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Modification Proposals P80 & P87 - Consultation Paper

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d Related Documents

The following documents are referenced from within this document using the following convention [RD/x]:

1 P80 Definition Report (P080DR) – Version 1.0, 12 July 2002

e Intellectual Property Rights and Copyright

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1. INTRODUCTION

1.1 General

This background document has been prepared by ELEXON Ltd, on behalf of the P80 Modification Group, in accordance with the terms of the Balancing and Settlement Code ('BSC'). The BSC is the legal document containing the rules of the balancing mechanism and imbalance settlement process and related governance provisions. ELEXON is the company that performs the role and functions of the BSCCo, as defined in the BSC.

An electronic copy of this document can be found on the BSC website, at www.ELEXON.co.uk.

The document supports the Assessment Procedure of Modification Proposals P80 and P87.

1.2 Structure of Document

The document is structured as follows:

- Section 2 provides an overview of the relationship between the treatment of constraints, Operational Intertripping[1] schemes as defined in the Grid Code, and Transmission System faults, which illustrate the linkage between P80 and P87;
- Section 3 provides an overview of the perceived defects which are the original justifications for P87 and is also relevant to P80, which proposes a similar compensation method;
- Section 4 provides an overview to the possible solutions for P80 and P87 as well as the role Settlement and the BSC Systems play in the calculation of compensation;
- Section 5 details a summary of the analysis by the P80MG;
- Annex A describes the impact of the current compensation arrangements for intertrips in the BSC;
- Annex B describes how different approaches to altering the data that enters Settlement will affect the payments made to or from a Party;
- Annex C provides some worked examples of each of the potential solutions;
- Annex D details the P80 consultation questions;
- Annex E details the P87 consultation question;
- Annex F contains the impact assessment for CVA BSC Systems; and
- Annex G contains the impact assessment for the Transmission Company.

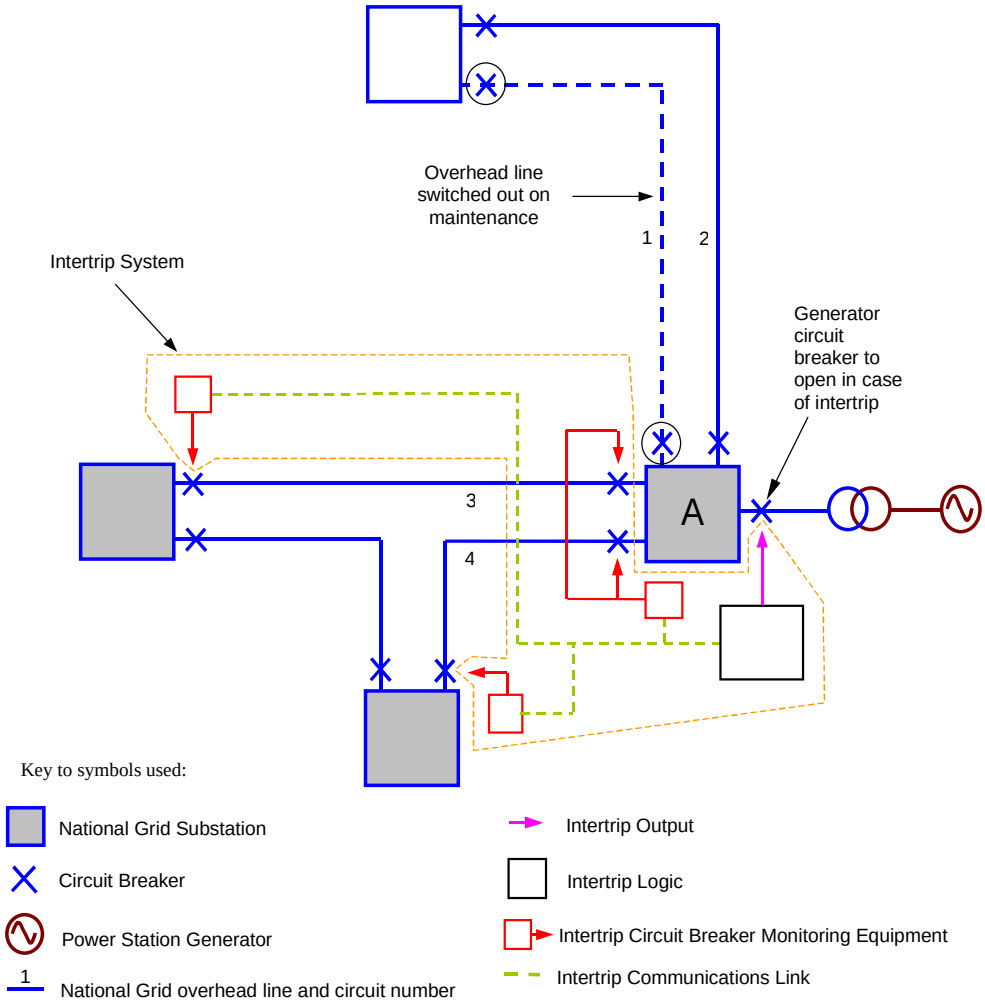
[1] For the purpose of this document, intertrips are to be assumed to be Operational Intertripping schemes.

2. TRANSMISSION SYSTEM FAULTS, INTERTRIPS, SYSTEM CONSTRAINTS

In order to understand the issues raised by P80 and P87 it is necessary to understand the interaction between; system constraints, intertrips and Transmission System faults (referred to as system faults or Transmission disconnections), and in particular between an intertrip and a system fault. P80 aims to compensate both Production and Consumption for all system faults based on the current handling of intertrips, whereas P87 aims to change the current handling of intertrips whereby generation is compensated at bid price.

Figure 2.1 provides an example of an intertrip scheme, based on four circuits that are part of the main interconnected Transmission System. The intertrip monitoring equipment would be configured to monitor overhead lines 1 – 4 and would be capable of tripping the generator circuit breaker should a fault occur. Such an intertrip might be armed in accordance with a bilateral connection agreement, where maintenance is being carried out on overhead line 1[2].

Figure 2.1 – Example Intertrip – Armed Due To Maintenance



[2] The intertrip in the example is only armed for the period of the maintenance on the Transmission Line 1. There are other reasons for intertrips to be installed which may include the accommodation of planning standards, or to allow a generator to connect early before full reinforcement is complete, however these are not considered in this document as they are not Operational Intertripping Schemes.

For the purposes of this example if overhead lines 3 and 4 tripped simultaneously, for example due to a lightning strike, overhead line 2 would then have a power flow beyond its safe operating limit. In order to reduce the power flow the generator must be taken off load immediately. This is achieved using the intertrip, which monitors the circuit breakers on overhead lines 3 and 4. If the intertrip logic detects the loss of overhead lines 3 and 4 it sends a signal to open the circuit breaker on the generator and therefore reduce the power flow on overhead line 2.

The example shows how a double circuit fault may affect a generator in a related area of the network. However the example can also illustrate other outcomes if the scenario is changed slightly:

- if the fault occurs in the central sub-station (A), or on the circuit from the generator, then it is classed as a system fault, not an intertrip, and there is currently no compensation within the BSC.
- if the remaining overhead line had the physical capacity to take all the output from the plant, and if no intertrip was installed or armed, then as a result of considering overloads, or planning for the next fault, the Transmission Company may declare a constraint and bid some generation off the network. In this case compensation would initially be paid using Bids and Offers.

Although for the Transmission Company the technical details of each of these is significantly different, from the perspective of a Party they may all result in disconnection from the Transmission System and only differ in how much notice is provided.

The Transmission Company has advised that no generation intertrip scheme has operated since NETA Go-Live and therefore compensation for intertrips has not occurred. With regard to system faults the Transmission Company has reported that there has been one generator disconnected due to a fault on the Transmission Company's equipment.

3. MODIFICATION PROPOSALS AND ISSUES

3.1 Overview

The key paragraph in the BSC for both P80 and P87 is Q5.1.5:

> *"The operation of an intertrip in the circumstances described in BC2.5.2.3 of the Grid Code shall be treated as being an Acceptance falling within paragraph 5.1.3(b), and for the purposes of determining Acceptance Data pursuant to paragraph 5.3 in relation thereto there shall (subject to paragraph 5.3.3) be a single Acceptance Volume Pair for which the 'from' and 'to' times are the time of operation of the intertrip and the 'to' volume is the MW level implied by the operation of the intertrip".*

Modification Proposal P80 is attempting to treat all system faults in line with the existing treatment of intertrips. Modification Proposal P87 is trying to change the handling of intertrips away from compensation based on a Bid Offer Acceptance (BOA) as this can lead to extreme pay outs within the BSC (see Annex A).

The P80 Definition Procedure also established that the definitions of an intertrip, system fault and constraint overlapped and that care would be required to compensate in a consistent manner (see section 2).

3.2 Perceived Defects

Modification Proposal P80 'Deemed Bid/Offer Acceptance for Transmission System faults' was raised as faults represent an unmanageable risk for Trading Parties. Disconnection due to a Transmission System fault can prevent a BM Unit from exporting or importing contracted energy, and in these circumstances it could be exposed to imbalance charges.

Modification Proposal P87 'Removal of market risk associated with the operation of a Generator Inter-Trip Scheme' seeks to amend the compensation for the operation of an intertrip away from issuing a deemed Acceptance. As generators are able to submit large negative Bid Prices this could result in the affected Party receiving a "windfall gain" should the intertrip operate. Such windfall gains would be funded out of BSUoS charges levied on the rest of the industry and there is potential to set an extreme, negative level of System Sell Price.

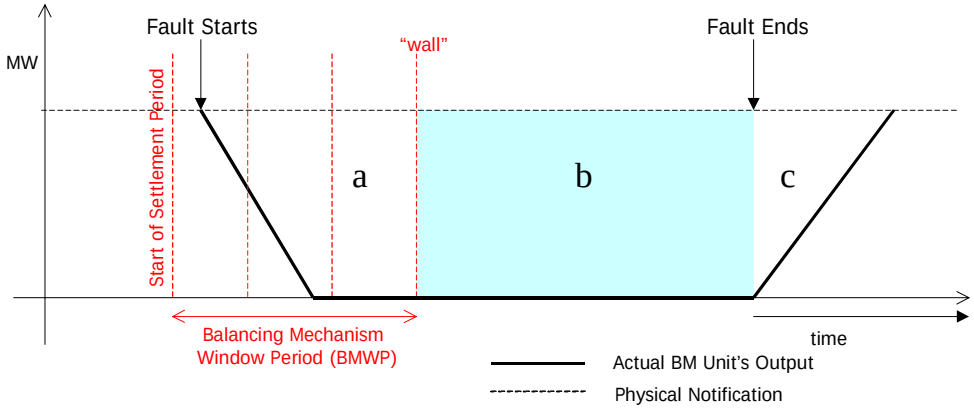
Both modifications seek to ensure that compensation for faults and intertrips does not have a negative impact on other participants in the industry, but they also ensure that the affected Party is not exposed to imbalance. From the definition work on P80, the majority of respondents believed that if a Party is forced to deviate from FPN due to a "system fault" is likely to be commercially disadvantaged, as a result of any actions it takes to rectify its commercial position. The responses also stated that the Party should be compensated for the full period of the forced deviation.

