

ASSESSMENT REPORT for Modification Proposal P200 'Introduction of a Zonal Transmission Losses Scheme with Transitional Scheme'

Prepared by: P200 Modification Group

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This document has been distributed in accordance with Section F2.1.10 of the Balancing and Settlement Code.¹

Proposed Modification P200 seeks to allocate the 'variable' element of transmission losses to BSC Parties on a 'zonal' basis through the Transmission Loss Factor (TLF). The proposed methodology for the calculation of these 'zonal' TLFs is consistent with that set out in the solution for Proposed Modification P198. In addition, P200 seeks to mitigate the financial impact of introducing these zonal TLFs through a transitional 'hedging' scheme, whilst maintaining their effect on incentives. The hedging scheme would be applied to a fixed volume of energy (the 'F-factor') for qualifying 'generator' BM Units, allowing the retention of a non-zonal share of transmission losses for that energy volume over a period of 15 years from the date of the implementation of P200.

Alternative Modification P200 builds upon the same solution as for the Proposed Modification except that the Zonal TLFs would vary by BSC Season; four values, instead of one annual value.

MODIFICATION GROUP'S RECOMMENDATIONS

The P200 Modification Group invites the Panel to:

- **AGREE that Proposed Modification P200 should not be made;**
- **AGREE that Alternative Modification P200 should not be made;**
- **AGREE a provisional Implementation Date for Proposed and Alternative Modifications P200 of 1 April 2008 if an Authority decision is received on or before 22 March 2007, or 1 October 2008 if the Authority decision is received after 22 March 2007 but on or before 20 September 2007;**
- **AGREE the draft legal text for Proposed and Alternative Modifications P200;**
- **AGREE that Modification Proposal P200 be submitted to the Report Phase; and**
- **AGREE that the P200 draft Modification Report be issued for consultation and submitted to the Panel for consideration at its meeting of 14 September 2006.**

¹ The current version of the Code can be found at <http://www.elexon.co.uk/bscrelateddocs/BSC/default.aspx>.

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SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

As far as the Modification Group has been able to assess, the following parties/documents would be impacted by P200.

Please note that this table represents a summary of the full impact assessment results in Appendix 4.

Parties	Sections of the BSC	Code Subsidiary Documents
Distribution System Operators <input type="checkbox"/>	A <input type="checkbox"/>	BSC Procedures <input checked="" type="checkbox"/>
Generators <input checked="" type="checkbox"/>	B <input type="checkbox"/>	Codes of Practice <input type="checkbox"/>
Interconnectors <input checked="" type="checkbox"/>	C <input type="checkbox"/>	BSC Service Descriptions <input checked="" type="checkbox"/>
Licence Exemptable Generators <input checked="" type="checkbox"/>	D <input type="checkbox"/>	Party Service Lines <input type="checkbox"/>
Non-Physical Traders <input type="checkbox"/>	E <input checked="" type="checkbox"/>	Data Catalogues <input checked="" type="checkbox"/>
Suppliers <input checked="" type="checkbox"/>	F <input type="checkbox"/>	Communication Requirements Documents <input checked="" type="checkbox"/>
Transmission Company <input checked="" type="checkbox"/>	G <input type="checkbox"/>	Reporting Catalogue <input checked="" type="checkbox"/>
Party Agents	H <input checked="" type="checkbox"/>	Load Flow Model Specification* <input checked="" type="checkbox"/>
Data Aggregators <input type="checkbox"/>	I <input type="checkbox"/>	Core Industry Documents
Data Collectors <input type="checkbox"/>	J <input type="checkbox"/>	Ancillary Services Agreement <input type="checkbox"/>
Meter Administrators <input type="checkbox"/>	K <input type="checkbox"/>	British Grid Systems Agreement <input type="checkbox"/>
Meter Operator Agents <input type="checkbox"/>	L <input type="checkbox"/>	Data Transfer Services Agreement <input type="checkbox"/>
ECVNA <input type="checkbox"/>	M <input type="checkbox"/>	Distribution Codes <input type="checkbox"/>
MVRNA <input type="checkbox"/>	N <input type="checkbox"/>	Distribution Connection Agreements <input type="checkbox"/>
BSC Agents	O <input type="checkbox"/>	Distribution Use of System Agreements <input type="checkbox"/>
SAA <input checked="" type="checkbox"/>	P <input type="checkbox"/>	Grid Code <input type="checkbox"/>
FAA <input type="checkbox"/>	Q <input type="checkbox"/>	Master Registration Agreement <input type="checkbox"/>
BMRA <input checked="" type="checkbox"/>	R <input type="checkbox"/>	Supplemental Agreements <input type="checkbox"/>
ECVAA <input type="checkbox"/>	S <input type="checkbox"/>	Use of Interconnector Agreement <input type="checkbox"/>
CDCA <input checked="" type="checkbox"/>	T <input checked="" type="checkbox"/>	BSCCo
TAA <input type="checkbox"/>	U <input type="checkbox"/>	Internal Working Procedures <input checked="" type="checkbox"/>
CRA <input checked="" type="checkbox"/>	V <input checked="" type="checkbox"/>	BSC Panel/Panel Committees
SVAA <input type="checkbox"/>	W <input type="checkbox"/>	Working Practices <input checked="" type="checkbox"/>
Teleswitch Agent <input type="checkbox"/>	X <input checked="" type="checkbox"/>	Other
BSC Auditor <input checked="" type="checkbox"/>		Market Index Data Provider <input type="checkbox"/>
Profile Administrator <input type="checkbox"/>		Market Index Definition Statement <input type="checkbox"/>
Certification Agent <input type="checkbox"/>		System Operator-Transmission Owner Code <input type="checkbox"/>
Transmission Loss Factor Agent* <input checked="" type="checkbox"/>		Transmission Licence <input type="checkbox"/>
Other Agents		Network Mapping Statement* <input checked="" type="checkbox"/>
Supplier Meter Registration Agent <input type="checkbox"/>		Load Flow Model Reviewer* <input checked="" type="checkbox"/>
Data Transfer Service Provider <input type="checkbox"/>		

*New document/role introduced by P200

1 EXECUTIVE SUMMARY

The key conclusions of the P200 Modification Group ('the Group') are outlined below.

The Group:

- **AGREED** that the solution for zonal transmission losses element of Proposed Modification P200 be based on that developed for the Proposed Modification P198;
- **AGREED** that the load flow modelling exercise undertaken for P198 was also relevant for the assessment of P200;
- **AGREED** that no additional cost benefit analysis was required for P200;
- **AGREED** by majority that the Proposed Modification would not better facilitate the achievement of the Applicable BSC Objectives;
- **DEVELOPED** an Alternative Modification which is based on the same solution of P200 Proposed Modification except that the zonal TLF values vary by BSC season instead of one annual zonal TLF value;
- **AGREED** by majority that the Alternative Modification would better facilitate the achievement of the Applicable BSC Objectives when compared to the Proposed Modification;
- **AGREED** by majority that the Alternative Modification would not better facilitate the achievement of the Applicable BSC Objectives when compared to the current Code baseline;
- **NOTED** that the central implementation costs for the Proposed (Alternative Modification) were estimated to be £855,000 (with an additional £10,000 for the Alternative Modification), with ongoing annual operational costs in the region of £160,000;
- **AGREED** that the Implementation Date for both the Proposed and Alternative Modifications should be tied to Parties' contract rounds – giving the following proposed dates:
 - 1 April 2008, if an Authority decision is received on or before 22 March 2007; or
 - 1 October 2008, if an Authority decision is received after 22 March 2007 but on or before 20 September 2007; and
- **AGREED** that the draft legal text delivers the intended solution for the Proposed and Alternative Modifications.

Section 2 explains the existing allocation of transmission losses and the zonal transmission losses schemes as proposed by P198. A description of the P200 solution is provided in Section 3. Further information regarding the Group's discussions of the areas set out in the P200 Terms of Reference is contained in Section 4.

A summary of the consultation responses and Group's consideration thereof can be found in Section 5. The Group's views regarding the merits of the Proposed Modification and Alternative Modification can be found in Section 6. A copy of the Group's full Terms of Reference can be found in Appendix 5, whilst a summary of the responses to the impact assessment can be found in Appendix 4.

Please note that definitions of the technical terms highlighted in **bold** within this document can be found in Section 7.

2 BACKGROUND

2.1 Existing Allocation Mechanism for Transmission Losses

The rules and calculations for allocating transmission losses to Parties are set out in Section T2 of the Balancing and Settlement Code ('the Code'). These involve the adjustment of individual BM Unit Metered Volumes in Settlement to allocate transmission losses, whilst ensuring that total adjusted generation matches total adjusted demand in any given Settlement Period. Transmission losses are thereby allocated to Parties as part of their Trading Charges.

Under the existing Code provisions, both fixed and variable transmission losses in each Settlement Period are allocated to Parties on a 'uniform' (non-locational) basis in proportion to each Party's metered energy. The current allocation of transmission losses therefore does not take account of the extent to which individual Parties give rise to such losses. Although a parameter for a 'differential' allocation of some or all transmission losses is included in the Code, this is currently set to zero so has no practical effect. In the Section T calculation, this parameter is represented by the **Transmission Loss Factor** (TLF=0). This value can only be amended through a modification to the Code.

The formula below represents a simplified version of the Section T calculation for each BM Unit's share of total transmission losses in any given Settlement Period:

$$TLM=1+TLF+TLMO^{+/-}$$

A **Transmission Loss Multiplier** (TLM) is generated for each individual BM Unit, and represents the factor used to scale each BM Unit's Metered Volume in Settlement. The **Transmission Losses Adjustment** (TLMO) uniformly adjusts all generation delivery or all demand offtake to ensure an exact allocation of the actual level of total losses in a given Settlement Period. The calculation of TLMO also includes the application of an '**alpha (α) factor**' of 0.45 such that 45% of these total losses are allocated across all delivering Trading Units in aggregate (through the TLMO⁺) whilst 55% are allocated across all offtaking Trading Units in aggregate (through the TLMO⁻).²

The formulae below represent simplified versions of the TLMO⁺ and TLMO⁻ calculations:

$$TLMO^{+} = -(0.45 * (\text{total transmission losses in Settlement Period}) + \text{generators' share of transmission losses already allocated through TLF in Settlement Period}) / \text{total volume of generation in Settlement Period}$$

$$TLMO^{-} = (-0.55 * (\text{total transmission losses in Settlement Period}) - \text{Suppliers' share of transmission losses already allocated through TLF in Settlement Period}) / \text{total volume of demand in Settlement Period}$$

The value of TLMO⁺ is the same in each Settlement Period for every BM Unit in all delivering Trading Units. The value of TLMO⁻ is the same for every BM Unit in all offtaking Trading Units.

Since under the existing Code baseline the value of TLF is set to zero, the TLMO is currently the only determining factor in the calculation of each BM Unit's TLM. Two uniform TLM values are therefore currently applied: one to all BM Units in delivering Trading Units, and one to all BM Units in offtaking Trading Units. Each Party's overall allocation of transmission losses is dependent on the Metered Volumes of the BM Units to which this TLM is applied. Metered Volumes for BM Units in 'delivering' (exporting) Trading Units are currently scaled down (multiplied by 1+TLF+TLMO⁺), whilst Metered Volumes for BM Units in 'offtaking' (importing) Trading Units are scaled up (multiplied by 1+TLF+TLMO⁻).

² In practice, this split is designed to be equivalent to a 50:50 allocation, but with allowance for the fact that most metering for generation connections is on the high voltage side of the supergrid transformer, whereas that for demand is on the low voltage side. The 45:55 allocation of transmission losses is intended to allow for supergrid transformer losses for demand connections which are in addition to the metered flow.

2.2 Modification Proposal P198

Modification Proposal P198 'Introduction of a Zonal Transmission Losses Scheme' was raised by RWE Npower on 16 December 2005. P198 seeks to allocate the 'variable' element of transmission losses to BM Units on a non-uniform locational basis through the TLF, according to the extent to which each BM Unit is estimated to contribute to such losses. Each BM Unit would receive a 'zonal' TLF value determined according to the Grid Supply Point (GSP) Group in which it was geographically located. A positive TLF value would be produced for a Zone in which an incremental increase in generation (or reduction in demand) had the effect of decreasing total transmission losses, and would increase the value of TLM used to scale the Metered Volumes of BM Units within this Zone (a benefit to generators and disadvantage to Suppliers). A negative TLF value would be produced for a Zone in which an incremental increase in generation (or reduction in demand) had the effect of increasing total transmission losses, and would decrease the value of TLM for BM Units within this Zone (a benefit to Suppliers and disadvantage to generators). P198 would retain a uniform 45:55 allocation of the remaining transmission losses to delivering and offtaking Trading Units through the TLMO. Further information can be found in Section 3 of the P198 Assessment Report (Appendix 10).

In its assessment of an Alternative for P198, the P198 Modification Group considered a 'grandfathering' (or hedging scheme) as a potential alternative to linear phasing. Some members considered that a grandfathering approach would best recognise that existing participants could only respond to the short-term marginal despatch signals created by P198 (i.e. by generating or consuming more or less), and not to the long-term signals regarding location. Other members believed that it would not be appropriate for a Code modification to contain a scheme to 'hedge' its own effects, or to protect Parties' commercial positions – and noted that Parties could develop their own commercial hedging mechanisms outside the Code if they believed these were required.

However, the P198 Modification Group (by a narrow majority) agreed to not to progress a 'grandfathering' approach to the application of TLFs. It was believed that a linear phasing approach would be more efficient, compared with the likely complexity and higher costs of a grandfathering scheme, and linear phasing would apply equally to all types of Parties. A substantial minority of members disagreed, and argued that a linear phasing scheme would simply scale down TLF values and therefore the signals generated by those TLFs. These members believed that a grandfathering scheme would preserve the P198 signals at the margin, by applying TLFs to any variation from a 'protected' historic level of output, and would therefore be the most economic and efficient approach. Modification Proposal P200 was subsequently raised by Teesside Power Ltd.

2.3 Modification Proposals P203 and P204

During the Assessment of P200 two further Modification Proposals regarding Transmission Losses were raised. These are:

- Modification Proposal P203 'Introduction of a Seasonal Zonal Transmission Losses Scheme' (raised by RWE Npower on 26 June 2006); and
- Modification Proposal P204 'Scaled Zonal Transmission Losses' (raised by British Energy Power & Energy Trading Ltd on 3 July 2006).

P203 seeks to introduce an annual calculation of seasonal TLF values which is identical to Alternative Modification P198, except that (unlike P198 Alternative) there would be no phased implementation of these values. Like P198, Proposed Modification P204 seeks to introduce a zonal scheme for the allocation of variable losses, whereby TLF values would be calculated on an ex-ante basis for each TLF Zone. However, the principle behind P204 is different to P198, since it seeks to ensure that no BM Units are credited with energy (i.e. receive payments) through the TLM. Both Modifications are covered in more detail in Section 2.4 of the P198 Assessment Report (Appendix 10).

3 SUMMARY OF P200 SOLUTION

3.1 P200 Proposed Modification

P200 'Introduction of a Zonal Transmission Losses Scheme with Transitional Scheme' was raised on 21 April 2006 by Teesside Power Limited, part-way through the Assessment Procedure for P198. P200 seeks to introduce zonal TLFs calculated under the same methodology as P198, but proposes a different application of these TLFs in Settlement. It aims to apply a 'transitional hedging scheme' to mitigate the impact of the zonal TLFs on existing generators over 15 years, by retaining a non-zonal allocation of transmission losses for a fixed level of output (the 'F-factor') and allocating a zonal TLM only to any variation from this output. In addition to the calculation of zonal TLFs under the P198 methodology, P200 would introduce new Code calculations for the new F-factor volumes and for the non-zonal transmission losses that the F-factor volumes would receive.

Proposed Modification P200 can be considered to represent 'Proposed Modification P198 + transitional hedging scheme', as shown in the table below.

Aspect of Solution	P198 Proposed	P200 Proposed
Scope of Zonal TLF Calculation	Scaled Marginal (Variable Losses Only)	Scaled Marginal (Variable Losses Only)
Applicable Period for Zonal TLFs	BSC Year	BSC Year
Nature of TLF Calculation	Ex-Ante	Ex-Ante
Applicable Zones for Production BM Units	GSP Group	GSP Group
Applicable Zones for Consumption BM Units	GSP Group	GSP Group
Mitigation of impacts	None	Hedging for Fixed F-factor Volumes
Period of Mitigation	None	15 years from the implementation of P200

3.1.1 Key Features of Proposed Modification Transitional Hedging Scheme

The key features of the transitional hedging scheme element of Proposed Modification P200 are set out below:

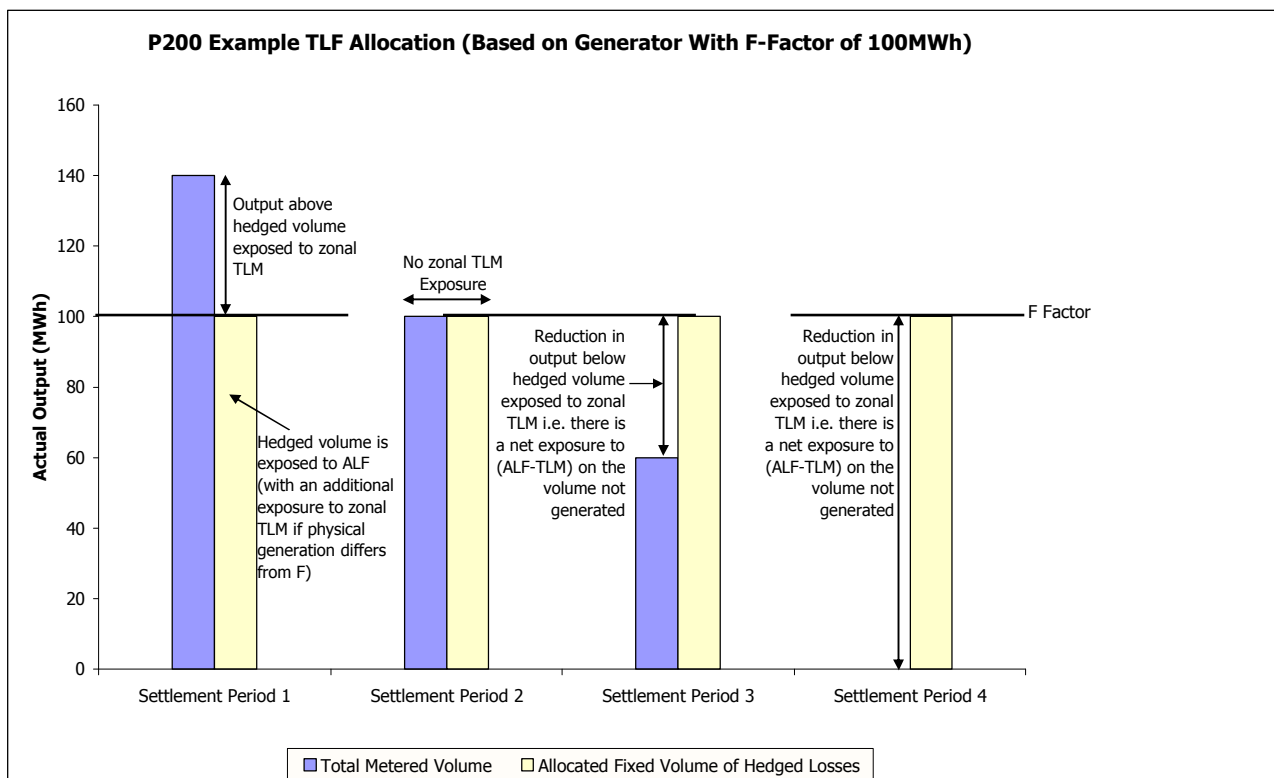
- 1) The transitional hedging scheme under Proposed Modification P200 applies only to certain existing 'generator' BM Units ('Qualifying BM Units'). The qualifying criteria are set out in Section 4.5.1;
- 2) Proposed Modification P200 calculates a set of 12 monthly 'F-factor' volumes of electricity (in MWh) for each Qualifying BM Unit, representing an average level of generation in each calendar month over a historic 'Baseline Period'. Details of the Baseline Period and these F-factor calculation options can be found in Section 4.5.2-4.5.4;

- 3) Proposed Modification P200 allocates to the F-factor volume of Qualifying BM Units a share of transmission losses on a non-zonal basis (calculated in the same way as the current TLMO⁺ with a zero TLF). The effect of this mechanism is that the zonal TLM only applies to the difference between the BM Unit’s F-factor volume and actual Metered Volume in a given Settlement Period. If the difference is positive, the additional output receives the prevailing zonal TLF applicable to the BM Unit (subject to adjustment through the calculation of TLM). If the difference is negative, the volume ‘not generated’ receives the prevailing zonal TLM applicable to the BM Unit, which is subtracted from the full F-factor share of transmission losses applied on a non-zonal basis. Therefore, a credit is received on volume ‘not generated’ in negative TLF zones (this is in a zone where a generator’s/supplier’s volume would be scaled down) and a debit is received on that volume in positive TLF zones (this is in a zone where a generator’s/supplier’s volume would be scaled up). Details of the calculation for these ‘hedged losses’ can be found in Section 4.8; and
- 4) Proposed Modification P200 fixes the 12 monthly ‘F-factor’ volumes for each Qualifying BM Unit for 15 years from the implementation date of P200. Details regarding the treatment of F-factors under the Code’s BM Unit deregistration, re-registration and Change of BM Unit Ownership (CoBo) processes can be found in Section 4.5.6.

