shows that Independent Suppliers were more likely to be impacted by sharpened imbalance prices. However, the net daily impact is below £100 for the majority of Suppliers.

Full details of P304 can be found on the P304 page of the ELEXON website.

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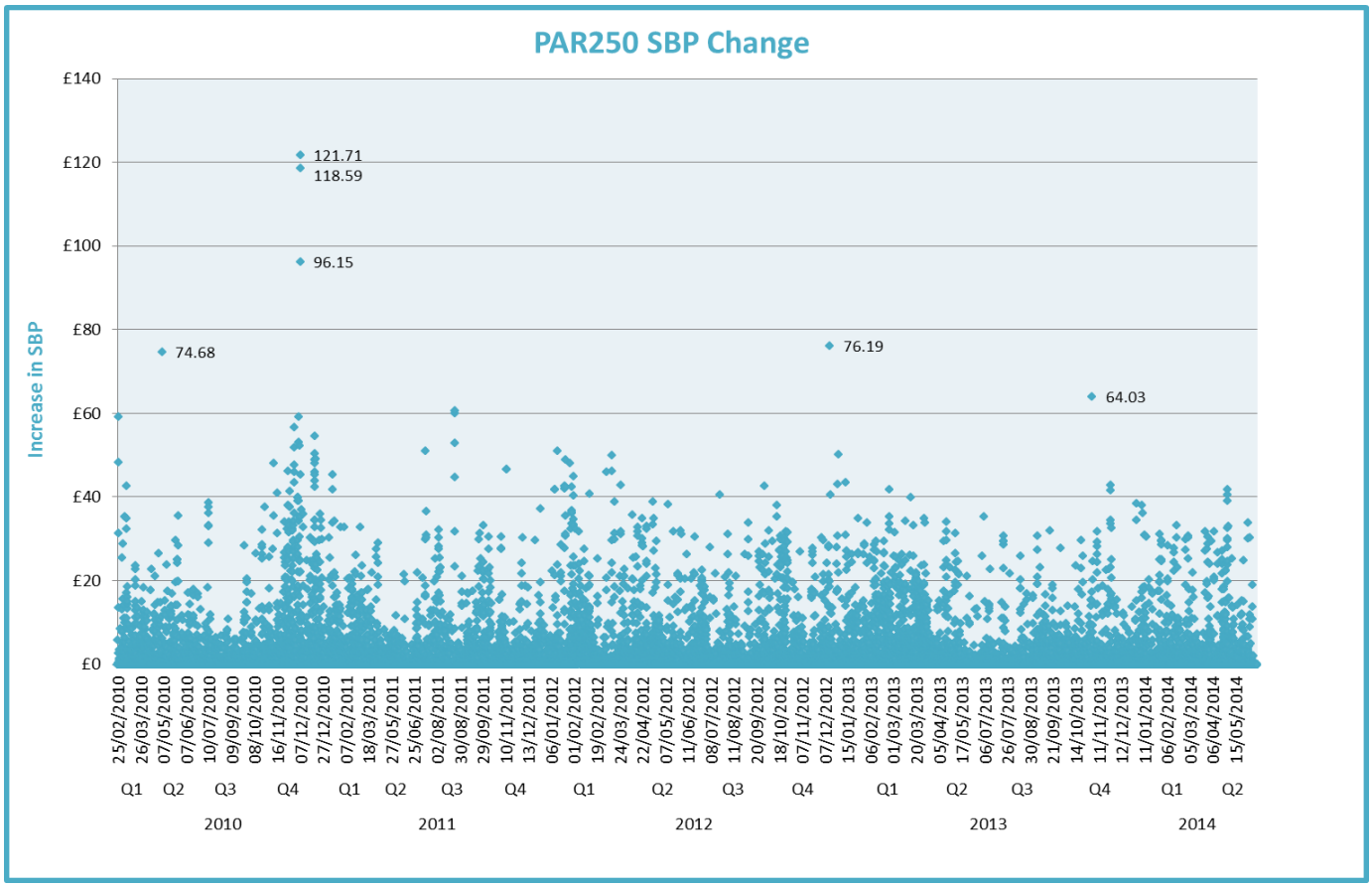
PAR250 MAIN PRICE IMPACT ANALYSIS

Graph 1 - Increase in SBP as a Result of PAR250



Graph 1 shows there were more Settlement Periods with a large impact on SBP in 2010, especially during the winter period as a result of PAR250.

Throughout the analysis period SBP remained unchanged in 61.98% of the total Settlement Periods where SBP was the Main Price (i.e. the system was short). The maximum SBP increase was £121.71.

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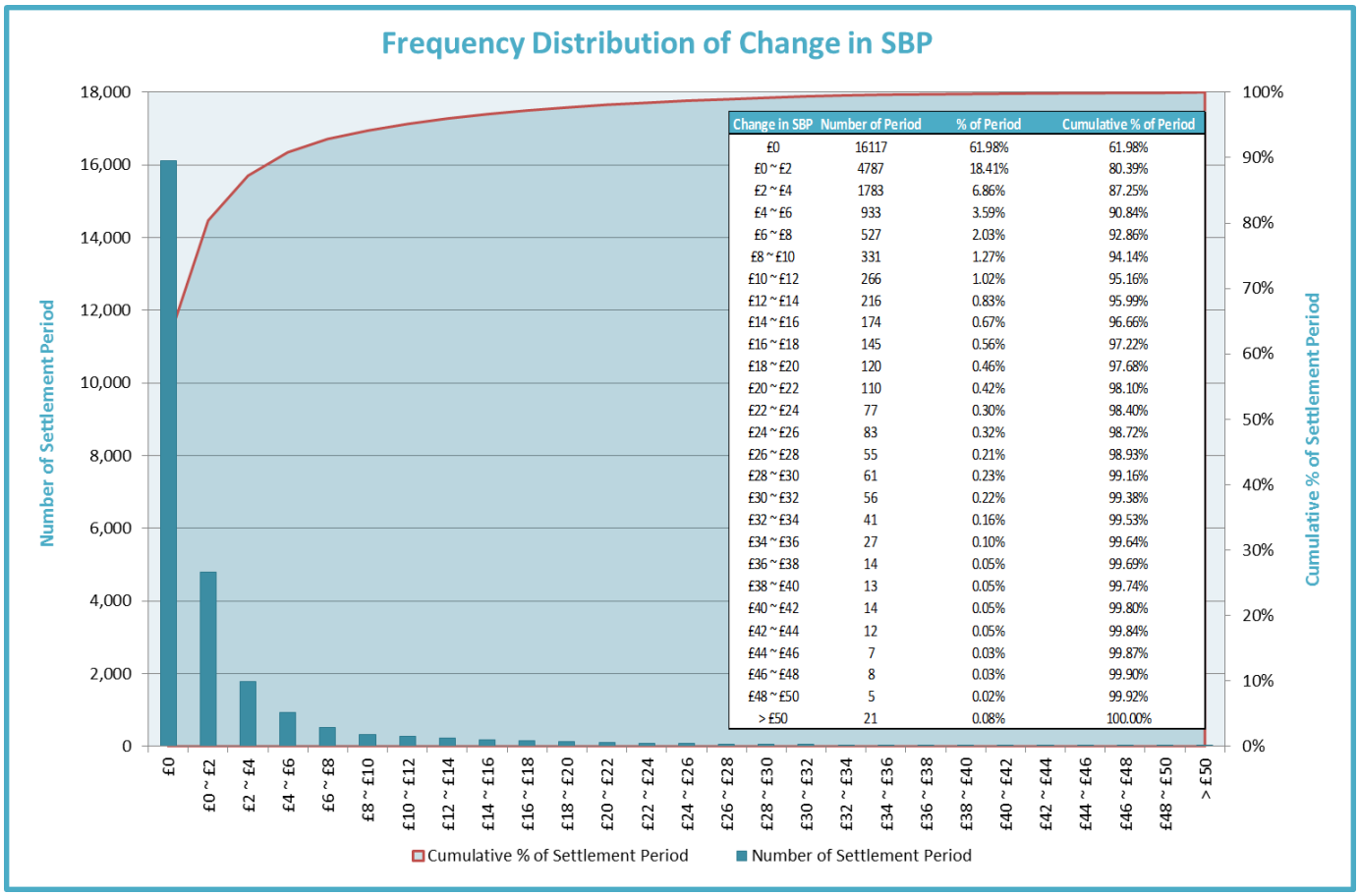
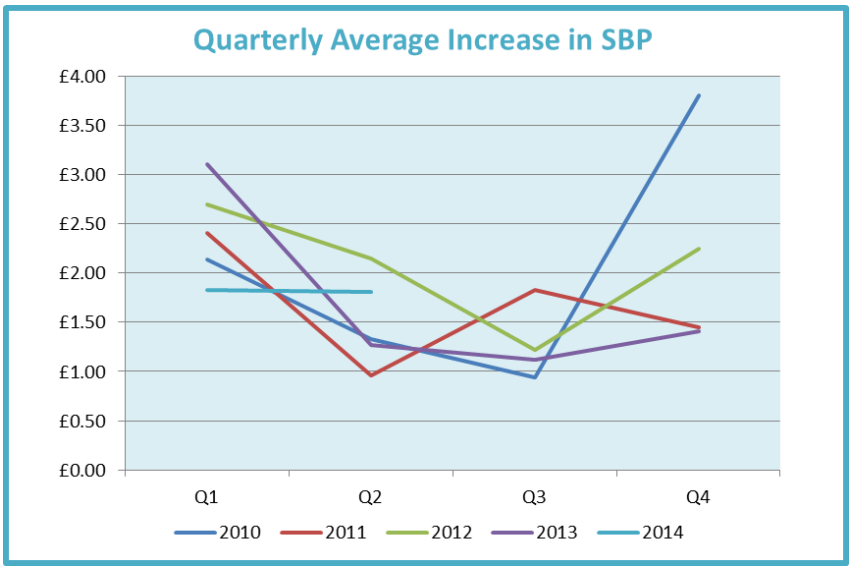
Graph 2 - Frequency Distribution of SBP Increase as a Result of PAR250



Change in SBP	Number of Period	% of Period	Cumulative % of Period
£0	16117	61.98%	61.98%
£0 ~ £2	4787	18.41%	80.39%
£2 ~ £4	1783	6.86%	87.25%
£4 ~ £6	933	3.59%	90.84%
£6 ~ £8	527	2.03%	92.86%
£8 ~ £10	331	1.27%	94.14%
£10 ~ £12	266	1.02%	95.16%
£12 ~ £14	216	0.83%	95.99%
£14 ~ £16	174	0.67%	96.66%
£16 ~ £18	145	0.56%	97.22%
£18 ~ £20	120	0.46%	97.68%
£20 ~ £22	110	0.42%	98.10%
£22 ~ £24	77	0.30%	98.40%
£24 ~ £26	83	0.32%	98.72%
£26 ~ £28	55	0.21%	98.93%
£28 ~ £30	61	0.23%	99.16%
£30 ~ £32	56	0.22%	99.38%
£32 ~ £34	41	0.16%	99.53%
£34 ~ £36	27	0.10%	99.64%
£36 ~ £38	14	0.05%	99.69%
£38 ~ £40	13	0.05%	99.74%
£40 ~ £42	14	0.05%	99.80%
£42 ~ £44	12	0.05%	99.84%
£44 ~ £46	7	0.03%	99.87%
£46 ~ £48	8	0.03%	99.90%
£48 ~ £50	5	0.02%	99.92%
> £50	21	0.08%	100.00%

Graph 2 shows that SBP increased by less than or equal to £2 in 18.41% of Settlement Periods. The graph also shows the cumulative frequency distribution. Around 80% of the Periods were impacted by less than £2 and around 95% of the Periods were impacted by less than £12.