3.3 Duration and the Balancing Mechanism Windows Period

Within an outage that extends outside the current Balancing Mechanism Window Period (BMWP) there exist 3 distinct periods: (a) the Balancing Mechanism Window Period (BMWP); (b) time after the BMWP until the fault clears (i.e. when full capacity is available

again); and (c) a further period of time before the BM Unit can revert to its original position (i.e. according to its dynamic parameters). These are shown in Figure 3.1.

Figure 3.1 – Duration of Fault and Compensation



The intention of P80 is to obtain compensation for each of these periods (a to c) and during the P80 Definition Procedure this was supported by the majority of consultation respondents. In contrast P87 expects to cancel a Party's imbalance during the Balancing Mechanism Window Period (area (a)) and provide any further compensation as a lump sum, either pre-agreed with the Transmission Company, or determined by the BSC.

The P80MG and P80 definition consultation responses also recognised that care must be taken with any periods of time outside the BMWP as was highlighted by P59 "The Acceptance of Bids and Offers to Honour a BM Unit's Dynamic Parameters Beyond the Balancing Mechanism Window". The Authority's provisional thinking stated that in the case of P59, changes to the operation of the BM should be incorporated into the Balancing Principles Statement (BPS), as the BPS represents a complete set of principles and criteria used by the Transmission Company when selecting Balancing Services.

However, the P80MG also recognised that the issue of BMWP could not be totally avoided[3] as providing a limited solution may be counter productive and simply result in extreme Bid and Offer Prices within the BMWP, in an attempt to obtain full compensation for the outage within two Settlement Periods.

The P80MG also noted that, under the current arrangements, system constraints sometimes involved BOAs issued against non-zero FPNs submitted after the initiation of the constraint (i.e beyond the BMWP) and that compensation for black start actions cover the entire black start period.

3.4 Determination of Power Level

At the moment the operation of an intertrip is compensated against FPN during the BMWP. However, if periods outside the BMWP are to be considered, it is necessary to consider the following:

[3] P80MG also noted that cross governance issues could not be avoided. Even P87 as proposed would require complementary changes to the Grid Code, as paragraph BC2.5.2.3 already states a Bid Offer Acceptance will be issued.

- there are problems with predicting the value of any data, FPN, Bid and Offer Prices and contracted volume outside the BMWP. This is an issue explored during the assessment of Modification Proposal P59;
- the Grid Code requires Parties to submit FPNs that represent the best estimate of expected input or output of Active Power. This provides the Transmission Company with the best view of the balancing requirements and allows other Parties to see an Indicated Imbalance which takes into account BM Units that are disconnected (system constraints notwithstanding), however,

the Transmission Company cannot issue BOAs unless the FPN remains at a non-zero output level, and is not changed to reflect the true zero output level;

- Parties may submit FPNs away from their contracted level to deliberately expose themselves to Energy Imbalance Prices for some of their production or consumption. As this alters the effect on Settlement, it must be considered when determining the level against which to compensate.

3.5 Price

P80MG recognised that compensating against Bid and Offer Prices may lead to extreme pay outs within the BSC, and that an alternative approach would be more appropriate. This concern was consulted on during the P80 Definition Procedure and the majority of respondents recognised the concern and agreed that an alternative level of compensation should be considered.

Extreme Bid or Offer Prices can be used to issue a number of signals, such as the financial cost of a disconnection, or an unwillingness to trade. The first of these can be extreme because the BM Unit may be attempting to predict the length of time it will be disconnected and hence recover the full cost of a lengthy disconnection within less than three Settlement Periods, the second can signal local operational patterns. Both of these could cause high volatility in the Settlement Periods concerned.

In P87 the Transmission Company expressed concern because the Bid or Offer prices are unilateral and have not been previously agreed to represent a reasonable cost recovery. In addition as they relate to post-fault conditions, there is no opportunity for the Transmission Company to select the most cost effective BM Unit, and hence benefit from competition.

The following provides some analysis of the potential impact of setting of extreme negative Bid prices, and is split into sections describing:

- the impact on Period BM Unit Bid Cashflow;
- the frequency of setting such prices, and also changes between each level of pricing.

3.5.1 Impact on Period BM Unit Bid Cashflow

The Transmission Company have provided information on the real level of Bid Prices for a number of representative generators (table 3.1). This information has been provided for BM Units that are equipped with an intertrip facility. The average Bid Price has been determined using various monthly samples since NETA Go-live and volume weighting the prevailing Bid Price with the MW level of the BM Units. This information does not imply the intertrips were armed during the sample period.

The table shows that these BM Units have regularly submitted large negative Bid Prices and the overall cost of those Bids should the Transmission Company be obliged to issue a BOA for the BM Unit concerned.

Table 3.1 - Impact on Period BM Unit Bid Cashflow

Average FPN (MWh)	Average Bid Price (£/MWh)	Period BM Unit Bid Cashflow (£)	Units expected to Trip	Total Bid Cashflow For BM window (£)
233	-507	0.12 M	1	0.29 M
227	-1,121	0.25 M	2	1.27 M
299	-2,664	0.80 M	1	1.99 M
151	-7,548	1.14 M	2	5.70 M
223	-79,898	17.82 M	1	44.54 M
292	-3,308	0.97 M	1	2.41 M
189	-9,162	1.73 M	1	4.33 M
409	-44,242	18.09 M	1	45.24 M
302	-10,000	3.02 M	1	7.55 M

When the first two columns are multiplied together they create the Period BM Unit Cashflow figures shown in column three (£ millions), and when this corrected for the number of trips and the BMWP it creates the column on the right-hand side. This indicates that this is not just a theoretical issue and a fault could trigger the effects described in this section.

3.5.2 Extreme Bid Prices and Frequency of Changes

Examination of historic Bid Prices for BM Units suggests that it is common practice for a Party to use negative values of £-9,999/MWh or lower to indicate that it does not wish for a BM Unit to be issued Bid Offer Acceptances (BOA).

There are also examples of BM Units regularly switching directly between £-9,999/MWh and £-99,999/MWh, which would seem to suggest that there are different pricing signals associated with such negative Bid Prices. It is only possible to speculate as to the precise nature of any pricing signals, but one suggestion may be that one represents "it would be inconvenient for me to alter my position", and the stronger signal represents, "I am not physically in a position to act on commercial trades".

Table 3.2 - Percentage of Settlement Periods with Extreme Bid Prices

	Bid Price per MWh			No. of changes between price
Plant Type	> £0	-£9,999	-£99,999	
COAL	3%	74%	23%	18
CCGT	78%	0%	22%	5

Table 3.2 shows Bid pricing for two BM Units over a 12-day period (17 February 2002 - 28 February 2002) for two different BM Units[4]. It can be seen that for both BM Units just

[4] The plant type has been included in the table for completeness, whether this is relevant is for the reader to determine

under one-quarter of Settlement Periods have a Bid Price of £-99,999/MWh. This data also shows that the number of changes between price categories is significant for both BM Units.

For further information, Annex A contains an example of the potential impact on Energy Imbalance Prices and the Residual Cashflow Reallocation Cashflow.

4. POTENTIAL SOLUTIONS

The following section represents the initial consideration of the P80MG in determining how compensation can be calculated. The different approaches to compensation are shown in Table 4.1, along with the current level of compensation and the proposals as stated in P80 and P87.

Table 4.1 – Compensation For Different Events

	Compensation Approach		
	None	**Other**	**Bid/Offer**
System Constraints			Current
Intertrips		P87 ←	Current
Transmission System Faults	Current →		P80

P80MG recognised that system constraints, intertrips and system faults are not distinct categories and were really part of a spectrum. The P80MG recognised the Transmission Company's concern that there was a reduced level of management and competition moving along the spectrum from a constraint to an intertrip and then onto a system fault. Broadly speaking, a system constraint is identified pre-fault and in many cases can be managed by considering a number of options (sustaining any action once it has been selected may reduce choices outside the BMWP). The arming of an intertrip is also a pre-fault action, although alternative Transmission Company actions may be more limited. The operation of the intertrip is a post-fault event. Finally, a system fault that results in a Transmission disconnection is an entirely post-fault event with the Transmission Company having no alternative management options available.

P80MG believed that because of these factors, it may not be appropriate to have a single solution, and that two, or possibly three solutions may be required. However P80MG also believed that the recommendations for P80 and P87 should be consistent.

Without pre-judging any outcome, P80MG recognised that certain combinations of P80 and P87 may be considered consistent, whereas others may provide a greater degree of compensation for constraints and system faults when compared to intertrips. The choice of consistent recommendations may be an important factor in providing consistent arguments for why P80 and P87 may better facilitate the Applicable BSC Objectives.

For example, if P87 and P80 were both to be recommended for approval (as originally proposed) then system constraints and system faults would be compensated at Bid and Offer prices, but Parties would receive an "other" form of compensation for intertrips. The P80MG considered that this would not be a consistent approach since a participant could receive a 'windfall gain' for an action where Transmission Company had little or no choice in the matter (a system fault), but a predetermined level of compensation for an action for which some limited choices may have been available to Transmission Company.

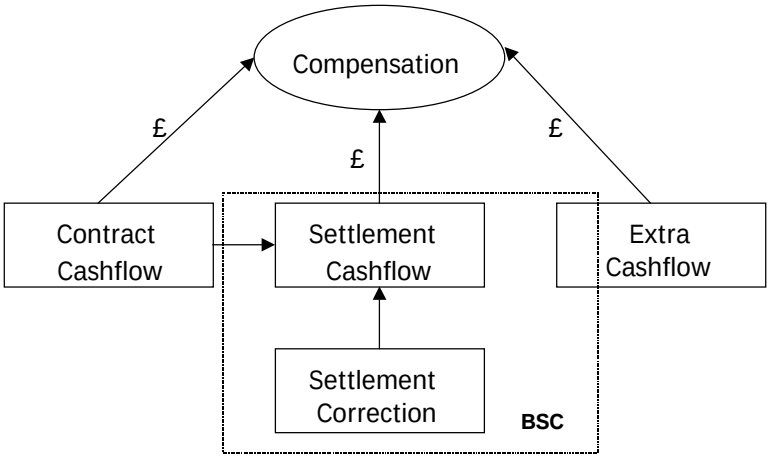
4.1 Overview of Approaches to Compensation

The BSC Systems do not have a mechanism to directly pay compensation to a Party (i.e. proportional to duration *x* level *x* price). It is therefore necessary to consider any compensation as a component of either the imbalance, or Bid and Offer payments.

Irrespective of any contractual basis for compensation, either inside or outside the BSC, the BSC Systems will continue to automatically calculate any imbalance payments and payments for Bids and Offers. Hence the BSC Systems provide an important and automatic foundation for any overall compensation.

The factors that will need to be considered in any overall compensation are shown in figure 4.1.

Figure 4.1 – Factors in Calculating Trading Compensation



The figure is limited to those trading costs within, or related to, the BSC and does not attempt to include any BM Unit specific details, such as avoidable or fuel costs (these are seen as part of the BM Unit's expectations on the level of compensation). Any overall "Compensation" will be the sum of payments related to "Contract Cashflow", "Settlement Cashflow" and any "Extra Cashflow".