Those BM Units which did not qualify for the transitional hedging scheme under Proposed Modification P200 would have losses attributed to them based on a full (non-mitigated) zonal TLM.

3.1.2 Example TLF Allocation Under Proposed Modification

The following graph seeks to illustrate at a high level how the principle of F-factor hedging under Proposed Modification P200 could affect a Qualifying BM Unit’s transmission losses allocation, using as an example a BM Unit with an F-factor of 100MWh in four different Settlement Periods.



Note that example Settlement Period 4 represents a more extreme version of Settlement Period 3, where the generator’s output is zero due to an outage. ALF represents the average loss multiplier that would be applied under the current BSC baseline (uniform loss allocation).

The remaining zonal TLM exposure in example Settlement Periods 1, 3 and 4 could be either a benefit or dis-benefit for the Qualifying BM Unit, depending on whether it was subject to a positive or negative zonal TLM. For example, a generator in the north (e.g. an exporting zone) would be credited with positive energy if it generated under its F-factor volume, whereas a generator in the south (importing zone) would be credited with negative energy if it generated under its F-factor volume. The energy credited to the BM Unit would be allocated to the Party's Energy Account.

A further scenario is where there are 3 generators within the same zone. All would have the same zonal TLF, however would be allocated different losses based on the own F-factor volumes and their actual output.

3.1.3 Process description of Proposed Modification Transitional Hedging Scheme

In addition to the solution requirements for Proposed Modification P198, Proposed Modification P200 requires:

- 1) A one-off determination of Qualifying BM Units (impacting BSCCo);
- 2) A one-off calculation of F-factor volumes for Qualifying BM Units (impacting BSCCo);
- 3) A one-off publication of F-factor volumes for Qualifying BM Units (impacting BSCCo);
- 4) A one-off change to BSC Systems to add F-factors for all BM Units as a new parameter within BM Unit registration data (impacting the Central Registration Agent);
- 5) The ongoing calculation of a uniform loss allocation for F-factor volumes for Qualifying BM Units in Settlement (impacting the Settlement Administration Agent and the Balancing Mechanism Reporting Agent); and
- 6) An ongoing obligation on BSC Parties to notify BSCCo of certain information on deregistering a Qualifying BM Unit or registering a new BM Unit (impacting BSC Parties).

For a more in-depth description of the requirements please refer to the revised Requirement Specification (Reference 1).

3.2 P200 Alternative Modification

The Alternative Modification builds upon the same solution as for the Proposed Modification except that the Zonal TLFs would vary by BSC Season, i.e. 4 values, instead of one annual value.

Therefore, as per the solution for P198, the Transmission Loss Factor Agent would calculate Nodal TLFs and Zonal TLFs in the same way as for the Proposed Modification, but would time-weight by BSC Season rather than by BSC Year to calculate a set of four **Seasonal Zonal TLFs** for each TLF Zone – one for each BSC Season. The BSC Seasons are already defined in Section K of the Code, and are: BSC Spring: 1 March – 31 May inclusive; BSC Summer: 1 June – 31 August inclusive; BSC Autumn: 1 September – 30 November inclusive; and BSC Winter: 1 December – 28 February inclusive (or 29 February in a leap year).

4 AREAS RAISED BY THE TERMS OF REFERENCE

This section outlines the conclusions of the Modification Group regarding the areas set out in the P200 Terms of Reference (see Appendix 5).

4.1 Solution for P198 Proposed and P198 Alternative Modification

The Group have considered the applicability of the solutions put forward for the P198 Proposed Modification and P198 Alternative Modification. The Group agreed that the methodology and solution for calculating the zonal TLFs proposed in P198 are appropriate for P200. As P200 builds upon this solution, this document will not repeat any of the sections covering the description of P198 solution, see Section 3 of the P198 Assessment Report (Appendix 10) for further details.

The P198 Modification Group has also agreed an Alternative for P198 which is based on the Proposed Modification, but with:

- zonal TLFs varying by BSC Season (four values per year instead of one annual value); and
- linear phasing of the new zonal TLF values over 4 years (20%, 40%, 60% and 80%).

The Group agreed that the methodology for calculating seasonal zonal TLFs in the P198 Alternative Modification (see Section 4.8 of the P198 Assessment Report, Appendix 10) is also appropriate for the P200 Alternative Modification.

4.2 P198 Load Flow Modelling and Cost Benefit Analysis

During the assessment of P200, the results of the load flow modelling and cost-benefit analysis were completed by external consultants and considered by the P198 Modification Group. The Group noted the deliberations and findings of the P198 Modification Group in respect of both exercises. The P198 Modification Group had agreed that:

- Load flow modelling supported the proposed approach for calculation of zonal TLFs (see Appendix 7 for the results of TLF Modelling exercise); and
- Cost Benefit analysis had met the requirements set by the P198 Group (see Appendix 8 for the results of the Cost-Benefit Analysis).

Therefore, the Group agreed that no further cost-benefit analysis (conducted by an external consultant as per P198) was required for P200 (to reflect the addition of a transitional hedging scheme) in addition to that already being undertaken for P198. Furthermore, the Group agreed that no extra cost benefit analysis be undertaken by ELEXON. This was because the Group believed that any further analysis could be extrapolated by the Group using the P198 results (see section 4.10).

The P200 Modification Group agreed that since the calculation of Adjusted Annual Zonal TLFs under Proposed Modification P200 would be the same as for Proposed Modification P198, no additional load-flow modelling was required for Proposed Modification P200. The Group noted that, during the load-flow modelling exercise, an issue had been identified relating to an amount of missing demand in the metered data sample used in the Load Flow Model. The Group noted that further investigations by BSCCo had identified that this appeared to arise from the approach taken to aggregate metered data for a number of 'shared' GSPs in the model input data. The Group noted that further work undertaken by PTI had demonstrated that the influence of this missing data on TLF values was not likely to be material, since the TLF calculation is based on nodal power flows (which are initially normalised to remove losses) rather than directly on the raw metered data included in the sample. However, the Group agreed with the view of the P198 Group that BSCCo should seek to resolve the issue in time for the live implementation of any transmission losses proposal which utilised the P198 methodology. The Group noted BSCCo's advice that it intended to progress this area as an operational issue, regardless of whether a zonal transmission losses scheme was approved by the Authority – since, although the current GSP aggregation rules do not represent a material issue in Settlement, there appeared to be a broader issue regarding the transparency of minority flows within these rules.

4.3 Previous Rejected Modification Proposal P109

P109 sought to introduce a hedging scheme against future changes to TLFs. It defined a trigger date for the scheme based on the date of an Authority determination that changed the value of TLFs (TLFs at that time were zero). The hedging scheme would last for 15 years from the trigger date. P109 would assign a fixed volume of energy (F-factor) to all Parties to use as a basis for the hedging scheme. The F-factor would apply to all types of BM Units, but the volume would be calculated and applied differently based on the type of BM Unit, with some types of BM Unit being able to 'opt in' or 'opt out' at the start of the hedging scheme.

The F-factor volume of energy would receive a non-zonal TLF. The difference between the F-factor volume and the actual metered values would receive a zonal TLF.

P109 did not itself seek to introduce a methodology for calculating TLFs. Instead it proposed to include the hedging mechanism within the Code in case a future Modification Proposal was approved by the Authority which brought about a change to the allocation of transmission losses. On the basis of legal advice provided by BSCCo, the TLFMG determined that (at the time it was raised) P109 was 'contingent' on the future introduction of such changes, and did not address a defect in the then current version of the Code. It was noted that the Modification Secretary had the ability to refuse to accept such Modification Proposals under Section F2.1 of the Code; however, by the time the legal advice was provided P82 had been approved by the Authority. As a result, the element of contingency was removed and the TLFMG and the Panel agreed that P109 could be progressed as a 'valid' Modification Proposal.

The key similarities and differences between P200 and previous Modification Proposal P109 are shown in the table below.

Aspect of Hedging Solution	P109	P200
Trigger date	Authority approval of change in TLFs	Implementation of P200
Scheme duration	15 years from trigger date	15 years from implementation of P200
BM Units to which scheme applies	1. CVA 'existing' 2. CVA 'new' 3. Interconnector 4. SVA	1. Interconnector 2. CVA 'existing', provided annual net export for Trading Unit
BM Units to which scheme <u>does not</u> apply	n/a	1. CVA 'existing' if annual net import for Trading unit 2. CVA 'new' 3. SVA
Mandatory/Optional	1. CVA 'existing' (optional) 2. CVA 'new' (optional) 3. Interconnector (optional) 4. SVA (mandatory)	Mandatory
Type of hedging scheme	Fixed volume = 'F-factor' (volumes for SVA units reduce linearly over 15 years)	Fixed volume = 'F-factor' (values constant for 15 years)
Resolution	Annual F-factor (one for delivery and one for off-taking)	Monthly F-factor

The Group noted that the Proposer had sought to address some of the issues raised by the P109 solution and the Authority decision which are relevant to P200, as follows:

- 1) Contingent on other modifications: P109 contained a trigger date for the introduction of a hedging scheme which was based on a future change to TLFs. P200 seeks to introduce zonal TLFs as well as a hedging scheme and is therefore not contingent on any other modification;
- 2) Complexity; the Proposer had drafted P200 to try and remove the different treatment of the different types of BM Units, e.g. under P109 was there as different treatment for existing or new CVA BM Units, SVA BM Units and Interconnectors; and

- 3) Optionality; under P109 the scheme was optional for CVA BM Units and this is removed for P200 as it is mandatory for all BM Units the hedging scheme applies to. Thus, it avoids the situation where Parties would 'opt out' if it was beneficial to do so or vice versa.

4.4 Principle of Introducing a Hedging Scheme

The Group have considered the general principle of introducing a mechanism within the Code to hedge against regulatory risk introduced by changes to the Code. The Group believed that this was not an issue for P200 as it was for P109, as the P200 Proposed Modification contains a change to the transmission losses methodology with the introduction of zonal TLFs (calculated per P198 solution).

Furthermore, the Group did consider the specific appropriateness of adding a transitional hedging scheme to the introduction of zonal transmission losses. Some members of the Group supported the Proposer's belief that the hedging scheme sought to protect market participants from windfall gains and losses on sunk investments, encouraging investment and enhancing long term efficiency. However, other members felt that it would delay the benefits that zonal transmission losses would bring.

4.5 Consideration of the Key Definitions of Modification Proposal P200

The Group considered the key elements of P200 at their meeting on 12 May and initial agreement was reached regarding each element. Furthermore, it was agreed that data analysis was required to justify these findings. Four separate analysis tasks were undertaken and presented to and considered by the Group at its meeting on 31 May (see Appendix 6). Further definition of P200 was agreed by the Group and some clarifications were requested. At the meeting on 15 June the Group agreed the final definition of P200.

The following sections describe the deliberations of the Group in reaching its agreement of the final solution for P200 (see Section 3.1).

4.5.1 Qualification Criteria

At the Group's first meeting, it noted the Proposer's intention to apply the hedging scheme to Interconnectors and certain 'generator' ('CVA-registered') BM Units. Since 'generator' BM Unit and 'CVA-registered' are not Code-defined terms, the Group had suggested two possible ways of capturing 'generators' under P200:

- **Criteria Set 1:** Any BM Unit which was not a Supplier BM Unit, and which had a net annual Metered Volume (QM) >0 over the Qualifying Period, would qualify for the hedging scheme; or
- **Criteria Set 2:** Any BM Unit which was part of a Trading Unit which was not a Base Trading Unit, and whose Trading Unit had a net annual aggregate QM>0 over the Qualifying Period, would qualify for the hedging scheme.

Both of these approaches had been included in the initial Requirements Specification.

The Group noted that the choice of criteria would make a significant difference to whether some BM Units qualified for the scheme as follows:

- **Supplier BM Units:** Some Supplier BM Units had a net annual QM>0 over the sample period, and would therefore have qualified under Criteria Set 1 without a specific rule to exclude them. No Supplier BM Units in the sample period would have qualified under Criteria Set 2 in the absence of a specific exclusion, although theoretically Supplier BM Units may be part of net export Trading Units in the future as levels of embedded generation increase;
- **Embedded BM Units:** Some embedded BM Units would have qualified under Criteria Set 1 but not Criteria Set 2, whilst the opposite would have been true for other embedded BM Units. Some embedded BM Units would have qualified under both sets of criteria, whilst some would not have qualified under either criteria;

- **Directly-connected BM Units:** With the exception of one BM Unit (T_CRA3, Cruachan Power Station³), all directly-connected BM Units which qualified under Criteria Set 1 would also have qualified under Criteria Set 2 in the sample period. However, many directly-connected BM Units which qualified under Criteria Set 2 would not have qualified under Criteria Set 1, e.g. BM Units that represent station load. Many directly-connected BM Units would have qualified under both sets of criteria, whilst many would not have qualified under either criterion. One member questioned whether it was discriminatory for only some embedded and directly-connected BM Units to qualify for the scheme. The Group noted that the criteria were based on behaviour rather than type of BM Unit. The Proposer argued that it was not discriminatory to apply the same rule equally to everyone, whilst it could be viewed as discriminatory to include certain types of BM Units regardless of their behaviour;
- **Interconnector BM Units:** At the first Group meeting, the Group had not agreed any difference in qualification criteria for Interconnector BM Units – which were therefore treated identically to other BM Units. All Interconnector BM Units were part of Sole Trading Units during the sample period, and the qualification results were therefore identical under both sets of criteria – with all Production Interconnector BM Units qualifying for the scheme, whilst no Consumption Interconnector BM Units qualified. However, it would be possible in future years (following the approval of P174/P189⁴) for Interconnector BM Units to form Trading Units with other BM Units, including non-Interconnector BM Units. Therefore the Group agreed a different treatment for Interconnector BM Units (see Section 4.5.2); and
- **'Other' (M_) BM Units:** These were also all part of Sole Trading Units during the sample period, giving identical results for each BM Unit under the 2 sets of qualification criteria. Some of these BM Units qualified under both sets of criteria, whilst others did not qualify under either.

The Group agreed that the choice of Qualification and F-factor volume are interlinked and therefore considered the calculation criteria as follows before they agreed the approach to Qualification.

4.5.2 F-Factor volume Calculation Criteria

P200 proposes a set of 12 monthly F-factors for each Qualifying BM Unit, which would be fixed and constant for the 15 years of the scheme. At the Group's first meeting, two approaches for calculating F-factors had been suggested as follows:

- **Calculation Approach 1:** This approach uses the list of Qualifying BM Units under Criteria Set 1. Where a Qualifying BM Unit had an average $QM > 0$ in a particular month, its F-factor for that month would be equivalent to that average QM . Where a Qualifying BM Unit had a monthly average $QM \leq 0$ in a particular month, its F-factor for that month would be zero.
- **Calculation Approach 2:** This approach uses the list of Qualifying BM Units under Criteria Set 2. The monthly average Metered Volume of the Trading Unit would be calculated (net of any demand in that Trading Unit), and this aggregate F-factor would then be allocated pro-rata by Metered Volume to those BM Units in the Trading Unit which were 'net export' during the month. Those BM Units in the Trading Unit which were 'net import' in the month would receive zero F-factors.

Both of these approaches had been included in the initial Requirements Specification. The Group had agreed that, under both approaches, the F-factor for any BM Unit which was 'net import' in a particular

³ Further analysis of the metered volumes for Cruachan BM Unit T_CRA3 confirmed that it had a positive annual metered volume. Therefore, it was a net export BMU in a net import Trading Unit. Cruachan is a pumped storage station and it was confirmed other pumped stations had BM Units with monthly export values. In the sample year only Cruachan had a BM Unit with an annual export value, all other pumped storage BMUs were net importers.

⁴ P174: 'Provision for Users of an Interconnector with a single Boundary Point connection to form a Trading Unit amongst themselves and with other BM Units at the same site'; P189: 'Clarification to Fulfil the Intent of P174'.

month should be set to zero – i.e. there would be no negative F-factors, consistent with the Proposer's intention to protect only generation investment.

The Group agreed there was a logical connection between the choice of qualification criteria and the choice of F-factor approach. Therefore, the Group agreed that Criteria Set 1/Calculation Approach 1 and Criteria Set 2/Calculation Approach 2 should be considered as two separate 'packages'. The Group noted how the Trading Unit F-factor was allocated to individual BM Units under Calculation Approach 2 as follows: they are pro-rated according to Metered Volume (rather than simply divided by the number of 'net export' BM Units). Therefore, those BM Units in the Trading Unit with the largest export in a month would pick up the largest share of that month's demand in their 'net' F-factor value.

Comparison of Approaches

The Group noted that the analysis demonstrated that the choice of calculation approach could make a significant difference to the F-factor value allocated to a specific Qualifying BM Unit, where there was some demand within its Trading Unit. This was due to the fact that a BM Unit's F-factor under Calculation Approach 2 would be dependent on the level of demand within its Trading Unit in a particular month, and would effectively be 'scaled down' to account for that demand. Under Calculation Approach 2, the monthly F-factor for a BM Unit might therefore be much lower than its average monthly QM – and in some cases, the level of demand might actually scale down a generating BM Unit's F-factor to zero. If there was no demand in the Trading Unit, the F-factors for its BM Units would be identical under both calculation approaches.

This was illustrated most clearly for Rocksavage Trading Unit, which comprised 2 BM Units: one net generation, and one net demand (see Appendix 6, also see example data for Wylfa). The F-factors for the demand BM Unit were set to zero, whilst those for the generating BM Unit were scaled down to account for the other BM Unit's demand. Since there was only one generating BM Unit in the Trading Unit, it therefore picked up a 100% share of this demand – such that its F-factor was scaled down to the level of the Trading Unit's average (net) monthly QM. In one month in the sample period, the generating BM Unit had substantially reduced its level of generation, with the result that the Trading Unit as a whole became net import. The F-factor for the generating BM Unit in this month was therefore capped to zero to avoid a negative F-factor.