Graph 3 – Quarterly Average Increase in SBP



Graph 3 shows that the average SBP increases in Q1 & Q4 (Calendar Year) are higher than those of Q2 and Q3. The average impact on SBP in the 2013/14 winter period was lower than in previous winters.

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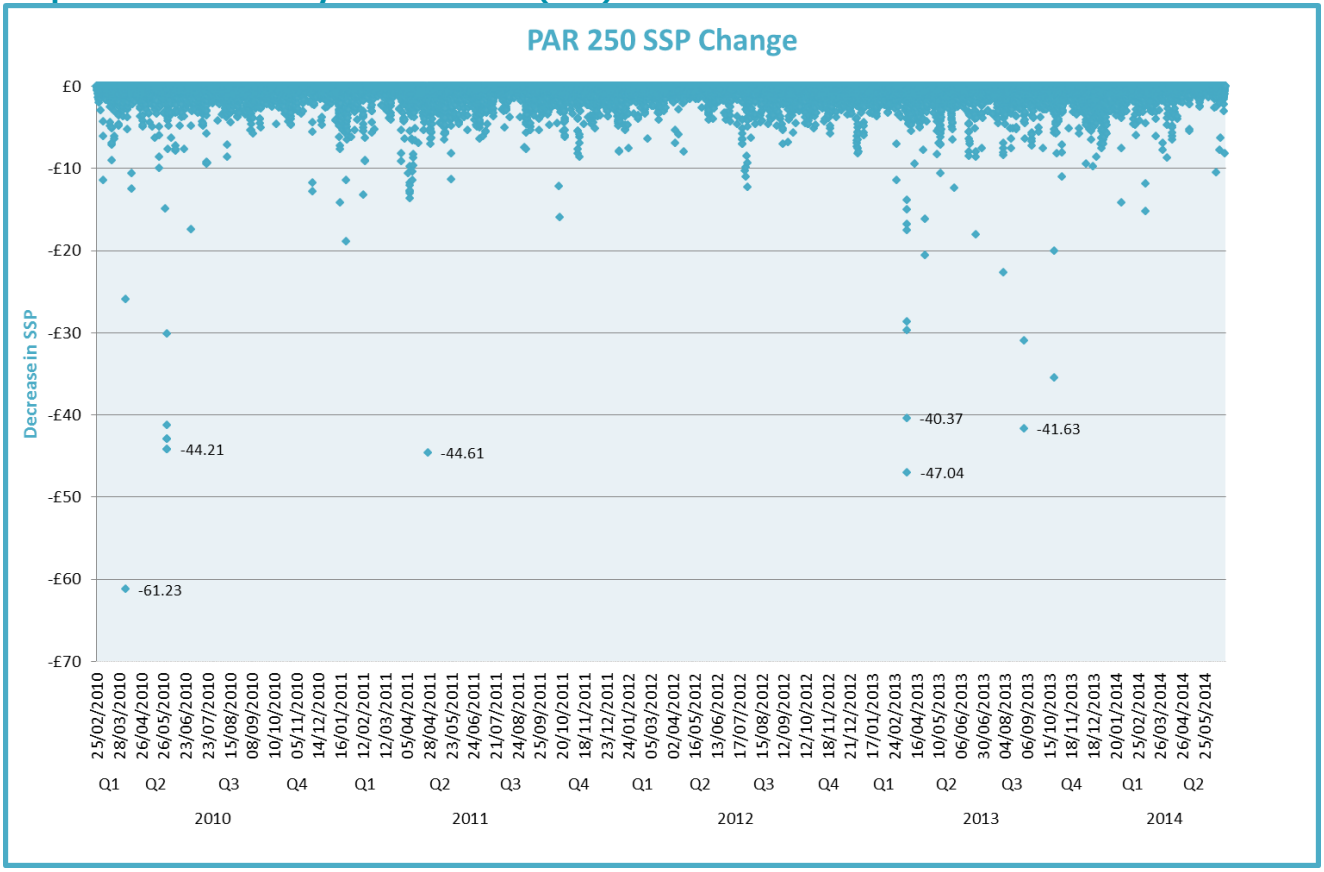
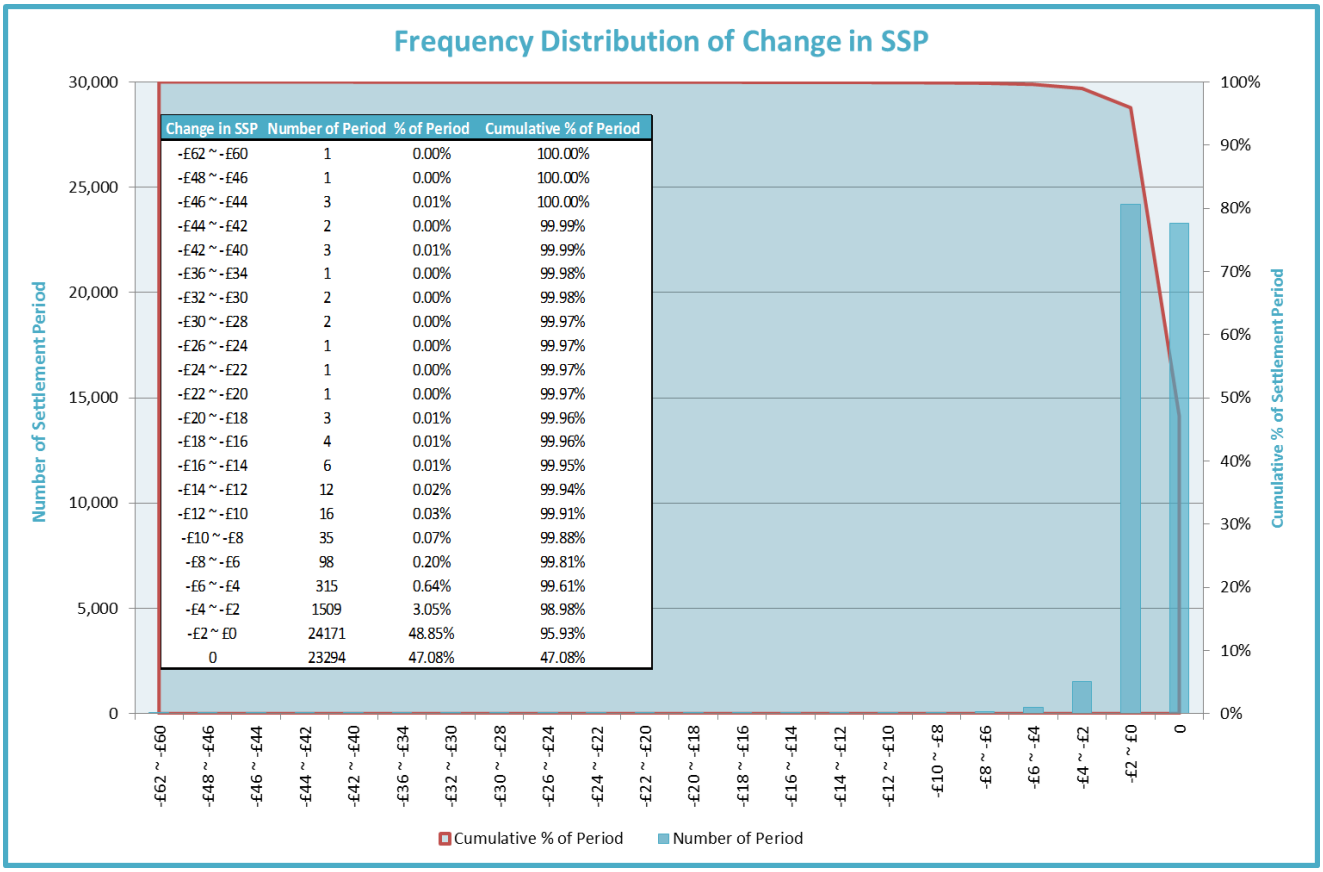
Graph 4 - Decrease in System Sell Price (SSP) as a Result of PAR250



Graph 5 - Frequency Distribution of SSP Decrease as a Result of PAR250



Change in SSP	Number of Period	% of Period	Cumulative % of Period
-£62 ~ -£60	1	0.00%	100.00%
-£48 ~ -£46	1	0.00%	100.00%
-£46 ~ -£44	3	0.01%	100.00%
-£44 ~ -£42	2	0.00%	99.99%
-£42 ~ -£40	3	0.01%	99.99%
-£36 ~ -£34	1	0.00%	99.98%
-£32 ~ -£30	2	0.00%	99.98%
-£30 ~ -£28	2	0.00%	99.97%
-£26 ~ -£24	1	0.00%	99.97%
-£24 ~ -£22	1	0.00%	99.97%
-£22 ~ -£20	1	0.00%	99.97%
-£20 ~ -£18	3	0.01%	99.96%
-£18 ~ -£16	4	0.01%	99.96%
-£16 ~ -£14	6	0.01%	99.95%
-£14 ~ -£12	12	0.02%	99.94%
-£12 ~ -£10	16	0.03%	99.91%
-£10 ~ -£8	35	0.07%	99.88%
-£8 ~ -£6	98	0.20%	99.81%
-£6 ~ -£4	315	0.64%	99.61%
-£4 ~ -£2	1509	3.05%	98.98%
-£2 ~ £0	24171	48.85%	95.93%
0	23294	47.08%	47.08%

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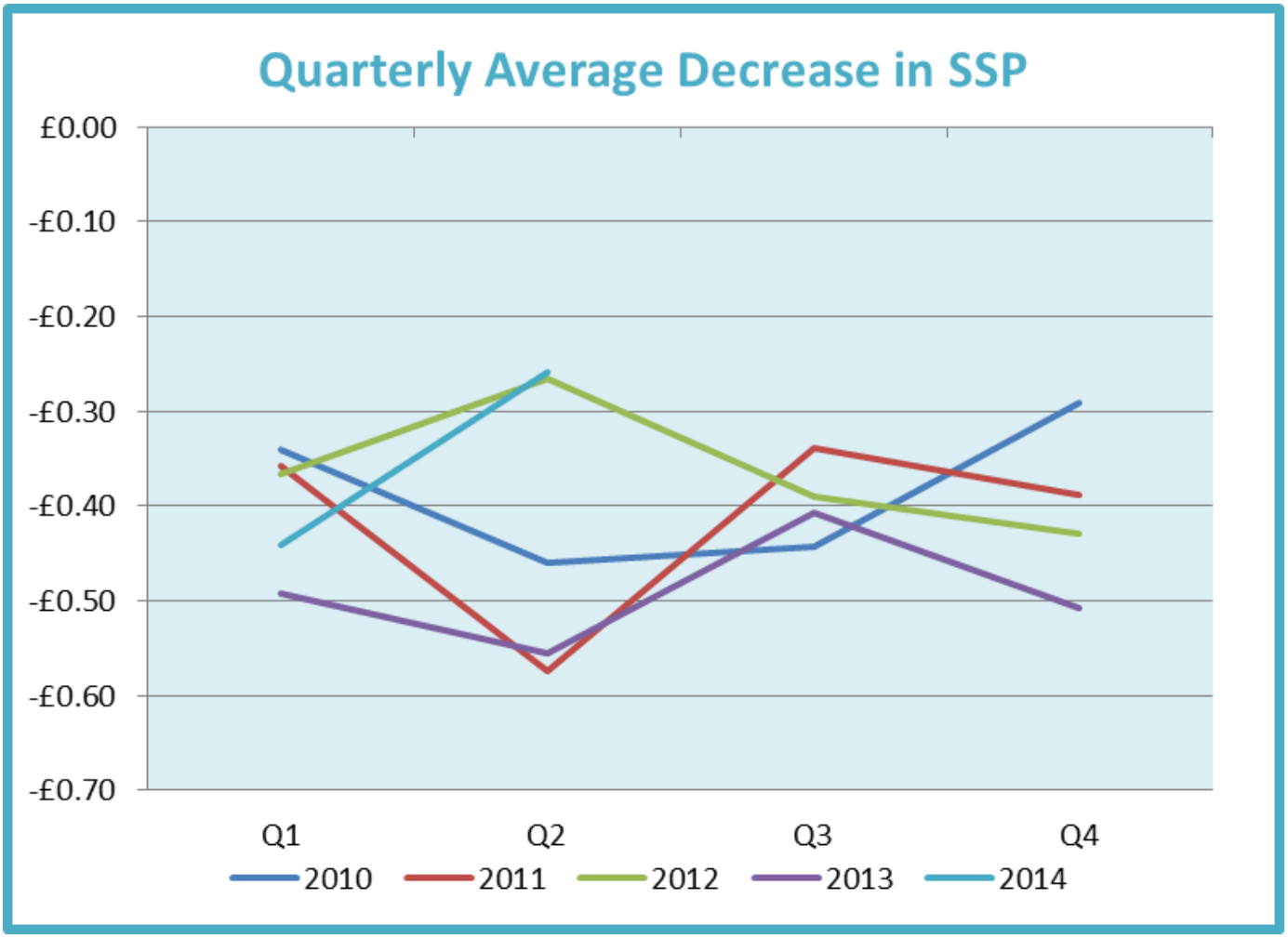
Throughout the analysis period, SSP remained unchanged in 47.08% of the Settlement Periods where SSP was the Main Price (i.e. the system was long). In 48.85% of the Settlement Periods there was an impact of less than or equal to -£2.