An out of balance Party will be subject to what can be volatile Energy Imbalance Prices. Therefore an important factor in calculating an overall "Compensation" is the ability to remove or reduce the volatility in automatically calculated "Settlement Cashflow", making it easier to determine "Extra Cashflow", if such an extra cash flow is required. It may be that through certain BSC rules and associated "Settlement Corrections" that it is possible to remove the need for "Extra Cashflow".

These factors are explained in more detail in table 4.2.

Table 4.2 – Factors in Calculating Trading Compensation

Factor Type	BSC	Calculation	Comments
Contract Cashflow	No	Pre-Gate Closure	The value of any contracts are outside the BSC and not available to the BSC Systems. However, they are factors in any overall compensation as any notified contract volume has an associated value. More important than the precise value, which it is hard to determine, is the direction of payment – credits in the case of generators and debits in the case of Suppliers.
Settlement Cashflow	Yes	Automatic (Every Settlement Run)	Settlement Cashflow includes two payments. (i) The BSC Systems will always automatically calculate imbalance charges based on the difference between notified contract volumes and metered volume; and (ii) Credits or debit are included for any payment due for delivery of Bids and Offers.
Settlement Correction	Yes	Manual	In order to achieve the required level of imbalance and payment for Bids and Offers, i.e. "Settlement Cashflow", it may be necessary to apply a correction to the input data used by the BSC Systems. This can be delivered as a change to the Account Bilateral Contact Volume (QABC), or a BOA to apply against the submitted FPN.
Extra Cashflow	Possibly	Manual	This represents an optional component, either inside (transparent), or outside (commercial flexibility) of the BSC, required if "Settlement Cashflow" does not automatically provide the required payment to compensate for any value associated with the "Contract Cashflow". This value could consist of a fixed and/or a variable component, based on the number of Settlement Periods affected.

P80MG recognised that given the low occurrence of intertrips, or system faults, it would not be appropriate to alter the software in the BSC Systems. Therefore the value of the

automatically calculated "Settlement Cashflow" will be as currently calculated. However, P80MG recognised that it is possible to manually alter data entering the automatic Settlement process and hence "correct" the data to have the desired intent.

The next section considers the different factors which could contribute to a "Settlement Correction" and hence to "Settlement Cashflow". It is important to consider how any solution can be affected by "Settlement Corrections" are this will determine the adjustment that is required using "Extra Cashflow" and the demands faced in determining such a value.

4.2 Factors Affecting "Settlement Correction"

4.2.1 Duration

The duration of the "Settlement Correction" could be seen to fall within one of the following timeframes:

- **BMWP** – correction, and duration of any compensation, is limited to the current BMWP;
- **Fault Duration and Dynamics** – correction, and duration of any compensation, is applied for the full duration of the fault and includes consideration of BM Units dynamics. In the case of a short duration fault for a generator this may be determined by the sum of the ramp down rate, minimum zero time and then ramp up rate. In the case of a longer duration fault it may be the duration of the physical fault plus a suitable period of time for the BM Unit to ramp up to the previous output (Notice to Deviate from Zero (NDZ));
- **Fault Duration Irrelevant** – the duration of any correction applied to Settlement is considered to be independent of the duration of the fault and any "Extra Compensation" could be applied as a simple lump sum.

4.2.2 Contract and FPN Level

The imbalance equation for determining the Account Energy Imbalance Volume (QAEI) is:

$$QAEI_{aj} = QACE_{aj} - QABO_{aj} - QABC_{aj}$$

Assuming the BM Unit is physically offline, then its meter readings will result in a zero contribution to the Account Credited Energy Volume (QACE). It is possible to alter the level of imbalance by changing either (i) the Bids and Offers which make up the Account Period Bid-Offer Volume (QABO), or (ii) by cancelling out the Account Bilateral Contact Volume (QABC).

Any imbalance calculated by the BSC Systems will be based on the measured metered volume (i.e. QACE). However, it is necessary to identify a datum against which to perform a comparison. There are two identified datums:

- the original contracted volume (i.e. $QABC_{aj}$) is an Energy Account level quantity that will be used within the BSC Systems to determine imbalance;
- the FPN is the BM Unit level quantity that is used by the Transmission Company to determine the impact of a Transmission System fault or intertrip.

A simple view of Settlement may suggest the sum of the FPNs for all BM Units within one Energy Account, as modified by any re-allocations of energy, would equal the contract volume QABC[5].

However, many Parties submit FPNs away from their contract level to increase their overall net traded position across the contract and Balancing Market. Correcting Settlement data to the FPN level may disadvantage some Parties by actually increasing their imbalance – i.e. a generator whose policy is for 100% spill.

The P80MG believe that FPN (and PN outside the BMWP) was the only realistic datum, and for any solution that extends significantly outside the BMWP there would be a requirement to ensure that values submitted after the fault were consistent with the intentions at the time of the fault. P80MG also recognised that some solutions may require the Transmission Company to submit contract notifications, and hence reduce the PN before it became an FPN within the BSC.

4.2.3 Approaches for Correcting Settlement Data

There are only a limited number of routes in which data can physically enter the BSC Systems in order to achieve a desired outcome (i.e. "Settlement Correction"). The primary decision is what to do with the contract imbalance volume, as each approach can have a different impact on the "Settlement Cashflow":

- **"No Correction"** - leave the data alone and calculate "Settlement Cashflow" as normal. This is the current approach for Transmission System faults;
- **"BOA Correction"** - an acceptance can be issued to correct any imbalance volume. As well as cancelling the imbalance this can result in a payment to, or from, the BM Unit. This is the current approach for intertrips. A zero Bid and Offer Price would provide the same results as "QABC Correction";
- **"QABC Correction"** – A notification can be made to reduce the total contract volume for the Party and hence reduce the overall energy imbalance. This is the proposed approach for P87. All approaches based on notification of contract volume changes are equivalent to a zero priced "BOA Correction". This notification would also require a second Party, either the Transmission Company or a third party.

Each of these mechanisms will have a different effect on the automatically calculated "Settlement Cashflow", especially compared with any "Contract Cashflow". This is further explored in Annex B.

4.2.4 Ex-Post / Ex-Ante Changes

In addition to the type of change it is also necessary to determine when any changes to the input data are made, this decision will not alter the final value of "Settlement Cashflow", but will change when financial data is visible to the market, how it appears in each Settlement Run, and any temporary effects on other derived data, such as Residual Cashflow Reallocation Cashflow (RCRC):

- **Ex-Post** adjustments can be made to settlement data held within SAA to make it appear that the BM Unit had always intended to be offline (and thereby remove any

[5] It should be noted that the application of Transmission Loss Multipliers (TLM) will mean there will always be some difference between these two figures, and this difference will also vary between Settlement Runs.

undue imbalance volume, thus constituting some level of compensation) for the period concerned. This may potentially require significant manual effort to process the Settlement Runs for a number of Settlement Days, if the event is allowed to extend beyond the BMWP in which it first occurs;

- **Ex-Ante** changes can be reflected in the real-time data submitted to BMRA, ECVAA and SAA using the standard business processes for any future Settlement Periods. This avoids manual intervention and improves market visibility, as it will reduce the level of changes which occur at SF Settlement Run or later.

In considering the timing aspects of ex-ante and ex-post the P80MG were in favour of an approach that utilised ex-ante as much as possible, as this reduced the level of change that would only become apparent in the SF Settlement Run and potentially later Reconciliation Runs.

4.3 Potential Solutions

Based on the identified approaches for determining "Settlement Corrections", it is possible to identify six potential solutions (PS1 to PS6) for how data will be organised within SAA and the obligations that will lead to this. These potential solutions are shown in table 4.3 and worked examples are shown in Annex C.

Table 4.3 Potential Solutions

Potential Solution	BMWP Ex-Post	Future Ex-Ante	Extra Cashflow	Compensation Approach (See table 4.1)
PS1	No Correction	No Correction	No	None
PS2	No Correction	No Correction	Yes	Other
PS3	BOA Correction	No Correction	No	Bid/Offer
PS4	QABC Correction	No Correction	Yes	Other
PS5	BOA Correction	BOA Correction	No	Other
PS6	QABC Correction	QABC Correction	Possibly	Other

It should be noted that some of the solutions reflect current arrangements and may be equivalent to rejecting either P80 or P87.

The following sections address the issues that have been identified for each potential solution. These issues would need to be addressed should any particular potential solution (PS) be chosen, and a summary for each potential solution can be found in section 4.3.10.

4.3.1 PS1 – No Correction To Settlement and no Extra Cashflow

This potential solution reflects the current handling of system faults and in terms of table 4.1 would deliver compensation "None". It is assumed that the Party concerned would

attempt to trade out of imbalance to avoid prolonged exposure to the Energy Imbalance Prices (EIP).

The key issues to note with this solution are:

- **Susceptible to extreme EIP** – analysis shows Energy Imbalance Prices have at times been volatile and this can be particularly so in Settlement Periods when a fault occurs;
- **Party may need to trade out of imbalance** – as there is no correction being applied to "Settlement Cashflow" it is likely that the Party may need to trade out of imbalance to avoid exposure to the SBP. The immediate need for such a trade may mean the Party could face additional loses in negotiating a trade and may be easier for some Parties, such as portfolio players with part-loaded plant, than others.

4.3.2 PS2 – No Correction To Settlement plus Extra Cashflow

This potential solution would be similar to PS1, in that no attempt would be made to manipulate "Settlement Cashflow", however an "Extra Cashflow" could be calculated to compensate for any imbalance charges, cost to trade out of imbalance in future and compensation for not being able to access the Transmission System. This "Extra Cashflow" means that in terms of table 4.1 PS2 would deliver compensation "Other". This solution has the same issues as PS1:

- **Susceptible to extreme EIP;**
- **Party may need to trade out of imbalance**.

However in this potential solution "Extra Cashflow" would be required:

- **Extra Cashflow always required** - The obligation to calculate "Extra Cashflow" could be either inside or outside of the BSC and would need to compensate for the other issues, both of which affect "Settlement Cashflow".

4.3.3 PS3 – Compensation using Bid Offer Prices in BMWP

This potential solution reflects the current process for dealing with intertrips and would be the equivalent of rejecting P87. In terms of table 4.1 it would mean PS3 would deliver compensation of the form "Bid/Offer".

For the purposes of this solution it assumes that a "single Acceptance Volume Pair", issued in accordance with Q5.1.5, would be limited to the BMWP where the fault initially occurs. This is a conservative reading of the current obligation and also assumes no obligation on the Transmission Company outside the BMWP[6].

The solution also reflects the technical approach behind W018, which is used to make corrections to data in the BSC Systems when that data disagrees with the real world view between Transmission Company and the Party concerned – i.e. the BSC Systems have BOA that the Party was never informed about, or vice-versa.

As "Settlement Correction" is limited to the BMWP it means that, for Settlement Periods immediately after the end of the BWMP, the affected Party is exposed to Energy Imbalance

[6] In principle the section "Beyond The Wall Actions" within the Balancing Principles Statement may be applicable to such situations. However, this was not the intent of the BPS, and the Transmission Company may dispute any claims for such compensation.

Prices and hence would need to trade out of imbalance to avoid prolonged exposure to these prices.