Where there was more than one generating BM Unit in a Trading Unit, the F-factor for an individual generating BM Unit would depend on the level of generation by the other BM Units in the Trading Unit as well as the level of demand. This is because the demand would be pro-rated by Metered Volume, and the share of demand picked up by one generating BM Unit would therefore depend on the differential between its own Metered Volume and that of the other generating BM Units.

The Group noted that, under Criteria Set 1/Calculation Approach 1, any BM Unit which was net import over the Qualifying Period would not qualify for the hedging scheme and would receive a set of 12 zero F-factors. However, under Criteria Set 2/Calculation Approach 2, all BM Units in a Trading Unit would qualify if the Trading Unit was net export over the Qualifying Period. Under this approach, any qualifying BM Units which were net import over a year but net export in a particular month would receive a non-zero F-factor for that month.

One member of the Group noted that this difference would be removed if the qualification criteria were changed to capture any BM Unit/Trading Unit which was net export in any month of the Qualifying Period, rather than over the whole period. At the Group's meeting on 15 June, further analysis was presented where the qualification criteria was set to capture any Trading Unit which was net export in any month of the Qualifying Period. Six additional Trading Units were identified, two of which were pumped storage units. The Group noted that not all pumped storage Trading Units had been captured. Therefore, the Group believed this refinement to the criteria was not justified, as it seemed arbitrary in its treatment of certain types of Trading Units.

Conclusion

At its meeting on 31 May, the Group discussed whether to progress a qualification and calculation approach for the hedging scheme which was based on BM Unit or Trading Unit behaviour.

Some members of the Group noted that the Modification Proposal referred to BM Units, and therefore believed that a Trading Unit calculation approach was outside the scope of the proposal. One member also stated that the proposal implied that the hedging scheme applied to generation only, and that the Trading Unit approach appeared to go against this principle by including some demand. Some members were also concerned that demand could distort the F-factor volumes in a Trading Unit approach.

However, a majority of members (including the Proposer) noted that the proposal referred to the application of F-factors at a BM Unit level, and that this would still be the case under the Trading Unit approach. These members therefore considered that the Trading Unit approach represented a refinement of the Proposed Modification as set out in the proposal. Those members in favour of the Trading Unit approach believed that it would give equal treatment for generators who net generation and demand within a BM Unit (such as CCGTs) and those who allocate generation and demand to separate BM Units within a Trading Unit. One member also argued that the Trading Unit approach was more appropriate because the Code allocates losses at the Trading Unit level through the TLMO, whilst another believed that the BM Unit approach could undermine the benefits of forming Trading Units. The Group noted that there may be BM Units registered to a Trading Unit which have different ownership and therefore the benefits might not be shared, but this would need to be dealt with outside of the Code through separate contracts.

By majority, the Group therefore agreed to progress Criteria Set 2/Calculation Approach 2 as the solution for the Proposed Modification.

An illustrative set of F-factors for CVA registered BM Units can be found on the BSC Website at [P200 Modification Proposal](#).

Treatment of Interconnectors

Additionally, the Group considered the treatment of Interconnectors and agreed that a different qualification and calculation approach was required. It was believed that applying F-factors to Interconnector Users was inappropriate, due to the short-term nature and variability of their contracts – and that it could therefore distort incentives at auction. The Group noted that, under P109, the Modification Group had created a separate rule for Interconnectors, whereby one F-factor was calculated for each Interconnector as a whole and was then pro-rated across all Interconnector Users (on allocated capacity). Because the P109 hedging scheme had been voluntary, the Interconnector Error Administrator had effectively been responsible for choosing whether to hedge its Users' TLF exposure or not.

The Group noted that all Interconnector BM Units, between 1 April 2005 – 31 March 2006, had been Sole Trading Units and that under the original criteria all Production Interconnector BM Units would have qualified for the scheme while all Consumption Interconnector BM Units would not. Members argued that this treatment of Interconnectors, as only capturing Production Interconnector BM Units, would not achieve the intention of the Trading Unit approach to calculate F-factors which were net of demand.

The Group agreed that the best approach under P200 would be to calculate an F-factor for each Interconnector as a whole, based on historic net flows (Metered Volumes) across the Interconnector. The F-factor for each Interconnector would therefore be net of demand. The Group discussed possible ways of pro-rating this F-factor across Interconnector Users, but agreed that the most appropriate solution would be to allocate the whole F-factor to the Interconnector Error Administrator – who could then choose whether to allocate this across its users through its contracts outside the Code. The Group believed this was appropriate since the aim of P200 was to protect existing investment in the Interconnector, rather than its users.

The Group therefore agreed that a separate rule should therefore be included in the Proposed Modification solution, whereby all Interconnector Error Administrator BM Units which existed

during the Qualifying Period would automatically qualify for the scheme, while all other Interconnector BM Units would not. Any new Interconnector Error Administrators which registered after the end of the Qualifying Period would not be eligible for the scheme, in the same way as new 'generation' entrants. By ending the Qualifying Period and Baseline Period in March 2006 (when all Interconnector BM Units had been Sole Trading Units), the Group noted that there was no need to take account of the future possibility that Interconnector BM Units might form Trading Units with other, non-Interconnector, BM Units.

4.5.3 Start and Duration of Qualifying Period

The Group unanimously agreed that the Qualifying Period for the hedging scheme should be 1 April 2005 – 31 March 2006.

The Group agreed that ending the Qualifying Period prior to the raising of P200 would ensure that there was no possibility for 'gaming' by Parties, who might otherwise be able to affect their F-factors by altering their Trading Unit configurations and behaviour (for example, temporarily reducing consumption or registering Consumption BM Units in separate Trading Units).

Furthermore, the Group agreed that the relationship of BM Unit to Trading Unit should be based on the registration details at the end of the Qualifying Period, i.e. 31 March 2006. Therefore, it was proposed to ignore any affects of change in registration/ ownership in the Qualification Period i.e. no action would be taken if a BM Unit changed Trading Units part-way through the Qualification Period for the purpose of qualification and the Baseline Period for the calculation of F-factors. This 'snapshot' Trading Unit configuration would therefore effectively become the 'F-factor Group' or 'pseudo Trading Unit' for the BM Unit for 15 years. The Group noted that, if multiple years of data were used for the Baseline Period, this could mean that for some years of the Baseline Period a BM Unit's Metered Volumes could be contributing to the calculation of F-factors for a particular Trading Unit even if the BM Unit had not been part of that Trading Unit at the time. However, the Group did not believe this to be an issue.

4.5.4 Start and duration of Baseline Period

4.5.4.1 Modification Group's Initial Discussions

At the Group's meeting on 31 May, it agreed that using as many years of historic Metered Volume data as possible in the F-factor calculation could help to 'smooth out' any atypical behaviour in a particular year. Three options were discussed by the Group as follows:

- 1) Starting the Baseline Period on 1 April 2005 and using as many full BSC Years of data as possible prior to the Implementation Date (e.g. for an April 2008 implementation, the Baseline Period could be 1 April 2005 – 31 March 2007);
- 2) Ending the Baseline Period on 31 March 2006, but going back as many full BSC Years of data as were available back to NETA Go-Live in March 2001; and
- 3) Using only one year of Baseline Period data, from 1 April 2005 – 31 March 2006.

Some members did not believe the first option to be appropriate, as it would mean that the Baseline Period overlapped with part of the implementation lead time. These members believed that this could create opportunities for 'gaming' by Parties, who might be able to affect their F-factors by alternating the behaviour of their Trading Units (e.g. by temporarily reducing/increasing their demand).

However, other members did not believe it was appropriate to use only one year of data, since they believed this ran the risk of basing F-factors on atypical behaviour (e.g. where plant had been on outage for part of the year). These members argued that the Baseline Period should run from March 2001 (NETA Go-Live) to 31 March 2006. ELEXON noted that Metered Volume data would not be available prior to April 2005 for those Scottish BM Units which only registered at BETTA Go-Live, and questioned whether this could be

viewed as discriminatory. Members of the Group suggested that the calculation could use historic SAS (non-BSC) data for such BM Units. ELEXON advised that there could be the following practical difficulties with this approach:

- There have been difficulties with obtaining historic SAS data in the past; and
- The data would not be easily converted for BSC purposes, since it would not relate to BM Units or Trading Units.

A majority of members suggested that the most practical solution could be to have an appeals process, whereby Scottish Parties could put forward such data if they believed their F-factors to represent atypical behaviour. At the meeting on 15 June, the Group further considered the duration of the Baseline Period and the appeals process (see Section 4.7). ELEXON confirmed that data was readily available for England and Wales registered BM Units back to 1 April 2002, however that Scottish data for the period 1 April 2002 – 31 March 2005 would only be available from the registrants of metering systems in Scotland (not held centrally). The Group noted that there may be difficulties in obtaining data for BM Units registered in Scotland for the period pre BETTA go-live (pre April 2005) especially if that has been change of ownership. However, the Group concluded that using more years worth of data in the Baseline Period would help to address the issue of a generator having atypical behaviour in one year and is preferable over an appeals process (see Section 4.7).

Therefore, the Group agreed to explore two options for the Baseline Period in the consultation:

- 1) One year of data, from 1 April 2005 - 31 March 2006; or
- 2) Four years of data, from 1 April 2002 - 31 March 2006. N.B. data is held centrally for E&W registered BM Units for the period 1 April 2002 - 31 March 2005. However, for Scottish registered BM Units for the period 1 April 2002 - 31 March 2005, there would be a new obligation on Parties to provide this data.

4.5.4.2 Views of Respondents to Assessment Procedure Consultation

A majority of respondents supported Option 1 where the Baseline Period was one year from 1 April 2005 to 31 March 2006. They believed that sourcing data from Parties with BM Units registered in Scotland for the three years 1 April 2002 - 31 March 2005 was not practical. They also felt that it was not transparent, would be unlikely to result in complete data, would require careful checking and therefore would increase any associated audit costs.

The minority of respondents who supported Option 2 (Four years of data, from 1 April 2002 - 31 March 2006) believed that one year of data was not appropriate. They felt that it may capture atypical behaviour and that the Baseline Period needs to be as long as possible to smooth out any anomalies. They also believed that the Scottish data could be obtained, citing that parties had provided data before such as to the DTI for European Union Emissions Trading Scheme and to Ofgem prior to BETTA go-live. One respondent believed that it would be discriminatory to ignore valid data from Scotland.

One respondent did not support either option as they believed that there would always be exceptions to any benchmark period and that a disputes process would be required. The Group noted this and had discussed the possible inclusion of an appeal process, but had agreed not to have an appeals process due to the complexity and potential large volume of appeals (see Section 4.7).

For further information on the consultation responses regarding this issue see Appendix 3A.

4.5.4.3 Modification Group's Conclusions

The Group considered the above views of the respondents and **majority agreed with the majority view of respondents that the Baseline Period be based on one year of data, from 1 April 2005 - 31 March 2006**. The Group supported this approach as they were concerned regarding the additional costs of parties providing the data and the checking and audit required of the data provided.

4.5.5 Treatment of missing data

The Group agreed that the treatment of missing data for BM Units in the Baseline Period would have become more of an issue if multiple years of data were used. In particular, some BM Units might only have registered part-way through the Baseline Period, and that giving such BM Units 'zero' Metered Volumes for the missing Settlement Periods could 'dilute' their F-factors if multiple years of data were used. The Group agreed that this would not be appropriate, as this would effectively penalise Parties which had registered their BM Units in advance of their first trades. The Group therefore agreed that the F-factor calculation should only use Metered Volumes for those Settlement Periods where the BM Unit had been registered and generating. A member noted that such Settlement Periods could be easily identified, since they would have a 'NUL' value allocated to them in BSC Systems rather than a zero (which might simply indicate an outage).

The Group agreed a similar approach should be adopted for the Qualifying Period, which uses only one year's data. The Group agreed that allocating zeros to missing Settlement Periods would 'dilute' the export of a BM Unit, and that the determination of a BM Unit's qualifying status should therefore only use Metered Volumes for Settlement Periods in which the BM Unit was registered.

For the avoidance of doubt if a BM Unit is on outage and has therefore zero Metered Volume, these values would be included in the F-factor calculation.

4.5.6 Change in BM Unit Registration following end of Qualifying Period

The Group considered the issue of when there was a change of BM Unit registration post the end of the Qualifying period, i.e. from 1st April 2006. The Group noted that, as the hedging scheme was mandatory, there would be the possibility that Parties could effectively 'opt out' of the scheme early by deregistering their BM Units (and therefore their F-factors) and then reregistering them as 'new' BM Units with a zero F-factor. To prevent this, the Group proposed the following rules:

- 1) If a Qualifying BM Unit subsequently became a Supplier BM Unit⁵ after the end of the Qualifying Period, it would no longer qualify for the transitional hedging scheme. Its F-factor would be set to zero or would cease to exist if the BM Unit became part of an SVA Base BM Unit or Additional BM Unit. If the previously Qualifying BM Unit which is now being settled under the SVA arrangements then re-registered back in CVA, it would then have its F-factor set to what it was when it qualified;
- 2) If a Party deregistered a Qualifying BM Unit after the end of the Qualifying Period prior to the publication of the F-Factor volumes (as part of the implementation of P200, expected to [6] months after the Authority's approval of P200), the F-factor would automatically be set to zero. However, Parties registering new BM Units in that period would be obliged to declare whether the plant/apparatus had previously qualified to have an F-factor under another BM Unit and, if so, the F-factor would be transferred to the new BM Unit. This would result in a 'one-off exercise' by Parties to check any de-registration/registrations after the publication of the F-factor volumes. The Group noted that ELEXON would not be able to 'police' these declarations, but that giving false information would put the Party in breach of the Code. A Code obligation would be introduced which has effect from the end of Qualifying Period (noting that there is currently no concept of a BM Unit re-registration in the Code);
- 3) Ongoing, following publication of F-factor volumes, if a Party deregistered a Qualifying BM Unit, the F-factor would automatically be set to zero. As above in point 2. Parties registering new BM Units would be obliged to declare whether the plant/apparatus had previously had an F-factor under another BM Unit and, if so, the F-factor would be transferred to the new BM Unit. If this de-registration was part-way through the 15-year duration of the F-factor for that BM Unit, the F-factor

⁵ For example: this could be when an embedded generator transfers from CVA to SVA and then either becomes part of a Base BM Unit or is an Additional BM Unit.

would automatically cease to exist from the point of the BM Unit's deregistration (i.e. the deregistration date would override the previous 15-year end date of the F-factor);

- 4) If a Party moved the physical location of some equipment or if the equipment is replaced at the same location, this would be subject to consideration of planning consents. Therefore, if new planning consents were being sought then this would be deemed as new plant and no F-factor would be applied, if not the Party would be obliged, as per points 2 and 3 above, to declare whether the plant/apparatus had previously had an F-factor under another BM Unit and, if so, the F-factor would be transferred to this BM Unit; and
- 5) The Group agreed that, if a BM Unit changed ownership during the 15 years of the hedging scheme, it would be mandatory for the F-factor to transfer to the new owner of the BM Unit. It was noted that Parties currently had the option of choosing which attributes of the BM Unit to transfer, and that a specific obligation regarding F-factors would therefore be introduced into BSCP15 and/or the Code (noting that there is currently no concept of a Change of BM Unit ownership in the Code). The end-date of the BM Unit's F-factor would continue to be 15 years from the date of implementation of P200.

4.6 Appropriateness and Start of 15 year Duration for F-factors

4.6.1 Modification Group's Initial Discussions

At the Group's meeting on 31 May, it noted that the Modification Proposal stated that F-factors would apply for 15 years from the date of the Authority's approval of P200. Members of the Group argued that, since there would be a 12-month implementation lead time between the Authority decision and the first use of F-factors/TLFs in Settlement on the Implementation Date, this would mean that F-factors were only applied for 14 years. One member stated that they did not believe this to be an issue. However, other members of the Group argued that such an approach was counterintuitive, since the 'risk' that P200 sought to hedge against (non-zero TLF values) would not exist until the Implementation Date. It was also noted that there could be practical difficulties in including a reference to the Authority decision date within the legal text. A majority of the Group therefore expressed a preference for refining the Proposed Modification solution such that F-factors applied for 15 years from the Implementation Date, although some members queried whether this would require an Alternative Modification.

The Group considered this issue further at its meeting on 15 June. The Group noted that the intention of P200 was to mitigate the effects of zonal TLFs and that these would only be introduced with the implementation of P200, not the approval by the Authority of P200. Therefore, the Group agreed that duration of F-factor volumes for 15 years after the implementation of P200.

The Group considered the justification for F-factors being applied for 15 years. The Group noted that 15 years was used by banks in their investment models and represented a reasonable investment horizon. The Group did not suggest any rationale for a different duration, but one member believed any number chosen would be arbitrary.

4.6.2 Views of Respondents to Assessment Procedure Consultation

Respondents were asked whether they supported the proposed 15 year duration of the F-factor volumes and if not whether a different value was more appropriate. A majority of respondents did not support the 15 year duration, but did not suggest an alternative value. A number of these respondents did not support P200 or felt that 15 years was an arbitrary set duration. Other respondents believed that it was not appropriate to protect sunk investment made 5/10 years ago or that the proposal should use linear phasing instead. One respondent did suggest that the duration should reflect the remainder of operating life of the BM Unit. One respondent noted the potential for reversal of benefits under zonal TLFs post 2012 as illustrated in the P198 Cost Benefit Analysis.

The minority of respondents who did support the 15 year duration thought that it was reflective of the timeframe for investment decisions for generation plant, or should reflect the power station lifetime but recognised 15 years as a compromise position or agreed with the Proposer's rationale.

4.6.3 Modification Group's Conclusions

The Group considered the above views expressed in the consultation responses. The Group agreed with the rationale that 15 years represented a reasonable timeframe for investment decisions and therefore supported the proposed duration of 15 years.

4.7 Appeals Process

At its meeting on 31 May, the Group considered the possible inclusion of an appeals process and queried whether the appeals process should only apply to those Scottish BM Units which registered following BETTA Go-Live (allowing them to put forward pre-BETTA SAS data), or should apply to all BM Units. The Group agreed that the opportunity to appeal F-factors should apply to all BM Units if the registrant felt that the F-factors represented 'atypical' behaviour – particularly for non-Scottish BM Units which may also have only registered part-way through the Baseline Period, or who may have been on outage during part of the period.

The Group noted that, if appeals were to be held by the Panel or a Panel Committee, there would need to be a set of tightly-defined guidelines or criteria regarding the submission and upholding of an appeal. Members suggested that Parties wishing to appeal their F-factors would be required to submit evidence in support of their appeal (e.g. SAS data, evidence of an outage). Some members suggested that the process could be similar to that which is already used for CALF appeals, and noted that SAS data had been used for CALF values at BETTA Go-Live. However, it was noted that CALF values change seasonally, whereas F-factors would be fixed for 15 years.

The Group noted that 'atypical behaviour' represented a wide area, and could result in large numbers of appeals due to the average nature of the F-factor calculation (which is unlikely to represent typical behaviour in any individual Settlement Period). The Panel has expressed concerns in the past over the administration of an appeals process (most recently, in the case of P199). Some members argued that only those Parties who stood to benefit from an appeal would seek to bring one – and that, for others, there was the potential that using 'atypical behaviour' in the calculation could produce more beneficial F-factors.

The Group requested that ELEXON draw up a 'straw man' appeals process for further discussion by the Group. This was presented to the group at their meeting on 15 June. The Group noted the complexity of the process and was concerned regarding the potential volume of appeals. The Group also considered that:

- 1) One reason for having an appeals process was to deal with the situation where the Baseline Period was only one year and that year represented 'atypical behaviour' for a certain BM Unit/Trading Unit. The Group felt that using more years' worth of data would seek to alleviate this problem (recognising that some metered data for Scottish BM Units would need to be provided by their registrants);
- 2) A Party would appeal if it was advantageous to do so and this may lead to an 'optional' P200 scheme;
- 3) The current CALF appeal process just affects the credit cover for that Party and does not have an impact on other Parties;
- 4) If a Party appealed its F-factor this would have an effect on other Parties in their allocation of Transmission Losses (through TLMO); and
- 5) There was potential for a large number of appeals and the consequential processing thereof.

