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Draft MODIFICATION REPORT
MODIFICATION PROPOSAL P82 –
Introduction of Zonal Transmission
Losses on an Average Basis

Prepared by ELEXON on behalf of the Balancing
and Settlement Code Panel

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I DOCUMENT CONTROL

a Authorities

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b Distribution

Name	Organisation
Each BSC Party	Various
Each BSC Agent	Various
The Gas and Electricity Markets Authority	Ofgem
Each BSC Panel Member	Various
energywatch	energywatch
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d References

- Reference 1 Joint Assessment Report (Version 1.0, 8 November 2002):
 'Modification Proposal P75 – Introduction of Zonal Transmission Losses'
 'Modification Proposal P82 – Introduction of Zonal Transmission Losses on an Average Basis'
- Reference 2 Initial Written Assessment of Modification Proposal P82 (Version 1.0, 10 May 2002):
 'Introduction of Zonal Transmission Losses on an Average Basis'
- Reference 3 Interim Report (Version 1.0, 12 July 2002):
 'Modification Proposals P75 & P82'

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1 SUMMARY AND RECOMMENDATIONS

1.1 Recommendation

On the basis of the analysis, consultation and assessment undertaken in respect of this Modification Proposal during the Assessment Procedure, and the resultant findings of this report, the Balancing and Settlement Code Panel ('the Panel') recommends that:

Proposed Modification P82 should not be made.

In the event that the Authority determines that the Proposed Modification should be made, the Implementation Date should be 1 April 2004, where an Authority decision is received by 31 December 2002. Where an Authority decision is received after this date, but before 31 March 2003, the Implementation Date should be 1 October 2004.

Alternative Modification P82 should not be made.

In the event that the Authority determines that the Proposed Modification should be made, the Implementation Date should be 1 April 2004, where an Authority decision is received by 31 December 2002. Where an Authority decision is received after this date, but before 31 March 2003, the Implementation Date should be 1 October 2004.

The Authority note that P82 (Proposed and Alternative) and P75 (Proposed and Alternative) are mutually exclusive.

1.2 Background

Modification Proposal P82 'Introduction of Zonal Transmission Losses on an Average Basis' ('P82') was submitted on 3 May 2002 by First Hydro Company. P82, on the basis that it sought to address the same defect as and raised similar issues to Modification Proposal P75 ('Introduction of Zonal Transmission Losses') ('P75'), was submitted to a six-month Assessment Procedure to be considered in parallel to P75 by the Transmission Loss Factor Modification Group (TLFMG). The extended period was primarily a function of the perceived requirement to tender for and obtain a modelling service to help assess the impact of the P82. During the course of that Assessment Procedure, an Alternative Modification to P82 was developed.

The Assessment Report (Reference 1), containing the analysis and recommendation of the TLFMG in respect of the Proposed Modification, can be found on the ELEXON website (www.elexon.co.uk). The Assessment Report made a recommendation that the Alternative Modification should be made.

1.3 Rationale for Recommendations

The Panel considered the P82 Assessment Report at its 14 November 2002 meeting. On the basis of the analysis undertaken by the TLFMG, the modelling results and the consultation responses received, the Panel decided to recommend to the Authority that neither the Proposed Modification nor the Alternative Modification should be made. The Panel concurred with the view held by a substantial minority of the TLFMG, and a narrow majority of the consultation respondents, neither the Proposed Modification nor the Alternative Modification would better facilitate achievement of the Applicable BSC Objectives.

A narrow majority of the TLFMG had judged that implementation of the Alternative Modification would, through more accurate allocation of the cost of transmission losses, result in more efficient despatch in

the short-term and more efficient location of generation and demand in the long-term. In addition, the majority view was that competition would be enhanced through the promotion of efficient entry/exit and the prevention of inefficient entry/exit to and from the market due to the elimination of the cross-subsidy inherent in the current allocation of the losses. However, the TLFMG judged that phased implementation, which distinguished the Alternative Modification from the Proposed Modification, was essential to protect existing contracts and smooth transition to zonal differentiation of transmission losses.

The Panel, however, was of the opinion that the putative increase in the efficiency of the operation of the Transmission Network (i.e. Applicable BSC Objective (b)) and enhancement in competition (i.e. Applicable BSC Objective (c)) associated ascribed the Proposed Modification by the TLFMG were not proven. It was the Panel's view that conclusive evidence that the proposed zonal differentiation would allocate the cost of transmission losses more accurately than the current arrangements had not been presented. In addition, the Panel was of the opinion that, on balance, the effect of any gains in the accuracy of cost allocation would be outweighed by the industry-wide costs associated with implementation of the Alternative Modification. Furthermore, a majority of Panel members believed that the phased implementation which differentiates the Alternative Modification from the Proposed Modification would not be sufficient to yield a net benefit.

The Panel agreed with the TLFMG's recommendation that, should the Authority determine that either the Proposed Modification or the Alternative Modification should be made, the Implementation Date should be 1 April 2004.

2 INTRODUCTION

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

This Modification Report is addressed and furnished to the Gas and Electricity Markets Authority ('the Authority') and none of the facts, opinions or statements contained herein may be relied upon by any other person.

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

3 HISTORY OF PROPOSED MODIFICATION

P82 was submitted on 3 May 2002 by First Hydro Company. P82 proposes the application of zonal differentiation of transmission losses on an average, as opposed to marginal, basis to generation and demand. The Proposer recommends grouping both generation and demand into zones based on GSP Groups. At present, allocation is on a fixed and uniform basis with a defined split between production and consumption. As mentioned previously, whilst the Code recognises that transmission losses could be allocated on a locational basis, the parameters to support this, the Transmission Loss Factors (TLFs), are currently set to zero. Any change to TLFs would require a change to the Code.