With this solution no "Extra Cashflow" would be calculated[7] and hence all compensation would need to be recovered in two Settlement Periods by loading the Bid Offer Prices (i.e. as described in section 3.4).

Like PS1 and PS2 this solution also has the issue of "**Party may need to trade out of imbalance**". In addition it has the following new issues:

- **Susceptible to extreme Bid Prices** - this solution is susceptible to extreme Bid Prices. For example, a Bid price of £-1000/MWh could have been submitted by an affected generator to obtain sufficient compensation within the first two Settlement Periods;
- **Significant negative impact on other Parties** - if this was used as a continued basis for intertrip compensation, then the extreme Bid Prices would introduce significant volatility into the BM and negative impact on other Parties;
- **Compensation not linked to duration of fault** - this is an inaccurate approach to determining compensation as it is not possible to determine the duration (or even likelihood) of the outage when the Bid Prices are initially submitted.

4.3.4 PS4 – "QABC Correction" in the BMWP plus "Extra Cashflow"

This proposed solution represents one of the proposed approaches for P87, whereby the imbalance for the Party is cancelled out within the BMWP and an additional "Extra Cashflow" is agreed with the Party. In terms of table 4.1 this would deliver compensation of the form "Other". It should be noted that the "Extra Cashflow" could be determined within the vires of the BSC, for example by the Panel or by including an obligation in the BSC to other documentation. If the Panel were to determine that a Cashflow was appropriate Transmission Company would be obliged to make that payment. Or the "Extra Cashflow" could be determined outside of the BSC by including a recommendation in the Modification Report that the modification should only be made in conjunction with changes to other documentation.

For this solution it is assumed that the Party would trade out of imbalance with another Party. It is further assumed that should this be the Transmission Company, then it would be on normal commercial terms and not due to any obligations, otherwise it would represent PS6.

- In line with the previous solution this solution still has the issue of **"Party may need to trade out of imbalance**" and **"Compensation not linked to duration of fault"**.

In addition, it has the following issues:

- **Extra Cashflow always required** - The obligation to calculate "Extra Cashflow" could be either inside or outside of the BSC and would need to compensate for the other issues, all of which affect "Settlement Cashflow";

[7] As solution based on PS3 with "Extra Cashflow" would not be as effective as either PS2 or PS4.

- **Specific Extra Cashflow required for Consumption** – although cancelling out the contract volume does not result in any cashflows within "Settlement Cashflow", it does not take into account that the contract volume has a value (say, a market price of 'PX'), which Production BM Unit will have already received and Consumption BM Unit will have paid. Although this gain of "PX" may be sufficient to stop a Production BM Unit requiring further compensation it would be less attractive for a Consumption BM Unit since the market price has been paid by the relevant Party and the mechanism results in potentially favourable imbalance income being foregone. As P87 does not involve compensation for Consumption BM Units this is not a problem for P87, but this is an issue in considering P80;

4.3.5 PS5 – "BOA correction" with determined prices

The previous potential solutions (PS1-4) were ex-post and limited to the BMWP. An alternative approach is to perform an ex-post adjustment for the data in the BMWP, and for the Transmission Company to be obliged to issue BOA for all Settlement Periods following the affected BMWP. This approach is based on administered Bid and Offer prices, which replace the originally submitted prices, and obligations to ensure they are submitted into Settlement. This approach is considered similar to short term constraint management where the Transmission Company use BOAs to manage both the constrained asset and its replacement. In terms of table 4.1 this would deliver compensation of the form "Other".

With the correct set of agreed Bid and Offer prices there would be no requirement for "Extra Cashflow" as all compensation would be delivered through payments made within "Settlement Cashflow". These prices would need to be agreed prior to any fault in order to allow the necessary ex-ante corrections to be made as soon as possible after the fault occurs.

In addition the mechanism would allow different prices to be agreed for Production and Consumption BM Units, and for any special cases. It should be noted that the mechanism to determine these different prices would be under the governance of the BSC. The key issues to note with this solution are:

- **Cannot set FPN to zero after BMWP** - the Grid Code requires Parties to submit FPN that represents the best estimate of expected input or output of Active Power. This provides the Transmission Company with the best view of the balancing requirements and for other Parties means the Indicated Imbalance would take into account that the BM Unit is disconnected;
- **Require new administered prices for BSC Systems** – unlike approach PS3 it is assumed that some form of administered price is used to avoid the problems of extreme Bid Offer prices associated with PS3. Different prices may need to be established, firstly to reflect the different positions of Consumption and Production BM Units and secondly between different BM Unit types (e.g. flexible or base load);
- **Estimate of contracted volume or FPN required –** as the BSC systems are making payments for Bids and Offers to Parties it is important that the correct level of contract volume to be compensated against is input to the BSC Systems. This will require real-time co-ordination between the Transmission Company and affected Party to ensure the submitted data correctly reflects the agreed values;

- **Transmission Company management outside BMWP –** as the Transmission Company must continue to submit BOA outside of the initial BMWP this will require the Transmission Company's continued management for the duration of the fault. This will need to be delivered through an obligation, probably in the BSC.

4.3.6 PS6 – "QABC Correction" potentially enhanced by "Extra Cashflow"

PS6 is based on PS4 except it applies to all Settlement Periods affected by a fault and hence addresses the issue of "**Compensation not linked to duration of fault**".

In addition unlike PS1-4 the other Party to the bilateral notification is shown as the Transmission Company and would need to be delivered as an obligation in the BSC. This avoids the potential losses and discrimination associated with "**Party may need to trade out of imbalance**"

As this potential solution is based on "QABC Correction" it will automatically cancel out the any imbalance and in terms of table 4.1 would deliver compensation of the form "Other". This solution affects Production and Consumption BM Units differently and this affects it applicability to P80 and P87:

- Annex B.3 shows "QABC Correction" would remove any imbalance for Production BM Units, whilst allowing a Party to keep any income they have already received from forward trades (i.e. "Contract Cashflow"). For Production BM Units, and hence P87, this may be sufficient to remove the issue "**Extra Cashflow always required**";
- However, Annex B.3 also shows this approach does not result in compensation for Consumption BM Units, which would have paid for energy in the forward market and hence face an overall loss if their imbalance was cancelled. This loss would need to be compensated using "Extra Cashflow". These accounts may be more suited to PS1/PS2, as in most circumstances they would at least receive income for effectively spilling onto the network.

The key issues to note with this solution are:

- **Specific Extra Cashflow required for Consumption** – as stated in Annex B.3 "Extra Cashflow" will always be required for Consumption BM Units. In addition for some types of Production BM Unit, being able to keep any income from the forward trade may not be sufficient to cover all their requirements for compensation. This issue is only applicable to P80, as P87 is limited to a small number of Production BM Units;
- **Estimate of contracted volume or FPN required –** unlike PS5 this approach is not required to make payments for Bids and Offers. This means it represents a zero cash flow within Settlement. However it is still important to be able to determine the contracted level, as for portfolio Parties you will only be cancelling out the proportion of the contracted volume associated with the affected BM Unit, and not setting it to zero.
- **Transmission Company management outside BMWP –** as the Transmission Company must submit a notification between itself and the Party outside of the initial BMWP, this will require the Transmission Company's continued management for the duration of the fault. This will need to be delivered through an obligation, probably in the BSC.

4.3.7 Impact of Trade Tagging on Potential Solutions

There has been discussion in the P80MG as to whether a deemed BOA should be allowed to impact Energy Imbalance Prices.

The BSC Systems have no concept of deemed or special BOA, and all BOA are candidates for inclusion in Energy Imbalance Prices calculations, subject to the effects of P18A and Automatic Trade Tagging (ATT), as described in BSC Section T-1.

In addition to any deemed BOA, there are likely to be opposing actions on the opposite stack to consider, such as the Offer on a fast response plant to replace any lost generation.

Table 4.4 shows the expected BOA being issued for the production trip underlying the potential solutions PS1 to PS6. Initially there is a high probability of an Offer being required in the period containing the outage, and that this probability would reduce, for instance in a long market, as the Transmission Company have more chance to reduce the number of Bids they take, initially using a BOA in the BM and then contracts for periods outside the BMWP.

Table 4.4 – Bids and Offers Available for ATT

	J	j+1	j+2	j+3	j+4	j+5	j+6
Likelihood of Offers	High	←	←	←	←	←	Low
PS1 Bids							
PS2 Bids							
PS3 Bids	Yes	Yes	Yes				
PS4 Bids							
PS5 Bids	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PS6 Bids	?	?	?	?	?		

The entries for PS6 are shown as "?" as there is no reason why a hybrid solution (PS5/PS6) could not be used, i.e. they could initially be processed as "Ex-Post BOA Adjustment" and later as "Ex-Ante QABC Correction".

P80MG recognised that any Bids and Offers associated with a fault were system orientated and should not be included in the final calculation of Energy Imbalance Prices. They also recognised the risk of creating BOA and relying on ATT subsequently removing it.

As a result of these concerns, and that any attempt at predicting the operation of ATT would be unreliable, P80MG believed that the other factors introduced in this section should be used to determine the implementation approach.

4.3.8 Treatment of Consumption BM Units and Embedded Generation

The P80MG recognised that it was necessary to define the scope of any compensation under P80, for example which BM Units would be eligible and for how much of their predicted input/output. The P80 Definition Procedure had established the following definition for a system fault represented a suitable starting point:

> *"Non-availability of the Transmission System which brings about forced deviation from FPN as amended by previous Bid-Offer Acceptances, not due to any action that is already covered by the issuing of Bid-Offer Acceptances."*

In addition, the P80 Definition Consultation responses established that the majority of respondents believed that compensation should be limited to those BM Units in respect of which TNUoS is paid. The P80MG considered these responses and agreed that it was appropriate that Production BM Units should be either directly connected to the Transmission System, or embedded within a Distribution System and paying TNUoS could be included in P80. Furthermore, the P80MG does not believe that P80 should compensate for embedded generators who do not pay TNUoS. Such generation would be netted off the consumption associated with a Supplier, who themselves would be paying TNUoS for the net consumption.

The P80MG recognised that it was difficult to determine the impact of system faults for the SVA registered Consumption BM Units. It is possible that a fault would affect Half Hourly (HH) metered and Non-Half-Hourly metered customers within a specific GSP Group. For NHH customers, profiled values would continue to be provided into Settlement and the error would be reflected in the GSP Group Correction Factor applied to all NHH demand for the GSP Group. Individual HH customer readings would correctly measure the effects of the fault to the half-hour. However, it would be extremely difficult to assess the effects on particular Consumption BM Units to without carrying out detailed studies at the metering systems level to ascertain which particular meters were affected and the Consumption BM Units to which they were allocated. Furthermore, this allocation will alter between each Settlement Run as more of the meter readings move from estimates to actuals. The P80MG recognised that such data would not be available until the "SF" Settlement Run and any correction would need to re-calculated for all subsequent settlement runs.

The P80MG recognised that this would cause each of the affected Suppliers to face imbalance for the demand that was not taken, however, the P80MG also recognised that it would be hard to manually determine how much of that imbalance was due to any fault.

4.3.9 Summary of Potential Solutions

The previous sections show how each of the potential solutions PS1 to PS6 can be used to support a number of approaches to the "Settlement Correction". Table 4.5 provides a summary of each of the issues identified with each approach. The shaded cells show that the issue applies to the potential solution and needs to be addressed using "Extra Cashflow".