Therefore, the Group agreed that an appeals process would not form part of P200.

4.8 Incorporation of P200 Algebra in the Code

At its meeting on the 12 May, the Group considered how P200 algebra would be implemented in the Code. The Group agreed a provisional set of equations. These were based on using the zonal TLF in the allocation of losses to 'the marginal volume' (difference between the F-factor volume and a BM Unit's actual output). Data analysis was performed to work out the impact on the allocation of losses with the P200 hedging scheme and these were considered at the meeting on 31 May. The Group requested further analysis be undertaken to confirm the effects of applying zonal TLFs to the marginal volumes and a refinement to the calculation was proposed.

At the Group's meeting on 21 June, the Group considered the further data analysis using the application of zonal TLMs (instead of zonal TLFs). The Group noted that under P198 the calculation of zonal TLFs led to values that were predominately negative (see load flow modelling analysis undertaken for P198, section 4.4 Appendix 10). This was due to the choice of the 'slack node' (at Cowley). The Group noted that the absolute TLF value for each Zone was unimportant under P198 – since the TLMO would uniformly adjust these values whilst preserving the differentials, such that losses were allocated 45:55 to generation and demand through the TLM. The Group noted that BM Units would therefore never be exposed directly to the 'raw' TLF values under P198, and only to TLMs. Under P200 Parties would be allocated energy based on the value of the raw TLFs. Therefore, the Group agreed the principle that applying zonal TLMs rather than TLFs removed this potential negative aspect in the hedging scheme and better delivered the intent of P200.

The Group agreed the following plain English description of P200 (see Appendix 1 for full algebra in draft legal text).

4.8.1 'Plain English' Explanation of P200 Algebra

As explained in Sections 3.1 and 3.2 of this document, the transmission losses allocated to each BM Unit under Proposed Modification P200 are comprised of the following three components:

- All Qualifying BM Units⁶ are allocated the quantity of transmission losses that they would have had to contribute under the current BSC baseline (i.e. uniform non-zonal allocation of transmission losses), had their generation been at the level of their F-factor volume F_i . In algebraic terms, the BM Unit is allocated a quantity of losses:

$$F_i * ALF_j$$

where ALF_j is the Delivering Transmission Losses Adjustment ($TLMO^+_j$) that would have been calculated in Settlement Period j under the current BSC baseline. This amount is negative or zero. It is zero for BM Units that do not qualify for P200 (e.g. those that were offtaking during the historic period over which F values were calculated) and which therefore have their value of F set to zero at all times;

- All BM Units are also required to contribute losses on a zonal basis on the difference ($QM_{ij} - F_i$) between their metered volume and F-factor volume. In algebraic terms, the BM Unit is required to contribute the following quantity of losses:

$$(QM_{ij} - F_i) * ZLF_{ij}$$

where ZLF_{ij} is the loss factor the BM Unit would have been exposed to under a zonal losses scheme (without any hedging):

$$\begin{aligned} ZLF_{ij} &= TLF_{ij} + Pre_P200_TLMO^+_j && \text{(for a BM Unit in a delivering Trading Unit); or} \\ &TLF_{ij} + Pre_P200_TLMO^-_j && \text{(for a BM Unit in an offtaking Trading Unit)} \end{aligned}$$

⁶ The proposed Section T algebra does not explicitly restrict this to Qualifying BM Units. However, as non-Qualifying BM Units will have a zero F_{ij} value, the effect is the same.

where $Pre_P200_TLMO^+_j$ and $Pre_P200_TLMO^-_j$ are the TLMO values that would have been calculated under Proposed Modification P198 (without taking F values into account⁷).

This term can be positive or negative, depending on the signs of $(QM_{ij} - F_i)$ and of ZLF_{ij} . For BM Units with a value of F set to zero, this formula is equivalent to applying ZLF_{ij} to their metered quantity QM_{ij} .

- As under the current baseline, the final step in the loss allocation process is to calculate Transmission Losses Adjustments $TLMO^+_j$ and $TLMO^-_j$, in order to ensure that the correct amount of transmission losses is allocated in total, and the required 45/55 split between delivering and offtaking Trading Units is maintained. In algebraic terms, the additional amount of losses allocated to each Trading Unit is as follows:

$$QM_{ij} * TLMO^+_j \quad (\text{BM Units in delivering Trading Units})$$

$$QM_{ij} * TLMO^-_j \quad (\text{BM Units in offtaking Trading Units})$$

In overview terms, the effect of the changes to Section T introduced by Proposed Modification P200 is to ensure that all BM Units are allocated the above three components of losses. Sections 4.8.2 to 4.8.4 below provide additional detail on how the algebra achieves this:

- Section 4.8.2 explains in detail how the proposed algebra achieves the intent of Proposed Modification P200 in the case of BM Units in delivering Trading Units;
- Section 4.8.3 provides further explanation of the role played by $TLMO^+_j$ in the P200 algebra; and
- Section 4.8.4 explains how the proposed algebra achieves the intent of Proposed Modification P200 in the case of BM Units in offtaking Trading Units.

4.8.2 Detailed Explanation of Algebra (for BM Units in Delivering TU)

The total amount of transmission losses that a BM Unit in a delivering Trading Unit must contribute is the sum of the three components listed in 4.8.1 above:

$$\text{Total Losses} = F_i * ALF_j + (QM_{ij} - F_{ij}) * ZLF_{ij} + QM_{ij} * TLMO^+_j$$

However, in order to achieve this allocation of losses in the Code (and in BSC Systems), it is helpful to split the total quantity of losses into two sub-components – those that depend upon the actual Metered Volume QM_{ij} , and those that are independent of it:

$$\text{Losses Dependent on QM} = QM_{ij} * (ZLF_{ij} + TLMO^+_j)$$

$$\text{Losses Independent of QM} = F_{ij} * (ALF_j - ZLF_{ij})$$

The first component can be allocated by setting the Transmission Loss Multiplier applied to their Metered Volume as follows:

$$TLM_{ij} = 1 + ZLF_{ij} + TLMO^+_j$$

The second component does not apply to Metered Volume and so cannot be included in TLM_{ij} . Instead, this component (referred to in the algebra as $QHED_{ij}$, the BM Unit Total Losses Adjustment) is added directly into the Credited Energy Volume (QCE_{iaj}) for the Party (or Parties) responsible for that BM Unit. In deciding which Party or Parties to allocate the losses to, the algebra takes into account any Metered Volume Reallocation Notifications applicable to the BM Unit.

It should be noted that the algebra breaks $QHED_{ij}$, the BM Unit Total Losses Adjustment, into two separate components QH_{ij} and QNH_{ij} :

$$QHED_{ij} = QH_{ij} - QNH_{ij}$$

⁷ In fact, for reasons described in section 4.9.3 below, F values actually have no effect on $TLMO^-_j$, and therefore $Pre_P200_TLMO^-_j$ is equal to $TLMO^-_j$. The same is not true of $TLMO^+_j$. The proposed algebra uses the acronym $ZTLMO_j$ for $Pre_P200_TLMO^+_j$.

where $QH_{ij} = ALF_j * F_i$, and $QNH_{ij} = ZLF_{ij} * F_i$. The variables QH_{ij} and QNH_{ij} can be interpreted as follows:

- The BM Unit Hedged Losses Volume (QH_{ij}) is the amount of hedged losses allocated to the F-factor volume i.e. the first of the three loss components listed in section 4.8.1 above;
- The BM Unit Non-Hedged Losses Adjustment (QNH_{ij}) can be thought of as an adjustment to compensate for the fact that elsewhere in the rules the TLM has applied the zonal loss factor ZLF_{ij} to all the Metered Volume (QM_{ij}). As explained in section 4.8.1, the intent of P200 is that the zonal losses ZLF_{ij} should apply only to the difference ($QM_{ij} - F_i$) between the metered volume and the F-factor volume. However, TLM_{ij} (which includes the zonal losses ZLF_{ij}) is applied to the whole of the metered volume. If left uncorrected, this would mean that zonal losses would be applied to the whole of the Metered Volume, more losses than is required, by an amount $QNH_{ij} = ZLF_{ij} * F_i$. By subtracting this quantity from the Credited Energy Volume, the algebra ensures that zonal losses are only applied to deviations from the hedged volume F_i , not to the entire Metered Volume.

Hence, QNH_{ij} reimburses the BM Unit for losses allocated to the volume F_{ij} at the zonal rate, whilst QH_{ij} allocates the uniform losses that the BM Unit should contribute in respect of volume F_{ij} .

4.8.3 The Role of $TLMO^+_j$ in the P200 Algebra

In general, the role of $TLMO^+_j$ in the BSC is to ensure that the total amount of losses assigned to BM Units in delivering Trading Units is equal (in each Settlement Period) to 45% of the total metered transmission losses. Therefore the equation for $TLMO^+_j$ will in general be as follows:

$$TLMO^+_j = - \{ \alpha(\text{Total Metered Losses}) + \text{All Losses Already Allocated to Delivering TU} \} / \sum^+ QM_{ij}$$

For Proposed Modification P200, the Modification Group agreed that all of the $QHED_{ij}$ values should be accounted for in the $TLMO^+_j$ equation rather than the $TLMO^-_j$ equation (even if the BM Unit to which the $QHED$ value applies is in an offtaking Trading Unit for any given Settlement Period). This ensures that the introduction of the P200 scheme would have no impact on the allocation of transmission losses to offtaking BM Units that don't qualify for an F value (e.g. Supplier BM Units), and leads to the following equation for $TLMO^+_j$:

$$TLMO^+_j = - \{ \alpha(\sum^+ QM_{ij} + \sum^- QM_{ij}) + \sum^+(QM_{ij} * ZLF_{ij}) + \sum_i QHED_{ij} \} / \sum^+ QM_{ij}$$

However, the P200 Proposer suggested the following alternative equation for $TLMO^+_j$:

$$TLMO^+_j = - \sum_i QHED_{ij} / \sum^+ QM_{ij}$$

Analysis shows that the two equations are mathematically equivalent. It is proposed to include the latter form of the equation (which is simpler, although less similar in appearance to the current BSC equation) in the drafting.

It should be noted that $TLMO^+_j$ plays a slightly different role under P200 from its role in the current BSC baseline (or in Proposed Modification P198):

- Under the current BSC baseline, $TLMO^+_j$ is the only mechanism for allocating losses to delivering Trading Units. Therefore it will always take a negative value (to 'scale down' delivering Metered Volumes in order to account for transmission losses);
- Under Proposed Modification P198, the application of losses can be regarded as a two-stage process. In the first stage, a zonal loss factor TLF_{ij} is applied to all Metered Volumes. However, this process will not necessarily achieve the required 45/55 split in the allocation of losses between delivering and offtaking Trading Units. The $TLMO^+$ calculation therefore represents a second stage of loss allocation, which achieves the required 45/55 split. Analysis of Proposed Modification P198 suggests that $TLMO^+$ values calculated under this baseline would be predominantly positive, to compensate for the fact that TLF_{ij} values (when calculated with Cowley as the slack node in the load flow model) are predominantly negative.

In contrast, one would expect P200 $TLMO^+_j$ values to be much closer to zero. This is because the initial allocation of losses under P200 will be much closer to maintaining the required 45/55 split. In particular:

- Hedged volumes under P200 are exposed to the Average Loss Factor (ALF_j), which would by definition achieve the required 45/55 split if applied to all delivering Trading Units;
- Non-hedged volumes are exposed to a zonal Transmission Loss Multiplier ZLF_{ij} , which would again (by definition) achieve the required 45/55 split if applied to all delivering Trading Units.

It can be seen therefore that in the two extreme cases, the $TLMO^+_j$ values calculated under P200 would be exactly zero:

- If all BM Units in delivering Trading Units qualified for P200, and all their Metered Volumes exactly matched their F-volumes, the $TLMO^+$ values would be zero, because everyone would be exposed to ALF_j (which achieves the required 45/55 split without the need for a further TLMO calculation);
- Conversely, if no BM Units qualified for P200, the $TLMO^+$ values would be zero because everyone would be exposed to ZLF_{ij} (which again achieves the required 45/55 split without the need for a further TLMO calculation).

In practice there will be a mixture of hedged and non-hedged volumes in each Settlement Period, and $TLMO^+_j$ values will therefore deviate from zero. However, it is still expected that $TLMO^+_j$ will be much closer to zero under Proposed Modification P200 than under either the current baseline or Proposed Modification P198.

4.8.4 BM Units in Offtaking Trading Units

As Proposed Modification P200 applies only to BM Units that were generating in the historic period over which F-values are calculated, most BM Units in offtaking Trading Units will be outside the scope of P200, and will therefore have zero F values. However, there may be some BM Units with non-zero F values that are now in offtaking Trading Units. The treatment of transmission losses for such BM Units is very similar to that for BM Units in delivering Trading Units. The losses allocated to that BM Unit are the same three components listed in 4.8.1 above.

The one key difference is that (as described in 4.9.3 above) all the effects of hedging are included in the $TLMO^+_j$ calculation rather than the $TLMO^-_j$ calculation. This leads to slightly simpler algebra as follows:

- For delivering Trading Units, the algebra requires separate acronyms $ZTLMO_j$ (i.e. the TLMO value calculated without taking hedging into account) and $TLMO^+_j$ (i.e. a further adjustment to the allocation of losses to take into account the effects of hedging); and
- For offtaking Trading Units, there is no distinction between the two, and a single acronym $TLMO^-_j$ suffices.

Note that $TLMO^-_j$ values calculated under Proposed Modification P200 would be exactly the same as those calculated under Proposed Modification P198.

4.9 Impact of F-factors on the Allocation of Losses

At its meeting on 31 May 2006, the Group noted that, under P200, Qualifying BM Units would receive a 'hedged' MWh volume of transmission losses (the ALF) for their F-factor (F), regardless of their actual Metered Volume in any half hour. Furthermore, this would be different to the existing TLM calculation, which applies a multiplier to a BM Unit's Metered Volume. In the algebra set out in the Requirements Specification (which had been based on the approach followed for P109), the 'hedged' volume of losses would therefore be allocated directly to the Energy Account of the Party responsible for the BM Unit as part of their Credited Energy Volume. Qualifying BM Units would receive the zonal TLF on their whole Metered Volume via the TLM, but would then be 'credited' or 'debited' back the hedged losses through the Energy

Account. The Group noted that whether the allocation of hedged losses was a benefit to a BM Unit would depend on whether the TLF for its Zone was advantageous to that BM Unit or not.

The Group noted that it would therefore be possible for a Qualifying BM Unit to receive an allocation of losses even if it was not generating. One member stated that the most extreme scenario would be a 'Black Start' situation when there was no generation or demand (and therefore no transmission losses), but where all Qualifying BM Units would still receive a share of losses on their F-factor volumes. This member remained concerned that allocating a fixed volume of losses could, at the Zonal level, undermine the short-term marginal signals of zonal TLFs which P200 sought to apply. The Proposer did not believe this to be the case. The Group also noted that F-factors could affect a Party's imbalance position – for example, a generator that was on outage and had no contract to cover the losses allocated to their F-factor volume would have to pay System Buy Price for that volume of energy. This could be a benefit or disbenefit depending on the relative values of uniform loss factor to zonal loss multiplier

The Group then considered some examples of how P200 could affect the allocation of transmission losses across different TLF Zones and BM Units. This analysis used the 16 sample Settlement Periods (representative of a whole year) and Adjusted Annual TLF values used in the P198 PTI analysis. As expected, the analysis demonstrated that P200 would tend to counteract the effect of P198 for a Delivering Trading Unit – giving an allocation of losses similar to that under the current Code baseline.

The Group noted the following points arising from the analysis:

- The variation of Metered Volumes from F-factors by Delivering Trading Units in one Zone can impact the losses exposure of other Zones through the TLMO⁺, and could result in a losses allocation for a Zone which is significantly different from that under the current Code baseline. This would be particularly noticeable in Zones where TLF and ALF values are similar, and where the sign of the TLMO⁺ becomes reversed;
- The same year of data was used in the analysis to calculate F-factors and TLMs. Going forward over the 15 years of the scheme, the above effect would become more complex as the potential for variance between F-factor values and current output increased; and
- Under P198, the differentials between the TLFs for different Zones are the important factor in BM Units' losses allocation rather than their absolute values – since, if a constant was allocated to all the TLF values, the TLMO would adjust to compensate. However, under P200 the absolute level of TLF could become more important for those BM Units which have zero F-factors or whose output deviates from their F-factor. This issue was subsequently addressed through the application of TLMs and not TLFs described in Section 4.8.

Further examples for illustration purposes:

No	Scenario	P200 Compared to Current Baseline	P200 Compared with P198
1.	A generator in a heavily exporting zone under P200 (generation > F)	Value of generation will be less due to zonal TLM being more negative, i.e. increased level of allocated losses. However this is mitigated to a certain extent by F- factor volume	Smaller level of allocated losses due to F-factor volume receiving uniform loss factor instead of zonal
2.	A large consumer in a heavily importing zone (demand > F)	Amount of demand will be greater due to zonal TLM being more positive, i.e. increased level of allocated losses. However this is mitigated to a certain extent by F- factor volume	Smaller level of allocated losses due to F-factor volume receiving uniform loss factor instead of zonal

No	Scenario	P200 Compared to Current Baseline	P200 Compared with P198
3.	A generator in a heavily importing zone (generation > F)	Value of generation will be greater due to zonal TLM being more positive, i.e. smaller level of allocated losses. However this value is reduced by F-factor volume receiving uniform loss factor	Greater level of allocated losses due to F-factor volume receiving uniform loss factor instead of zonal
4.	A large consumer in a heavily generating zone (demand > F)	Amount of demand will be smaller due to zonal TLM being more negative, i.e. reduced level of allocated losses. However this value is reduced by F-factor volume receiving uniform loss factor	Greater level of allocated losses due to F-factor volume receiving uniform loss factor instead of zonal

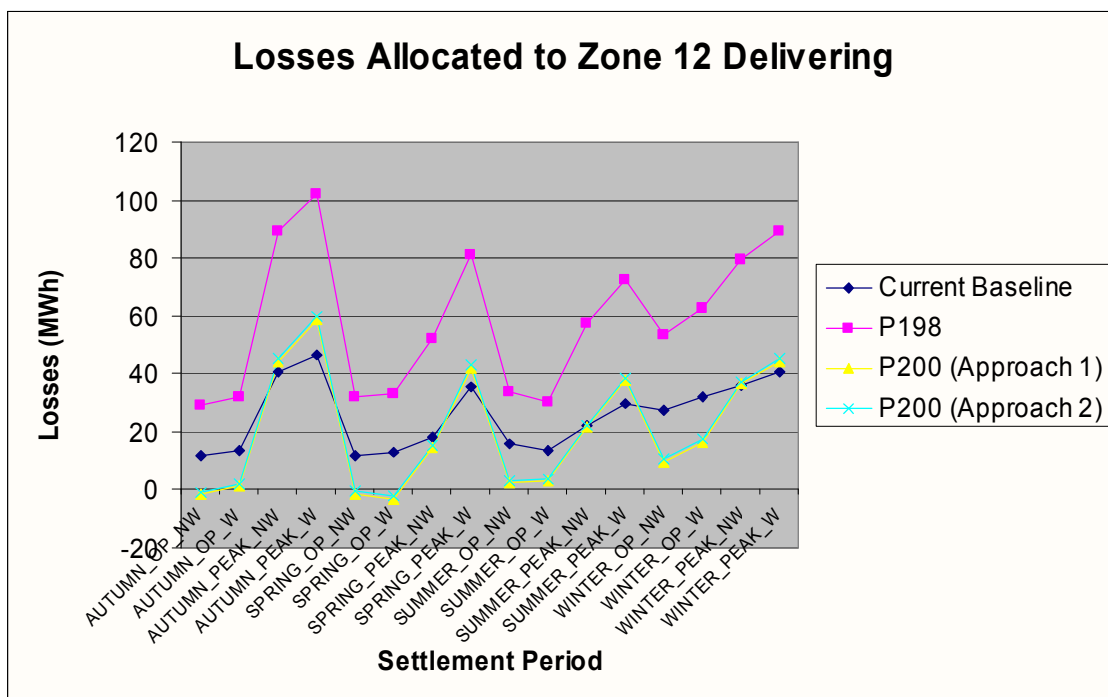
It should be noted that Parties may need to change their contractual cover to compensate for any change in the Credited Energy Volume due to adjustment from F-factor volume.