The cumulative percentage suggests that around 99% of the Periods were impacted by less than -£4. The maximum decrease in SSP was -£61.23 and occurred in Q2 of 2010.

Graph 4 shows that among the Periods where SSP dropped significantly, most occurrences were witnessed in Q2 & Q3. Graph 6 also suggests that the average changes in SSP are more volatile in Q2.

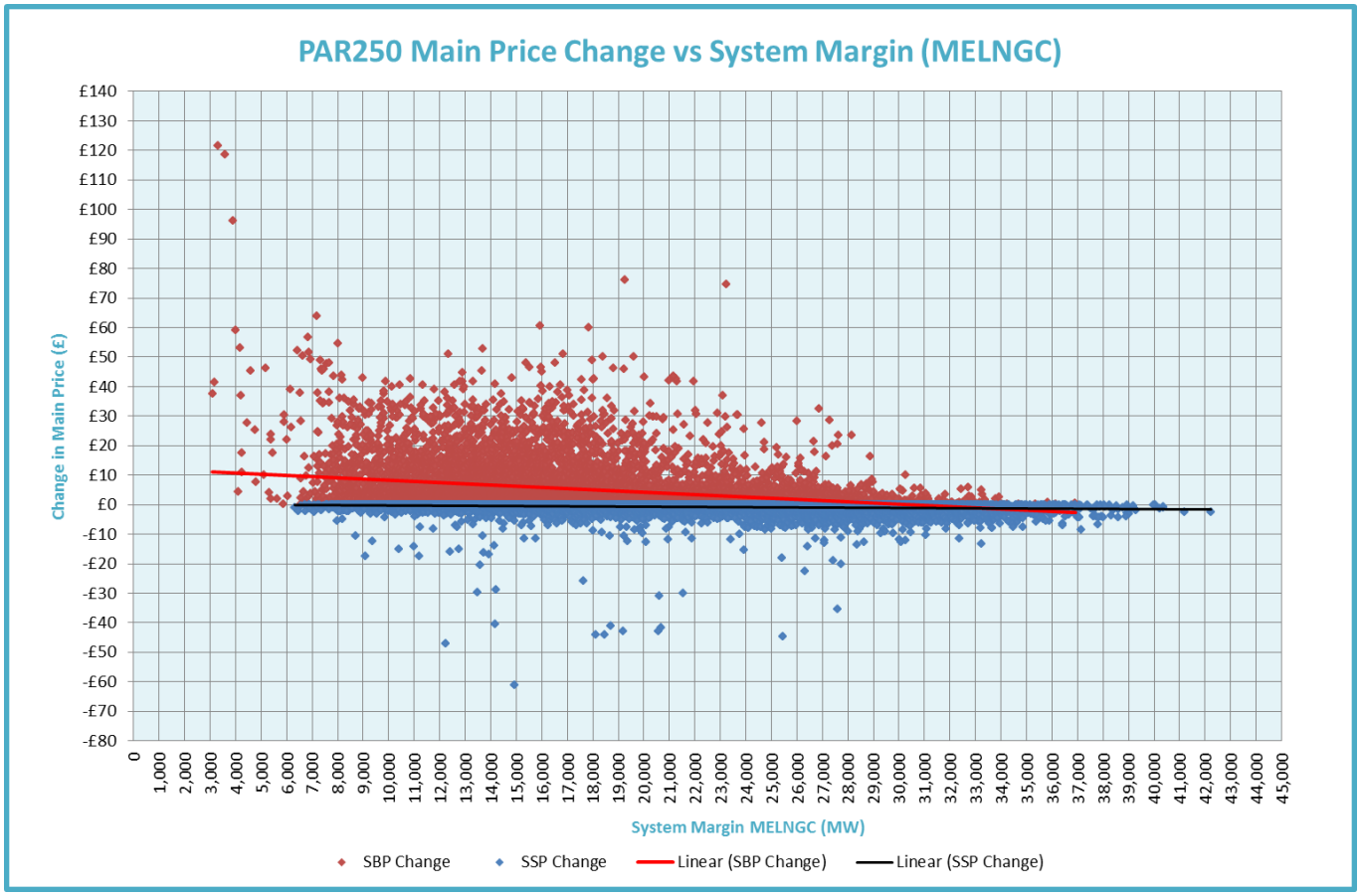
Graph 6 – Quarterly Average Decrease in SSP



P304 – WORKGROUP PAR250 ANALYSIS

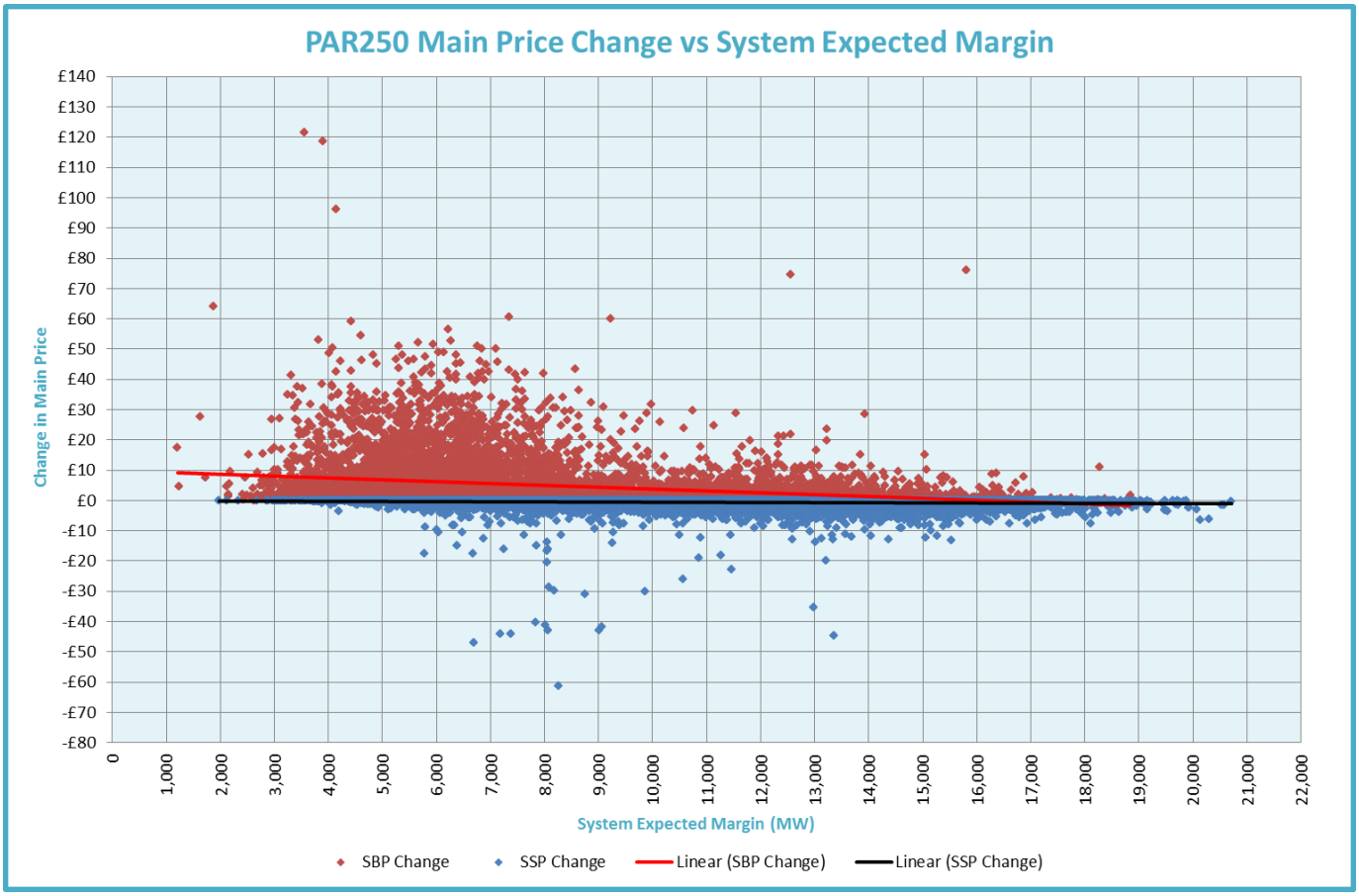
PAR250 AGAINST SYSTEM MARGIN ANALYSIS

Graph 7 – Change in Main Price vs Transmission System Margin (MELNGC)



The objective of P304 is to calculate more marginal imbalance prices when System margins are tight. MELNGC is the indicated margin forecast for each Settlement Period and is the difference between the sums of the MELs submitted for that period and the National Demand Forecast made by the System Operator. This means that the greater the value the higher the margin between available generation capacity and forecast demand.

