

Stage 03: Attachment A: Detailed Assessment for P282

P282 'Allow MVRNs from Production to Consumption or Vice Versa'

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

04 Report Phase

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About this Document

This is Attachment A to the P282 Assessment Report. It provides additional details of the Workgroup's analysis and discussions.

1 Workgroup's Detailed Analysis

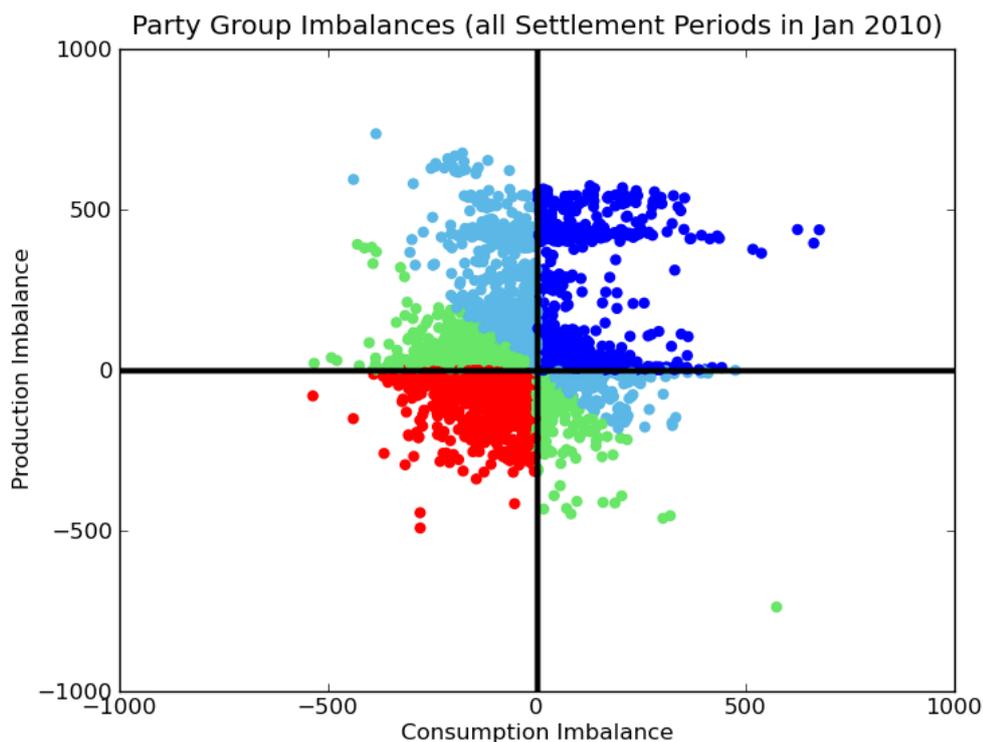
Introduction

Modification Proposal P282 gives BSC Parties (or groups of BSC Parties) the option of using Metered Volume Reallocation Notifications (MVRNs) to consolidate their Production and Consumption into a single Energy Account. The Workgroup has looked at historic data (from 2010 and 2011) to quantify the impact this would have had on Trading Charges.

Note that the results are not confidential, since the data used for the analysis appears in the SAA-I014 Settlement reports which are sent to all Parties (and any Party could therefore recreate the results).

Background – The impact of P282 on Trading Charges

For a given BSC Party group, the potential impact of P282 depends upon whether the Imbalances on their Production and Consumption Accounts are in the same or opposite directions. For example, the following scatterplot shows the non-zero Energy Imbalances for every BSC Party group in every Settlement Period in January 2010:



Each circle on the graph represents the Energy Imbalance position of a single BSC Party group in a single Settlement Period. The circles have been colour-coded to represent the Imbalance Charges payable by that BSC Party group:

- The darker blue circles represent BSC Party groups with a long position on their Production Account, and on their Consumption Account. This means that (provided they consolidate their Imbalance positions into a single Production Account and a single Consumption Account, as they're allowed to do) they will be paid System Sell Price (SSP) on their long positions, and will have no exposure to System Buy Price (SBP).

- The red circles represent BSC Party groups with a short position on their Production Account, and on their Consumption Account. This means that (provided they consolidate their Imbalance positions into a single Production Account and a single Consumption Account, as they're allowed to do) they will pay SBP on their short positions, and will have no exposure to SSP.
- The paler blue circles represent BSC Party groups who are long overall (and receive SSP on their net long position), but whose long position is partially offset by a short position on the other Energy Account. They will pay the spread between cash-out prices on this volume.
- The green circles represent BSC Party groups who are short overall (and pay SBP on their net short position), but whose short position is partially offset by a long position on the other Energy Account. They will pay the spread between cash-out prices on this volume.

The impact of P282 on these different categories of Parties can be summarised as follows:

- The BSC Party groups with offsetting positions (i.e. the pale blue and green circles on the graph) will have the option of consolidating their offsetting imbalances, so they're no longer exposed to the spread between the cash-out prices. This reduces their Imbalance Charges (and hence the Residual Cashflow Reallocation Cashflow paid to other BSC Party groups). It is this effect that is the primary focus of the pass 1 analysis.
- To the extent that they have deliberately taken long positions to protect themselves from exposure to SBP, the BSC Party groups with long positions on both Accounts (i.e. the blue circles on the graph) may be able to reduce their overall long position (if they consolidate the two Accounts, and hence reduce the risk). This effect is more difficult to model (as it depends on the strategies of the Party groups involved), but is a potential focus of the second pass of analysis.

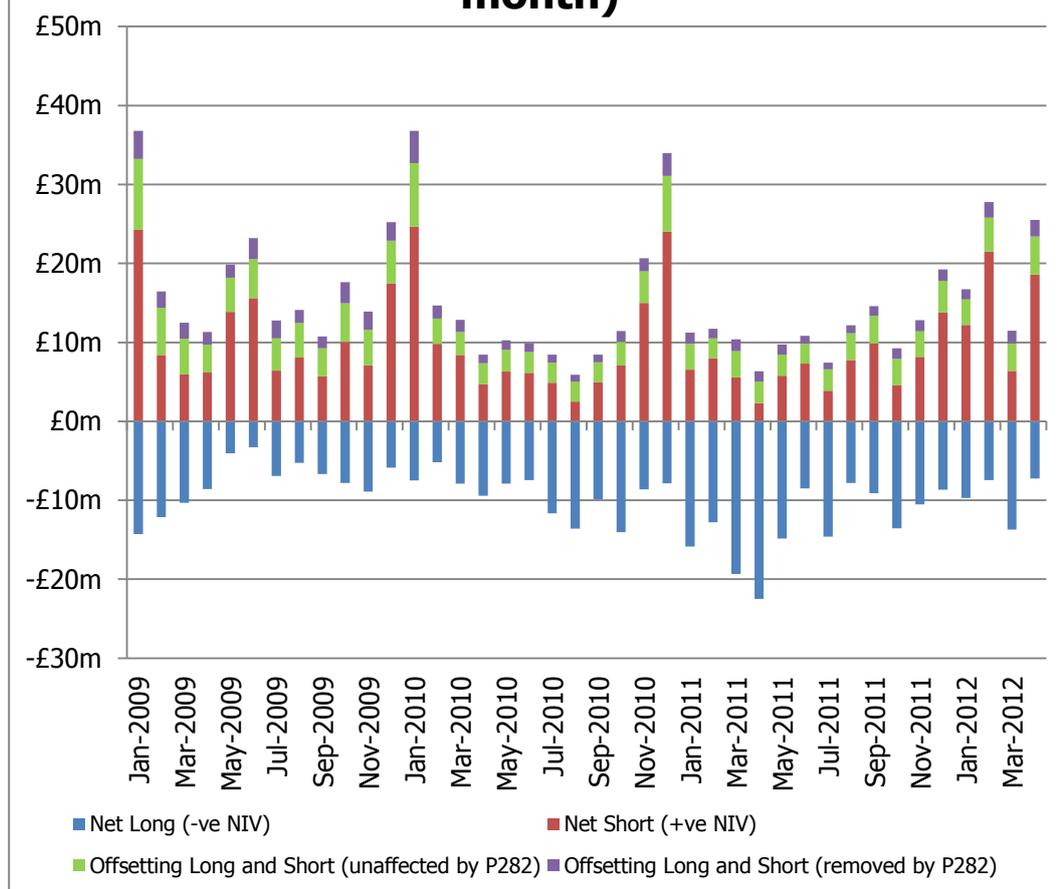
Netting of Production and Consumption – impact on total Imbalance Charges

The following graph shows how P282 affects the total Imbalance Charges levied on the market:

- The negative blue components represent payments made to Parties (at SSP) where the overall market is long. These are unaffected by P282.
- The red components represent payments made by Parties (at SBP) where the overall market is short. These are also unaffected by P282.
- The green and purple components represent payments made by Parties as a result of offsetting imbalances (where one Energy Account is long and another is short). These payments only arise because of the spread between the two cash-out prices. The green component represents payments that are unaffected by P282, while the purple portion represents payments that Parties could avoid under P282 (by netting their Production and Consumption position).