Table 4.5 – Summary of Potential Solutions

Issue	PS1	PS2	PS3	PS4	PS5	PS6
Cannot set FPN to zero after BMWP	n/a	n/a	n/a	n/a	Y	
Estimate of contracted volume or FPN required	n/a	n/a	n/a	n/a	Y	Y
Compensation not linked to duration of fault *	n/a	n/a	Y	Y		
Susceptible to extreme Bid Prices *			Y			
Susceptible to extreme EIP *	Y	Y				
Require new adminstered prices for BSC Systems					Y	
Party is required to trade out of imbalance *	Y	Y	Y	Y		
Significant negative impact on other Parties			Y			
Transmission Company management outside BMWP					Y	Y
Extra Cashflow always required *		Y		Y		
Specific Extra Cashflow for Consumption * (P80 Only)				Y		Y

Issue applies to potential solution

Those issues marked with a "*" are considered to affect the level of compensation delivered in "Settlement Cashflow" or "Contract Cashflow" and would need to be addressed using "Extra Cashflow" either inside or outside of the BSC.

4.3.10 Cost and Implementation Implications

The P80MG noted that any of the potential solutions should not have major implementation costs as the proposed solutions are manual, and there are no changes to BSC Systems. Ex-post actions will incur higher administration costs and it was suggested that as much ex-ante actions as possible using standard processes should be used. However, it should be noted that any solution with an "Extra Cashflow" could be more difficult, dependent on how it is calculated and by who. It is possible that P34/36/71, if approved, may deliver a mechanism to help implement such a correction.

4.4 Sunset Clause

P80MG also recognised that although these potential solutions were being discussed in terms of P87 and P80, they highlighted a possible interaction with the Transmission Access initiative being undertaken under CUSC. The Group noted that although Transmission Access may consider providing compensation for a loss of a firm access right, it is clear that it would face difficulty in predicting and considering the imbalance costs within Settlement. As a result the group believed that these issues may still need to be considered under the BSC in the longer term.

The original drafting for P87 includes the provision of a sunset clause should the introduction of Transmission Access make compensation redundant. The P1 'Extension of the definition to ECVAA System Failure' Authority decision letter was noted by the P80MG. It was stated that if P1 had included a sunset clause making the proposed solution an interim solution, then this would have allowed for the solution to be revisited. A sunset clause for P87 could provide a similar function whereby the potential solutions represent an interim solution until the introduction of the Transmission Access arrangements.

The P80MG noted that a sunset clause could be difficult to draft because Transmission Access is not defined in the BSC. Also, if the legal drafting included a clause contingent on a change to another document this could introduce an unintentional hierarchy between documents. It was therefore recognised that should a sunset clause be included in the final drafting of the legal text an appropriate trigger to initiate the clause would be required.

5. P80MG ANALYSIS

5.1 Overview

P80MG recognise that in principle it would be appropriate to compensate a Party for loss of access to the Transmission System. In particular, such that the Party did not face the risk of imbalance, which currently has the potential to be affected by extreme Energy Imbalance Prices. However, P80MG also noted that future changes to the calculation of Energy Imbalance Prices (i.e. P74/P78/P90) may reduce such volatility.

The P80MG considered that system faults, intertrips and system constraints represent a spectrum, whereby system faults represent one end of the spectrum (where there is no management or choice) and at the other end are system constraints (where there is management and usually a degree of choice, and therefore competition in the Bid and Offer Prices). Intertrips lie in-between these two, but are not in the middle of the spectrum and may exhibit behaviour from each extreme. The P80MG noted that a consistent approach to for P80 (system faults) and P87 (intertrips) would help show that both Modifications better achieved the Applicable BSC Objectives.

The P80MG recognise that there are a number of attributes that need to be considered and these are (i) duration of the event, (ii) the level against which to compensate and (iii) price at which to compensate at. The P80MG agreed that the compensation should cover for the duration of the fault, even if that continued beyond the initial BMWP. It was agreed that the fault duration should include the dynamics to allow the BM Unit ramp up to export onto the Transmission System. In the case of a shorter fault this may also need to take into account minimum zero time and other factors.

In terms of the level forming the basis of compensation, the P80MG believed that compensation should be against FPN in the BMWP and for any Settlement Periods outside the BMWP should follow the profile indicated by initial PN frozen at the time of the fault and rolled over if the disconnection lasts for longer than the current Settlement day. In so far as price is concerned, no general view emerged and this was consider separately under each Modification Proposal.

5.2 Modification Proposal P87

P80MG believe the current compensation arrangements for intertrips represent an unmanageable risk, which could have a high materiality should an incident occur. The P80MG recognised that in relation to P87 the current arrangements (i.e. PS3) represented a high risk to all Parties exposed to imbalance and hence all the potential solutions could be considered to better facilitate achievement the Applicable BSC Objectives:

- **PS1** – although this removed all compensation from the affected Party, it reduced a significant risk for all other Parties which alone could be considered to better facilitate the achievement of the Applicable BSC Objectives. It could also be considered to be in line with the current treatment of system faults (i.e. prior to P80);
- **PS2** – this improved on PS1 by also offering the affected Party some compensation through an "Extra Cashflow". The "Extra Cashflow" may be determined by the Panel within the vires of the BSC, or could lie outside of the BSC. In each case the

Transmission Company would be obliged to make this payment. It also avoided any changes to Settlement data and hence "Settlement Cashflow";

- **PS4** – represents P87 as originally proposed. The P80MG also recognised there were two variants of this, one with the "Extra Cashflow" defined in the BSC (as in P87 as proposed), and one with it defined outside. The P80MG recognised this was also a hybrid between PS2 and PS6, and were concerned about how to ensure "Extra Cashflow" covered the whole duration, recognising this would be hard if it was decided that "Extra Cashflow" should be determined outside the BSC. In addition the P80MG recognised that "Extra Cashflow" would also need to consider any losses the Party may face in trading out of imbalance, and also for any Settlement Periods immediately after the fault before it becomes practical to be able to trade out of imbalance;
- **PS6** – was seen to solve the problem of compensating over the whole duration without the need to define an "Extra Cashflow". However, P80MG also recognised the difficulty in predicting the FPN for periods outside the BMWP. It was noted that in principle PS6 has the option of an "Extra Cashflow" but the P80MG did not believe that this was required for P87 which only seeks to compensate Production BM Units by removing imbalance; and
- **PS5** - was seen as alternative to PS6 in that it compensated for the whole period using administered Bid and Offer prices, as well as providing a more flexible approach to establishing the compensation level, rather than Bid and Offer prices of effectively £0/MWh.

In relation to P87 the P80MG favoured PS1, PS4 and PS6 but at this stage felt it appropriate to consider views through consultation before attempting to narrow down the selection further.

5.3 Modification Proposal P80

In relation to P80 the P80MG recognised that it was more difficult to show a solution better facilitated the achievement of the Applicable BSC Objectives, as the current arrangements (i.e. PS1) did not represent a significant risk to all Parties.

The P80MG agreed that PS5 constituted the original Modification Proposal albeit with the refinement of using administered prices rather than freely submitted Bid and Offer Prices. Such an arrangement would ensure that the solution would not suffer the potential volatility of PS3. In addition the P80MG felt P80 was intended to cover the whole duration of the fault, unlike PS3.

The P80MG felt that the same relationship existed between PS5 and PS6 as they had recognised in relation to P87. In addition PS6 could be seen as a simpler solution, especially for Production BM Units. The same arguments used between PS4 and PS6 could also apply to P80.

The P80MG discussed whether compensation under P80 only includes compensation for any forced deviation from FPN that involves the complete disconnection of the BM Unit. The P80MG agreed that any forced deviation from FPN that was not a complete disconnection was a system constraint for which there is compensation from BOAs.

The P80MG recognised that the Transmission Company had indicated during the P80 Definition Procedure that it could take up to 1 working day to determine whether a P80

style system fault was indeed caused by the Transmission System (i.e. eligible for compensation), or the Party concerned (i.e. not eligible). This uncertainty would affect all solutions but in particular PS5 and PS6 which need to know this is indeed a fault and the level to compensate against before being able to implement the ex-ante part of any solution.

In considering Consumption BM Units the P80MG felt that in principle equitable treatment would imply having the same treatment for Production and Consumption BM Units. However, it was also recognised that Production BM Units and Consumption BM Units could be affected by a fault in different ways, for instance, Production BM Units would retain contract income, and Consumption BM Units would retain contract liability (see Annex B). Furthermore, the P80MG recognised the problem of establishing precisely how demand had been affected. The mix of HH and NHH demand, and the proportioning of any errors between Suppliers using GSP Group Correction, made it difficult to determine the precise loss of demand for any Supplier. This issue was also emphasised as any calculated proportion would change with each Settlement Run through the Final Reconciliation, a change which can be 10% under normal circumstances.

As a result the P80MG believe the best solution for Consumption BM Units could be PS1, acknowledging that they would at least receive SSP for spilling (see Table B.1). Whilst they believed PS2 would offer a chance for additional compensation, it was believed that the obstacles defined in the previous paragraphs would make this infeasible.

In relation to P80 the P80MG considered that PS4, PS5, and PS6 were all viable solutions to compensate Production BM Units for a disconnection due to a system fault. For Consumption BM Units PS1 was favoured, but at this stage felt it appropriate to consider views through consultation before attempting to narrow down the selection further.

ANNEX A EXAMPLE SCENARIO

The following example has been constructed to indicate the impact on the Settlement of deemed BOA being issued with the current level of Bid Prices. This is in line with the current processing of intertrips prior to P87, and also system faults as proposed by P80. For the purposes of the example it is assumed:

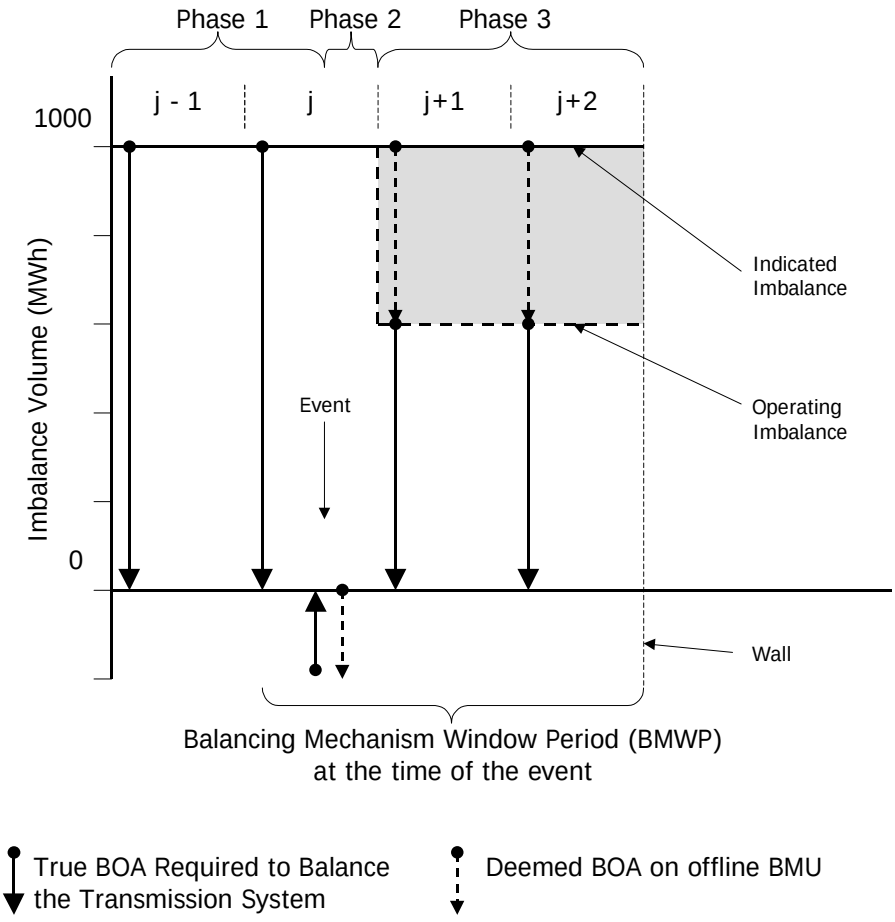
- that the market is consistently 1000MWh long and can be balanced without the need to explicitly create any reserve;
- the market is normally balanced by taking 1000MWh of Bids at an average price of £10/MWh;
- when no Offers are required the SBP is assumed to be £25/MWh;
- the BM Unit, which is affected by the fault, results in an overall loss of 200MWh across the Settlement Period (j) where the event occurs and a further 400MWh on subsequent periods (j+1 and j+2). The resulting Bids on the BM Unit are priced at £-99,999/MWh;
- it is assumed that the Transmission Company must immediately take 200MWh of fast reserve (£500/MWh) to balance the network for the rest of the Settlement Period, but for subsequent Settlement Periods the Transmission Company can simply take less Bids as part of the initial balancing of the network.

Figure A.1 provides a representation of this scenario and the Bid-Offer Volumes required to balance the network. The figure is split into three different phases and makes no reference to what happens after the BMWP:

1. for period (j – 1) and the start of period (j) the Indicated Imbalance is 1000MWh, as reported on BMRA. This correctly reflects the real level of imbalance experienced by the Transmission Company and the volume of Bids required to physically balance the system will equal 1000MWh.
2. the second phase starts at the point the event occurs and continues to the end of the current Settlement Period. At the time of the fault only the "Fast Reserve Offer" is actually required by the Transmission Company, as the disconnected generator will be considered offline irrespective of whether a deemed BOA is issued or not.
3. the third phase consists of the remaining Settlement Periods within the current Balancing Mechanism Window Period (i.e. (j+1) and (j+2)). For these periods the Indicated Imbalance will still be 1000MWh, as the affected BM Unit cannot change its FPN for those Settlement Periods where the Gate has already closed. However the Transmission Company will be balancing the system to compensate for a (reduced) operational imbalance of 600MWh, which takes into account that the BM Unit will not be delivering to its submitted FPN profile.

It should be noted that the figure shows deemed BOA being issued, however, such acceptances would not affect the operation of the system or the real level of imbalance. Whether they are issued will be determined by the Grid Code and their only impact will be on Settlement.

Figure A.1 – Example Fault



Should the events shown in Figure A.1 occur, then the potential effect on the Energy Imbalance Prices for this simple scenario may be as shown in table A.1.

Table A.1 – Effect on Energy Imbalance Prices (BRL = 5MWh)

Period	Offer Volume (MWh)	Bid Volume (MWh)	BM Unit Offer Cashflow (£)	BM Unit Bid Cashflow (£)	SBP (£/MWh)	SSP (£/MWh)
j – 1	0	1000	0	10 K	25	10
j	200	1200	100 K	20 M	500	-19,892
j + 1	0	1000	0	40 M	25	-39,994
j + 2	0	1000	0	40 M	25	-39,994

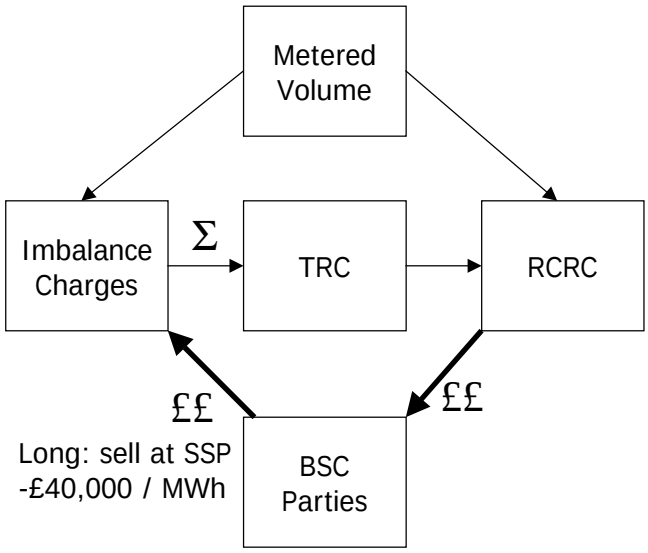
It should be noted that this a simple example with a minimum of BOA, in reality there will be a greater variety of BOA and hence the recent decision to set BRL to 5 MWh will affect the probability of extreme Energy Imbalance Prices being calculated. However, it should also be noted that modelling done in support of previous Modifications has shown that there have been a significant number of periods where there is insufficient volume on both Bid and Offer stacks to allow Automatic Trade Tagging (ATT) to operate efficiently, and hence it is not safe to rely on ATT to remove extreme priced Bid-Offer Volumes.

As can be seen from table A.1 in the period (j) all Parties will be affected (i.e. those short and those long), whereas in the subsequent periods (j+1) and (j+2) it is only those who

are long who are exposed to extreme Energy Imbalance Prices. As the example is for a predominantly long market, a large number of Parties will be affected.

The Total Residual Cashflow (TRC), and hence Residual Cashflow Reallocation Cashflow (RCRC) is calculated from the Energy Imbalance Cashflow ($CAEI_{aj}$) for each account, which itself is calculated from the Energy Imbalance ($QAEI_{aj}$) multiplied by the appropriate Energy Imbalance Price (Figure A.2). This means TRC is related to the gross level of imbalance. For this simple scenario it is not possible to determine the gross level of imbalance, however, as the BM is originally 1000MWh long, it is reasonable to assume that the net imbalance volume will itself be 1000MWh long and hence the gross value will be at least this figure.

Figure A.2 Impact on cashflow



From the example, the value of TRC in periods (j+1) and (j+2) will be at least £40M (i.e. 1000 * £39,994). As the SSP is negative, TRC will be the value collected from the majority of Parties that are long, and hence redistributed to all Parties as RCRC, based on metered volumes.

The defect being highlighted by P87 could cause significant volatility within the BM and Settlement should an intertrip occur. As a Party is free to submit these Bid Prices, it is not easy for the Transmission Company to mitigate the effect, either inside or outside the BSC. This contrasts with pre-NETA days when under the Pool, in effect, compensation was paid at the day ahead clearing price, less the bid price. Hence the range of payments was capped at whatever the clearing price was for the period in question. This price was itself limited to the Value of Lost Load and collared by zero (if the bid price was equal to the clearing price. In other words the generation in question was the marginal unit).

ANNEX B MECHANISMS TO ALTER SETTLEMENT DATA

This section uses the generic term fault to describe both a P87 intertrip and also a P80 system fault and is a high-level analysis of whether a Production or Consumption BM Unit has a gain or a loss through the three different Settlement corrections introduced in Section 4.4:

- "No Correction" (the current approach for Transmission System faults);
- "BOA Correction" (the current approach for intertrips);
- "QABC Correction" (the proposed approach for intertrips.

In consideration of imbalance it is important not to ignore the value of any contract notifications that have not been delivered (i.e. "Contract Cashflow"). The Party will have received, or will have paid, for the energy concerned. In addition the Transmission Company (in the form of BSUoS) will have to make up the short fall (buy) or lose income as it does not need to bid the network back (sell).

B.1 "No Correction"

The BSC is already designed to consider what occurs when a BM Unit deviates from its contract position, whether by choice or factors outside their control. Before attempting to consider potential options it is necessary to consider how the systems handle normal imbalance – i.e. what is the baseline – i.e. "No Correction".

For the purposes of an example it is assumed that energy contracted outside the BSC is either bought or sold at a notional price PX, assumed to be £15/MWh. In addition the Energy Imbalance Prices are assumed to be a SBP of £25/MWh and SSP of £10/MWh. This choice of values represents that SBP is generally more volatile than SSP and that on average:

SBP > PX > SSP

Table B.1 represents the effect of imbalance for each unit of energy, for both a Production and Consumption BM Unit. The "Net Trade Value" refers to the difference between this notional PX price and the calculated "Settlement Cashflow".

Table B.1 – "No Correction"

BM Unit Type	Imbalance Approach[8]	Net Trade Value	Loss or Gain	Example Value
Production	Pay SBP	PX – SBP	Loss	-10
Consumption	Receive SSP	SSP - PX	Loss	-5

The table shows that whilst SBP > PX > SSP is on average true, then both types of BM Unit will on average face a loss and hence under normal circumstances an incentive to operate to their contracted level. It should be noted that the SBP could itself be volatile immediately after any failure, increasing the level of loss for any Production BM Units exposed to SBP.

[8] The direction of payment is based on +ve values.

B.2 "BOA Correction"

In contrast any BM Unit which is desynchronised as result of an intertrip may currently be issued a BOA in accordance with Q5.1.5 – i.e. "BOA Correction". For the sake of the example in table B.2 it is assumed that the Bid and Offer Prices[9] are the same as the Energy Imbalance Prices, i.e. PB = SSP = £10/MWh and PO = SBP = £25/MWh.

Table B.2 – "BOA Correction"

BM UNIT Type	Imbalance Approach	Net Trade Value	Loss or Gain	Example Value
Production	Pay PB	PX – PB	Gain	5
Consumption	Receive PO	PO – PX	Gain	10

Table B.2 shows that the loss faced by each BM Unit would be turned into a gain. However it has already highlighted that Bid and Offer Prices can be used to provide a variety of pricing signals. This can result in what appear to be extreme prices for pure energy, and hence "windfall gains" in compensation.

P80MG considered whether any additional approaches for determining the values of PB and PO were possible, and three approaches were suggested. The prices for Bids and Offers could be set to:

- **actual Energy Imbalance Prices** - would remove the exposure to any extreme prices used to indicate an unwillingness to trade (i.e. £–99,999/MWh). In addition in a long market, with a stable SSP, it would provide a stable basis for compensating Production BM Units. However, the volatility of the SBP could at times over-compensate Consumption BM Units and make it hard to determine value for "Extra Cashflow", and this could be a major factor in P80. A further variant could be an average set of Energy Imbalance Prices derived from a number of previous Settlement Periods[10];
- **a zero cost** – this would have the same effect as cancelling any imbalance, as described in section B.3. It would also have the associated problems for Consumption BM Units; and
- **a set of administered prices** – a set of default administered Bid and Offer Prices could be determined that would be used to override any other values provided by the Party. For example setting PB to £0/MWh and PO to £2*PX/MWh would deliver the same level of compensation to both a Production and Consumption BM Unit, and could improve on using a contract notification to remove the imbalance. In addition these default prices could be overridden by bilateral agreement. If these values were chosen correctly then all compensation could be recovered by the BSC Systems.