Graph 8 – Change in Main Price vs Transmission System Expected Margin



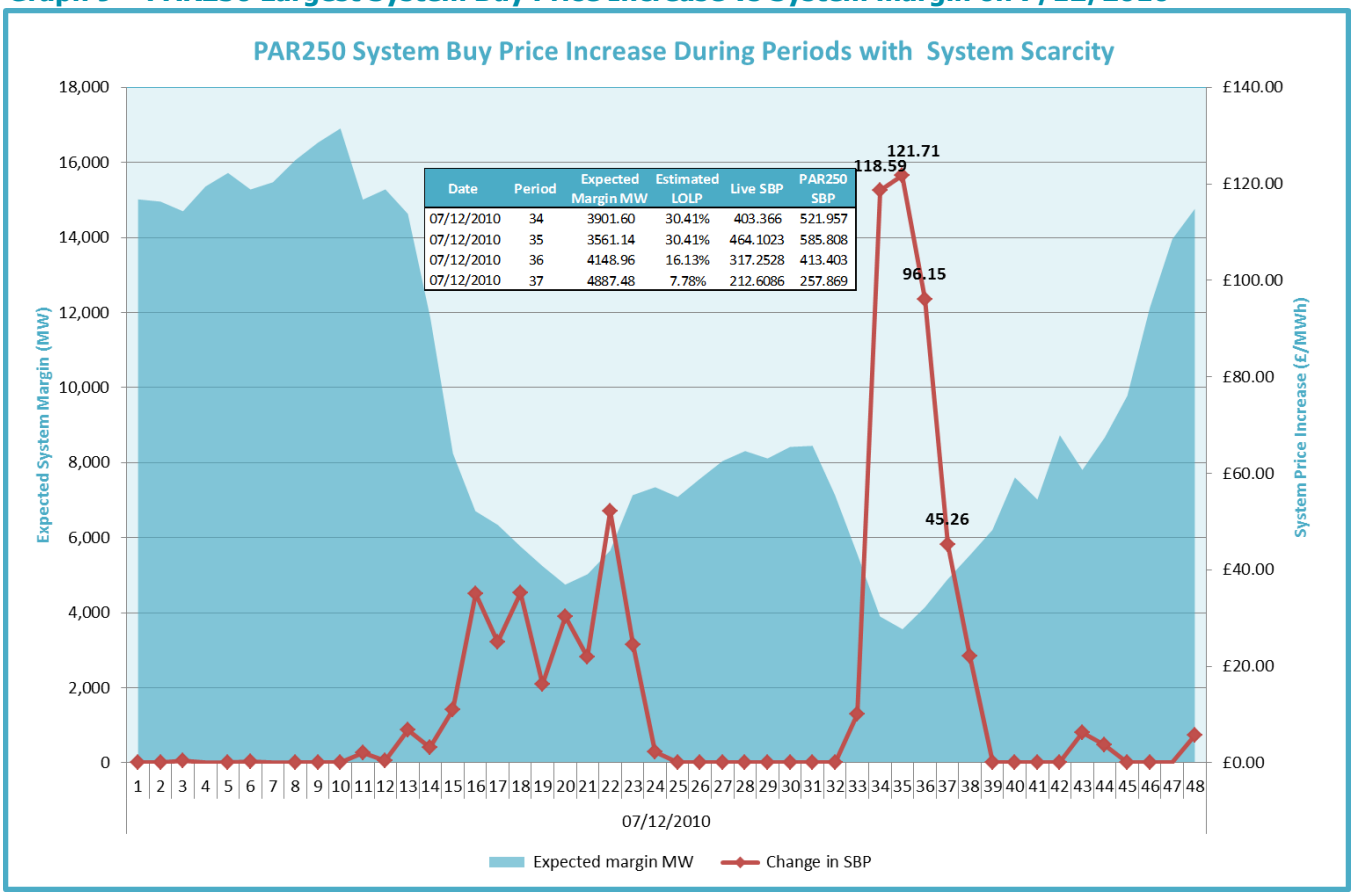
Another measure of System margin is its expected margin which is used by Ofgem to model Loss of Load Probability (LOLP). System expected margin is defined as:

- Available capacity - Demand + Interconnector flow + 900 (Non BM reserve)

Graphs 7 & 8 provide the assessment of the effectiveness of PAR250 when system margin is tight based on MELNGC and expected margin respectively. The best fit line of SBP suggests that SBP increases when the system margin is low.

P304 – WORKGROUP PAR250 ANALYSIS

Graph 9 – PAR250 Largest System Buy Price Increase vs System margin on 7/12/2010



Date	Period	Expected Margin MW	Estimated LOLP	Live SBP	PAR250 SBP
07/12/2010	34	3901.60	30.41%	403.366	521.957
07/12/2010	35	3561.14	30.41%	464.1023	585.808
07/12/2010	36	4148.96	16.13%	317.2528	413.403
07/12/2010	37	4887.48	7.78%	212.6086	257.869

Graph 9 picks up the Periods with the largest increase in SBP and determines whether such Periods reflect tight system margins.

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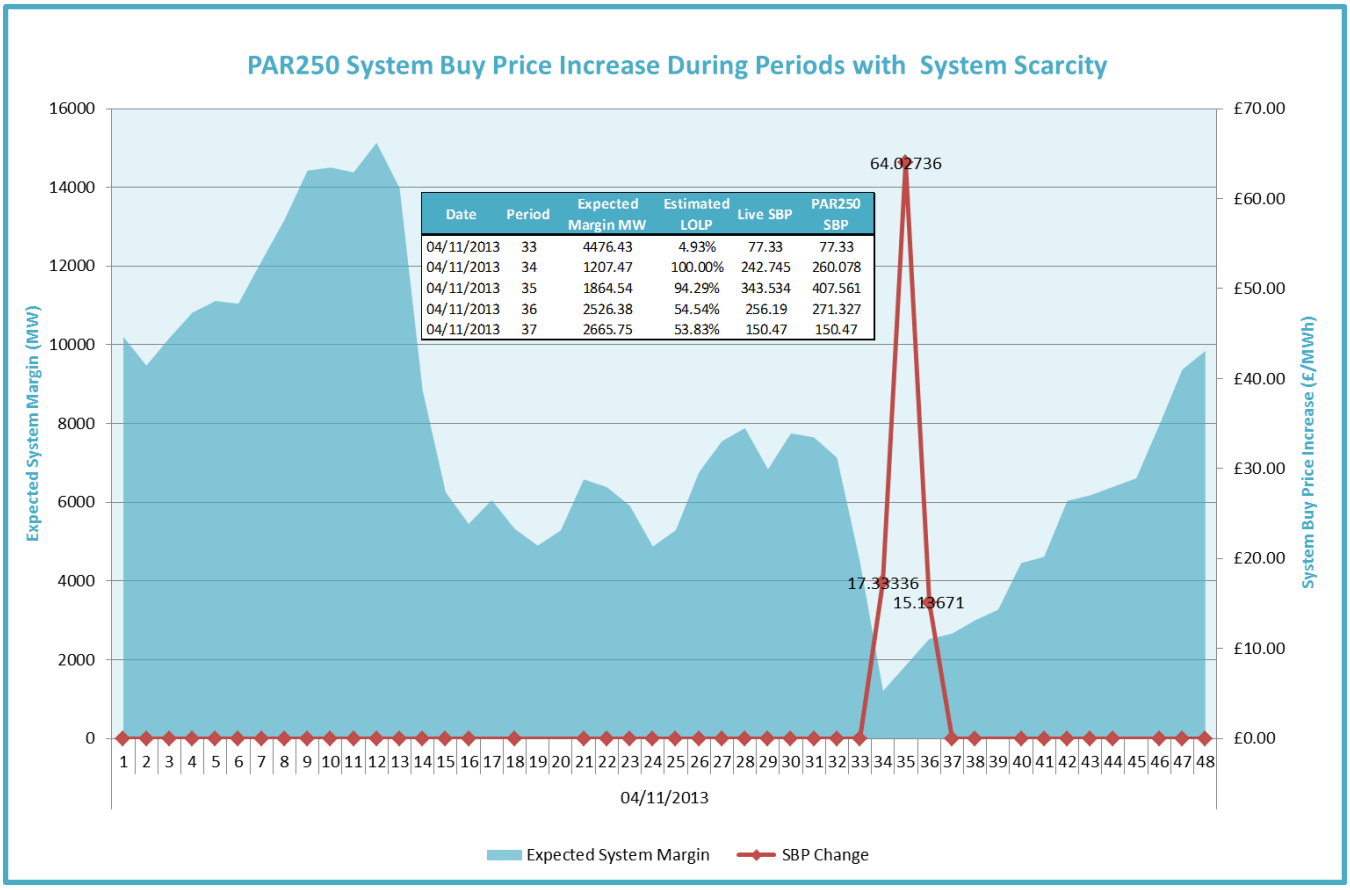
Graph 10 – PAR250 System Buy Price Increase vs Highest System Scarcity on 4/11/2013



Date	Period	Expected Margin MW	Estimated LOLP	Live SBP	PAR250 SBP
04/11/2013	33	4476.43	4.93%	77.33	77.33
04/11/2013	34	1207.47	100.00%	242.745	260.078
04/11/2013	35	1864.54	94.29%	343.534	407.561
04/11/2013	36	2526.38	54.54%	256.19	271.327
04/11/2013	37	2665.75	53.83%	150.47	150.47

Graph 10 picks up the Periods where the level of System scarcity is high (high LOLP) and determines whether PAR250 would sharpen the SBP in these Periods. Both Graphs 9 and 10 show a good relationship between a SBP increase and a high level of system scarcity such that that PAR250 would increase SBP when the system margin is exceptionally tight. This supports the intention of Ofgem's EBSCR Policy.

P304 – WORKGROUP PAR250 ANALYSIS

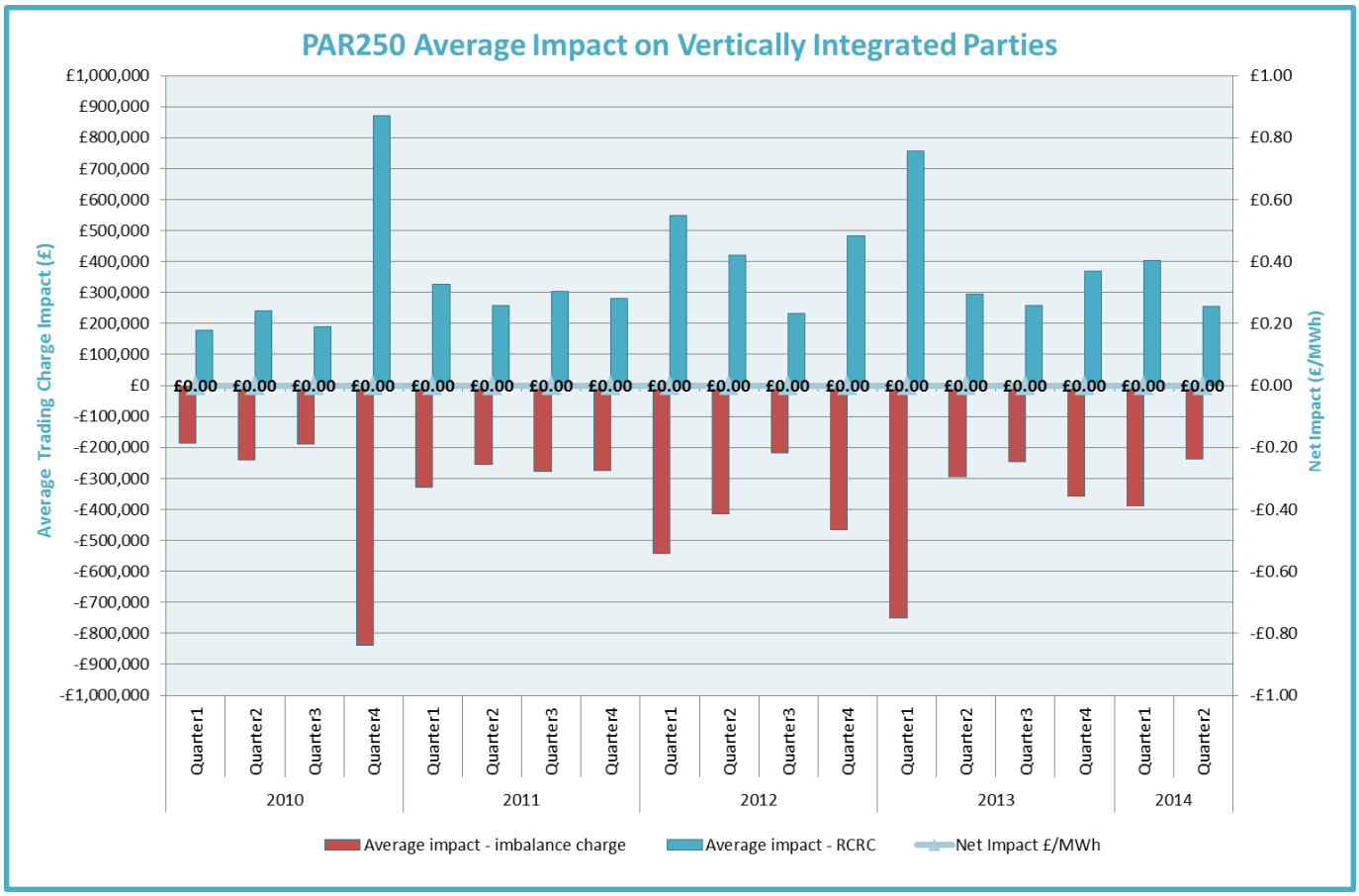
PAR250 PARTY TRADING CHARGE IMPACT ANALYSIS

We have re-run the Imbalance Charge and RCRC calculations using PAR250 imbalance prices to assess the impact to different types of Trading Parties and study whether any particular types of Trading Party would be more heavily affected by sharpened imbalance prices. We note that PAR250 has resulted in higher Imbalance Charge payments for all BSC Parties, especially during Q4 of 2010 and Q1 of 2013 when SBP increased more significantly (see graph 3). This would effectively increase the total RCRC given if the Reverse Price remains unchanged and would benefit the Parties with large Credited Energy Volumes[1]. There would be more impact to Parties with small Credited Energy Volumes as their receivable RCRC does not sufficiently cover the additional imbalance cost arising from sharpened imbalance prices.