The total reduction in Imbalance Charges from Party groups netting their Production and Consumption Accounts (represented by the purple component in the above graph) is approximately £19.4m in 2010 and £15.1m in 2011.

Total Energy Imbalance Charges (by month)



Netting of Production and Consumption – impact on individual BSC Party Groups

The following table shows the above data broken down by BSC Party group i.e. the net impact on each group's Imbalance Charges and RCRC of each group consolidating Production and Consumption (arranged with those who lose the most at the top):

Impact on individual BSC Party groups						
Party Group ¹	2010			2011		
	Imbalance	RCRC	Total	Imbalance	RCRC	Total
_SSE	£2,368,703	-£3,190,713	-£822,010	£2,067,814	-£2,423,031	-£355,217
_EDF	£3,294,082	-£3,888,792	-£594,709	£2,746,192	-£2,983,242	-£237,051
_INTERGEN	£0	-£444,137	-£444,137	£0	-£301,895	-£301,895
_DRAX	£575,622	-£812,004	-£236,382	£350,341	-£721,392	-£371,050
_CENTRICA	£2,317,458	-£2,205,438	£112,019	£1,031,296	-£1,665,157	-£633,861
_RWE	£2,345,180	-£2,572,268	-£227,088	£1,819,415	-£1,985,471	-£166,055
MAGNOX	£0	-£231,902	-£231,902	£0	-£154,879	-£154,879
_PHILLIPS	£0	-£175,701	-£175,701	£0	-£161,425	-£161,425

P282
Detailed Assessment

3 August 2012

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¹ Identifiers beginning with an underscore represent a group of BSC Parties; the rest are BSC Party IDs not included in any party group. See Section 4 for a list of which Party IDs are in each party group.

Impact on individual BSC Party groups						
Party Group ¹	2010			2011		
	Imbalance	RCRC	Total	Imbalance	RCRC	Total
EPL001	£0	-£91,332	-£91,332	£0	-£155,936	-£155,936
BARKING	£0	-£164,959	-£164,959	£0	-£72,233	-£72,233
TFEGP	£27,636	-£146,894	-£119,258	£25,841	-£116,209	-£90,368
BAGLAN	£0	-£85,396	-£85,396	£0	-£70,750	-£70,750
OXFPOWER	£0	-£57,661	-£57,661	£0	-£56,591	-£56,591
POWER4	£0	-£38,559	-£38,559	£0	-£32,287	-£32,287
Other ²	£0	-£18,651	-£18,651	£0	-£21,933	-£21,933
JPMSL	£1,152	-£25,094	-£23,942	£10,118	-£9,120	£998
FRST01	£0	-£11,424	-£11,424	£0	-£10,149	-£10,149
VESL	£0	-£10,741	-£10,741	£0	-£3,414	-£3,414
BKW	£10,765	-£17,685	-£6,920	£1,817	-£6,584	-£4,767
RENC	£0	-£6,084	-£6,084	£0	-£3,831	-£3,831
_ESB	£0	-£766	-£766	£1	-£8,258	-£8,256
OVOE	£0	-£3,201	-£3,201	£0	-£4,891	-£4,891
EAGLE2	£0	-£2,465	-£2,465	£0	-£5,231	-£5,231
JARON	£1,164	-£5,760	-£4,596	£15	-£1,440	-£1,425
MSCGI	£2,166	-£7,244	-£5,078	£0	-£506	-£506
MA200308	£0	-£1,352	-£1,352	£0	-£1,405	-£1,405
EBEA	£0	-£721	-£721	£0	-£2,022	-£2,022
NGIFA	£0	-£1,430	-£1,430	£0	-£1,038	-£1,038
SPARKNRG	£0	-£1,366	-£1,366	£0	£14	£14
BARCAP	£6,708	-£6,585	£123	£12,712	-£13,813	-£1,101
BRITNED	£0	£0	£0	£44,616	-£45,300	-£684
SONILTD	£0	-£400	-£400	£0	-£252	-£252
VOLA	£0	£0	£0	£0	-£481	-£481
ENERGIDK	£0	£0	£0	£170	-£426	-£256
STATPOW	£0	£0	£0	£0	-£242	-£242
RBS	£0	-£48	-£48	£0	£0	£0
EOSTRAD	£262	-£267	-£5	£0	£0	£0
CGML2007	£0	-£2	-£2	£0	£0	£0
BNPP	£0	£0	£0	£0	£0	£0
CARGILL	£0	£0	£0	£0	£0	£0

² The 'other' category consists of Lead Parties with a 100% MVRN and Bid Offer Acceptances. They have no Energy Imbalance (and were excluded from our list of company groups for that reason), but do receive RCRC payments.

Impact on individual BSC Party groups						
Party Group ¹	2010			2011		
	Imbalance	RCRC	Total	Imbalance	RCRC	Total
FSE0001	£0	£0	£0	£0	£0	£0
ELECTRO	£0	£0	£0	£1	£0	£1
ENDC	£0	£197	£197	£0	£267	£267
BPGAS	£18,801	-£9,359	£9,443	£2,610	-£8,326	-£5,716
CNRP	£0	£0	£0	£8,353	-£2,351	£6,002
MAKUK	£0	£0	£0	£13,851	-£2,321	£11,530
ENDE0773	£0	-£1,181	-£1,181	£26,427	-£2,885	£23,541
DB	£7,537	-£3,518	£4,019	£30,505	-£6,261	£24,243
NEAS	£31,867	-£488	£31,379	£3,391	-£1,937	£1,454
DANSKE	£76,335	-£8,001	£68,334	£25,592	-£6,592	£19,000
VITOLSA	£150,754	-£27,781	£122,973	£7,419	-£6,344	£1,075
ENTERGY	£143,872	-£14,557	£129,315	£3,147	-£2,544	£603
GAZPROM	£106,129	-£23,197	£82,932	£109,777	-£42,940	£66,837
SMARTEST	£0	£97,349	£97,349	£0	£55,379	£55,379
_DONG_STATKR	£99,020	-£48,183	£50,837	£226,912	-£93,578	£133,334
_VATTENFALL	£2,069	-£12,618	-£10,549	£402,557	-£33,283	£369,274
_GDFSUEZ	£1,650,504	-£1,097,879	£552,625	£1,058,327	-£769,642	£288,684
_EON	£3,434,077	-£2,488,724	£945,354	£2,159,335	-£2,002,282	£157,053
_SPOW	£2,746,473	-£1,553,356	£1,193,117	£2,855,880	-£1,077,967	£1,777,913
TOTAL	£19,418,335	-£19,418,335	£0	£15,044,431	-£15,044,431	£0

The table below expresses each Party group's total benefit (the net of their savings in imbalance charges and changes in RCRC charges/payments as a consequence of P282) across the two years as a £/MWh value (arranged alphabetically):

Total benefits for individual Party groups expressed in £/MWh					
Party Group	Benefit	Party Group	Benefit	Party Group	Benefit
_CENTRICA	£0.00/MWh	CARGILL	£0.00/MWh	MA200308	-£0.03/MWh
_DONG_STATKR	£0.03/MWh	CGML2007	-£0.01/MWh	MAGNOX	-£0.03/MWh
_DRAX	-£0.01/MWh	CNRP	£0.07/MWh	MAKUK	£0.12/MWh
_EDF	£0.00/MWh	DANSKE	£0.16/MWh	MSCGI	-£0.02/MWh
_EON	£0.01/MWh	DB	£0.08/MWh	N2EX	£0.00/MWh
_ESB	-£0.03/MWh	EAGLE2	-£0.02/MWh	NEAS	£0.40/MWh
_GDFSUEZ	£0.01/MWh	EBEA	-£0.03/MWh	NGIFA	-£0.03/MWh
_INTERGEN	-£0.02/MWh	ELECTRO	£0.00/MWh	NOBLE	£0.00/MWh