[9] In reality those intertrips subject to compensation under Q5.1.5 and P87 are all production and hence would be subject to Bids. However, section Q5.1.5 makes no distinction between production and consumption, and in addition P80 proposes that all system faults are compensated in line with Q5.1.5.

[10] It should be noted that P80 and P87 should not be attempting to compensate for perceived weaknesses in the calculation of Energy Imbalance Prices. All Parties that are out of balance will be subject to these prices and hence any concerns over cost reflectivity should be addressed directly through Modification Proposals such as P74, P78, P79 and P90.

B.3 "QABC Correction"

Both tables B.1 and B.2 highlight that the notional PX price is taken into account when determining either the imbalance cost, or compensation under Q5.1.5. Whilst SBP > PX > SSP, and the Bid and Offer Prices are related to the cost of energy, then whether the BM Unit faces a net gain or loss, it is generally less than the spread between the Energy Imbalance Prices.

However, when attempting to calculate a compensation value, the issue with either of these approaches is that the "Settlement Cashflow" can be extremely volatile, either due to Energy Imbalance Prices or extreme Bid and Offer Prices. This could make it hard to determine a suitable value outside the BSC Systems, in order to deliver a fixed overall value of compensation.

P87 proposes that rather than using a deemed BOA, that a contract notification should be made to remove any imbalance (i.e. "QABC Correction"), and hence remove exposure to Energy Imbalance Prices, or extreme Bid or Offer Prices. This would mean that "Settlement Cashflow" would be zero. Table B.3 shows the overall effect if the imbalance is cancelled by effectively setting QABC component for that BM Unit to zero.

Table B.3 – "QABC Correction"

BM UNIT Type	Imbalance Approach	Net Trade Value	Loss or Gain	Example Value
Production	0	PX – 0	Gain	15
Consumption	0	0 – PX	Loss	-15

The BM Unit is seen as gaining or losing the full value of the forward price (PX) for a service it did not provide or receive. Whilst this may be a benefit to a Production BM Unit, it would disadvantage a Consumption BM Unit[11]. As P87 is only expected to deliver compensation for Production BM Units, this may only be a problem for P80.

A further complication is that in order to cancel a contracted volume, the BM Unit's contribution to the overall Account must be known. A BM Unit may set their FPN higher than their contribution to the contracted volume in order to use the Balancing Mechanism to collect SSP for any energy spilled. Cancelling out their perceived imbalance, using the value of FPN, would take them further out of balance. This is indicated in table B.4 for a Party with an intention for 100% spill.

Table B.4 – "QABC Correction"

BM UNIT Type	Imbalance Approach	Net Trade Value	Loss or Gain	Example Value
Production	Receive SSP	SSP	Gain	10

Although this results in payment within the BSC, in contrast to the effect shown in table B.4, it still results in a gain for the Party. P80MG believe this effect is in keeping with the spirit of cancelling out the imbalance.

[11] In fact Consumption may benefit from claiming there was no fault, and hence be exposed to imbalance. As shown in table 6.1 this would mean they at least receive SSP for spilling (assuming a positive SSP).

These are important factors that would need to be considered when determining associated values for “Extra Cashflow” and highlights the importance of considering the value of any “Contract Cashflow”.

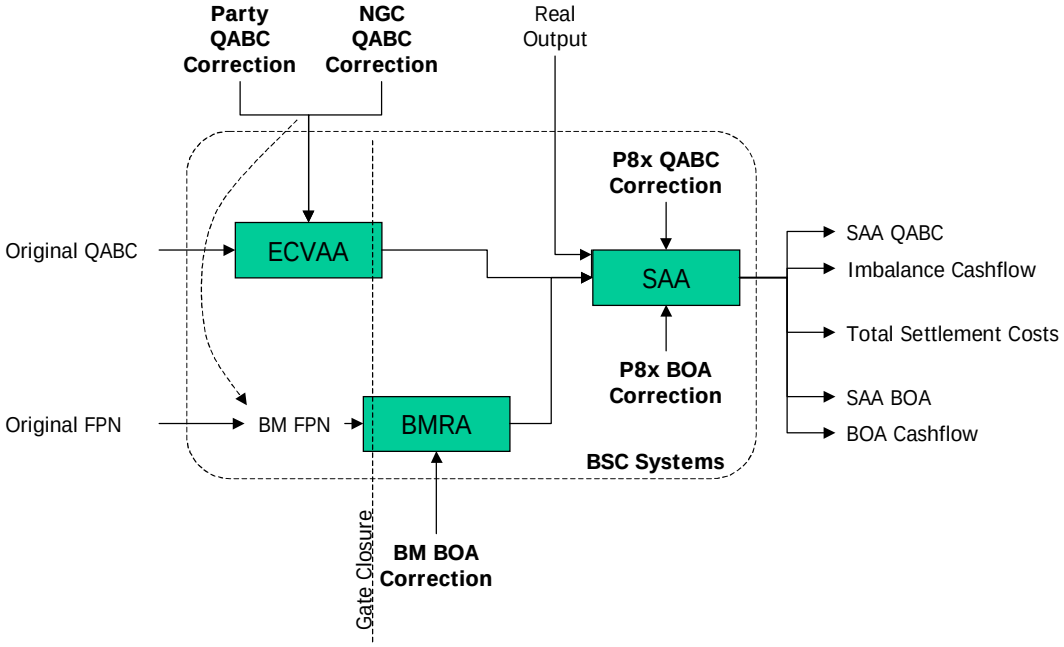
ANNEX C WORKED EXAMPLES FOR POTENTIAL SOLUTIONS

The following section presents worked examples for each of the potential solutions used in section 4. They are based on the scenario introduced in Annex A, but extended to consider events outside the BMWP. The data is presented as tables and considers 8 Settlement Periods:

- one prior to the fault;
- three within the BMWP in which the fault initially occurs; and
- four in the future, beyond the initial BMWP.

Four future Settlement Periods have been included to highlight that the Transmission Company and the Party do not have long to assess the situation before more Settlement Periods will have been subject to Gate Closure[12].

The following figure illustrates the different data items that are described for each of the potential solutions. The bold values, and those in the shaded cells in each table, represent those data items that can be manipulated (i.e. Settlement Corrections") within each of the solutions. This highlights that ex-ante changes can only be made in the future, and must take into account any "thinking time". As BM BOAs are issued in real time and not subject to Gate Closure, they can be issued earlier than contract changes can be notified.



In these examples it should be noted that the 400MWh is already contracted in each Settlement Period and, based on the assumed contract price of £15/MWh, has a "Contract Cashflow" of £6,000 per Settlement Period. This means that for the example set of Settlement Periods there is £39,000 of "Contract Cashflow" that will not be honoured and must be delivered by the Transmission Companies actions in the BM, or by the affected

[12] The scenario is the same as used in Annex A and hence the fault is assumed to occur only 15 minutes away from the Gate Closure for (j+3). It is further assumed that it will take over 45 minutes for the Party to decide what action to take and complete the notification of any changes. This means the first realistic period in which to make changes will be (j+5).

Party trading out of imbalance. It should be noted that this overall "Contract Cashflow" will be reduced for solutions PS1-PS4 as the affected Party is expected to trade out of imbalance for the last two Settlement Periods, by how much will depend on any trading loss they experience.

In addition to the assumptions in Annex A, it is assumed that the Bid Price for PS3 is only £-1,000/MWh rather than £-99,999/MWh. In addition, in PS5 with the administered prices it is assumed that Bid Price is £10/MWh, in line with the Annex B2.

Table C.1 - PS1 / PS2 – No Correction To Settlement - Optional Extra Cashflow

Time Frame	PAST	BMWP			FUTURE			
Correction Type	n/a	n/a			n/a			
Correction Timescale	n/a	n/a			n/a			
Period	j-1	j	j+1	j+2	j+3	j+4	j+5	j+6
Original QABC	400	400	400	400	400	400	400	400
Original FPN	400	400	400	400	400	400	400	400
Real Output	400	200	0	0	0	0	0	0
Party QABC Correction							-400	-400
NGC QABC Correction								
BM - FPN	400	400	400	400	400	400	0	0
BM - BOA Correction								
P8x QABC Correction								
P8x BOA Correction								
SAA - QABC	400	400	400	400	400	400	0	0
SAA - BOA	0	0	0	0	0	0	0	0
Imbalance	0	200	400	400	400	400	0	0
BOA Cashflow	0	0	0	0	0	0	0	0
Imbalance Cashflow	0	-100,000	-10,000	-10,000	-10,000	-10,000	0	0
Total Settlement Costs								-140,000

Table C.2 – PS3 – Compensation using Bid Offer Prices in BMWP

Time Frame	PAST	BMWP			FUTURE			
Correction Type	n/a	BOA Correction			n/a			
Correction Timescale	n/a	Ex-Post			n/a			
Period	j-1	j	j+1	j+2	j+3	j+4	j+5	j+6
Original QABC	400	400	400	400	400	400	400	400
Original FPN	400	400	400	400	400	400	400	400
Real Output	400	200	0	0	0	0	0	0
Party QABC Correction							-400	-400
NGC QABC Correction								
BM - FPN	400	400	400	400	400	400	0	0
BM - BOA Correction								
P8x QABC Correction								
P8x BOA Correction		-200	-400	-400				
SAA - QABC	400	400	400	400	400	400	0	0
SAA - BOA	0	-200	-400	-400	0	0	0	0
Imbalance	0	0	0	0	400	400	0	0
BOA Cashflow	0	200,000	400,000	400,000	0	0	0	0
Imbalance Cashflow	0	0	0	0	-10,000	-10,000	0	0
Total Settlement Costs								980,000

Table C.3 – PS4 – "QABC Correction" in the BMWP plus "Extra Cashflow"

Time Frame	PAST	BMWP			FUTURE			
Correction Type	n/a	BOA Correction			n/a			
Correction Timescale	n/a	Ex-Post			n/a			
Period	j-1	j	j+1	j+2	j+3	j+4	j+5	j+6
Original QABC	400	400	400	400	400	400	400	400
Original FPN	400	400	400	400	400	400	400	400
Real Output	400	200	0	0	0	0	0	0
Party QABC Correction							-400	-400
NGC QABC Correction								
BM - FPN	400	400	400	400	400	400	0	0
BM - BOA Correction								
P8x QABC Correction		-200	-400	-400				
P8x BOA Correction								
SAA - QABC	400	200	0	0	400	400	0	0
SAA - BOA	0	0	0	0	0	0	0	0
Imbalance	0	0	0	0	400	400	0	0
BOA Cashflow	0	0	0	0	0	0	0	0
Imbalance Cashflow	0	0	0	0	-10,000	-10,000	0	0
Total Settlement Costs								-20,000