At the Group’s meeting on 21 June, the Group considered the application of zonal TLMs instead of zonal TLFs, see section 4.8 for explanation of algebra. The Group requested that the above analysis be redone with the application of zonal TLMs. This analysis was presented to the Group’s meeting on 18 July. The results and consideration thereof are given below (see Appendix 6 for graphical illustrations).

Allocation of Losses to Zones

ELEXON calculated the total quantity of losses allocated to each Zone (for each of sixteen sample Settlement Periods). In most cases, the quantity of losses allocated to a given Zone under P200 was in between the quantity allocated under the current baseline, and the quantity allocated under P198. This is as one would expect, given that P200 is a hedging scheme that shields qualifying plant from some of the impact of P198.

There were a few Zones and Settlement Periods where the losses allocated under P200 were less than the losses allocated under either P198 or the current baseline e.g. Zone 12 (Yorkshire) in Off-Peak periods. Analysis showed that this was due to large generators running at less than F, and being credited with energy for reducing their generation in a Zone with a strongly negative TLF, see diagram below.



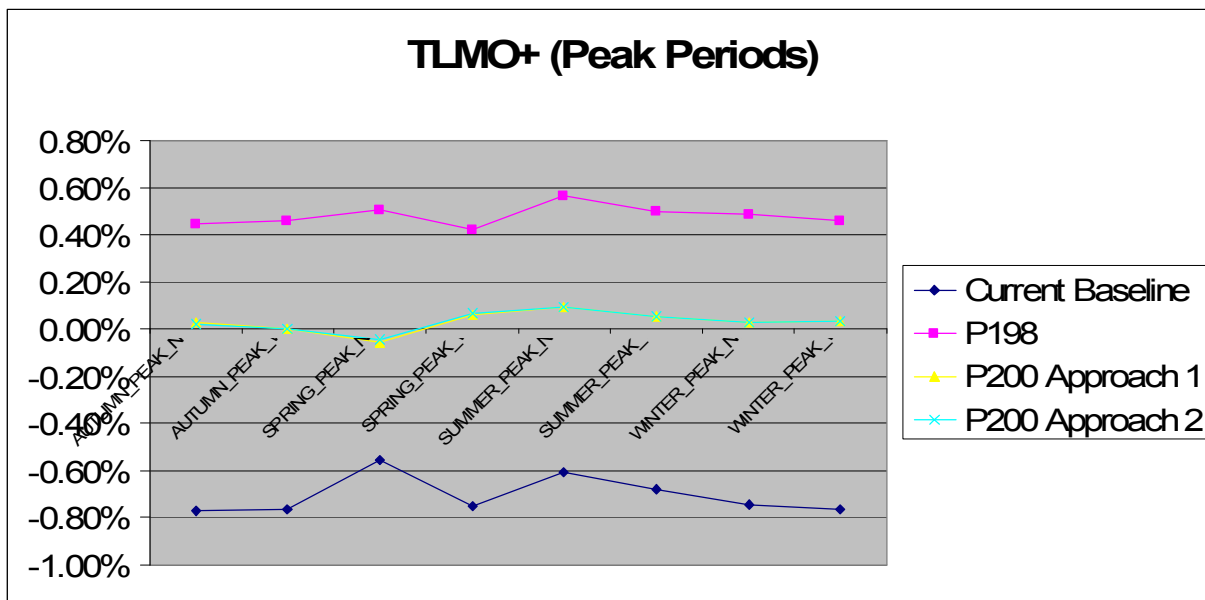
TLMO Analysis

TLMO- values under P200 are the same as under P198, while TLMO+ values are expected to be much closer to zero (because, in effect, much of the distribution of losses that would be achieved through TLMO+ under P198 is incorporated into the P200 algebra prior to the TLMO+ calculation). For example:

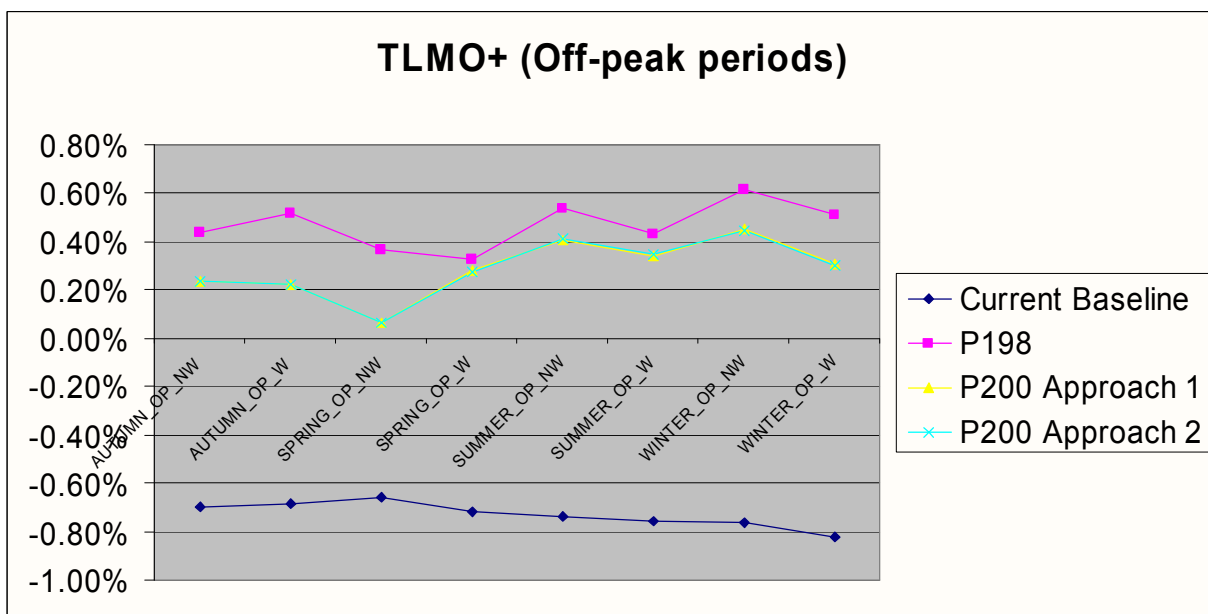
- If no generation was hedged (i.e. $F=0$ for all BM Units), P200 TLMO+ values would be zero (as all the generation would be exposed to ZLF, which achieves the required 45/55 split in the distribution of losses without the need for a separate TLMO calculation); or
- If all generation was hedged (i.e. $F=QM$ for all BM Units), P200 TLMO+ values would again be zero (as all the generation would be exposed to ALF, which achieves the required 45/55 split without the need for a separate TLMO calculation).

ELEXON's analysis of TLMO+ values did indeed indicate that they were closer to zero under P200 than under P198 (where TLMO+ values are typically in the range +0.35% to +0.6%) or the current baseline (where they are typically in the range -0.55 to -0.8%). However, the P200 TLMO+ values (for the sample of 16 Settlement Periods) did seem to be much closer to zero in peak than off-peak periods, see below graphs.

TLMO+ in peak periods



TLMO+ in off-peak periods



As depicted in the above graphs:

- In peak periods, TLMO+ values were within the range -0.06% to +0.1%
- In off-peak periods, TLMO+ values were within the range +0.06% to +0.45%

The Modification Group was divided on whether there was a simple explanation for this tendency for TLMO+ values to be higher during off-peak periods. However, there was agreement that:

- Under P200, a plant's deviation from its F-factor value will potentially affect all BM Units in delivering Trading Units (through the TLMO+ mechanism);
- To the extent that such deviations from F are randomly distributed across Zones, their impact on TLMO will also be random, and will therefore tend to cancel out;
- To the extent that such deviations from F are non-randomly distributed across Zones, they will tend to push TLMO+ either upwards or downwards in a systematic manner; and
- Such effects are likely to increase over the 15-year duration of the scheme, as the divergence between F values and actual behaviour increases.

4.10 Cost Benefit Analysis

The Group considered how F-factor hedging over a 15 year period affects the despatch and locational signals provided by zonal TLMs for both qualifying and non-qualifying BM Units. The Group concluded that P200 would have a similar affect on costs of despatch as P198, due to the zonal transmission loss element to P200. As various views existed in the Group to the effect of zonal transmission losses, agreement could not be reached on whether this effect was beneficial. However, the Group did agree that the F-factor hedging scheme did not bring about any further affects than P198, as it had no further impact on the marginal cost of generation. Although one member believed that P200 would have a negative impact on the cost of generation in the south of England and may lead to more plant closure.

The Group considered how the cost of capital is affected by zonal TLMs with and without the addition of a hedging scheme. The Group noted the results of the P198 cost benefit analysis, see Appendix 6 of Appendix 10 and its conclusion regarding no impact on the cost of capital. The Group felt that this analysis was sufficient for P200 (as it introduces zonal transmission losses). Furthermore, it agreed that it would be appropriate for parties in response to the consultation to provide their view on how the cost of capital was affected.

Following the P200 consultation, a data error was subsequently identified in the distributional impacts of the use of annual TLFs for Suppliers which has been corrected within the P198 Assessment Report and in Section 9 of the updated version of the cost-benefit analysis report provided in Appendix 8. Specifically, the OXERA analysis now estimates the net decrease in charges for Scottish Suppliers under the use of annual TLFs at £41m (increased from £32m), the net decrease in charges for Suppliers in northern England at £40m (reduced from £41m), and the net increase in charges for southern Suppliers at £80m (increased from £73m). Although the correction of this error did not alter the overall geographic pattern or magnitude of the distributional effects, it did alter the figures provided for Suppliers in specific Zones – with the distributional effects for Suppliers in some Zones being higher under the revised figures, and those for other Zones being lower. Although the average magnitude of this change was approximately £4m per Zone, the difference in impact for some individual Zones was in the region of over £10m. In addition, the distributional effects identified for Suppliers in the East Midlands Zone under the use of annual TLFs in the central scenario switched from a net loss of £1.4m to a net gain of £2.1m as a result of correcting the error. The correction of the error did not affect the distributional impacts for generators.

Via email the Group agreed that the correction of data errors in the cost-benefit analysis should be brought to the attention of the Panel and the industry, but agreed that the amended figures did not alter its overall views regarding the modification. One member stated that the amended figures reinforced their view that the short-term distributional effects outweighed any net benefit from the modification. An additional consultation was subsequently issued to industry, which identified the correction of the errors and sought confirmation from respondents that the amended data did not alter their views regarding P200. The responses received to this consultation can be found in Appendix 9.

4.11 Impact Assessment and Costs

Two impact assessments were sought from parties during the assessment of P200. The first one covered the Proposed Modification with the second based on a revised specification for the Proposed Modification and contained the solution for the Alternative Modification. This revised requirements specification was produced in light of further discussion by the Group on the detailed definition of P200. The following will be updated in light of the second impact assessment.

The results of the second impact assessment were presented to the Group at their meeting on 18 July. The Group discussed the impact assessment results (See Appendix 4), and noted the following key points regarding the results:

- The inclusion of a hedging scheme would result in approx. £290k additional BSC Agent implementation costs compared with P198 (cost £40k), in order to make the required amendments to the Settlement calculations. The total implementation cost for P200 would be £854k). For the Alternative Modification there would be an additional £10k BSC Agent implementation costs;
- The inclusion of a hedging scheme would result in approx. 180 additional ELEXON man days' (Additional cost £40k) implementation effort compared with P198 (600 man days, £132k), in order to determine the BM Units qualifying for the scheme and to calculate their F-factors (Total cost £172k, 780 man days);
- There would also be some one-off external consultancy costs to amend ELEXON's TOMAS system, estimated as £40k;
- Those Parties who had previously stated that they would need to amend their systems for P198 stated that there would be an additional impact on these systems under P200 Proposed and Alternative (a Party that did not state there was any impact for P198 also stated there was no additional impact for P200);
- There would be no additional impact from P200 on the Transmission Company compared with P198; and
- There would be no additional operational costs for P200 compared with P198 (cost of £160k per year), as the F-factor calculation would be a one-off exercise prior to the Implementation Date.

The Group noted that, under P198, Parties would have 3 months' notice between the publication of TLF values and their first use in Settlement on the Implementation Date. The Group noted that most respondents to the impact assessment had indicated that they would require the same notice period for F-factor values under P200, although one respondent had indicated a preference for 4 months' notice. The Group initially agreed that the same 3 months' notice period for TLF and F-factor values would provide adequate time for Parties to take account of the values in their contracts. Some members of the Group argued that Parties would already have a good idea of their likely F-factor values, since these would simply represent historic Metered Volumes. **However, at the meeting on 15 June the Group agreed that publication of F-Factors should be 6 months after the Authority's approval of P200 (see Section 4.5.6).**

a) Implementation Costs

The table below shows the total estimated costs of implementing Proposed Modification P200 (i.e. the costs of both the zonal TLFs and hedging scheme elements). These are shown against the implementation costs for Proposed Modification P198. Since the costs of the zonal TLFs element of P200 are identical to the implementation costs for Proposed Modification P198, the difference between the two columns in the table represents the additional costs of including the hedging scheme.

		P200 Cost	P198 Cost	P200 Tolerance	P198 Tolerance
Logica CSA Cost	Change Specific Cost	£176,933	£18,762	Nil	Nil
	Release Cost	£151,536	£17,114	Nil	Nil
	Total Logica CSA Cost	£328,469	£35,876	Nil	Nil
TLFA/LFMR Cost	Development, Testing and Deployment	£250,000	£250,000	+/- 50%	+/- 50%
BSC Audit Cost	Planning and Development	£15,000	£15,000	+/- 50%	+/- 50%
Implementation Cost	External Programme Audit	£0	£0	Nil	Nil
	Design Clarifications ⁸	£28,923	£14,294	+/- 100%	+/- 100%
	Additional Resource Costs	£0	£0	Nil	Nil
	Additional Testing/Audit Support Costs	£20,000	£20,000	+/- 50%	+/- 50%
Total Demand Led Implementation Cost		£642,392	£335,170	+/- 50%	+/- 50%
ELEXON TOMAS system cost	System and documentation updates	£40,000	£0	+/-25%	Nil
ELEXON Implementation Resource Cost		780 man days	600 man days	+/- 5%	+/- 5%
		£171,600	£132,000		
Total Implementation Cost		£853,992	£467,170	+/- 22%	+/- 35%

b) Operational Costs (Per BSC Year)

The operational costs for Proposed Modification P200 would be identical to those for Proposed Modification P198, since the calculation and registration of F-factors would be a one-off exercise undertaken prior to the Implementation Date and is therefore covered by the implementation costs shown above.

⁸ Based on 5% of combined Logica/TLFA/LFMR development costs.

	P198/P200 Cost	Tolerance
Logica CSA Operation Cost Per BSC Year	£2,645	Nil
Logica CSA Maintenance Cost Per BSC Year	£0	Nil
TLFA/LFMR Operational Cost Per BSC Year	£100,000	+/- 50%
BSC Auditor Cost Per BSC Year	£40,000	+/- 50%
ELEXON Operational Cost Per BSC Year	70 man days £15,400	+/- 5%
Total Operational Cost Per BSC Year	£158,045	+/- 45%

4.12 Implementation Approach

The Group at its meeting on 31 May considered the results of the impact assessment undertaken so far and noted that P198 has a 12-month lead time, driven largely by the timescales required for the TLFA procurement and development and the 3-month publication lead time for TLF values. ELEXON advised that, although there would be additional implementation activities for P200, these could be paralleled with the TLFA work such that a 12-month implementation lead time was also likely to be possible for P200.

A member of the Group queried whether an Implementation Date of 1 October 2007 would be achievable (as proposed in P200 Modification Proposal, subject to feasibility). The Group noted that this was no longer achievable, given that:

- The P198 and P200 final Modification Reports would not be submitted to the Panel until mid-September 2006 (as the Panel have agreed an extension for P198 at its June meeting);
- An Authority decision would be required by the end of September 2006 in order to achieve implementation on 1 October 2007; and
- The Authority has now stated that it intends to conduct a Regulatory Impact Assessment for P198.

The Group noted that the earliest possible Implementation Date for P198/P200 which could be tied to Parties' contractual rounds was therefore likely to be 1 April 2008 (which would require an Authority decision by 22 March 2007).

At the Group's meeting on 15 June it was confirmed that for P200, the proposed Implementation Date is 1 April 2008, with a fall-back of 1 October 2008 (Settlement Day implementation). Furthermore, the Authority decision cut-off dates relating to these will be:

- 1 April 2008, if an Authority decision is received on or before 22 March 2007; or
- 1 October 2008, if an Authority decision is received after 22 March 2007 but on or before 20 September 2007.

4.13 Consideration of an Alternative Modification

The Group noted that the P198 Modification Group has agreed an Alternative for P198 which is based on the Proposed Modification, but with:

- zonal TLFs varying by BSC Season (four values per year instead of one annual value); and
- linear phasing of the new zonal TLF values over 4 years (20%, 40%, 60% and 80%).

The Group agreed that a potential Alternative for P200 should include the seasonal variation of zonal TLFs for the same reasons as for P198, e.g. that it is more cost reflective and more efficient for despatch.

The Group then considered whether linear phasing should form part of the potential Alternative solution. The Group agreed that P200 already introduces a hedging scheme, e.g. a form of mitigation/phasing of zonal TLFs; therefore linear phasing would not be appropriate to be considered as part of an Alternative Modification.

The Group noted that P200 does not apply to SVA BM Units or new BM Units and that this could be viewed as discriminatory. Therefore, an Alternative could include these types of BM Units. The Group noted that this would also introduce added complexity and for SVA BM Units Suppliers could pass through any costs to consumers. Therefore, the Group agreed not to consider this further as a potential Alternative. In addition, one member suggested that linear phasing could be applied to the BM Units that did not qualify for an F-factor volume. However, this was felt to be even more complex. Therefore, the Group agreed not to consider this further as a potential Alternative.

Therefore the Group agreed that the Alternative Modification for P200 be the same solution as for the Proposed Modification except that the zonal TLFs would vary by BSC Season.

The above implementation dates for P200 Proposed Modification were also confirmed as the same for the Alternative Modification at the Group's meeting on 18 July.

5 RESULTS OF CONSULTATION

This section outlines the views of consultation respondents and Modification Group consideration thereof.

5.1 Summary of Responses

The majority of respondents did not believe that the Proposed Modification or Alternative Modification better facilitates the Applicable BSC Objectives compared with the current Code Baseline. A slim majority believed that Alternative Modification better facilitates the Applicable BSC Objectives compared with the Proposed Modification.

22 responses (representing 75 Parties and 4 non-Parties) were received to the P200 Assessment Procedure consultation.

Please note that the summary below includes one late response which was received following the consultation deadline and the Group's final meeting. This response was received too late to be considered in detail by the Group, and is therefore not included in the summary of arguments in the following pages. However, the arguments expressed by the respondent were very similar to those expressed by other respondents to the consultation. The late response is therefore not believed to contain any arguments which had not already been considered by the Group during the Assessment Procedure.⁹

A summary of the consultation responses is provided in the table below (bracketed numbers represent the number of Parties and non-Parties represented by respondents).