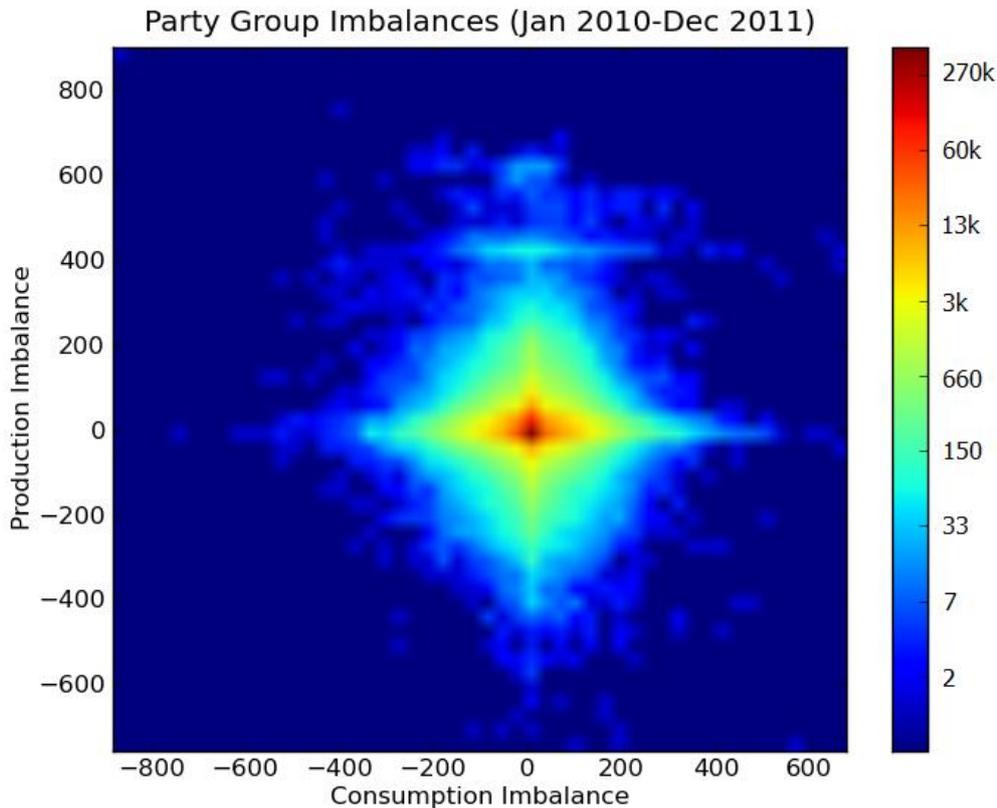
Total benefits for individual Party groups expressed in £/MWh					
Party Group	Benefit	Party Group	Benefit	Party Group	Benefit
_KOCH	£0.00/MWh	ENDC	£0.01/MWh	OVOE	-£0.03/MWh
_PHILLIPS	-£0.03/MWh	ENDE0773	£0.17/MWh	OXFPOWER	-£0.03/MWh
_RWE	£0.00/MWh	ENERGIDK	-£0.01/MWh	POWER4	-£0.03/MWh
_SPOW	£0.03/MWh	ENERGY24	£0.00/MWh	RBS	-£0.03/MWh
_SSE	-£0.01/MWh	ENTERGY	£0.20/MWh	RENC	-£0.03/MWh
_VATTENFALL	£0.19/MWh	EOSTRAD	£0.00/MWh	SHELL2	-£0.06/MWh
APXCOMM	£0.00/MWh	EPL001	-£0.03/MWh	SMARTEST	£0.02/MWh
BAGLAN	-£0.02/MWh	FENERGY	£0.00/MWh	SONILTD	-£0.03/MWh
BARCAP	£0.00/MWh	FINO1826	£0.00/MWh	SPARKNRG	-£0.02/MWh
BARKING	-£0.03/MWh	FRST01	-£0.03/MWh	STATPOW	-£0.03/MWh
BKW	-£0.01/MWh	FSE0001	£0.00/MWh	TFEGP	-£0.02/MWh
BNPP	£0.00/MWh	GAZPROM	£0.06/MWh	VESL	-£0.03/MWh
BPGAS	£0.01/MWh	JARON	-£0.02/MWh	VITOLSA	£0.10/MWh
BRITNED	£0.00/MWh	JPMSL	-£0.02/MWh	VOLA	-£0.02/MWh

Correlation between Production and Consumption imbalances

The Workgroup also looked at whether Imbalances on Production and Consumption Accounts are correlated i.e. do those Parties long on one also tend to be long on the other.

The earlier scatterplot goes some way towards showing this, but the number of points makes it hard to see what is going on (even when only a single month is illustrated). The following heat map is intended to address this issue. It is conceptually similar to the scatter plot, but uses colours to show where the density of points is highest³, and includes the whole two years from January 2010 to December 2011:

³ The diagram is made up of 50x50 cells, and the colour of each cell indicates how many points fall within it. In order to improve the presentation the colour scale is logarithmic, and a handful of outlying points (where a Party had a particularly high Imbalance) have been excluded.

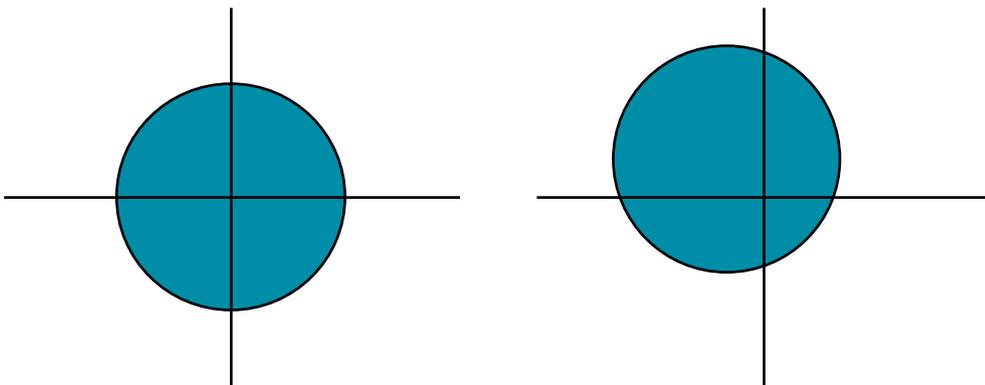


Why do some Party groups benefit and others don't?

A Party's Imbalance position is not completely within their control, and elements such as sudden increases in demand, generation outages or the application of Transmission Losses can cause a Party to be in imbalance. Consequently, each Party will have a range of Imbalance positions over time, which can be plotted as per the diagrams above.

As noted above, gains from P282 come from Settlement Periods where a Party is long in one Energy Account and short in the other – no gains can be realised from P282 for a Party who is long in both or short in both. This means that it is the times where a Party's imbalance position falls in the upper-left or lower-right quadrant of the scatter graph at the start of this Section that is significant, as they would have offsetting volumes in their Energy Accounts.

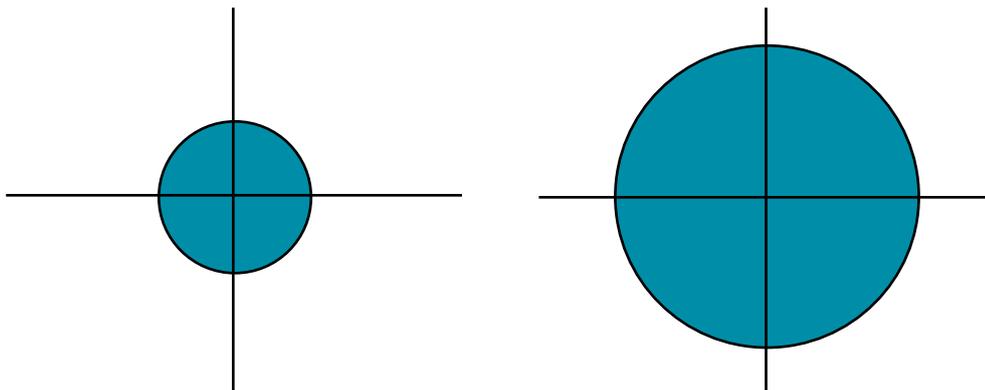
Consider the two diagrams below, which indicate two different mean imbalance positions. The diagram on the left indicates a Party whose average imbalance position is centered on zero – i.e. they aim to be perfectly balanced in each Settlement Period. Conversely, the diagram on the right shows a Party that, on average, tends to be long in one Energy Account and short in the other.