Table C.4 – PS5 – "BOA correction" with determined prices

Time Frame	PAST	BMWP			FUTURE			
Correction Type	n/a	BOA Correction			BOA Correction			
Correction Timescale	n/a	Ex-Post			Ex-Post		Ex-Ante	
Period	j-1	j	j+1	j+2	j+3	j+4	j+5	j+6
Original QABC	400	400	400	400	400	400	400	400
Original FPN	400	400	400	400	400	400	400	400
Real Output	400	200	0	0	0	0	0	0
Party QABC Correction								
NGC QABC Correction								
BM - FPN	400	400	400	400	400	400	400	400
BM - BOA Correction							-400	-400
P8x QABC Correction								
P8x BOA Correction		-200	-400	-400	-400	-400		
SAA - QABC	400	400	400	400	400	400	400	400
SAA - BOA	0	-200	-400	-400	-400	-400	-400	-400
Imbalance	0	0	0	0	0	0	0	0
BOA Cashflow	0	-2,000	-4,000	-4,000	-4,000	-4,000	-4,000	-4,000
Imbalance Cashflow	0	0	0	0	0	0	0	0
Total Settlement Costs								-26,000

Table C.5 – PS6 - "QABC Correction" potentially enhanced by "Extra Cashflow"

Time Frame	PAST	BMWP			FUTURE			
Correction Type	n/a	QABC Correction			QABC Correction			
Correction Timescale	n/a	Ex-Post			Ex-Post		Ex-Ante	
Period	j-1	j	j+1	j+2	j+3	j+4	j+5	j+6
Original QABC	400	400	400	400	400	400	400	400
Original FPN	400	400	400	400	400	400	400	400
Real Output	400	200	0	0	0	0	0	0
Party QABC Correction								
NGC QABC Correction							-400	-400
BM - FPN	400	400	400	400	400	400	0	0
BM - BOA Correction								
P8x QABC Correction		-200	-400	-400	-400	-400		
P8x BOA Correction								
SAA - QABC	400	200	0	0	0	0	0	0
SAA - BOA	0	0	0	0	0	0	0	0
Imbalance	0	0	0	0	0	0	0	0
BOA Cashflow	0	0	0	0	0	0	0	0
Imbalance Cashflow	0	0	0	0	0	0	0	0
Total Settlement Costs								0

ANNEX D P80 CONSULTATION QUESTIONS

The P80 Modification Group has identified a number of potential solutions for Modification Proposal P80. This consultation paper seeks industry views on the potential solutions and any other relevant issues which respondents wish to raise.

Responses will be considered by the P80MG in its preparation of an Assessment Report to the BSC Panel in October, and in any subsequent assessment which the Panel may direct.

Respondent name	
BSC Party	**YES / NO[1]**
Responding on Behalf of	Please list all Parties responding on behalf of (including the respondent company if relevant).

Q	Question	Response[1]	Rationale
1.	Do you agree that there is a spectrum ranging from system constraints at one end, through to generator intertrip schemes and onto system faults at the other end, which should be reflected in any default compensation arrangements for such instances? (Section 2 and 4, Table 4.1)	Yes/No	Please give rationale:
2.	Do you believe that P80 (System Faults) and P87 (Intertrips) should be treated in a consistent manner?	Yes/No	Please give rationale:
3.	Which potential solution do you believe best facilitates the Applicable BSC Objectives for P80 with respect to Production BM Units? (Section 4.3 and 5.3)	Please select one by ✔ appropriate box Production BM Units	Please give rationale on how the PS better facilitates the Applicable BSC Objectives:
	PS1 - No correction to Settlement and no Extra Cashflow		
	PS2 - No correction to Settlement plus Extra Cashflow		
	PS3 - Compensation using Bid Offer Prices in BMWP		
	PS4 - QABC Correction in the BMWP plus Extra Cashflow		
	PS5 - BOA Correction with determined prices		
	PS6 - QABC Correction potentially enhanced by Extra Cashflow		

4.	Which potential solution do you believe best facilitates the Applicable BSC Objectives for P80 with respect to Consumption BM Units? (Section 4.3 and 5.3)	Please select one by ✔ appropriate box Consumption BM Units	Please give rationale on how the PS better facilitates the Applicable BSC Objectives:
	PS1 - No correction to Settlement and no Extra Cashflow		
	PS2 - No correction to Settlement plus Extra Cashflow		
	PS3 - Compensation using Bid Offer Prices in BMWP		
	PS4 - QABC Correction in the BMWP plus Extra Cashflow		
	PS5 - BOA Correction with determined prices		
	PS6 - QABC Correction potentially enhanced by Extra Cashflow		
5.	If a potential solution requires compensation from the "Extra Cashflow" do you believe that this should be determined within the BSC or outside the BSC? (Section 4.3)	Within BSC/ Outside of BSC	Please give rationale:
6.	(a) Do you believe that compensation for P80 (Transmission System faults) should be limited to directly connected BM Units? (b) Do you believe that compensation for P80 (Transmission System faults) should include embedded BM Units? (Section 4.3.8)	Yes / No Yes / No	Please give rationale:
7.	P80 did not propose the inclusion of a 'sunset clause'. As P80 has been assessed in parallel with P87, do you believe that there should be a 'sunset clause' that removes the compensation arrangements for system faults for system faults (P80) on the introduction of Transmission Access arrangements? If your answer is yes, please explain what the specific trigger should be activate such a clause. (Section 4.4)	Yes / No	Please give rationale:
8.	Are there any further comments on Modification Proposal P80 that you wish to make?		Please give your comments:

Please send your responses by **17:00 on Wednesday 28 August 2002** to Modifications@elexon.co.uk

Please entitle your email 'P80 Assessment Consultation'

Any queries on the content of the consultation pro-forma should be addressed to Helen Bray (020 7380 4018), email address helen.bray@elexon.co.uk.

ANNEX E P87 CONSULTATION QUESTIONS

The P80 Modification Group has identified a number of potential solutions for Modification Proposal P87. This consultation paper seeks industry views on the potential solutions and any other relevant issues which respondents wish to raise.

Responses will be considered by the P80MG in its preparation of an Assessment Report to the BSC Panel in October, and in any subsequent assessment which the Panel may direct.

Respondent name	
BSC Party	**YES / NO[1]**
Responding on Behalf of	Please list all Parties responding on behalf of (including the respondent company if relevant).

Q	Question	Response[1]	Rationale
1.	Do you agree that there is a spectrum ranging from system constraints at one end, through to generator intertrip schemes and onto system faults at the other end, which should be reflected in any default compensation arrangements for such instances? (Section 2 and 4, Table 4.1)	Yes/No	Please give rationale:
2.	Do you believe that P80 (System Faults) and P87 (Intertrips) should be treated in a consistent manner?	Yes/No	Please give rationale:
3.	Which potential solution do you best better facilitates the Applicable BSC Objectives for P87? (Section 4.3 and 5.2)	Please select one by ✔ appropriate box	Please give rationale on how the PS better facilitates the Applicable BSC Objectives:
	PS1 - No correction to Settlement and no Extra Cashflow		
	PS2 - No correction to Settlement plus Extra Cashflow		
	PS3 - Compensation using Bid Offer Prices in BMWP		
	PS4 - QABC Correction in the BMWP plus Extra Cashflow		
	PS5 - BOA Correction with determined prices		
	PS6 - QABC Correction potentially enhanced by Extra Cashflow		
4.	If a potential solution requires compensation from the "Extra Cashflow" do you believe that this should be determined within the BSC or outside the BSC? (Section 4.3)	Within BSC/ Outside of BSC	Please give rationale:

Q	Question	Response[1]	Rationale
5.	P87 proposes the inclusion of a 'sunset clause', do you believe that there should be a 'sunset clause' that removes the compensation arrangements for intertrips on the introduction of Transmission Access arrangements? If your answer is yes, please explain what the specific trigger should be activate such a clause. (Section 4.4)	Yes / No	Please give rationale:
6.	Are there any further comments on Modification Proposal P87 that you wish to make?		Please give your comments:

Please send your responses by **17:00 on Wednesday 28 August 2002** to Modifications@elexon.co.uk

Please entitle your email 'P87 Assessment Consultation'

Any queries on the content of the consultation pro-forma should be addressed to Helen Bray (020 7380 4018), email address helen.bray@elexon.co.uk.

ANNEX F CVA BSC SYSTEMS - HIGH LEVEL IMPACT ASSESSMENT

Modification Proposal P80 and P87 seek to change the current compensation arrangements for system faults and certain generator operational intertrips, respectively. System faults and intertrips are rare, therefore no changes to the BSC Central Systems are proposed. The potential solutions seek to manually remove a participant's imbalance by changing Settlement data, either via (i) Bid Offer Acceptances (BOAs) or (ii) Account Bilateral Contract Volume (QABC) notifications. Please give your estimate as to the development cost and cost per Settlement Day to administer such manual corrections. It is assumed that manual changes using BOAs could take place via a similar mechanism to WO18, and changes using QABC could follow a similar procedure to ECVAA System Failure. Any corrections to Settlement that can be carried out via ex-ante actions will be undertaken when possible to minimise ex-post actions.

Correction to Settlement	Development Cost	Cost per Settlement Day	Please provide any comments or assumptions
Account Bilateral Contract Volume (QABC)			
Bid Offer Acceptances (BOAs)			

Do you have any further comments on the implementation for P80 and P87?	

In consideration of the above issues, the following documentation provides more information (Consultation Paper 'P080AC10.doc').

Please send your responses by **5pm on Thursday 29 August 2002** to the following email address: Modifications@elexon.co.uk, to be discussed by the P80MG at their next meeting on 02 September 2002.

If you require any further information on any of the implementation options detailed within this document please contact Helen Bray on 020 7380 4018 or by email on helen.bray@elexon.co.uk

ANNEX G TRANSMISSION COMPANY - HIGH LEVEL IMPACT ASSESSMENT

Modification Proposal P80 and P87 seek to change the current compensation arrangements for system faults and certain generation operational intertrips, respectively. System faults and intertrips are rare, therefore no changes to the BSC Central Systems are proposed. The potential solutions seek to manually remove a participant's imbalance by changing Settlement data, either via (i) Bid Offer Acceptances (BOAs) or (ii) Account Bilateral Contract Volume (QABC) notifications. Please state the impact on the Transmission Company to develop processes to carry out these manual corrections. It is assumed that manual changes using BOAs could take place via a similar mechanism to WO18, and changes using QABC could follow a similar procedure to ECVAA System Failure. Any corrections to Settlement that can be carried out via ex-ante actions will be undertaken when possible to minimise ex-post actions. An "Extra Cashflow" may also be required to further compensate parties for intertrips of system faults and this would be paid by the Transmission Company and recouped through BSUoS charges.

Correction to Settlement		Impact on the Transmission Company
Ex-post for BMWP	BOA	
Ex-post for BMWP	QABC	
Ex-ante outside BMWP	BOA	
Ex-ante outside BMWP	QABC	

What are your views on the implementation of an "Extra Cashflow" and whether this should be defined inside or outside of the BSC?	
Do you have any further comments on the implementation for P80 and P87?	

In consideration of the above issues, the following documentation provides more information (Consultation Paper 'P080AC10.doc').

Please send your responses by **5pm on Thursday 29 August 2002** to the following email address: Modifications@elexon.co.uk, to be discussed by the P80MG at their next meeting on 02 September 2002.

If you require any further information on any of the implementation options detailed within this document please contact Helen Bray on 020 7380 4018 or by email on helen.bray@elexon.co.uk.