⁹ The late response was received on 26 July 2006, approximately one week following the Group's final meeting on 18 July. Although the response had originally been submitted prior to the consultation deadline on 14 July, it had been inadvertently sent to an incorrect email address and was therefore not received in time for consideration by the Group. The individual response concerned has been provided with the other consultation responses in Appendix 3, and is marked as a late response for reference.

Q	Consultation question	Yes	No	Neutral	No comment
1.	Do you believe Proposed Modification P200 better facilitates the achievement of the Applicable BSC Objectives when compared with the current Code baseline? Please give rationale and state objective(s)	2 (12+0)	15 (62+1)	2 (1+1)	3 (0+3)
2.	Do you believe Alternative Modification P200 better facilitates the achievement of the Applicable BSC Objectives when compared with the Proposed Modification? Please give rationale and state objective(s)	9 (52+0)	8 (23+1)	1(0+1)	4 (0+4)
3.	Do you believe Alternative Modification P200 better facilitates the achievement of the Applicable BSC Objectives when compared with the current Code baseline? Please give rationale and state objective(s)	2 (12+0)	14 (62+0)	2 (1+1)	4 (0+4)
4.	Do you support the implementation approach described in the consultation document/the implementation option preferred by the Modification Group? Please give rationale	13 (63+0)	4 (12+0)	1 (0+1)	4 (0+4)
5.	Do you believe there are any alternative solutions that the Modification Group has not identified and that should be considered? Please give rationale	3 (7+0)	13 (77+0)	3 (1+2)	3 (0+3)
6.	Do you agree with the 15 years duration for applicability of F-factors? If not please propose any other value with justification. Please give rationale	6 (32+0)	9 (41+0)	2 (1+1)	5 (1+4)
7.	Which option do you support for the definition of the Baseline Period for calculation of F-factor values, either a) 1 April 2005 – 31 March 2006; or b) 1 April 2002 – 31 March 2006 (48 months). Data for England and Wales is available centrally for all of this period. c) Other period. Please give rationale	option (a) = 6 (41+0) option (b) = 3 (11+0) option (c) = 4 (8+1) no comment = 9 (15+4)			
8.	For option (b) data for BM Units in Scotland for the period 1 April 2002 - 31 March 2005 would have to be sourced directly from the registered Parties (as this was pre BETTA) with supporting confirmation? Please provide a view on the practicality of this requirement	SEE RESPONSES UNDER SECTION 4.5			
9.	Do you believe the cost of capital is affected by zonal TLMs with and without the addition of a hedging scheme? Please give rationale	8 (27+0)	5 (36+0)	3 (10+1)	6 (2+4)

Q	Consultation question	Yes	No	Neutral	No comment
10.	Does P200 raise any issues that you believe have not been identified so far and that should be progressed as part of the Assessment Procedure? Please give rationale	4 (6+2)	14 (68+0)	-	4 (1+3)

Details of the arguments made by respondents can be found in Section 5. The following sections summarise the detailed responses and rationale given by the respondents for each consultation question. For a full copy of the responses see separate attachment Appendix 3A.

5.2 Question 1: Proposed Modification versus Code Baseline

The majority of respondents did not believe that the Proposed Modification better facilitates the Applicable BSC Objectives when compared with the current Code Baseline.

Points that were raised against P200 are:

- P200 is discriminatory as there is different treatment of existing and new generation, SVA or CVA registered generation. In addition P200 does not include F-factor volumes for demand.;
- Renewable generators are unable to respond to despatch signals;
- There must be other better mechanisms to allocate losses (though none given in response);
- Those who supported zonal TLFs believe that P200 would delay the benefits of zonal transmission losses;
- Even if one did support the introduction of a zonal losses scheme, then the hedging scheme under P200 would dilute any of these purported benefits;
- Generating plant would still have losses attributable to them even when they are not generating, which would create an imbalance that is impossible to contract against. This would create an additional cross-subsidy with an allocation of losses when BM Units are not generating. This would introduce further inefficiencies and would be difficult to contract ahead;
- TNUoS provides locational signals already which is evidenced by the proposed investment in generation in the south of England (without P198 or P200);
- Complexity and cost of implementation, in particular the legal drafting. One respondent cited the complex description of the 'plain English' version as an example of its complexity which would present difficulties for market participants;
- One respondent felt that the Cost Benefit Analysis undertaken under P198 did not represent market conditions. They felt that the impact of zonal TLFs would have an ambiguous impact on despatch. The Group noted the response but the majority agreed that zonal TLFs would have a positive impact on costs of despatch;
- The market system is impacted by F-factor volume using 'arbitrary' historic data; and
- Difficult for market to respond to despatch signals as over time the resultant TLMs would become difficult to determine because of the effect of Qualifying BM Units' metered outputs deviating from their F-factor volumes.

Points that were expressed in favour of P200:

- Supported the Proposer's view that P200 would provide more stable long term investment signals through the removal of the windfall gains and losses; and

- P200 would reduce the number of future modifications on transmission losses.

A neutral view was that there would be a small improvement to the despatch signal but it is one of many existing signals already in market place (e.g. TNUoS). However, this is outweighed by the discriminatory aspect of a hedging scheme only applied to existing generators.

5.3 Question 2: Alternative Modification versus Proposed Modification

A slim majority of respondents did believe that the Alternative Modification better facilitates the Applicable BSC Objectives when compared with the Proposed Modification. The majority felt that seasonal zonal TLFs provided a more accurate despatch signal.

Other points stated for the Alternative over the Proposed Modification:

- It is more in line with the intent of P200; and
- It provides for more cost-reflective transmission losses.

Points that were raised against the Alternative:

- Seasonal TLFs do not introduce any advantages and create further volatility and uncertainty; and
- It introduces even further complexity and costs.

5.4 Question 3: Alternative Modification versus Code Baseline

The majority of respondents did not believe that the Alternative Modification better facilitates the Applicable BSC Objectives when compared with the current Code Baseline. The majority felt that the arguments for and against the Proposed Modification applied equally to the Alternative Modification.

Another point that was expressed against the Alternative was that seasonal TLFs may not lead to clearer signals in longer term.

5.5 Question 4: Implementation Approach

The majority of respondents agreed with the proposed implementation approach of (described in Section 4.12).

Points in support of the approach:

- The majority believed it was a pragmatic or practical approach; and
- One respondent agreed with the approach, but noted that it may be prudent to factor in some time for the possibility of a legal challenge. The Group considered this, but agreed that the implementation approach should not take into account any possible appeal or judicial review.

The majority of respondents who did not support the approach disagreed with the implementation of P200. One respondent who did not agree with the implementation approach believed that parties should have as long as possible for implementation to provide opportunity for Parties who are adversely affected to develop further strategies to manage their positions.

5.6 Question 5: Any further Alternative solutions

The majority of respondents did not believe that there are other alternative solutions that the Modification Group has not identified and should be considered.

A number of respondents did state that there were other potential Alternative Modifications and the Modification Group at their meeting on the 18 July considered each one in turn as follows:

- Protection of demand side BM Units due to inflexibility in their ability to respond in the short term. The Group noted this concern and had considered the applicability of the hedging scheme to demand BM Units (see section 4.5);
- Losses applied to incumbent generators on a uniform basis (as now) and new generators after the qualifying date exposed to zonal TLFs as per P198. The Group did not consider this to be an appropriate alternative for P200 as it would altogether remove the despatch signal (which P200 keeps with zonal losses applied to the difference between the F-factor volume and the actual output). Some felt it may be more appropriate to consider as an alternative to P198; and
- One respondent believed that a simpler solution should be sought than the one proposed for P200, such as for Modification Proposal P109. The Group noted this but disagreed with the view that P109 was a simpler option.

5.7 Question 6: 15 year duration of F-factor

The majority of respondents did not support the proposed applicability of F-factor volumes for 15 years. See Section 4.6 for stated arguments and Modification Group consideration thereof.

5.8 Question 7: Duration of Baseline Period (1 or 4 years)

A majority of respondents supported Option (a) where the Baseline Period was one year from 1 April 2005 to 31 March 2006. See Section 4.5.3 for stated arguments and Modification Group consideration thereof.

5.9 Question 8: Practicality of provision of Scottish data

A majority of respondents believed that it was impractical and imposed further costs if Parties were required to provide metered data for BM Unit registered in Scotland. See Section 4.5.3 for stated arguments and Modification Group consideration thereof.

5.10 Question 9: Cost of Capital

A majority of respondents believed that the cost of capital was impacted by the introduction of P200.

The respondents, who believed that the cost of capital was impacted, stated the following reasons:

- The variability and volatility in zonal TLFs translate into uncertainty and therefore financial risk and increased costs. This presents a barrier to entry and reduces competitive pressure;
- There is a disproportionate effect on renewable generation which translates into an increased cost of capital for this type of generation;
- The proposed hedging scheme will alleviate some of the detrimental impact of zonal transmission losses on the cost of capital until the end of the 15 year period;
- There is adverse impact on risk and competition and as such this could impact on financing costs for certain sectors of the market and create further barriers to entry;
- Some respondents did not support the Cost Benefit Analysis findings that stated that the risks was diversifiable especially for when considering stand-alone players;
- The hedging scheme actually could introduce potential distortions in competition which would undermine investor confidence;
- There would be a significant increase in the cost of capital if zonal transmission losses were introduced without the inclusion of a hedging scheme; and
- One respondent presented their own paper on regulatory risk and the impact on cost of capital. They believed that zonal losses under P198 would increase the cost of capital by 0.16% (approx £1

million a year on a £1 billion investment). Therefore, they believed that P200 would potentially avoid or even reverse this increase. For further details see Proposer's response Appendix 3A.

The respondents who thought the cost of capital was not impacted stated that:

- Locational losses have been discussed for a long time; and the market was well aware of their potential introduction;
- There was negligible impact as any party needs to be already aware of regulatory risk; and
- One respondent stated that this was matter outside of the Code. The Modification Group noted this response but felt that this issue was relevant to the consideration of the impact on competition (BSC Objective (c)).

A neutral view was expressed that any major modification will add regulatory risk in the short term. However, the signals via zonal transmission losses are sufficiently weak not to have any impact. Another respondent stated that it was important that Regulators signal change in advance and treat all parties equitably.

5.11 Question 10: Any Further Issues

A majority of respondents believed that there were no further issues. However, a number of respondents raised the following issues which were considered by the Group at their meeting on 18 July.

Further issues raised:

- One respondent thought that the Group had not considered an appeals process. However, the Group had considered this at their meeting on 15 June (see Section 4.7);
- One respondent believed that P200 introduced a new cross subsidy where there is always an allocation of losses relative to the F-factor volume. The Group had considered this issue at their meeting on 21 June (see Section 4.8);
- One respondent felt they were unable to respond to any locational signals from zonal transmission losses (embedded generator and demand), as they could not hedge their position; and
- One respondent noted that at the same time as the P200 consultation, other documents had been published, i.e. Government's Energy Review and National Grid's Winter Outlook as well as the consultation document on P198. Therefore there may be additional issues that need consideration by the Panel and Ofgem.

5.12 Question 11: Further Comments

A majority of respondents made no further comments. However, a number of respondents made the following comments which were considered by the Group at their meeting on 18 July.

Further comments made:

- Anti-competitive: Hedging rights are only provided for certain classes of generator. The Group noted this under their discussion of the applicable BSC Objectives (a) and (c);
- Impact on Renewable Obligation Certificates (ROCs). Two respondents were concerned that the zonal transmission element of both P198 and P200 would impact on the metered output values on which ROCs are awarded. It was subsequently confirmed by Ofgem that these metered output values would not be affected by P198 and P200. Furthermore, one respondent sought clarity on whether the wider issue of whether renewable generation should be subject to zonal Transmission Losses. The Group noted that the P198 Modification Group had considered this issue (see section 5.8 of Appendix 10). One respondent requested further information on the distributional effect on

on/offshore wind projects and other renewable technologies. BSCCo have contacted this respondent and highlighted the information contained in Section 5.4 of the Cost Benefit Analysis (Appendix 8);

- Hedging scheme should apply to consumption BM Units as they cannot respond as easily to cost signals as generation and therefore need protection against any “windfall” effects. The Group had discussed this issue already (see Section 4.5);
- The assumption that sunk investment needs to be protected. One respondent did not support this assumption and believed that when a BM Unit is sold it has cashed-in its investment and a new owner represents a new investment and should not be protected. The Group noted this point;
- That the hedging scheme introduces some “perverse” features such as the allocation of Transmission losses when a BM Unit is not generating. The Group has considered this issue see Section 4.8;
- One respondent believed there was a difference in the treatment of demand and generation zones. This was clarified to the respondent and they acknowledged there is no difference between the zones for generation and demand under Modifications P198 and P200.
- Some respondents expressed a view that although they do not support P200 above the current baseline, but they do support P200 above P198 as they believed that zonal transmission losses should be accompanied with a mitigation scheme. The Group considered these views further in Section 6.3;
- One respondent reiterated its concern over the costs and complexity of the hedging scheme. The Group noted this point;
- Two respondents noted the potential impact on the behaviour of some of the Qualifying BM Units in the Baseline Period due to very high gas prices at that time. The Group considered this but felt that it was not relevant;
- One respondent stated a view that zonal TLFs would provide the wrong signals with generation encouraged to locate at the extremities of the transmission system. Furthermore, he believed that the term “cross-subsidy” had not been defined and did not play a role in the assessment of P198/P200. The Group noted this point;
- Questioned the merit of introducing a zonal transmission losses scheme when National Grid has recently announced a Income Adjusting Event request. The Group noted this point; and
- One respondent questioned the practicality of allowing a transition period where northern generators would ‘opt out’ and southern generators ‘opt in’. The Modification Group noted that the hedging scheme under P200 was mandatory and so this situation could not arise.

6 ASSESSMENT OF MODIFICATION AGAINST APPLICABLE BSC OBJECTIVES

This section outlines the deliberations of the Modification Group regarding the merits of P200 against the Applicable BSC Objectives.

6.1 Proposed Modification

The majority view of the Modification Group was that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objectives (a), (b), (c) and (d) when compared to the current Code baseline, for the following reasons stated below.

Table 1 – Modification Group’s View of Proposed Modification

Proposed Modification better facilitates?	Applicable BSC Objectives				
	(a)	(b)	(c)	(d)	Overall
Yes	Minority	Majority	Minority	Minority	None
No	Majority	Minority	Majority	Majority	Majority
Neutral	Minority	None	Minority	Minority	Minority

Applicable BSC Objective (a) – The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

The view of a **MAJORITY** of members was that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objective (a).

These members believed that P200 would introduce undue discrimination and therefore would impact on National Grid’s transmission licence. This was because of the different treatment for different types of BM Unit and because P200 would provide protection for certain parties, e.g. new entrants and SVA registered BM Units did not qualify for the F-factor volume allocation. Some of these members also felt that this treatment and the added complexity of P200’s hedging scheme led to a less efficient settlement process, thus impacting Condition C3.

The **MINORITY** view of the Group was that the Proposed Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (a). They believed that P200 would remove market distortions and the discrimination that exist in the present arrangements due to the introduction of the zonal transmission losses methodology (as P198 does also).

A **MINORITY** of the Group believed that P200 had no impact on the achievement of Applicable BSC Objective (a).

Applicable BSC Objective (b) – The efficient, economic and co-ordinated operation of the GB transmission system

The **MAJORITY** view of the Group was that the Proposed Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (b). These members believed that P200 would have the same beneficial impact on despatch as P198 which would lead to a reduction in the level of losses. Furthermore, they felt there would be a stronger incentive to respond to the locational signals from zonal transmission losses and that due to the hedging scheme these signals would persist for the lifetime of project for existing generation. They also believed that the identified savings from re-despatch would still deliver a net efficiency benefit.

One member felt that there was only a minimal benefit for despatch, however P200 would reduce transmission losses and hence improve the efficiency of the transmission system. This proposed reduction in losses was supported by another member. One member believed that the marginal signal would be stronger than for P198 because of the addition of the F-factor hedging scheme.

One member of the Group also argued that, in addition to introducing more efficient short-term despatch, P200 would introduce long-term signals influencing business decisions regarding investment in both generation and demand.

The view of a **MINORITY** of members was that the Proposed Modification **WOULD** not better facilitate the achievement of Applicable BSC Objective (b). These members believed that the hedging scheme would counter the efficiency of P198 zonal transmission losses. One member felt that P200 would increase generation costs in the south of England as generators would be allocated losses even if they were not

generating, leading to more plant closure. This would increase the overall level of losses. He also believed that the hedging scheme cancelled out the benefits of zonal TLFs. Another member felt that F-factor hedging scheme was contrary to market principles as it is based on historic performance.

Applicable BSC Objective (c) – Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

The **MAJORITY** view of the Group members that believed that the Proposed Modification **WOULD NOT** better facilitate (c), felt that it would reduce competition as P200 introduced discrimination in its treatment of different parties. One member particularly thought it was anti-competitive in the case where a party would want to invest in new plant next to existing plant and would not benefit from an F-factor allocation.

One member believed that the better despatch signal and cost reflectivity of zonal TLFs would be undermined because the hedging scheme would preserve the existing cost-subsidy. Furthermore, it creates an additional cross-subsidy by the F-factor allocation of hedged losses, especially when a BM Unit is not generating.

The **MINORITY** view of the Group was that the Proposed Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (c). These members thought that the hedging scheme would promote effective competition in generation and supply by protecting market participants from windfall gains and losses on sunk investments, encouraging investment and enhancing long term efficiency. They also believed that zonal TLFs would increase cost reflectivity and that the hedging scheme would keep the investment signal and provide more certainty to parties, thus reducing regulatory risk. Thereby helping new entrants and protecting existing ones.

One member believed that the hedging scheme would reduce the overall cost of producing electricity and the overall market price. Another member recognised the cross-subsidy element to P200, but stated that cross-subsidies already exist elsewhere and are acceptable features in other markets, such as the Universal Tariff Obligation. Another member believed that P200 would not introduce a further cross-subsidy as it was just reflects total costs.

One member believed that the Proposed Modification would have a **NEUTRAL** impact on the achievement of Applicable BSC Objective (c). He believed that the benefit of increased cost reflectively would be countered by the discrimination in treatment of different parties.

Applicable BSC Objective (d) – Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

The **MAJORITY** view of the Group was that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objective (d). These members believed that the increased complexity and resultant costs of P200 would be detrimental.

One member was concerned that, for the proposed requirement to ensure F-factors are applied to any re-registration of any CVA BM Units, the 'policing' thereof by BSC Parties was contrary to efficient administration. Furthermore, he felt that the P200 proposal of allocation of some losses based on historic F-factor volumes was less efficient compared to current system where all losses are associated with actual metered volumes.

A **MINORITY** of members believed that the Proposed Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (d). This member argued that the Proposed Modification would provide for better operation of the BSC arrangements as it would save costs of potential future Modifications.

A **MINORITY** of the Group believed that Applicable BSC Objective (d) was not relevant to the assessment of P200.

Summary

In deciding on whether P200 Proposed Modification better facilitates the achievement of the Applicable BSC Objectives overall, the Group considered BSC objectives (b) and (c) to be most relevant. Some members felt that P200 contained the same benefits for despatch as P198 and promoted competition through protection from windfall gains and losses. However, other members believed that the hedging scheme would counter the efficiency of P198 zonal transmission losses and that it was discriminatory. On balance the **MAJORITY** of the Group believed that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objectives. No members of the Group believed that P200 would better facilitate the BSC Objectives overall. Four members believed it had a neutral impact on the Applicable BSC Objectives.