If we consider the diagram on the right above, then the Party's imbalance position is centered in the upper-left quadrant, which is a quadrant where P282 would offer benefits. However, while such an average position increases the number of occurrences in the upper-left quadrant, it similarly decreases the number of occurrences in the lower-right quadrant compared to a Party that averages zero imbalance, and the two effects will partially cancel each other out.

However, this position means that there will be more Settlement Periods where the Party has large offsetting volumes in their Energy Accounts, compared to the better balanced Party. In this scenario, the Party would currently be exposed to the System Buy Price/System Sell Price (SBP/SSP) spread on these offsetting volumes. But under P282, this portion of the imbalance charge could be avoided as the offsetting volumes could be netted in a single Energy Account, which would offer a benefit to the Party. Therefore, a Party whose mean position was deeper into one of the critical quadrants would stand to gain more than a Party who was better balanced or tended to be long or short in both Energy Accounts.

As well as the mean, the spread of a Party's imbalance positions is also important. The two diagrams below indicate two different spreads of imbalance positions. The diagram on the left indicates a Party whose spread is small – i.e. their imbalance position tends to be more 'regular'. Conversely, the diagram on the right shows a Party whose spread is larger, or more 'irregular'.



By increasing the spread of imbalances, more occurrences can occur where a Party has a large imbalance in each Energy Account. If this results in a large volume of energy that could be offset, then the Party would be exposed to the SBP/SSP spread on a larger volume. Under P282, this could be avoided, thus resulting in a larger benefit to the Party.

Overall, these effects mean that it is generally Parties that are less able to balance their positions that would benefit the most from P282, as there would be more Settlement Periods where they can make large savings arising from being long in one Energy Account while short in the other. Currently, Parties in such positions would be 'penalised' through paying the SBP/SSP spread on any equal and opposite volumes. However, by being able to net these volumes in a single Energy Account, this penalty can be avoided as the two volumes would net.

Imbalance Charge Reductions as Percentage of Total

The following table shows the reduction in Imbalance Charges (for each Party group) which would arise as a result of P282, compared to their total gross imbalance charge, with their savings expressed as a percentage of their gross imbalance charge (arranged in descending Total Gross Imbalance values). These points are also plotted in a graph at the end.

Imbalance charge reductions as percentage of total					
Party Group	P282 Imbalance Saving	SBP Exposure	SSP Exposure	Total Gross Imbalance	Saving
_EDF	£6,039,926	£88,274,685	-£84,656,688	£172,931,373	3.49%
_SPOW	£5,603,326	£71,349,641	-£91,174,775	£162,524,416	3.45%
_SSE	£4,437,630	£110,633,870	-£44,606,719	£155,240,589	2.86%
_EON	£5,593,095	£96,653,537	-£58,526,674	£155,180,211	3.60%
_RWE	£4,164,502	£75,365,431	-£74,951,298	£150,316,729	2.77%
_CENTRICA	£3,352,611	£56,474,764	-£79,636,804	£136,111,568	2.46%
_GDFSUEZ	£2,708,411	£31,751,154	-£32,343,184	£64,094,338	4.23%
_DRAX	£927,943	£22,354,642	-£14,808,120	£37,162,762	2.50%
SMARTEST	£0	£10,600,609	-£19,995,818	£30,596,427	0.00%
_DONG_STATKR	£326,342	£8,781,858	-£19,011,144	£27,793,002	1.17%
_INTERGEN	£0	£6,690,082	-£13,648,543	£20,338,625	0.00%
TFEGP	£53,467	£7,650,262	-£6,347,663	£13,997,925	0.38%
EPL001	£0	£8,678,489	-£2,804,364	£11,482,853	0.00%
_PHILLIPS	£0	£5,587,480	-£5,888,875	£11,476,355	0.00%
VITOLSA	£158,228	£4,786,196	-£5,612,982	£10,399,178	1.52%
EAGLE2	£0	£2,491,514	-£7,084,121	£9,575,635	0.00%
POWER4	£0	£6,454,323	-£2,008,802	£8,463,125	0.00%
BARKING	£0	£3,782,405	-£3,628,067	£7,410,472	0.00%
OXFPOWER	£0	£4,458,828	-£2,679,697	£7,138,525	0.00%
BAGLAN	£0	£3,055,091	-£3,510,383	£6,565,474	0.00%
MAGNOX	£0	£3,376,977	-£2,926,064	£6,303,041	0.00%
GAZPROM	£216,011	£2,581,906	-£2,857,063	£5,438,969	3.97%
RENC	£0	£1,391,755	-£2,823,535	£4,215,290	0.00%
NGIFA	£0	£2,124,116	-£1,935,408	£4,059,524	0.00%
BRITNED	£44,617	£2,091,033	-£1,498,484	£3,589,517	1.24%
MA200308	£0	£3,148,091	-£164,471	£3,312,562	0.00%
ENTERGY	£147,020	£1,860,695	-£1,114,626	£2,975,321	4.94%
SPARKNRG	£0	£1,012,918	-£1,141,200	£2,154,118	0.00%
BARCAP	£30,560	£1,566,559	-£468,658	£2,035,217	1.50%

Imbalance charge reductions as percentage of total					
Party Group	P282 Imbalance Saving	SBP Exposure	SSP Exposure	Total Gross Imbalance	Saving
FRST01	£0	£1,139,519	-£783,537	£1,923,056	0.00%
JPMSL	£11,271	£683,937	-£840,341	£1,524,278	0.74%
DANSKE	£104,076	£865,563	-£510,830	£1,376,393	7.56%
SONILTD	£0	£1,142,303	-£112,803	£1,255,106	0.00%
_ESB	£1	£432,156	-£801,522	£1,233,678	0.00%
EBEA	£0	£661,633	-£480,030	£1,141,663	0.00%
OVOE	£0	£558,033	-£518,608	£1,076,641	0.00%
NEAS	£35,258	£841,716	-£159,160	£1,000,876	3.52%
DB	£40,113	£571,292	-£390,864	£962,156	4.17%
BPGAS	£21,412	£501,706	-£280,652	£782,358	2.74%
RBS	£0	£571,431	-£197,271	£768,702	0.00%
ENDC	£0	£274,496	-£446,772	£721,268	0.00%
BKW	£12,868	£538,419	-£178,548	£716,967	1.79%
JARON	£1,179	£362,062	-£256,186	£618,248	0.19%
ENDE0773	£28,864	£249,728	-£209,950	£459,678	6.28%
STATPOW	£0	£10,575	-£370,313	£380,888	0.00%
CNRP	£9,854	£281,541	-£89,355	£370,896	2.66%
VESL	£0	£1,472	-£300,612	£302,084	0.00%
VOLA	£0	£151,937	-£149,965	£301,902	0.00%
MSCGI	£2,166	£207,813	-£56,699	£264,512	0.82%
MAKUK	£13,851	£136,749	-£71,110	£207,859	6.66%
ENERGY24	£0	£103,954	-£36,701	£140,655	0.00%
_KOCH	£0	£102,270	-£14,045	£116,315	0.00%
ENERGIDK	£170	£39,731	-£3,251	£42,982	0.40%
EOSTRAD	£343	£14,809	-£14,002	£28,811	1.19%
BNPP	£0	£4,477	-£18,920	£23,397	0.00%
N2EX	£0	£1,721	-£14,829	£16,550	0.00%
APXCOMM	£0	£13,009	-£296	£13,305	0.00%
NOBLE	£0	£9,767	-£572	£10,339	0.00%
FINO1826	£0	£2,423	-£7,579	£10,002	0.00%
CGML2007	£0	£4,718	-£1,669	£6,387	0.00%
FENERGY	£0	£4,057	-£1,071	£5,128	0.00%
CARGILL	£0	£0	-£2,503	£2,503	0.00%
FSE0001	£0	£338	-£38	£376	0.00%

2 Impact of P285/P286

How do P285 and P286 impact P282?