Table 3 – BSC Party Grouping

Group
Vertically Integrated
Independent Generator - Thermal
Independent Generator - Wind
Independent Suppliers

Graph 11 – Average PAR250 Impact on Vertically Integrated Parties

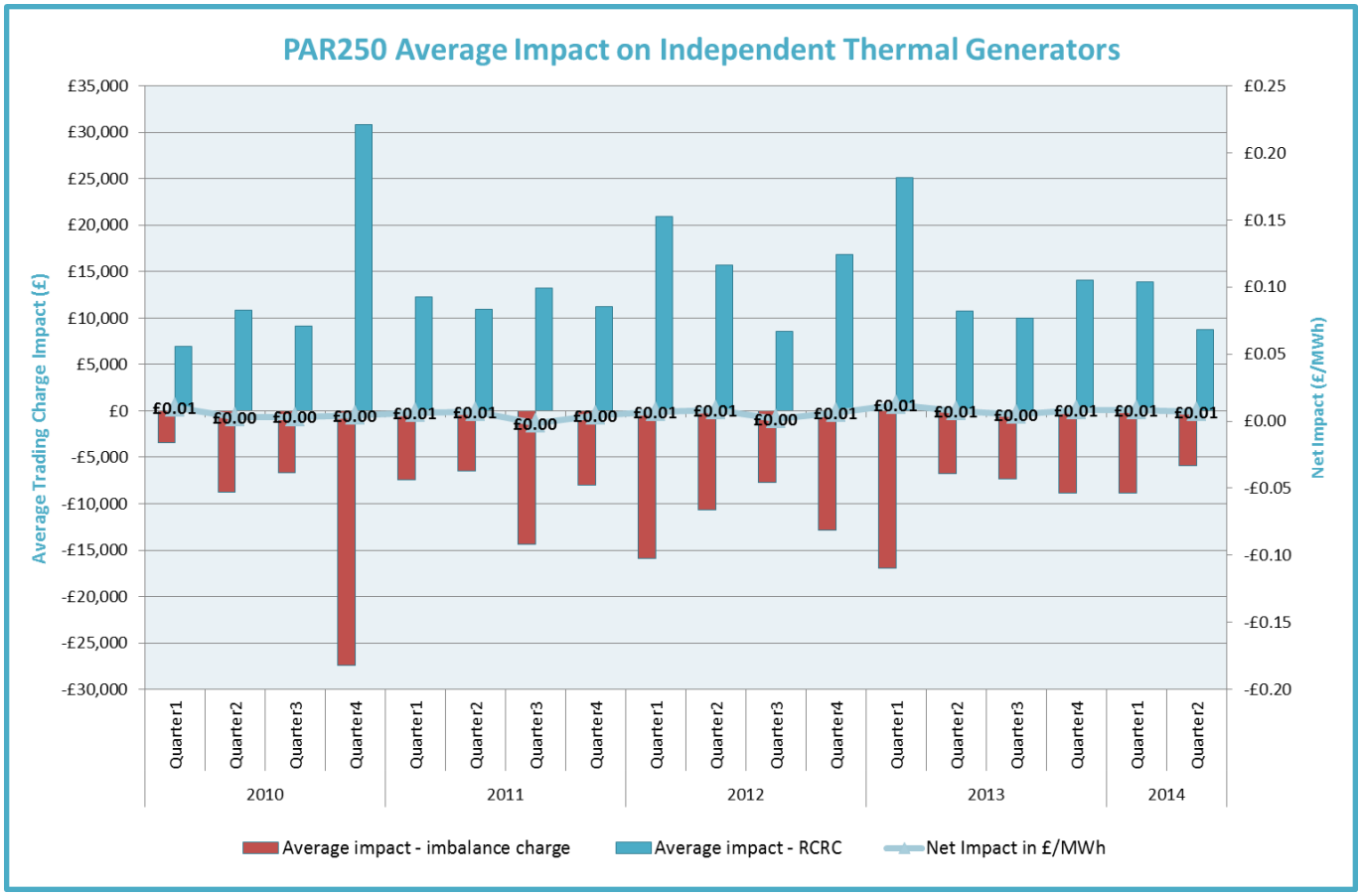


Graph 11 shows the quarterly average impact on Trading Charges for **vertically integrated Parties** as a result of PAR250. Each individual vertically integrated Party includes both their Supplier and generator businesses. There were negative impacts on Trading Charges in Q1 of 2010 and Q1 of 2011 and positive impacts on Trading Charges in the remaining periods. The higher Imbalance Charge due to sharpened imbalance prices paid by vertically

[1] RCRC is net Imbalance Charge payment to be redistributed back to Parties which amount is proportional to the amount of Credited Energy in BSC Parties' trading accounts. Large Trading Parties would therefore receive more money from RCRC because they have more Credited Energy Volumes.

integrated Parties was netted off by higher RCRC payments. This has resulted in net gain for vertically integrated Parties in the majority of periods. The average net impact per MWh of Credited Energy is £0.00/MWh for vertically integrated Parties due to the large amount of energy that is traded by them.

Graph 12 – Average PAR250 Impact on Independent Thermal Generators



Graph 12 shows the quarterly average impact on Trading Charges for **independent thermal generators** as a result of PAR250. Similar to Graph 11, the largest impacts on Imbalance Charges occurred in Q4 of 2010 and Q1 of 2013 but were compensated by RCRC payments. Overall, independent thermal generators would gain in the majority of periods, which is due to a combination of better energy balancing from more predictable station exports and higher receivable RCRC based on large Credited Energy Volumes. The average net impact per MWh of Credited Energy was £0.01/MWh for the majority of periods for thermal generators.

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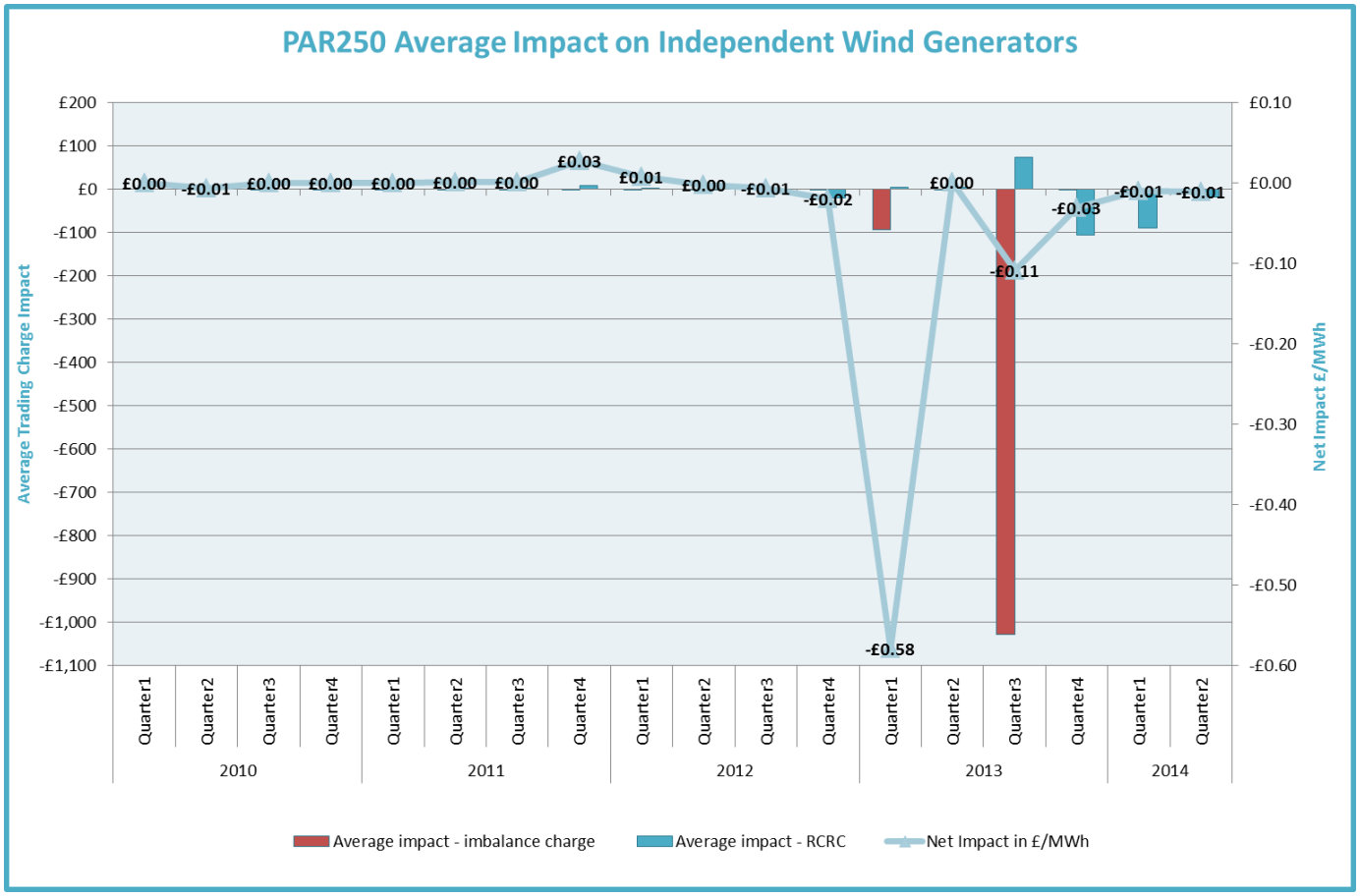
Graph 13 shows the quarterly average impact on Trading Charges for **independent wind generators** as a result of PAR250. PAR250 has minimal impact on independent wind generators as they would normally reallocate (MVRN) the output to other larger Trading Parties (normally vertically integrated Parties or Suppliers) who are responsible for trading these volumes and for energy balancing.

On Graph 13 below, the exceptional impact in Q3 of 2013 was caused by a new market entrant not setting up its MVRN correctly. This resulted in the Party taking a long position in Q3 and receiving SSP. PAR250 has subsequently reduced SSP and therefore would have an impact to that particular Party. The average net impact per MWh of Credited Energy was limited to -£0.02/MWh across the majority of period for wind generators. The downward spike in Q1 of 2013 was due to a MVRN error made by a BSC Party.