6.2 Alternative Modification

Table 2 – Modification Group’s View of the Alternative Modification

Better facilitates Applicable BSC Objectives?	Compared with Proposed Modification	Compared with existing Code baseline
Yes	Majority	None
No	None	Majority
Neutral	Minority	Minority

6.2.1 Alternative Modification compared with Proposed Modification

The **MAJORITY** view of the Modification Group was that the Alternative Modification **WOULD** better facilitate the achievement of Applicable BSC Objectives (a), (b), (c) and (d) when compared to the Proposed Modification due to the addition of seasonal TLFs (one member believed it had a neutral impact on the Applicable BSC Objectives).

Applicable BSC Objective (b) – The efficient, economic and co-ordinated operation of the GB transmission system

The **MAJORITY** view of the Group was that that Alternative Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (b) when compared with the Proposed Modification. The Group believed that the external TLF modelling and cost-benefit analysis exercises, that been conducted for P198, had demonstrated that seasonal TLF values would represent a better reflection of the actual behaviour of BM Units within Zones, provide a more accurate short-term signal to generators, lead to more efficient plant despatch, and thereby offer the greatest reduction in variable losses.

Applicable BSC Objective (c) – Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

The **MAJORITY** view of the Group was that that Alternative Modification **WOULD** better facilitate the achievement of Applicable BSC Objective (c) when compared with the Proposed Modification. The Group believed that the results of the TLF modelling exercise had demonstrated that seasonal TLF values would be a more accurate allocation of variable losses than a single annual average. One member abstained.

6.2.2 Alternative Modification compared with current baseline

The Group considered that the same arguments that applied to Proposed Modification were applicable in the assessment of the Alternative Modification against the Applicable BSC Objectives (a), (b), (c) and (d) (see section 5.1).

Therefore, the **MAJORITY** of the Group believed that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objectives when compared with the existing Code baseline. Whilst the Group recognised that the application of seasonal TLFs in the Alternative Modification improved the Proposed Modification, these benefits were still outweighed by the arguments made for and against the Proposed Modification (see Section 6.1). No members of the Group believed that P200 Alternative would better facilitate the BSC Objectives overall. Four members believed it had a neutral impact on the Applicable BSC Objectives.

6.3 Interaction with P198 Modification

In accordance with the BSC Modification Procedures, P200 and P198 were assessed separately by their respective Modification Groups as to whether they would better facilitate the achievement of the Applicable BSC Objectives compared with the existing Code baseline – and not compared with each other. The P200 Group noted that the P198 Group, by majority, (which comprised a slightly different membership) had considered that both the Proposed and Alternative Modification would not better facilitate achievement of the Applicable BSC Objectives. Furthermore the P200 Group thought it would be useful to indicate a preference between the P198 and P200, so that this could be taken into account by the Authority when making its decision. The Group were split on whether P200 would better facilitate the achievement of the Applicable BSC Objectives compared with the P198.

6.4 Final recommendation to the Panel

On the basis of the above assessment, the Modification Group therefore agreed a **MAJORITY** recommendation to the Panel that:

- The Proposed Modification **SHOULD NOT** be made;
- The Alternative Modification **SHOULD NOT** be made; and
- The Alternative Modification **better facilitates** the Applicable BSC Objectives when compared to the Proposed Modification, but **NOT** when compared to the current baseline.

Details of the Group's recommended Implementation Date can be found in Section 4.12.

7 TERMS USED IN THIS DOCUMENT

Other acronyms and defined terms take the meanings defined in Section X of the Code.

Acronym/Term	Definition
Ex-ante	Based on forecast data.
F- Factor	A fixed allocation of energy for each Qualifying BM Unit, which would receive a uniform allocation of transmission losses.
Qualifying BM Unit	A BM Unit to which the transitional hedging scheme applies.
Transitional hedging scheme	Allows time-limited retention of a uniform allocation of a proportion of transmission losses for specified BM Units, via the 'F-factor'.
Transmission losses	The energy lost during the flow of power across the Transmission System (calculated as the difference between total generation and total demand).
Transmission Losses Adjustment (TLMO)	The parameter for allocating the proportion of transmission losses which are not allocated through the Transmission Loss Factor, and which is applied on a uniform basis.
Transmission Loss Factor (TLF)	The parameter for allocating some or all transmission losses on a non-uniform basis, and which is currently set to zero.
Transmission Loss Multiplier (TLM)	The factor used to scale BM Unit Metered Volumes in Settlement in order to allocate transmission losses to Parties.
Variable losses	The element of transmission losses which occurs through the heating of transmission lines, cables and transformers, and which increases with the

	current (and associated power flow) and length of line in which it flows.
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8 DOCUMENT CONTROL

8.1 Authorities

Version	Date	Author	Reviewer	Reason for Review
0.1	19/07/06	Justin Andrews	Sarah Jones	For internal review
0.2	25/07/06	Justin Andrews	Modification Group	For Modification Group review
0.3	02/08/06	Justin Andrews	Sarah Jones	For internal review
0.4	04/08/06	Justin Andrews	Change Delivery	For quality review
1.0	04/08/06	P200 Modification Group	BSC Panel	For Panel decision
2.0	18/08/06	P200 Modification Group		Reissued with correction of minor typos

8.2 References

Ref.	Document Title	Owner	Issue Date	Version
1	P200 revised requirement specification	BSCCo	30/06/06	2.0
2	P200 Consultation Document	BSCCo	30/06/06	1.0

8.3 Intellectual Property Rights, Copyright and Disclaimer

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APPENDIX 1: DRAFT LEGAL TEXT

Draft legal text for the Proposed Modification is attached as a separate document, Appendix 1A.

Draft legal text for the Alternative Modification is attached as a separate document, Appendix 1B.

APPENDIX 2: PROCESS FOLLOWED

Copies of all documents referred to in the table below can be found on the BSC Website at: [P200 Modification Proposal](#).

Date	Event
21/04/06	Modification Proposal raised by Teesside Power Limited
11/05/06	IWA presented to the Panel
12/05/06	First Assessment Procedure Modification Group meeting held
18/05/06	Requirements Specification issued for BSC Agent impact assessment. Request for BSCCo, Party/Party Agent impact assessments and Transmission Company analysis issued
25/05/06	BSCCo, BSC Agent and Party/Party Agent impact assessment, Transmission Company analysis response returned
31/05/06	Second Assessment Procedure Modification Group meeting held
15/06/06	Third Assessment Procedure Modification Group meeting held
21/06/06	Fourth Assessment Procedure Modification Group meeting held
30/06/06	Revised Requirements Specification issued for BSC Agent impact assessment. Request for BSCCo, Party/Party Agent impact assessments and Transmission Company analysis issued. Consultation document issued (Reference 2).
14/07/06	Responses received to revised impact assessment. Responses received to industry consultation
18/07/06	Fifth and final Assessment Procedure Modification Group meeting held
01/08/06	Cost-Benefit Analysis Data Correction Consultation issued
07/08/06	Cost-Benefit Analysis Data Correction Consultation returned
10/08/06	Assessment Report presented to the Panel

ESTIMATED COSTS OF PROGRESSING MODIFICATION PROPOSAL¹⁰

Meeting Cost	£3,000 (based on sharing some meetings with P198)
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¹⁰ Clarification of the meanings of the cost terms in this appendix can be found on the BSC Website at the following link: http://www.elexon.co.uk/documents/Change_and_Implementation/Modifications_Process_-_Related_Documents/Clarification_of_Costs_in_Modification_Procedure_Reports.pdf.

Legal/ Expert Cost	£3,500 (covering legal text support)
Impact Assessment Cost	£15,000
ELEXON Resource	115 Man days £39,500 (includes requirement for contract staff)

Note that the Legal/Expert cost has been reduced by £25,000 from that provided in the IWA, due to the removal of the external cost benefit analysis.

MODIFICATION GROUP MEMBERSHIP

Member	Organisation	12/05	31/05	15/06	21/06	18/07
Sarah Jones	ELEXON (Chairman)	Y	Y	Y	Y	Y
Kathryn Coffin	ELEXON (Lead Analyst)	Y	Y	Y	Part	Y
Graham Shuttleworth	NERA (Proposer's representative)	Y	Y	Y	Y	Y
Andrew Truswell	National Grid	Y	Y	Y	Y	Y
Bill Reed	RWE	Y	N	Y	Y	Y
Steve Drummond	EDF Trading	N	Y	Y	Y	Y
David Lewis	EDF Energy	Y	N	Y	N	Y
Man Kwong Liu	SAIC	Y	Y	Y	Y	Y
Garth Graham	Scottish and Southern	Part	Y	Y	Y	Y
Dave Wilkerson	Centrica	Y	Y	N	N	Y
Keith Miller	KM Energy	Y	Y	Y	N	Y
Richard Ford	BWEA	Y	Y	N	N	N
Bob Brown	Cornwall Energy Associates	Y	Y	Y	N	Y
Ben Sheehy	E.ON UK	Y	Y	Y	Y	Y
Kirsten Elliott-Smith	Conoco Phillips	Y	Y	Y	N	N
Martin Mate	British Energy	Y	Y	N	N	Y

Attendee	Organisation	12/05	31/05	15/06	21/06	18/07
Richard O'Malley	ELEXON (Legal support)	Part	Y	Y	Part	Part
Justin Andrews	ELEXON (Technical Support)	Y	N	Y	Y	Y
John Lucas	ELEXON (Technical Support)	N	Y	Part	Y	Part
Grant McEachran	Ofgem	Part	N	Y	Y	Y
Steve Mackay	Ofgem	Y	N	N	Y	N
Cheryl Mundie	Ofgem	Y	Y	N	N	Y

Attendee	Organisation	12/05	31/05	15/06	21/06	18/07
Mark Gribble	LogicaCMG	Y	Y	N	N	N
John Guest	LogicaCMG	Y	Y	N	N	N
Richard Jones	Npower	N	Y	N	N	N
Louise Allport	British Energy	N	N	Y	Y	N
Phil Broom	Gaz de France	N	N	N	Y	Y
Peter Bolitho	E.ON	N	N	N	N	Y

APPENDIX 3: RESULTS OF ASSESSMENT PROCEDURE CONSULTATION

Full copies of the consultation responses are attached as a separate document, Appendix 3A.

APPENDIX 4: RESULTS OF IMPACT ASSESSMENT

This section shows the results of the impact assessments based on the Requirements Specification issued on 18 May 2006 and revised Requirements Specification issued on 30 June 2006. These impacts are additional to the impacts for P198 and this impact assessment focused on the additional hedging scheme.

a) Impact on BSC Systems and Processes

System / Process	Impact of Proposed and Alternative Modification
CRA	A set of monthly F-factors for a BM Unit will be received from the BSCCo via a new manual interface. This will consist of one initial load of F-factor data for all BM Units with applicable F-factors and low volume updates thereafter (F-factors will only change due to BM Unit re-registrations).
BMRA	The BMRA uses ETLMO for its transmission loss estimations. A revised monthly ETLMO ⁺ (12 per year) will be received via the existing interface and will be treated in the same way as the existing ETLMO ⁺ dated parameter. These revised values will apply to all BM Units, i.e. there will be no distinction between the monthly values of ETLMO ⁻ used for BM Units that qualify for hedging and those that do not. Therefore there is no software impact on the BMRA.
Settlement Administration (SAA)	Amend the calculation of BM Unit transmission loss multipliers to use F-factors. Amend the calculation of Credited Energy Volumes to use F-factors.

b) Impact on BSC Agent Contractual Arrangements

No additional impact.

c) Impact on BSC Parties and Party Agents

BSC Parties indicated that there would be an additional impact due to changes to their own systems and processes to account for the F-factor hedging scheme (both for Proposed and Alternative Modifications).

There is no additional impact on Party Agents.

Full copies of the Party and Party Agent impact assessment responses can be found on the BSC Website at [P200 Modification Proposal](#).

d) Impact on Transmission Company

No additional impact.

e) BSC Panel

No additional impact.

f) Impact on BSCCo

Area of Business	Impact of Proposed and Alternative Modification
BSC Website	BSCCO would be required to publish F-factor volumes.
TOMAS	Support to the one-off calculation of F-factors. Changes may be required to accommodate any change to CRA or SAA flows.
ETLMO process	BSCCO would need to undertake a revised calculation of ETLMO ⁺ and ETLMO ⁻ .
Working procedures	BSCCO would be required to perform the one-off calculation for the qualification of BM Units and F-factor volumes. BSCCo would need to put in place appropriate working practices to support the calculation and publication of F-factor values. In addition process would be required to support BSC Parties in any de/re-registration of BM Units.

g) Impact on Code

Code Section	Impact of Proposed and Alternative Modification
Section T 'Settlement and Trading Charges'	Section T would require amendments to detail the rights and obligations of all relevant parties regarding the calculation of F-factor volumes and their use in Settlement. New obligation on parties for the de/re-registration of BM Units
Section X 'Definitions and Reporting'	Section X would require amendment to detail any new Code-defined terms or acronyms required for P200.

h) Impact on Code Subsidiary Documents

Document	Impact of Proposed and Alternative Modification
BSCP01 'Overview of the Trading Arrangements'	Amendments would be required to reflect the derivation of F-factor volumes and their use in Settlement calculations.
BSCP15 'BM Unit Registration'	Amendments would be required to include the process for allocating an F-factor volume to each BM Unit for duration of 15 years. New obligation on BSC Parties for the de/re-registration of BM Units.
Reporting Catalogue	Amendments would be required to reflect the new/amended

Document	Impact of Proposed and Alternative Modification
	reporting requirements introduced by P200.
BSC Agent Service Descriptions	The BMRS, CRA and SAA Service Descriptions would need to be amended to reflect the new obligations on these Agents in respect of F-factor hedging scheme.

i) Impact on Core Industry Documents/System Operator-Transmission Owner Code

No additional impact identified. However, the Transmission Company did note the following "potential changes in European Legislation may affect the treatment of transmission losses across the Interconnectors which could result in additional costs needing to be recovered for any losses payments made. This is however still in development and precise information cannot be provided on this at this time."

j) Impact on Other Configurable Items

Document	Impact of Proposed and Alternative Modification
User Requirements Specifications	The TOMAS system, BSC Website, SAA and CRA URSs would need to be amended to reflect the new obligations on these Agents in respect of F-factor volumes.

k) Impact on BSCo Memorandum and Articles of Association

No additional impact.

l) Impact on Governance and Regulatory Framework

No additional impact.

APPENDIX 5: Modification Group Terms Of Reference

Modification Proposal P200 will be considered by the 'P200 Modification Group' (formed from members of the P198 Modification Group), in accordance with the following Terms of Reference.

- 1.1 The Modification Group will carry out an Assessment Procedure in respect of Modification Proposal P200 pursuant to section F2.6 of the Balancing and Settlement Code.
- 1.2 The Modification Group will produce an Assessment Report for consideration at the BSC Panel Meeting on 10 August 2006.
- 1.3 The Modification Group shall consider:
 - The following background information:
 - The solution developed by the P198 Modification Group for Proposed Modification P198, in order to ensure consistency between the zonal TLF element of P200 and P198;
 - The solution developed by the P198 Modification Group for any P198 Alternative Modification, and its potential applicability to any P200 Alternative Modification;
 - The results to date of the P198 Assessment Procedure (for example, the results of the P198 impact assessment, TLF modelling and cost-benefit analysis), in order to establish the

applicability of this work to P200, any dependencies of the P200 assessment on the P198 work, and any additional work which is required for P200 to reflect the addition of a transitional hedging scheme; and

- The key similarities and differences between P200 and previous Modification Proposal P109, in order to identify any issues raised by the P109 solution and Authority decision which may be relevant to P200,
- The general principle of introducing a mechanism within the Code to hedge against regulatory risk introduced by changes to the Code;
- The specific appropriateness of adding a transitional hedging scheme to the introduction of zonal TLFs;
- The definition of 'qualifying' BM Unit to which the P200 transitional hedging scheme applies, and how this interacts with existing Code definitions such as P/C Status, GC and delivering/offtaking (since these are dynamic and can change over time);
- The appropriateness of excluding other BM Units, such as demand and new entrants;
- The methodology for calculating F-factors, their granularity, and the start date and duration of the baseline period;
- The appropriateness of fixing F-factors for 15 years;
- The precise calculation for allocating transmission losses under P200, for example:
 - Any impact on the TLM calculation to reflect that qualifying BM Units would have a fixed volume of hedged losses assigned to them regardless of their Metered Volumes; and
 - The effect of a mandatory F-factor scheme on the TLF exposure of different types of BM Units (for example, plant on outage, pumped storage, intermittent generation),
- How F-factors would be treated under the existing BM Unit deregistration, re-registration and change of ownership processes (for example, whether F-factors could be terminated or transferred under these processes);
- Any additional cost-benefit analysis which is required for P200, giving particular consideration to:
 - How the cost of capital is affected by zonal TLFs with and without the addition of a hedging scheme;
 - How F-factor hedging over a 15 year period affects the despatch and locational signals provided by zonal TLFs for both qualifying and non-qualifying BM Units;
 - Whether examination of these areas requires the scope of the cost-benefit analysis to be extended beyond the ten-year study period used for P198; and
 - Whether the P200 cost-benefit analysis should be carried out by the P198 external cost-benefit analysis consultant, or can be extrapolated by the Group using the P198 results,

- The implementation costs and lead time for P200 (to be determined by impact assessment), and whether the same implementation approach should be followed for P200 as for P198.

APPENDIX 6: Summary of Data Analysis

ELEXON undertook the following four analysis tasks:

- 1) Establish which BM Units would have qualified for the hedging scheme under each of the 2 approaches (BM Unit or Trading Unit) as set out in the initial Requirements Specification;
- 2) Calculate F-factors for all Qualifying BM Units under each of the 2 approaches, BM Unit or Trading Unit (as set out in the initial Requirements Specification);
- 3) For a few sample BM Units and representative sample Settlement Periods, establish the variation of the BM Units' Settlement Period output from their monthly F-factor; and
- 4) For a few sample BM Units and representative sample Settlement Periods, show impact of F-factors on allocation of transmission losses under P200 compared with the current baseline and P198.

For the purpose of the analysis, ELEXON had:

- Used 1 April 2005 – 31 March 2006 as both the Qualifying Period and Baseline Period (any BM Units which registered from 1 April 2006 onwards therefore did not qualify for the scheme under either approach); and
- Assumed that the Trading Unit for each BM Unit had remained constant over this period (there were 5 BM Units which actually changed Trading Unit).¹¹

Sample Graphs are included from the above analysis below:

1. Rocksavage: This shows the average monthly metered volume for the Trading Unit, comprising of two BM units (T_CASKD-1 is the demand BM Unit for this Trading Unit). It also depicts the F-factor Volumes for the Trading Unit and each BM Unit
2. Wylfa: This is shows the above parameters for a Trading Unit comprising 8 different BM Units.