Modification Proposals [P285 'Revised treatment of RCRC for Interconnector BM Units'](#) and [P286 'Revised treatment of RCRC for generation BM Units'](#) propose to change the distribution of RCRC among BSC Parties, by excluding Interconnector BM Units and BM Units that are in delivering Trading Units respectively from the allocation of RCRC. Analysis has been carried out to examine how these Modifications may impact the benefits arising from P282.

The table below lists each Party group's total benefits (the net of their savings in imbalance charges and changes in RCRC charges/payments as a consequence of P282) as calculated using the current baseline (as in Section 1), and recalculates these total benefits under a P285 baseline and a P286 baseline (arranged with those who lose the most under the current baseline at the top).

For the P285 baseline calculations, it is assumed that all Interconnector BM Units are not liable for RCRC, and so those BM Units would not realise a gain or a loss from a reduction in RCRC as a consequence of P282. Equally, non-Interconnector BM Units would have been liable for a greater share of RCRC under P285, which would affect their benefits arising from P282 accordingly. The P286 baseline calculations assume the same, except that in this case it is BM Units in delivering Trading Units that are excluded from RCRC, thus increasing the RCRC paid or received by BM Units in offtaking Trading Units.

Please note that the current baseline values shown below were recalculated at a later date to those in the original analysis in Section 2, and so will not match exactly due to the Settlement Runs that have taken place in the intervening period.

Total benefits for individual Party groups recalculated under a P285/P286 baseline			
Party Group	Current Baseline	P285 Baseline	P286 Baseline
_SSE	-£1,186,890.02	-£1,237,846.16	-£1,844,645.73
_EDF	-£825,739.80	-£865,806.55	-£694,005.16
_INTERGEN	-£746,291.06	-£762,093.43	-£4,825.28
_DRAX	-£607,457.91	-£639,945.94	£657,337.43
_CENTRICA	-£507,005.39	-£584,279.80	-£1,884,748.55
MAGNOX	-£386,914.14	-£395,333.10	£4,395.44
_RWE	-£379,296.55	-£394,889.28	-£1,323,825.82
_PHILLIPS	-£337,024.38	-£344,378.80	-£226.06
EPL001	-£246,837.27	-£251,531.00	-£3,848.14
BARKING	-£237,291.80	-£242,198.56	-£1,318.48
TFEGP	-£209,634.01	-£149,327.09	-£390,480.71
BAGLAN	-£156,198.69	-£159,576.09	-£2,142.67
OXFPOWER	-£114,159.63	-£116,516.74	-£228,178.01
POWER4	-£70,853.99	-£72,371.71	-£141,627.71
JPMSL	-£22,939.43	£11,270.67	-£32,179.44
FRST01	-£21,601.80	-£22,054.58	-£43,177.94

Total benefits for individual Party groups recalculated under a P285/P286 baseline

Party Group	Current Baseline	P285 Baseline	P286 Baseline
VESL	-£14,171.77	£0.00	-£28,321.42
BKW	-£11,694.20	£12,582.03	-£8,969.46
RENC	-£9,910.76	-£10,108.51	-£19,808.02
_ESB	-£9,024.71	-£6,679.51	-£4,866.58
OVOE	-£8,079.25	-£8,251.54	-£16,148.96
EAGLE2	-£7,699.48	-£7,857.32	-£6,507.79
JARON	-£6,019.45	£1,179.27	-£4,657.33
MSCGI	-£5,589.46	£2,166.08	-£6,101.90
MA200308	-£2,758.53	-£2,815.79	-£5,513.73
EBEA	-£2,740.89	-£2,796.74	-£5,479.27
NGIFA	-£2,468.10	£0.00	-£2,132.21
SPARKNRG	-£1,392.74	-£1,420.45	-£2,783.78
BARCAP	-£929.67	£19,417.71	£10,633.11
SONILTD	-£652.76	£0.00	-£1,152.09
BRITNED	-£606.09	£44,616.31	£14,861.21
VOLA	-£479.44	-£489.47	-£957.06
ENERGIDK	-£255.27	£170.07	£44.03
STATPOW	-£240.49	-£246.13	-£20.98
RBS	-£48.08	£0.00	-£83.90
EOSTRAD	-£5.72	£261.55	-£272.55
CGML2007	-£1.99	£0.00	-£2.71
SHELL2	-£0.06	£0.00	£0.00
_KOCH	£0.00	£0.00	£0.00
APXCOMM	£0.00	£0.00	£0.00
BNPP	£0.00	£0.00	£0.00
CARGILL	£0.00	£0.00	£0.00
ENERGY24	£0.00	£0.00	£0.00
FENERGY	£0.00	£0.00	£0.00
FINO1826	£0.00	£0.00	£0.00
FSE0001	£0.00	£0.00	£0.00
N2EX	£0.00	£0.00	£0.00
NOBLE	£0.00	£0.00	£0.00
ELECTRO	£0.80	£0.80	£0.80
ENDC	£460.26	£470.52	£920.03
BPGAS	£3,723.58	£21,411.28	£4,425.00

Total benefits for individual Party groups recalculated under a P285/P286 baseline

Party Group	Current Baseline	P285 Baseline	P286 Baseline
CNRP	£6,013.03	£8,352.67	£6,716.61
MAKUK	£11,528.71	£13,850.84	£13,763.53
ENDE0773	£22,354.35	£26,426.85	£18,565.81
DB	£28,273.28	£38,041.56	£29,726.36
NEAS	£32,832.33	£35,258.10	£33,412.04
DANSKE	£87,340.74	£101,927.15	£87,364.71
VITOLSA	£124,076.48	£158,217.00	£128,347.94
ENTERGY	£129,907.54	£147,016.69	£131,956.63
GAZPROM	£149,424.14	£168,891.28	£102,699.73
SMARTEST	£153,218.03	£156,597.33	£315,120.47
_DONG_STATKR	£184,192.86	£201,756.55	£347,060.35
_VATTENFALL	£358,787.68	£373,363.67	£393,172.05
_GDFSUEZ	£844,755.53	£818,492.30	£1,383,145.10
_EON	£1,080,315.31	£1,044,821.50	£51,203.32
_SPOW	£2,964,298.20	£2,913,878.03	£2,994,275.98

Why has this analysis been carried out?

Currently, BSC Parties can only submit MVRNs that would reallocate a Production BM Unit's Credited Energy Volumes into another Party's Production Energy Account, or a Consumption BM Unit's Credited Energy Volumes into another Party's Consumption Energy Account. P282 seeks to also allow BSC Parties to be able to submit MVRNs from a Production BM Unit to any Consumption Energy Account (either their own or another Party's) or vice versa.

One potential consequence of P282 is that a number of Energy Contract Volume Notifications (ECVNs) could be replaced by percentage-volume MVRNs. Currently, if a Party wishes to allocate energy from a Production BM Unit to a Consumption Energy Account, they would need to do so by submitting an appropriate ECVN. Under P282, they would instead be able to submit an MVRN reallocating 100% of a BM Unit's volume to the relevant Energy Account, negating the need for the ECVN.

Section D Annex D-3 lays out a series of Specified BSC Charges which are levied on BSC Parties. One of these charges is the Notified Volume Charge, which is charged to Parties based on the volume of all ECVNs and fixed-volume MVRNs where energy is traded out of or into one of their Energy Accounts.⁴ However, percentage-volume MVRNs are not considered in the calculation of a Party's Notified Volume Charge.

Should P282 be implemented, Parties could potentially replace any ECVNs they make between their Energy Accounts with 100% MVRNs, which would reduce the volume liable for the Notified Volume Charge. In addition, it would be possible for ECVNs made between two or more Party IDs that belong to a single company group to be replaced with 100% MVRNs, should the company group elect to net all of their Credited Energy Volumes into a single Energy Account, reducing the volume further. This could result in the tariff for the Notified Volume Charge, which is currently £0.0006/MWh, needing to be increased.