Graph 13 – Average PAR250 Impact on Independent Wind Generators



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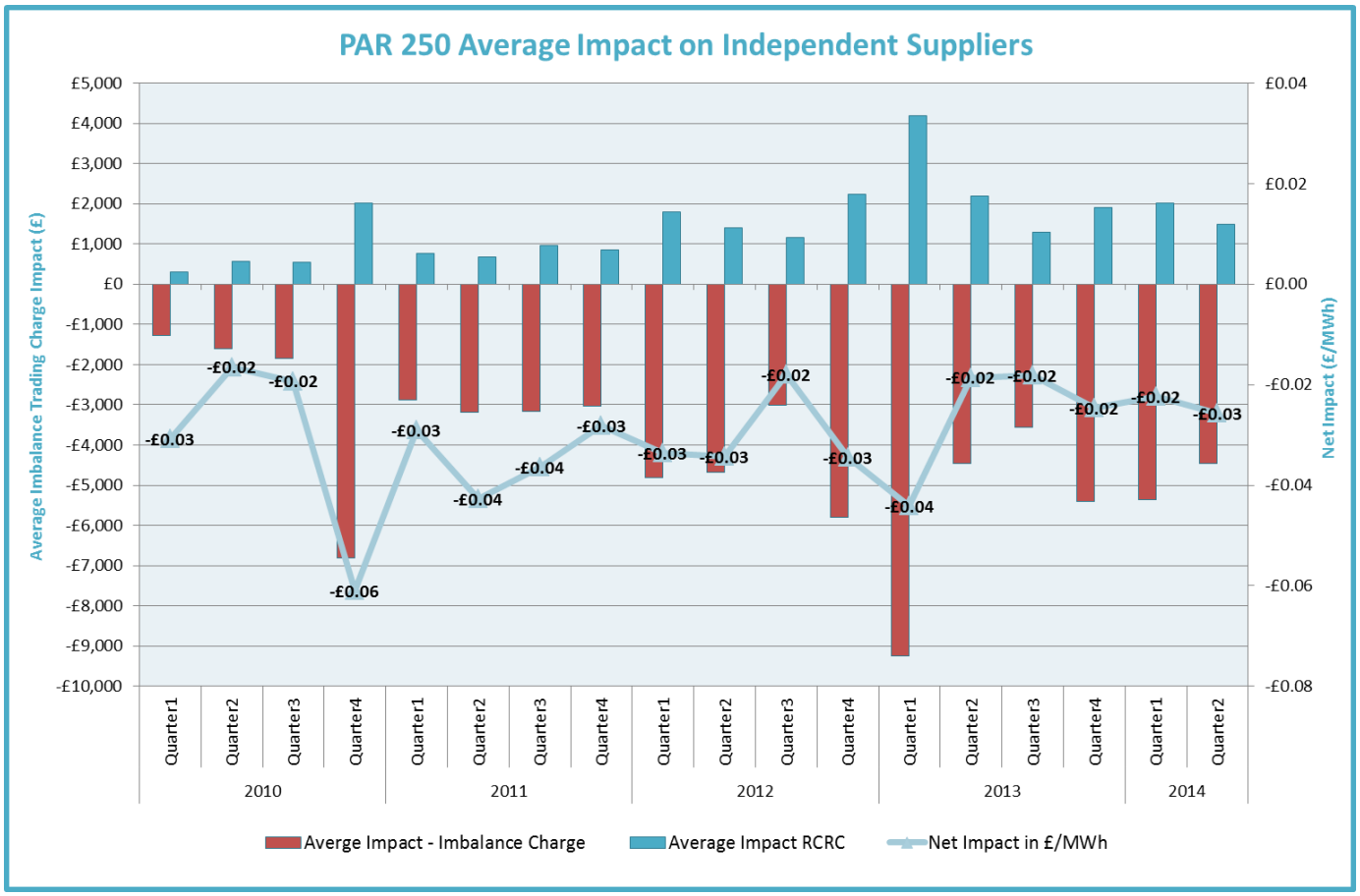
Graph 14 – Average PAR250 Impact on Independent Suppliers



Graph 14 shows the quarterly average impact on Trading Charges for **independent Suppliers** as a result of PAR250. Unlike the other types of Parties, the receivable RCRC for independent Suppliers does not outweigh the additional Imbalance Charges incurred due to sharpened imbalance prices. Independent Suppliers are more likely to be exposed to Imbalance Charges than generators as it is harder for them to predict the consumption of customers.

Independent Suppliers also had less Credited Energy Volumes in their trading accounts comparing to vertically integrated players and big generators and hence would receive less RCRC. The net impact per MWh of Credit Energy for independent Suppliers is more volatile and ranges from -£0.02/MWh to -£0.06/MWh across the different seasons of years.

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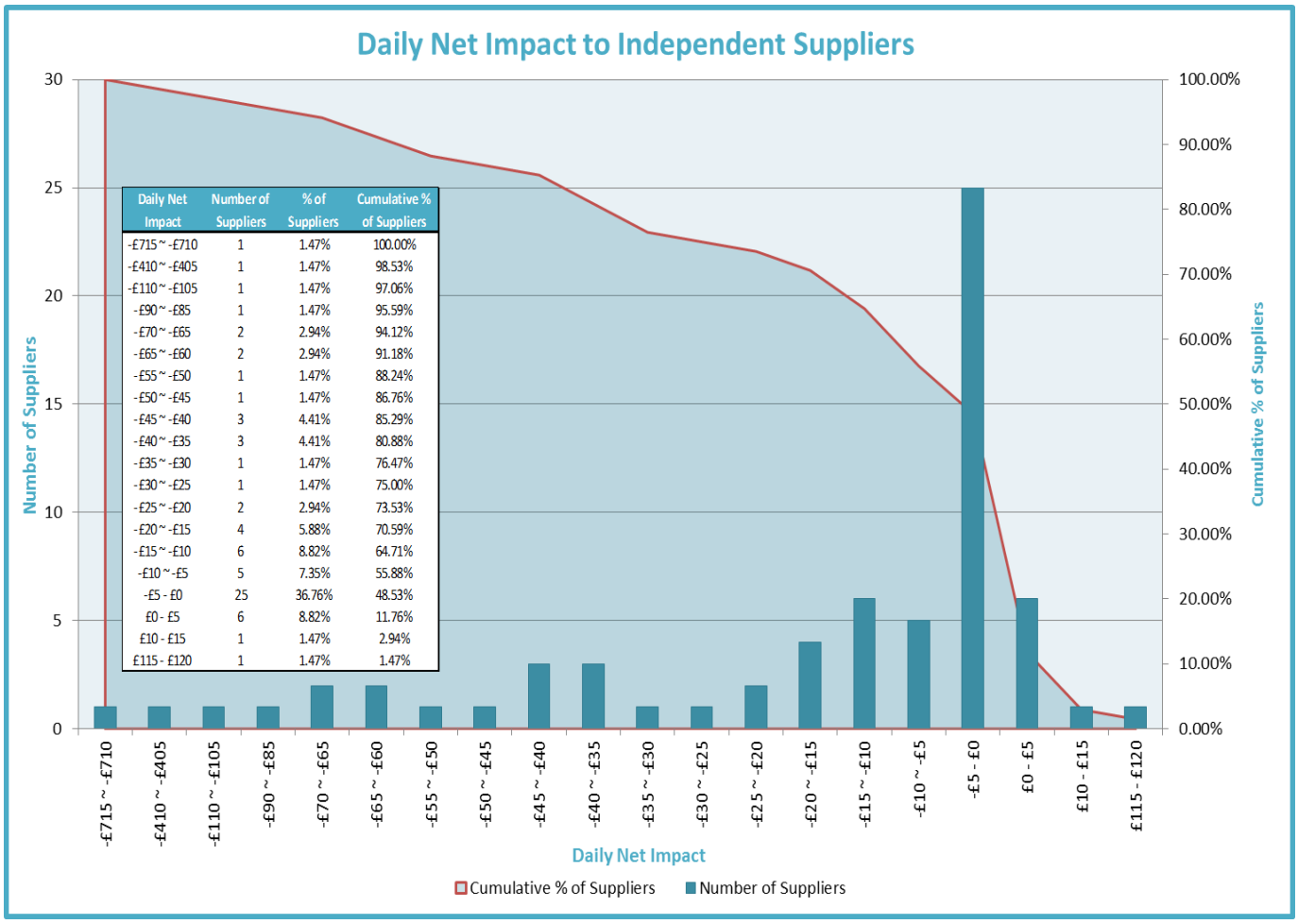
Graph 15 – Daily Net Impact on Independent Suppliers (£)



Daily Net Impact	Number of Suppliers	% of Suppliers	Cumulative % of Suppliers
-£715 ~ -£710	1	1.47%	100.00%
-£410 ~ -£405	1	1.47%	98.53%
-£110 ~ -£105	1	1.47%	97.06%
-£90 ~ -£85	1	1.47%	95.59%
-£70 ~ -£65	2	2.94%	94.12%
-£65 ~ -£60	2	2.94%	91.18%
-£55 ~ -£50	1	1.47%	88.24%
-£50 ~ -£45	1	1.47%	86.76%
-£45 ~ -£40	3	4.41%	85.29%
-£40 ~ -£35	3	4.41%	80.88%
-£35 ~ -£30	1	1.47%	76.47%
-£30 ~ -£25	1	1.47%	75.00%
-£25 ~ -£20	2	2.94%	73.53%
-£20 ~ -£15	4	5.88%	70.59%
-£15 ~ -£10	6	8.82%	64.71%
-£10 ~ -£5	5	7.35%	55.88%
-£5 - £0	25	36.76%	48.53%
£0 - £5	6	8.82%	11.76%
£10 - £15	1	1.47%	2.94%
£115 - £120	1	1.47%	1.47%

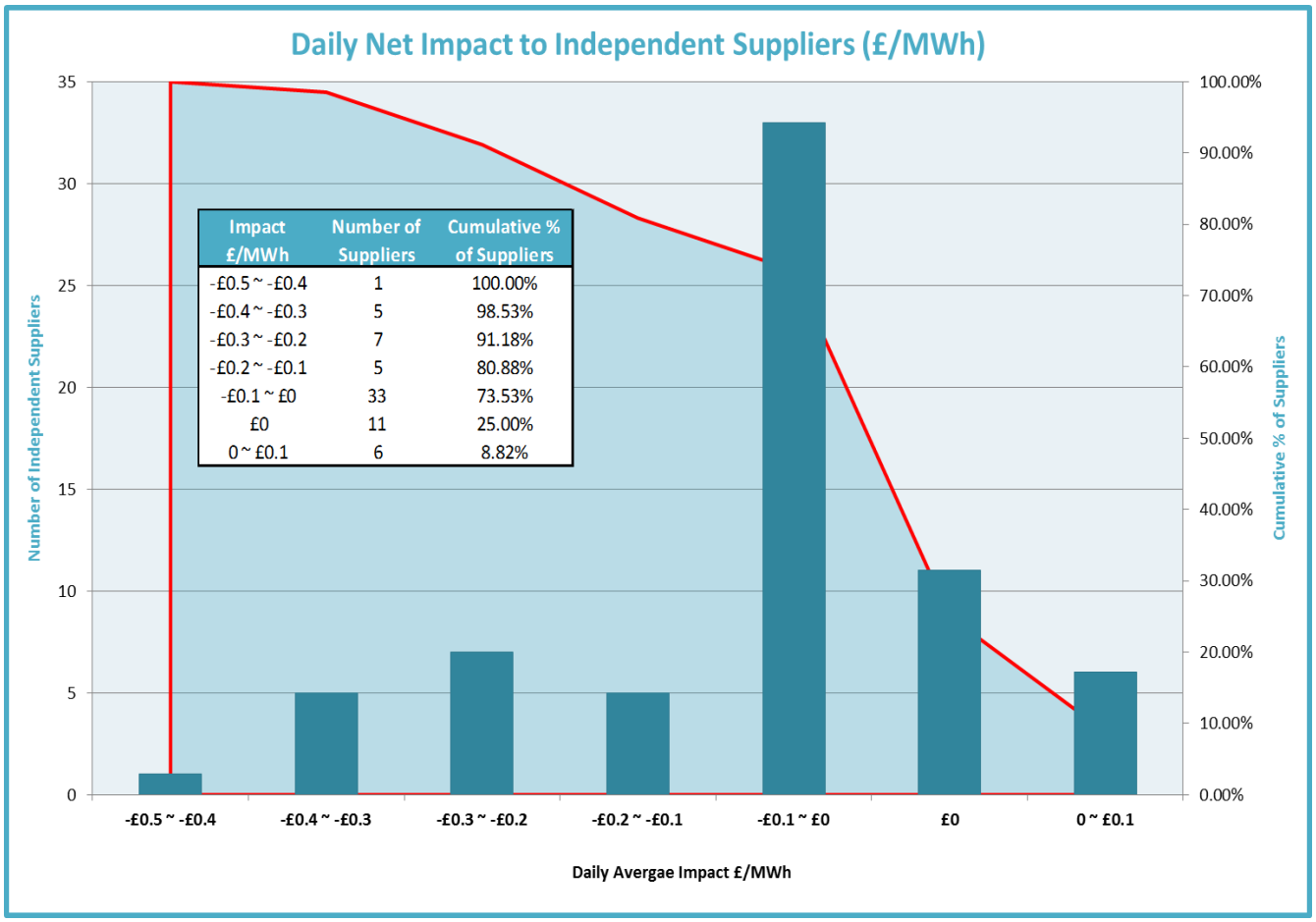
We have looked into the daily net impact for independent Suppliers as shown in Graph 15 below. Amongst all the active independent Suppliers[2], around 95% had a daily net impact of less than £100. Two Parties had a daily impact of £409 and £714 respectively. However, this was due to the Parties having large Imbalance Volumes during a few specific days/Settlement Periods when imbalance prices were significantly sharpened by PAR250.