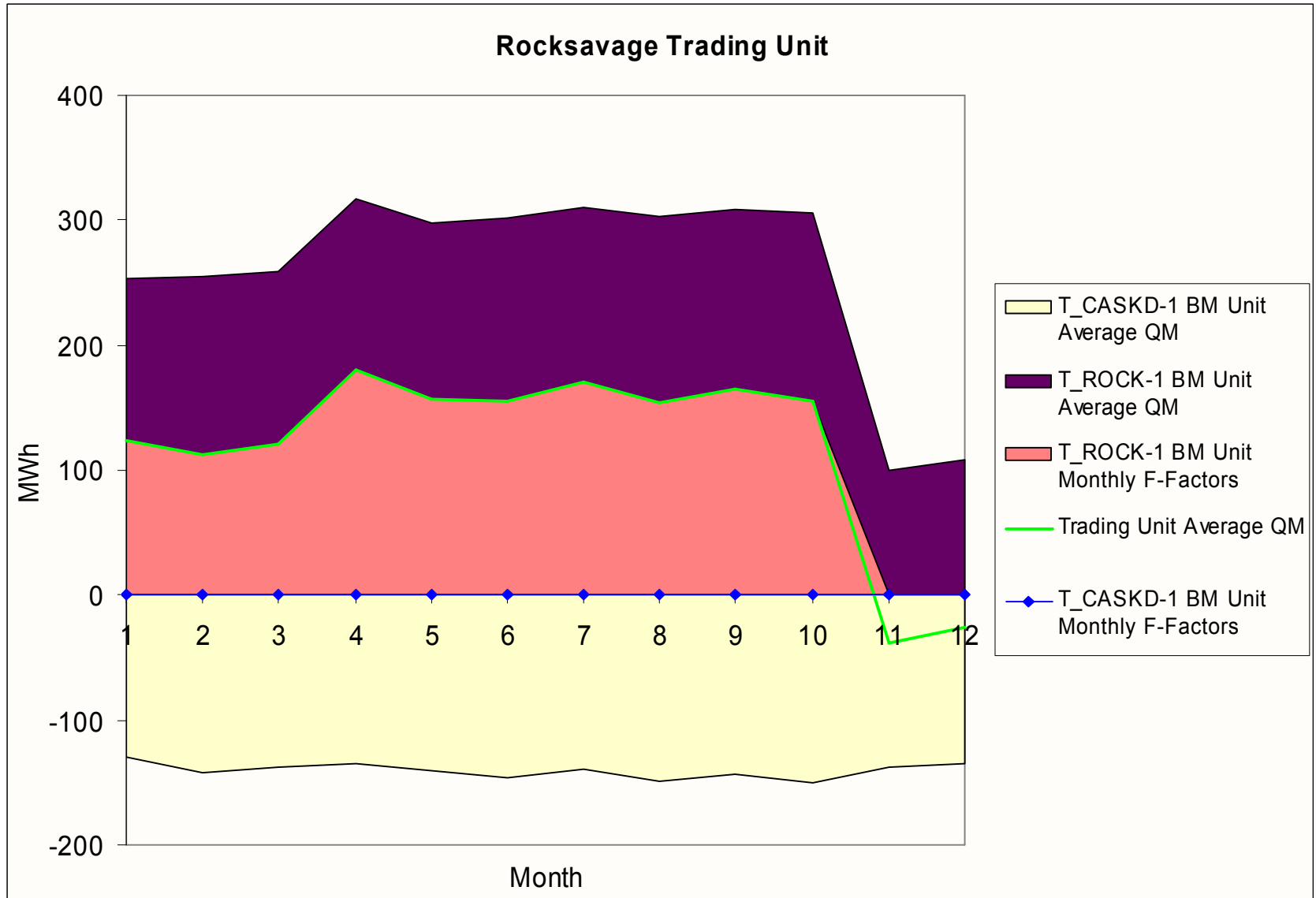
Further analysis was conducted to illustrate the effects of P200 on the allocation of transmission losses and these results are depicted in the following graphs (please note graphs show both calculation approaches described in section 4.5.2):

3. Illustration of Applicable losses for Zone 1
4. Illustration of Applicable losses for Zone 11
5. Illustration of Applicable losses for Zone 14

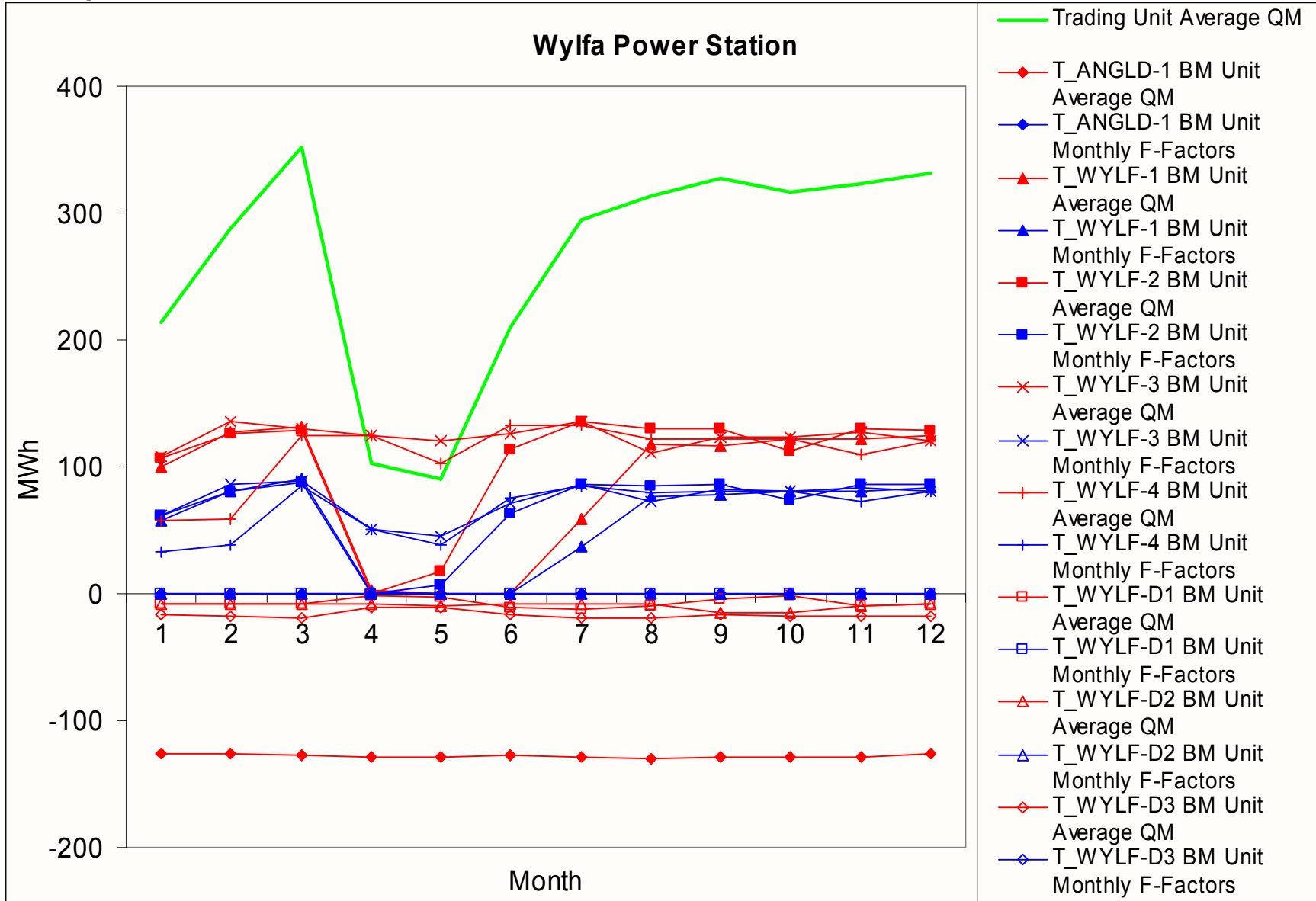
The full results of both analyses can be found on the BSC Website at [P200 Modification Proposal](#).

¹¹ Note that, for the data analysis, ELEXON used the Trading Unit to which the BM Unit belonged at the time of the analysis (using the BM Unit registration data spreadsheet on the BSC Website at that time). This is therefore slightly different to using the Trading Unit status at the end of the sample period (i.e. at 31 March 2006).

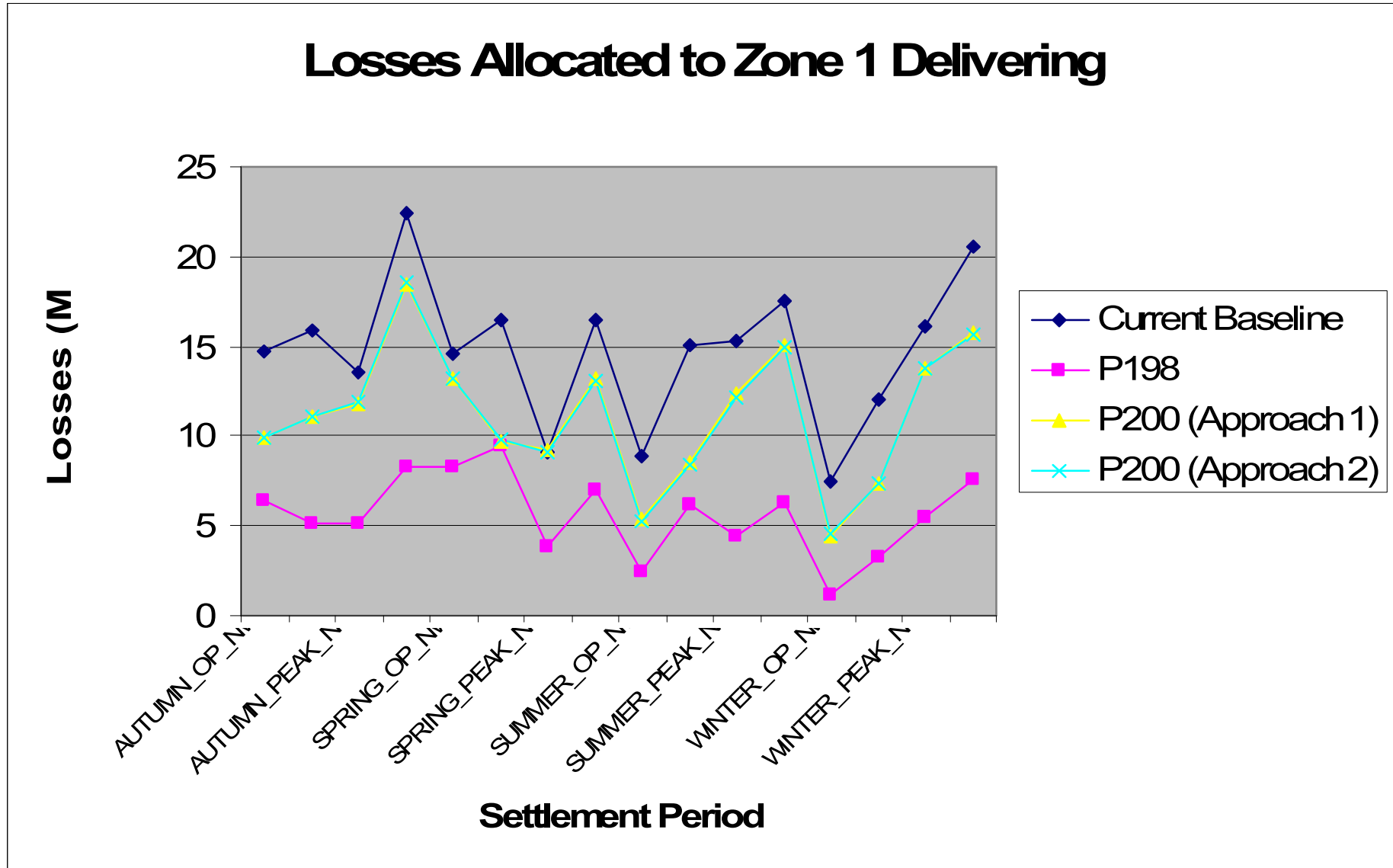
GRAPH 1. Rocksavage



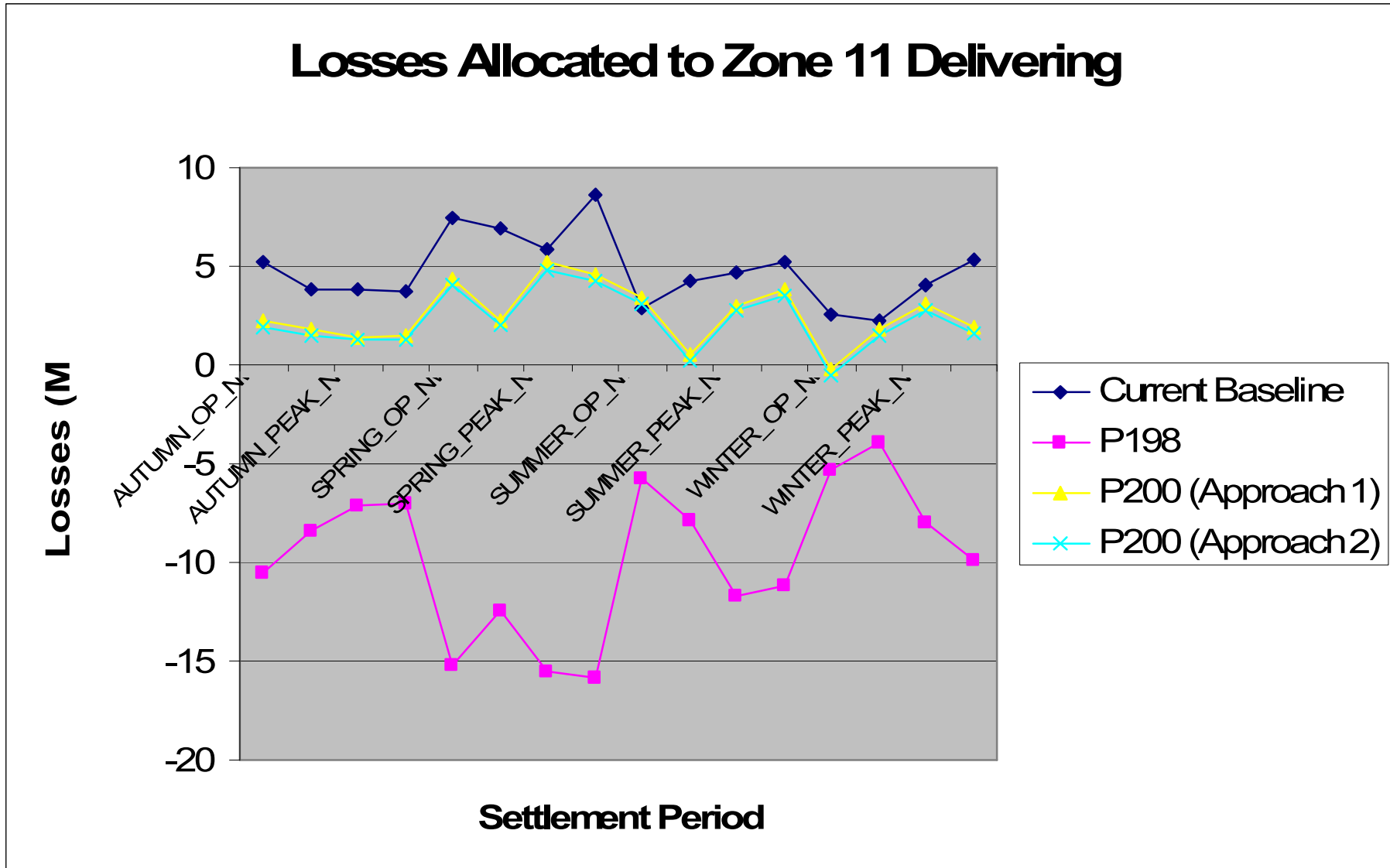
GRAPH 2. Wylfa



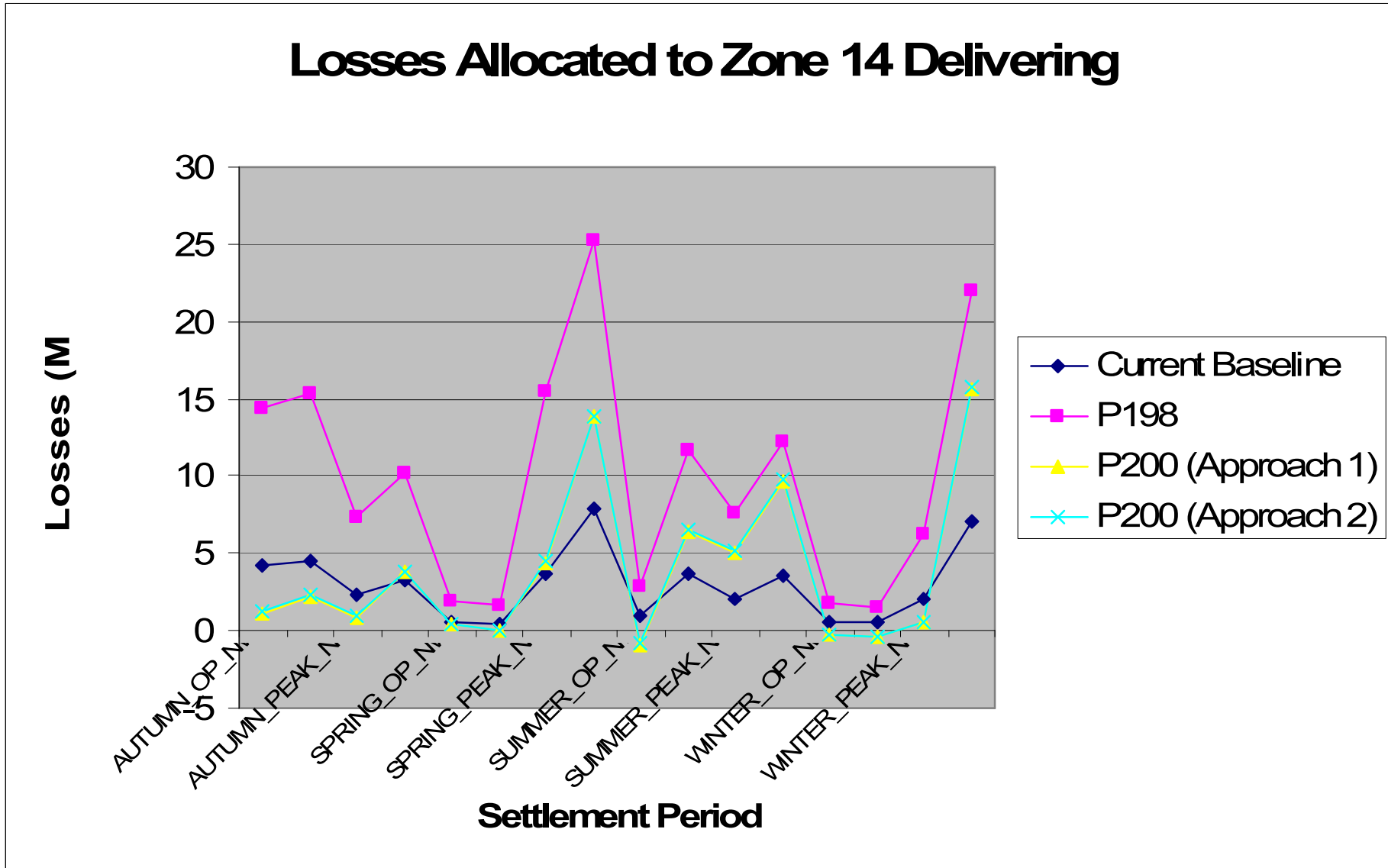
Graph 3. Illustrative Transmission losses for Zone 1



GRAPH 4: Illustrative Transmission losses for Zone 11



GRAPH 5. Illustrative Transmission losses for Zone 14



APPENDIX 7: RESULTS OF TLF MODELLING EXERCISE

A copy of the full PTI load-flow modelling report can be found on the BSC Website at [ELEXON - Modification Proposal 198](#).

APPENDIX 8: RESULTS OF COST-BENEFIT ANALYSIS

A copy of the full OXERA cost-benefit analysis report can be found on the BSC Website at [ELEXON - Modification Proposal 198](#).

APPENDIX 9: RESULTS OF DATA CORRECTION CONSULTATION

Copies of the full responses received to the cost-benefit analysis data correction consultation are attached as a separate document, Appendix 9A.

APPENDIX 10: P198 ASSESSMENT REPORT

A copy of the P198 Assessment Report can be found on the BSC Website at [ELEXON - Modification Proposal 198](#). This report also includes the results of the PTI load flow modelling exercise and Oxera Cost-Benefit analysis as separate attachments.