What data does this analysis consider?

This analysis considers the period January 2010 to December 2011 inclusive, and considers all ECVNs made during that time. There were no fixed-volume MVRNs effective during 2010 or 2011.

For this analysis, we have looked at two scenarios as follows:

- **Current Arrangements:** This scenario considers the number and absolute volume of ECVNs made from or to a Party ID over each calendar month during 2010 and 2011, and represents the current situation.
- **P282 Arrangements:** This scenario considers the number and absolute volume of ECVNs per Party ID, excluding those made between the two Energy Accounts of a single Party ID and those made between two Parties considered to belong to the same Party group⁵. This scenario is intended to model the situation where a

⁴ If a Party submits an ECVN to trade energy from one of their Energy Account to the other, they would be charged twice for this: once as a trade of energy out of one of their Energy Accounts; and once as a trade of energy into one of their Energy Accounts.

⁵ The list of Party groups used in this analysis is the same as the list used for the main P282 analysis – see Section 4.

particular Party group elects to consolidate all of its BM Unit volumes across all of its Party IDs into a single Energy Account.

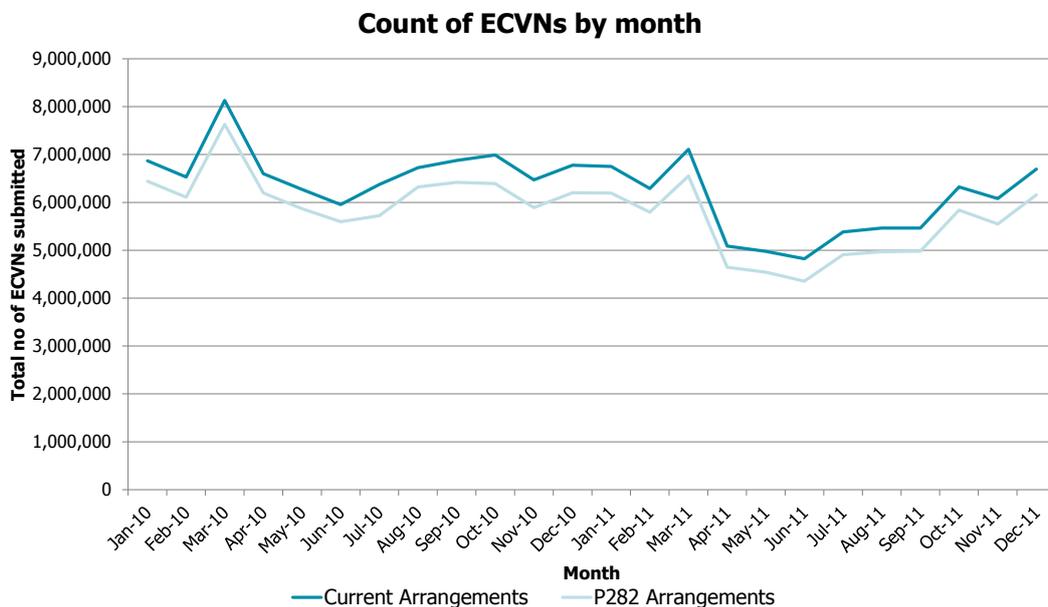
In each case, ECVNs have been counted on a 'Settlement Period' basis – for example, if an ECVN was effective for 48 Settlement Periods, it has been counted 48 times.

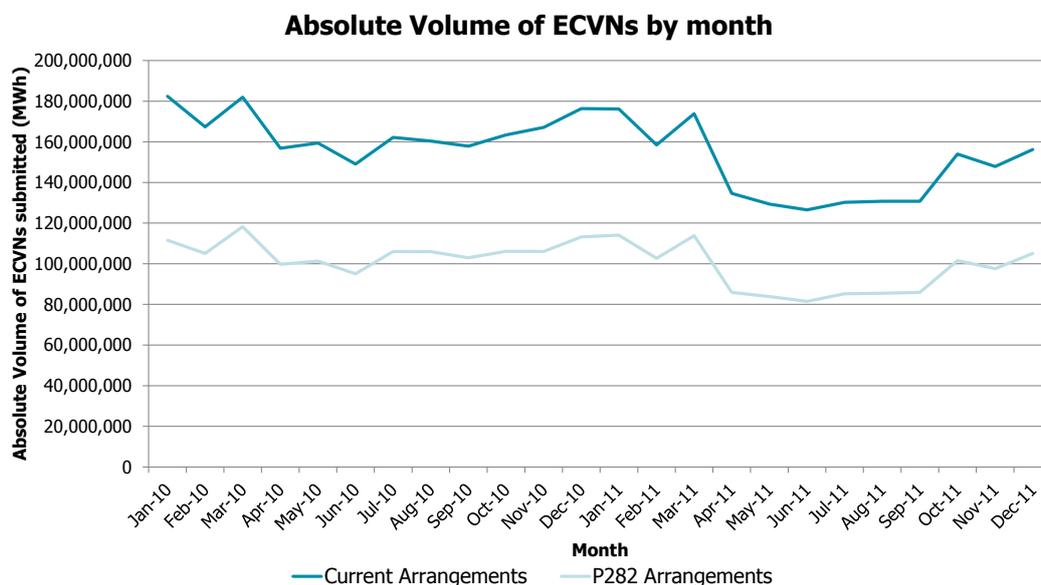
This analysis will assume that Parties will seek to take advantage of the P282 arrangements to the fullest, by replacing all relevant ECVNs with appropriate MVRNs, but will not otherwise change their trading strategies.

What decrease in absolute volume could be realised?

The table below shows the average number of ECVNs submitted and the average absolute volume of these ECVNs per calendar month across the period January 2010 to December 2011 inclusive. The data is also shown graphically, broken down by calendar month.

Change in Count and Absolute Volume of ECVNs				
	Count of ECVNs		Absolute Volume of ECVNs	
	Current	P282	Current	P282
Average	6,292,144	5,803,676	155,536,918MWh	100,584,897MWh
% Change		-7.8%		-35.3%





If we consider the scenario here as representative of what would happen in a post-P282 world, then we can assume that there would only be a decrease of around 8% in the number of ECVNs submitted. However, a decrease of around 35% in the volume of energy traded through ECVNs could be realised as Parties move to replace their intra-party group ECVNs with appropriate MVRNs.

What does this mean for the Notified Volume Charge?

As noted above, a Party's Notified Volume Charge is determined by their absolute volume of ECVNs and fixed-volume MVRNs in a given month. If this volume decreases, the amount of money raised by the charge goes down proportionately.

The Notified Volume Charge is used to recover the costs of ECVA, so that Parties involved in physical trading are required to bear some of the costs of processing these contract notifications. The costs of ECVA are in the order of £1.15m per year, and the current tariff of £0.0006/MWh is based on the 1,980TWh of contracted volume submitted to ECVA during 2010.

However, if we consider the total volume of contract notifications over the more recent year of 2011 in a post-P282 world, then there would only be around 1,140TWh of contracted volume. At the current tariff, this would raise £684k. In order to recover the full £1.15m, from this reduced volume, the tariff on these notifications would need to be increased to around **£0.001/MWh** (an increase of 67% on current). For the purpose of this analysis, we shall assume this is the case.

In order to consider how this increase in the tariff will affect different Parties, we have grouped Parties into three different groups as follows:

- **Group A:** This group contains all Parties who are part of a Party group, and thus can potentially replace cross-Party ID ECVNs with appropriate MVRNs.
- **Group B:** This group contains all Parties who are not part of a Party group, but who do have some ECVNs between their two Energy Accounts, and thus could potentially replace these intra-Party ID ECVNs with appropriate MVRNs.

- **Group C:** This group contains all of the remaining Parties who are neither part of a Party group nor have any intra-Party ID ECVNs, and thus would not be able to replace any ECVNs with appropriate MVRNs.

We then considered the effect that P282 will have on the charges paid by Parties in each group, if we assume that the post-P282 scenario detailed above occurs and the tariff is increased to £0.001/MWh as a result. The tables below show the total volumes and charges for each group across each year, and by what percentage the P282 charges would differ from the current charges if the tariff was left unchanged at £0.0006/MWh and if the tariff was increased to £0.001/MWh.