[2] Some BSC Parties are registered as Suppliers but had no energy consumption in the past four years, they are excluded from the impact analysis

P304 – WORKGROUP PAR250 ANALYSIS

Graph 16 – Daily Net Impact on Independent Suppliers (£/MWh)

We also looked at the net daily impact using £/MWh to factor the sizes of independent Suppliers. This is shown in Graph 16 below. Over 70% of independent Suppliers would be impacted by less than -£0.1/MWh.



Impact £/MWh	Number of Suppliers	Cumulative % of Suppliers
-£0.5 ~ -£0.4	1	100.00%
-£0.4 ~ -£0.3	5	98.53%
-£0.3 ~ -£0.2	7	91.18%
-£0.2 ~ -£0.1	5	80.88%
-£0.1 ~ £0	33	73.53%
£0	11	25.00%
0 ~ £0.1	6	8.82%

Table 4 – Supplier Segmentation[3]

We have also broken the overall impact down to different types of suppliers. The below table describes the segmentation of independent suppliers.

Party Name	Party ID	Segmentation	Party Name	Party ID	Segmentation
AXPO UK LIMITED	EGLUK	I&C	Jetstream Energy Supply Ltd	JETSTREA	Independent domestic
Eneco Energy Trade	ENECOUK	I&C	LOCO2 Energy Supply Limited	GANYMEDE	Independent domestic
IPM Energy Retail Ltd	FOUR	I&C	Lorimer Power Ltd	LORM	Independent domestic
POWER4ALL Limited	POWER4	I&C	OVO Electricity Ltd	OVOE	Independent domestic
Farmoor Energy Limited	FRENERGY	I&C	Spark Energy Supply Limited	SPARKNRG	Independent domestic
Corona Energy Retail 5 Ltd	SUPELEC3	I&C + SME	Utilita Energy Limited	UTILITA	Independent domestic
DONG Energy Power Sales UK Ltd	MAGNETIC	I&C + SME	Good Energy Limited	PURE	Renewable supplier
Gazprom M & T Retail Ltd	GMTR	I&C + SME	The Renewable Energy Co Ltd	RENC	Renewable supplier
GDF SUEZ Marketing Ltd	RWETDL	I&C + SME	NEAS Energy Limited	CNDA	Renewables Aggregator
Haven Power Ltd	HAVEN	I&C + SME	Opus Energy Renewables Limited	EVENERGY	Renewables Aggregator
Opus Energy (Corporate) Ltd	CHENERGY	I&C + SME	Smartestenergy Limited	SMARTEST	Renewables Aggregator
Opus Energy Limited	OXFPOWER	I&C + SME	Statkraft Markets Gmbh	STATKRA1	Renewables aggreagator
Total Gas & Power Ltd	TFEGP	I&C + SME	Symbio Energy LLP	SYMBIO18	Renewables Aggregator
Co-operative Energy Limited	VOLA	Independent domestic	Vattenfall Energy Trading	VTS	Renewables Aggregator
Economy Energy Trading Limited	PAL	Independent domestic	Axis Telecom Ltd	AXISTELE	SME
Electricity Plus Supply Ltd	BAENERGY	Independent domestic	BES Commercial Electricity Ltd	EBEA	SME
Extra Energy Supply Limited	CALLISTO	Independent domestic	Dual Energy Direct Limited	DUALENER	SME
First Utility Limited	FRST01	Independent domestic	EPG Energy Limited	EPGNRG	SME
Flow Energy Ltd	CIRCUIT	Independent domestic	Hudson Energy Supply UK Ltd	AMPERE	SME
GNERGY Limited	LUMA	Independent domestic	MA Energy Limited	MA200308	SME
I Supply Energy Limited	COOP	Independent domestic			

[3] **Supplier segmentation source reference: Cornwall Energy**
I&C = A supplier whose principle business is supplying energy to industrial and commercial customers.
SME = A supplier whose principle business is supplying energy Small Medium Enterprise customers.
Renewable Aggregator = A suppliers whose principle business is managing embedded renewable energy.

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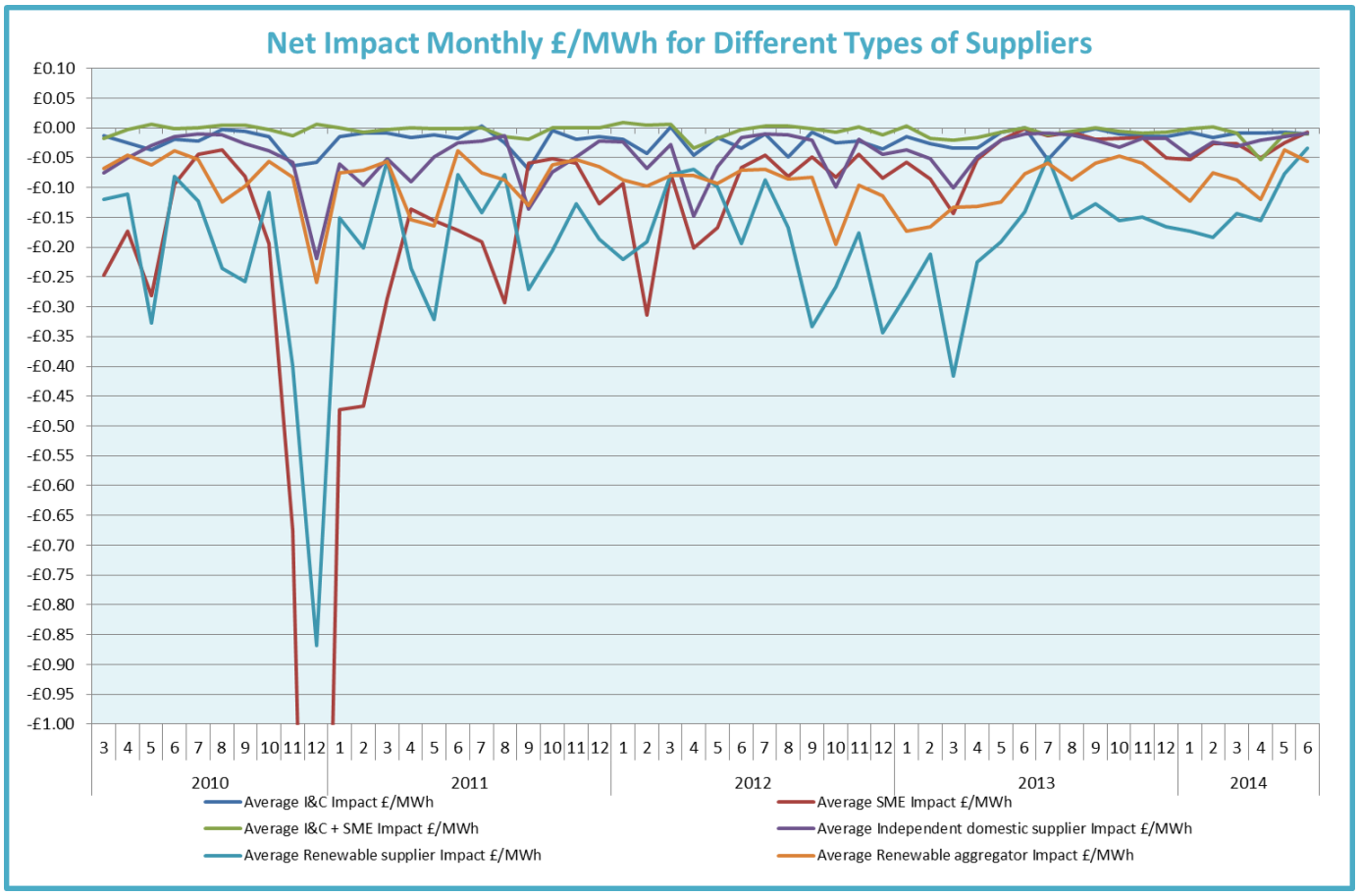
Graph 17 – Net Monthly Impact for Different Types of Suppliers



Graph 17 shows that, despite the spike in December 2010 (-£2.28/MWh) for SME Suppliers (which was due to one particular Party having an abnormal imbalance in that month) renewable Suppliers would have experienced the largest impact as a result of PAR250 with a maximum net impact of -£0.87/MWh in December 2010 when the System Price increased most significantly. All other types of Suppliers would have an average monthly impact limited to -£0.26/MWh in a worst case scenario.

Impact Summary Statistics during Periods with Significant System Scarcity

We have provided impact summary statistics for different Party Groups and for different types of independent Suppliers during several Periods with significant System scarcity to the Workgroup at its meeting on 21 August 2014. This was to assess the impact to different Parties as a result of PAR250 when System scarcity is high. Please see Appendix 2 for details.

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APPENDIX 1: THE MAIN PRICE CALCULATION WITH DIFFERENT PAR VALUES

This is an example of the System Sell Price (Main Price) calculation for Period 30 on 31/08/2013, and here we demonstrate how different PAR values would impact the final price calculation. PAR is a cash-out pricing parameter which determines the maximum volume of most expensive priced energy balancing actions to be volume averaged to calculate the Main Price. The smaller the PAR values, the more marginal the price will be (hence we will take less cheap balancing actions when calculating the Main Price).

The below table shows all of the PAR500 adjusted balancing actions that the live SSP of -£11.48/MWh was calculated based on. When PAR decreases to 350MWh, we exclude more cheap balancing actions (i.e. tightening our selection box in the below table) to calculate the SSP, this effectively sharpens the SSP to -£30.48. As PAR decreases further to 250MWh, the SSP drops to -£53.29/MWh and eventually to -£78/MWh when PAR equals 100MWh.