Group A: Parties that are in a Party group						
	2010			2011		
	Current	P282 Current	P282 Revised	Current	P282 Current	P282 Revised
Volume	1,420TWh	723TWh	723TWh	1,223TWh	632TWh	632TWh
Tariff	£0.0006/MWh	£0.0006/MWh	£0.001/MWh	£0.0006/MWh	£0.0006/MWh	£0.001/MWh
Charge	£852k	£434k	£723k	£734k	£379k	£632k
% Change		-49%	-15%		-48%	-14%

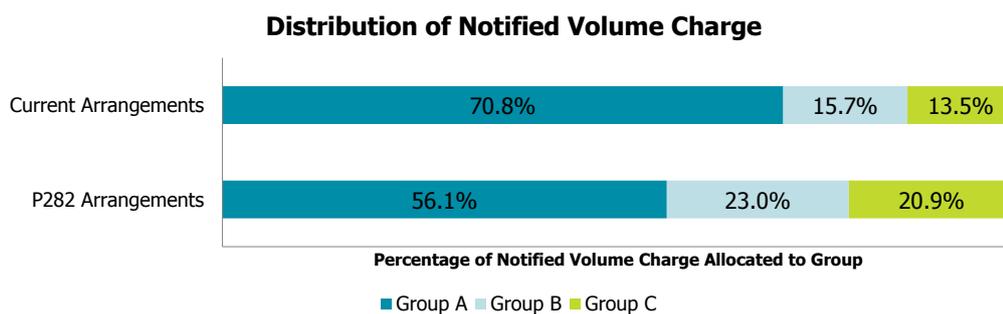
Group B: Parties that are not in a Party group but have ECVNs between their Energy Accounts						
	2010			2011		
	Current	P282 Current	P282 Revised	Current	P282 Current	P282 Revised
Volume	312TWh	297TWh	297TWh	273TWh	258TWh	258TWh
Tariff	£0.0006/MWh	£0.0006/MWh	£0.001/MWh	£0.0006/MWh	£0.0006/MWh	£0.001/MWh
Charge	£187k	£178k	£297k	£164k	£155k	£258k
% Change		-5%	+58%		-5%	+58%

Group C: Parties that are not in a Party group and do not have ECVNs between their Energy Accounts						
	2010			2011		
	Current	P282 Current	P282 Revised	Current	P282 Current	P282 Revised
Volume	252TWh	252TWh	252TWh	252TWh	252TWh	252TWh
Tariff	£0.0006/MWh	£0.0006/MWh	£0.001/MWh	£0.0006/MWh	£0.0006/MWh	£0.001/MWh
Charge	£151k	£151k	£252k	£151k	£151k	£252k
% Change		0%	+67%		0%	+67%

It can be seen that, if the tariff was to remain unchanged, then Parties who can form Party groups (Group A) could realise savings of nearly 50% on average in their Notified Volume Charges. Parties who are not part of a group but which do trade between their two Energy Accounts (Group B) could see a 5% saving on average.

However, if we apply the revised tariff, Parties in Group A still realise an overall saving, but only of 15% on average (as the increase in tariff will partly cancel out the savings made from submitting fewer notifications). Parties in Group B would pay around 58% more than currently (slight savings from a reduced notification volume are dwarfed by the increased costs from the increased tariff), and Parties in Group C would see an increase of 67%.

Another way of considering the changes is to look at how the costs are distributed. The graph below shows what proportion of the total costs is allocated to each of the three groups under the current arrangements and the P282 arrangements. Note that the proportion of costs is determined by the volume of contract notifications issued in each group, and would not be affected by a change in the tariff (as everyone's costs would change proportionately).



It can be seen that, in either scenario, a majority of notifications are made by the Parties in Group A. However, the proportion of notification volume submitted by Group A decreases significantly under the P282 arrangements, which pushes up the proportion of the costs borne by the Parties in the other two groups. It can also be seen that there is a slight advantage gained by Parties in Group B compared to those in Group C, but those gains made by Group B are dwarfed by the costs reallocated to them as a result of the gains made by Group A.

It should also be noted that approximately 25% of the absolute volume of ECVNs in Group C are submitted by the Power Exchanges. It is likely that their share of the Notified Volume Charge would be passed on to their customers.

List of Party groups

The table below lists the Party groups that were used during the P282 analysis. Any Party IDs not listed here were not considered to be in a group.

Note that these groups are not intended to be an accurate picture of company structures (or MVRNs) at any one point in time. Rather they are intended to reflect a possible view (good enough for P282 analysis purposes) of which Parties could plausibly decide to consolidate their imbalance positions under P282.

When compiling this list, only Parties with at least one non-zero Energy Imbalance between January 2010 and April 2012 were considered (i.e. excluding inactive Trading Parties, non-Trading Parties, and Lead Parties who MVRN all their energy elsewhere).

This list was compiled using publicly available information and information on MVRNs from the BSC Settlement Reports (which are available to all BSC Parties and other interested parties).

P282 Party Groups	
Party Group	Party IDs
_CENTRICA	ACCORD BRITGAS LINCWFL
_INTERGEN	CECL IIPC RPCL SPAL
_DRAX	DRAX HAVEN
_EDF	BEDL001 BEPET001 EDFETRNS EDFT LENCO LONDELEC
_DONG_STATKR	DEEM1000 DONG001 DONG003 DONG005 DONG006 STATKRA1
_EON	EONETRAD POWERGEN
_ESB	ESBIENI ESBIGT

P282 Party Groups	
Party Group	Party IDs
_PHILLIPS	CUKL PH66
_KOCH	KCEL KOCH
_RWE	INNOGY01 NPOWER01 RWE
_SPOW	IBERGEN SPCRE01 SPOWER02
_SSE	SEABANK SSE SSEGEN
_VATTENFALL	TOW VTS
_GDFSUEZ	DPDCOLTD ELECBEL FOUR FSTHYDRO GASELYS RWETDL TEESSIDE

5 Calculation of Funding Shares

Main Funding Share

The following changes are proposed to the current equation for calculating the Main Funding Share, which is given in Section D Annex D-1 Part 1 of the Code, as follows:

$$\text{FSM}_{\text{pm}} = \frac{1}{2} * \{ {}^{\text{P}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{P}}\Sigma^{-} (-\text{QCE}_{\text{iaj}}) \} / \Sigma_{\text{p}} \{ ({}^{\text{P}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{P}}\Sigma^{-} (-\text{QCE}_{\text{iaj}})) \} \\ + \frac{1}{2} * \{ {}^{\text{C}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{C}}\Sigma^{-} (-\text{QCE}_{\text{iaj}}) \} / \Sigma_{\text{p}} \{ ({}^{\text{C}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{C}}\Sigma^{-} (-\text{QCE}_{\text{iaj}})) \}$$

where:

${}^{\text{P}}\Sigma^{+}$ represents, ~~for the Production a sum over the~~ Energy Accounts ~~a~~ belonging to Party p, ~~a sum over~~ each Settlement Period in month m and each Production BM Unit, where the Trading Unit to which the Production BM Unit belongs is delivering in the Settlement Period j;

${}^{\text{P}}\Sigma^{-}$ represents, ~~for the Production a sum over the~~ Energy Accounts ~~a~~ belonging to Party p, ~~a sum over~~ each Settlement Period in month m and each Production BM Unit, where the Trading Unit to which the Production BM Unit belongs is offtaking in the Settlement Period j;

${}^{\text{C}}\Sigma^{+}$ represents, ~~for the Consumption a sum over the~~ Energy Accounts ~~a~~ belonging to Party p, ~~a sum over~~ each Settlement Period in month m and each Consumption BM Unit, where the Trading Unit to which the Consumption BM Unit belongs is delivering in the Settlement Period j;

${}^{\text{C}}\Sigma^{-}$ represents, ~~for the Consumption a sum over the~~ Energy Accounts ~~a~~ belonging to Party p, ~~a sum over~~ each Settlement Period in month m and each Consumption BM Unit, where the Trading Unit to which the Consumption BM Unit belongs is offtaking in the Settlement Period j;

Σ_{p} represents the sum over all Trading Parties p;

and where delivering and offtaking are constructed in accordance with Section T2.1.1.

SVA (Production) Funding Share

The following changes are proposed to the current equation for calculating the SVA (Production) Funding Share, which is given in Section D Annex D-1 Part 3 of the Code, as follows:

$$\text{FSPS}_{\text{pm}} = \{ {}^{\text{P}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{P}}\Sigma^{-} (-\text{QCE}_{\text{iaj}}) \} / \Sigma_{\text{p}} \{ ({}^{\text{P}}\Sigma^{+} (\text{QCE}_{\text{iaj}}) + {}^{\text{P}}\Sigma^{-} (-\text{QCE}_{\text{iaj}})) \}$$

where the summations are the same as for the Main Funding Share.



Operational requirements

This section summarises the operational solution requirements for P282.

The submission and validation of MVRNA Authorisations (MVRNAAs) and MVRNs will remain subject to the same processes and timescales as currently, apart from the changes that are stated in the requirements below.

The P282 solution is not intended to impact any of the imbalance calculations, including the calculation of Imbalance Charges and the redistribution of the Residual Cashflow Reallocation Cashflow (RCRC).

It is also not intended to impact any reporting flows; the relevant flows all currently either explicitly identify a P/C Flag for the Subsidiary Party or include the MVRNAA ID (which identifies the relevant Energy Account of the Subsidiary Party), both of which would allow the recipient to identify which of the Subsidiary Party's Energy Accounts the BM Unit's Credited Energy Volumes (QCE_{iaj}) have been reallocated to under the MVRN.

Detailed Solution Requirements

For the full detailed solution requirements, please refer to the P282 Draft Solution to Identify Impacts Document which was issued for industry impact assessment and which is available on the [P282](#) page of the ELEXON website.

Requirement 1

MVRNAs will be able to submit MVRNAAs and MVRNs between a Production BM Unit and a Consumption Energy Account or between a Consumption BM Unit and a Production Energy Account.

BSC Parties and MVRNAs will be able to submit MVRNAAs and MVRNs that will reallocate QCE_{iaj} from a Production BM Unit to the Subsidiary Party's Consumption Energy Account or vice versa, with effective dates on or after the P282 Implementation Date. Any such MVRNAAs and MVRNs with effective dates before the P282 Implementation Date will be rejected.

The ECVAAs will ensure that such MVRNAAs can be registered in the ECVAAs systems, and that associated MVRNs will be accepted and subsequently reported. The changes will be made to the systems in advance of the P282 Implementation Date to allow Parties and Agents to submit MVRNAAs effective on the P282 Implementation Date in advance.

Requirement 2

The Lead Party of a BM Unit will be able to reallocate energy from their Production BM Unit to their own Consumption Energy Account or from their Consumption BM Unit to their own Production Energy Account.

BSC Parties and MVRNAs will be able to submit MVRNAAs and MVRNs where the Lead and Subsidiary Party is the same, with effective dates on or after the P282 Implementation Date. Any such MVRNAAs and MVRNs with effective dates before the P282 Implementation Date will be rejected.

The ECVAAs will ensure that such MVRNAAs can be registered in the ECVAAs systems, and that associated MVRNs will be accepted and subsequently reported. The changes will be made to the systems in advance of the P282 Implementation Date to allow Parties and Agents to submit MVRNAAs effective on the P282 Implementation Date in advance.

The SAA will ensure that these MVRNs can be processed in Settlement.

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Requirement 3

An MVRNAA and associated MVRNs will not be terminated if the relevant BM Unit's P/C Status changes.

MVRNAAs and associated MVRNs will not be terminated if the BM Unit's P/C Status changes with an Effective From Date of on or after the P282 Implementation Date. This requirement will apply to all MVRNAAs and MVRNs, irrespective of when they were submitted.

Requirement 4

A Party's proportion of the Main Funding Share will remain unchanged irrespective of which Energy Account a BM Unit's QCE_{iaj} is allocated to.

The calculation of the Main Funding Share will be amended as per Section 5, to ensure that the associated costs are still allocated 50:50 between Production and Consumption. These changes will ensure that the outcome of the equation is unchanged by P282, and that Parties are still allocated the same shares following the P282 Implementation Date as currently.

Requirement 5

A Party's proportion of the SVA (Production) Funding Share will remain unchanged irrespective of which Energy Account a BM Unit's QCE_{iaj} is allocated to.

The calculation of the SVA (Production) Funding Share will be amended as per Section 5, to ensure that the associated costs are still allocated entirely to Production. These changes will ensure that the outcome of the equation is unchanged by P282, and that Parties are still allocated the same shares following the P282 Implementation Date as currently.

Workgroup's Terms of Reference

Specific areas set by the BSC Panel in the P282 Terms of Reference
What changes are needed to BSC documents, systems and processes to support P282 (including any impacts on Parties' systems), and what are the related costs and lead times?
If P282 were to allow Credited Energy Volumes from Production BM Units to be allocated to Consumption Energy Accounts and vice versa, what impact would this have on other areas of the BSC, including (but not limited to): <ul style="list-style-type: none"> • The calculation of BSCCo Charges in Section D? • Settlement calculations in Section T, including imbalance charges and RCRC? • Trading Unit and embedded generation benefits?
Would there be any impact on BSUoS or TNUoS charges?
What would be the effect of P282 on the current GB arrangements and the requirement to keep production and consumption separate? As part of this, the Workgroup should carry out analysis on historic data and model what the impacts would have been had the proposed arrangements under P282 been in place.
What benefits could be realised by Parties if they were able to net their Credited Energy Volumes from Production BM Units and their Credited Energy Volumes from Consumption BM Units into a single Energy Account? What differences would there be in these benefits between larger and smaller Parties?
How would P282 impact a Party's incentive to balance their position?
What potential impacts may P282 have on market liquidity?
What would the definition of the terms 'Production' and 'Consumption' be if P282 was implemented? What effect would this have on a BM Unit's P/C Status or the requirement to hold separate Energy Accounts?
What impact would P282 have on contract notifications? In what ways do Parties currently use contract notifications in order to balance their positions?
What are the benefits to the Applicable BSC Objectives? Are there any wider benefits/principles that Ofgem should consider?

Assessment Procedure timetable

P282 Assessment Timetable	
Activity	Date
Panel submits P282 to Assessment Procedure	12 Apr 12
Workgroup Meeting 1	04 May 12
20WD Impact Assessment undertaken	30 May 12 – 29 Jun 12
Workgroup Meeting 2	18 Jun 12
Workgroup Meeting 3	16 Jul 12
15WD Industry Consultation undertaken	03 Aug 12 – 24 Aug 12
Workgroup Meeting 4	10 Sep 12
Panel considers Workgroup's Assessment Report	11 Oct 12

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Workgroup membership and attendance

P282 Workgroup attendance				
Name	Organisation	Meeting 1 04/05/12	Meeting 2 18/06/12	Meeting 3 16/07/12
Members				
Kathryn Coffin	ELEXON (<i>Chair</i>)	✓	✓	✓
David Kemp	ELEXON (<i>Lead Analyst</i>)	✓	✓	✓
Bob Brown	Cornwall Energy (<i>Proposer's Representative's Alternate</i>)	✓	✓	✓
Gary Henderson	IBM for Scottish Power	✓	✓	✓
Philip Russell	Independent	✓	✓	✓
Lisa Waters	Waters Wye Associates	✗	✗	✗
Esther Sutton	E.ON	✓	✓	✗
Cem Suleyman	Drax	✓	✓	✓
Andy Colley	SSE	✓	✗	✓
Mark Edwards	International Power plc	✓	✓	✓
Colin Prestwich	SmartestEnergy	✓	✓	✓
Martin Mate	EDF	✓	✗	✓
Bill Reed	RWE Supply & Trading	✓	✓	✓
Nick Sargent	National Grid	✗	✓	✓
Attendees				
John Lucas	ELEXON (<i>Design Authority</i>)	✓	✓	✓
Diane Mailer	ELEXON (<i>Legal</i>)	✓	✗	✗
David Birchby	Ofgem	✓	✓	✗
Andreas Flamm	Ofgem	✗	✗	✓
Ebba John	DONG Energy	✓	✓	✓
George Lear	EDF	✗	✓	✗