BOA	Date	Period	BMU	PAR Adjusted Volume	Price	TLM	TLM Adjusted Volume	BOA Final Cost	PAR 500	PAR 350	PAR 250	PAR 100
BID	20130831	30	T_WHILW-1	-15.476	-78	0.9909	-15.335	1196.12				
BID	20130831	30	T_CLDSW-1	-13.687	-78	0.9909	-13.562	1057.84				
BID	20130831	30	T_GRIFW-1	-13.437	-78	0.9909	-13.314	1038.48				
BID	20130831	30	T_GRIFW-2	-13.437	-78	0.9909	-13.314	1038.48				
BID	20130831	30	T_WHILW-1	-13.15	-78	0.9909	-13.03	1016.36				
BID	20130831	30	T_BLLA-1	-13.15	-78	0.9909	-13.03	1016.36				
BID	20130831	30	T_WHILW-1	-12.3	-78	0.9909	-12.188	950.68				
BID	20130831	30	T_WHILW-2	-12.3	-78	0.9909	-12.188	950.68				
BID	20130831	30	T_GORDW-1	-11.853	-78	0.9909	-11.745	916.1				
BID	20130831	30	T_CLDNW-1	-10.265	-78	0.9909	-10.172	793.38				
BID	20130831	30	T_WHILW-2	-8.856	-78	0.9909	-8.775	684.49				
BID	20130831	30	T_WHILW-1	-8.834	-78	0.9909	-8.753	682.76				
BID	20130831	30	T_CLDCW-1	-7.626	-78	0.9909	-7.557	589.42				
BID	20130831	30	T_WHILW-2	-7.246	-78	0.9909	-7.18	560.03				
BID	20130831	30	T_GORDW-1	-4.249	-78	0.9909	-4.21	328.42				
BID	20130831	30	T_HADHW-1	-2.657	-78	0.9909	-2.633	205.35				
BID	20130831	30	T_CLDCW-1	-2.371	-78	0.9909	-2.349	183.22				
BID	20130831	30	T_TDBNW-1	-2.201	-78	0.9909	-2.181	170.08				
BID	20130831	30	T_HADHW-1	-2.174	-78	0.9909	-2.154	168.01				
BID	20130831	30	T_TDBNW-1	-1.02	-78	0.9909	-1.011	78.82				
BID	20130831	30	T_CLDCW-1	-0.693	-78	0.9909	-0.687	53.58				
BID	20130831	30	E_BETHW-1	-3.042	-76	0.9909	-3.014	229.06				
BID	20130831	30	M_CAS-GAR01	-5.1	-50	0.9909	-5.053	252.67				
BID	20130831	30	M_CAS-GAR01	-3.9	-50	0.9909	-3.864	193.22				
BID	20130831	30	M_CAS-BEU01	-0.908	-50	0.9909	-0.9	45				
BID	20130831	30	M_CAS-BEU01	-0.483	-50	0.9909	-0.479	23.94				
BID	20130831	30	T_DRAXX-1	-18.375	20	0.9909	-18.207	-364.14				
BID	20130831	30	T_DRAXX-4	-17.625	20.1	0.9909	-17.464	-351.03				
BID	20130831	30	T_DRAXX-3	-17.625	20.5	0.9909	-17.464	-358.01				
BID	20130831	30	T_LOAN-2	-52.125	26.5	0.9909	-51.649	-1368.7				
BID	20130831	30	T_LOAN-2	-37.5	26.5	0.9909	-37.158	-984.68				
BID	20130831	30	T_LOAN-4	-64.764	27.5	0.9909	-64.172	-1764.74				
BID	20130831	30	T_RUGPS-7	-7.708	30	0.9909	-7.638	-229.14				
BID	20130831	30	T_RUGPS-6	-7.708	30	0.9909	-7.638	-229.14				
BID	20130831	30	T_RUGPS-7	-1.581	30	0.9909	-1.566	-46.99				
BID	20130831	30	T_RUGPS-6	-1.581	30	0.9909	-1.566	-46.99				
BID	20130831	30	T_RATS-3	-9.208	31	0.9909	-9.124	-282.85				
BID	20130831	30	T_RATS-2	-7.75	31.1	0.9909	-7.679	-238.82				
BID	20130831	30	T_RATS-2	-3.333	31.1	0.9909	-3.303	-102.72				
BID	20130831	30	T_ABTH8	-12.5	34.01	0.9909	-12.386	-421.24				
BID	20130831	30	T_PEHE-1	-19.816	37	0.9909	-19.635	-726.5				
BID	20130831	30	T_PEHE-1	-17.174	37	0.9909	-17.017	-629.63				
BID	20130831	30	T_PEHE-1	-13.211	37	0.9909	-13.09	-484.33				
PAR500				**-500**		**0.9909**	**-495.43**	**5687.58**	**-11.48**			
PAR350				**-350**		**0.9909**	**-346.80**	**10570.95**		**-30.48**		
PAR250				**-250**		**0.9909**	**-247.72**	**13200.87**			**-53.29**	
PAR100				**-100**		**0.9909**	**-99.09**	**7728.79**				**-78.00**

P304 – WORKGROUP PAR250 ANALYSIS

APPENDIX 2: IMPACT SUMMARY STATISTICS[4] DURING PERIODS WITH SYSTEM SCARCITY

4 November 2013 - Period 34

PAR250 Impact the highest system scarcity Period 34 4/11/2013 LOLP 100% Margin 1207MW SBP increase 64.03				
Type of Party	Indepdent Suppliers	Vertically Integrated	Thermal Generators	Wind Generators
Average (£/MWh)	-2.20	-0.39	-2.53	2.88
Max (£/MWh)	0.44	4.00	0.44	4.00
Min (£/MWh)	-27.72	-14.73	-17.00	1.75
Stand.dev (£/MWh)	6.18	3.16	6.24	1.13

Segmentation	Average Impact £/MWh	Max impact £/MWh	Min impact £/MWh	Standard Deviation of impact £/MWh
I&C	0.44	0.44	0.44	0.00
I&C + SME	0.18	0.44	-0.08	0.26
Independent domestic	-2.60	0.44	-16.56	5.38
Renewable supplier	-0.33	0.36	-1.02	0.69
Renewables aggreagator	-5.38	0.44	-16.84	8.11
SME	0.44	0.44	0.44	0.00
#N/A	-2.85	0.44	-27.72	7.40

7 September 2013 - Period 23

PAR250 Impact the highest system scarcity Period 23 7/9/2013 LOLP 100% Margin 1227MW SBP increase 4.50				
Type of Party	Indepdent Suppliers	Vertically Integrated	Thermal Generators	Wind Generators
Average (£/MWh)	-0.25	-0.59	-4.85	1.00
Max (£/MWh)	0.11	0.11	0.12	1.00
Min (£/MWh)	-4.46	-4.39	-73.36	1.00
Stand.dev (£/MWh)	0.87	1.30	17.19	0.00

Segmentation	Average Impact £/MWh	Max impact £/MWh	Min impact £/MWh	Standard Deviation of impact £/MWh
I&C	-0.10	0.07	-0.26	0.16
I&C + SME	-0.01	0.07	-0.09	0.08
Independent domestic	-0.07	0.11	-1.31	0.47
Renewable supplier	-0.12	-0.11	-0.13	0.01
Renewables aggreagator	-1.95	0.11	-4.46	1.89
SME	-0.32	0.11	-1.51	0.69
#N/A	0.01	0.11	-0.07	0.05

[4] The impact figures are for specific Settlement Period and are in £/MWh. This is the net impact (summing over imbalance charge and RCRC) divide by the Credited Energy Volume. Supplier Segmentation #N/A are those Parties categorised as independent suppliers according to their BSC roles but are not typical suppliers as described in Table 4. See Table 5 for the list of independent suppliers under #N/A Segmentation.

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1 November 2013 - Period 35

PAR250 Impact the highest system scarcity Period 35 1/11/2013 LOLP 92.72% Margin 1727MW SBP increase 7.47				
Type of Party	Indepdent Suppliers	Vertically Integrated	Thermal Generators	Wind Generators
Average (£/MWh)	-0.69	-0.84	-1.00	-1.67
Max (£/MWh)	0.28	0.28	0.27	-1.33
Min (£/MWh)	-7.33	-7.19	-7.21	-2.00
Stand.dev (£/MWh)	2.12	1.77	2.40	0.33

Segmentation	Average Impact £/MWh	Max impact £/MWh	Min impact £/MWh	Standard Deviation of impact £/MWh
I&C	0.28	0.28	0.27	0.00
I&C + SME	0.20	0.27	0.13	0.07
Independent domestic	-0.81	0.27	-7.17	2.32
Renewable supplier	-2.18	-0.43	-3.93	1.75
Renewables aggreagator	-2.28	0.27	-7.25	3.52
SME	0.27	0.28	0.27	0.00
#N/A	-0.59	0.27	-7.33	1.90

25 September 2013 - Period 34

PAR250 Impact the highest system scarcity Period 34 25/9/2013 LOLP 92.12% Margin 1631MW SBP increase 27.27				
Type of Party	Indepdent Suppliers	Vertically Integrated	Thermal Generators	Wind Generators
Average (£/MWh)	-1.39	-3.25	-2.77	-27.75
Max (£/MWh)	0.66	0.66	0.67	-27.50
Min (£/MWh)	-26.73	-28.00	-27.19	-28.00
Stand.dev (£/MWh)	4.76	8.88	8.40	0.25

Segmentation	Average Impact £/MWh	Max impact £/MWh	Min impact £/MWh	Standard Deviation of impact £/MWh
I&C	0.09	0.66	-0.48	0.57
I&C + SME	0.54	0.66	0.42	0.12
Independent domestic	-3.15	0.66	-26.73	8.40
Renewable supplier	-3.12	-1.10	-5.14	2.02
Renewables aggreagator	-3.72	-0.39	-5.39	2.36
SME	-0.65	0.66	-4.58	2.27
#N/A	-0.02	0.66	-0.66	0.37

P304 – WORKGROUP PAR250 ANALYSIS

3 October 2010 - Period 39

PAR250 Impact the highest system scarcity Period 39 3/10/2010 LOLP 68.29% Margin 2410MW SBP increase 1.92				
Type of Party	Indepdent Suppliers	Vertically Integrated	Thermal Generators	Wind Generators
Average (£/MWh)	-0.20	-0.96	0.03	N.A
Max (£/MWh)	0.05	0.05	0.05	N.A
Min (£/MWh)	-1.83	-17.12	-0.17	N.A
Stand.dev (£/MWh)	0.49	3.92	0.06	N.A

Segmentation	Average Impact £/MWh	Max impact £/MWh	Min impact £/MWh	Standard Deviation of impact £/MWh
I&C	0.05	0.05	0.05	0.00
I&C + SME	0.01	0.05	-0.02	0.03
Independent domestic	-0.08	0.05	-0.16	0.09
Renewable supplier	0.05	0.05	0.05	0.00
Renewables aggreagator	-0.95	-0.07	-1.83	0.88
SME	-0.90	-0.79	-1.00	0.11
#N/A	0.02	0.05	-0.05	0.03

Table 5 – Supplier Segmentation #N/A

Party_ID	Type	Sub
NEAS	IS	#N/A
OBERON	IS	#N/A
FSE0001	IS	#N/A
ENDC	IS	#N/A
ENERGY24	IS	#N/A
BKW	IS	#N/A
DANSKE	IS	#N/A
SHELL2	IS	#N/A
BARCAP	IS	#N/A
ENERGIDK	IS	#N/A
MBLLO	IS	#N/A
MSCGI	IS	#N/A
JPMSL	IS	#N/A
GAZPROM	IS	#N/A
ESBIGT	IS	#N/A
IMPX	IS	#N/A
VITOLSA	IS	#N/A