Under P82, a new BSC Agent would be appointed to calculate annual TLFs, on an ex-ante basis, using a methodology to be specified in the BSC. In addition, TLFs would be 'scaled' by a factor of 0.5 such that only variable losses (i.e. those caused by heating) would be allocated on a zonal basis approximately.

The Proposer believes that the introduction of such zonal differentiation of transmission losses would introduce long-term signals for the siting of generation and demand by allocating losses in such a manner that does not unduly penalise individual BM Units. In addition, losses would be allocated only according to the degree to which individual BM Units give rise to losses.

ELEXON produced an Initial Written Assessment (IWA) (Reference 2) recommending that P82 should be submitted to a six-month Assessment Procedure, and considered in parallel to P75 by the TLFMG given that the proposals seek to remedy the same perceived defect. The Panel, at its 16 May 2002 meeting, agreed to the recommendation and that an Assessment Report should be presented at the 14 November 2002 Panel meeting and an Interim Report (Reference 3) at 18 July 2002 Panel meeting. Unlike for P75, ELEXON did not recommend a Definition Procedure because, whilst a number of the elements of P75 remained to be described, P82 provides a more comprehensive description of what is proposed.

The TLFMG carried out a joint Assessment Procedure for P75 and P82, in recognition of their similar solutions to the same perceived defect. A project plan was drawn up, and the TLFMG met 15 times to assess the proposal.

The TLFMG decided to set up two subgroups in order to progress the business in an efficient manner during the six month Assessment Procedure:

- a 'Modelling Subgroup' to produce a requirement specification for the modelling service identified as necessary support the Assessment Procedure; and
- a 'Data Subgroup' to identify the input data that would need to be made available to the provider of such a modelling service.

The TLFMG produced an Interim Report containing an initial assessment of P75 and P82, a High Level Impact Assessment from the BSC Agent¹ and the requirement specification and a proposed tender process for the modelling service.

Having secured Panel authorisation, ELEXON, on behalf of the TLFMG issued an Invitation to Tender (ITT) for the modelling service on 22 July 2002. A Tender Evaluation Board (TEB), composed of members from the full TLFMG and ELEXON, was established. Five tenders were received by the 2 August 2002 deadline and assessed by the TEB. Four of the tendering organisations were short-listed and invited to present their tenders to the TEB on 8 August 2002. On the basis of the tender submitted and the accompanying presentation, the TEB recommended that ELEXON's Chief Executive award the contract to Power Technologies International (PTI). The TEB was of the opinion that PTI combined the most economically advantageous tender with greatest capacity to deliver. ELEXON's Chief Executive ratified the recommendation and the contract was awarded to PTI on 15 August 2002. PTI delivered a final report, containing the modelling results, on 14 October 2002.

The TLFMG produced and issued a consultation document containing an interim set of modelling results and the results of the Assessment Procedure up to that point on 2 October 2002. Twenty-nine responses were received by the 21 October 2002 deadline². In addition, Detailed Level Impact Assessments (DLIAs) were sought and received from Parties, the NEBSC Agent and the Transmission Company by the same deadline³.

On the basis of the consultation responses, impact assessments and modelling results, the TLFMG met twice more to formulate its recommendations and finalise its assessment. During the Assessment Procedure the TLFMG considered a number of options that could constitute an alternative to the

¹ See Assessment Report (Attachment 3)

² See Assessment Report (Attachment 8)

³ See Assessment Report (Attachments 5, 6 & 9)

proposal submitted. An Alternative Modification was developed in which monthly TLFs would be calculated on an ex-ante basis and phased in linearly over four years.

Finally, an Assessment Report was produced and submitted for consideration at the Panel meeting held on 14 November 2002. The report contained a recommendation to submit the Proposed Modification to the Report Phase and with a recommendation that the Alternative Modification should be made. On the basis of the assessment undertaken, a narrow majority of the TLFMG was of the opinion that the Alternative Modification would better facilitate achievement of the Applicable BSC Objectives. Conversely, the majority of the TLFMG judged that the Proposed Modification would not better facilitate achievement of the Applicable BSC Objectives⁴.

4 DESCRIPTION OF PROPOSED MODIFICATION

Full descriptions of both the Proposed Modification and the Alternative Modification are included in the Assessment Report⁵. This section of the Modification Report provides high-level descriptions.

4.1 Description of the Proposed Modification

P82 proposes the application of zonal differentiation of transmission losses on an average, as opposed to marginal, basis to generation and demand. The Proposer recommends grouping both generation and demand into zones based on GSP Groups. At present, allocation is on a fixed and uniform basis with a defined split between production and consumption. As mentioned previously, whilst the Code recognises that transmission losses could be allocated on a locational basis, the parameters to support this, the Transmission Loss Factors (TLFs), are currently set to zero.

Under P82, a new BSC Agent would be appointed to calculate annual TLFs, on an ex-ante basis, using a methodology to be specified in the BSC. In addition, TLFs would be 'scaled' by a factor of 0.5 such that only variable losses (i.e. those caused by heating) would be allocated on a zonal basis approximately.

The Proposer believes that the introduction of such zonal differentiation of transmission losses would introduce long-term signals for the siting of generation and demand by allocating losses in such a manner that does not unduly penalise individual BM Units. In addition, losses would be allocated only according to the degree to which individual BM Units give rise to losses.

The table below summarises the key characteristics of the Proposed Modification:

Feature	Proposed Modification (P82)
TLF Methodology (TLFM)	'Scaled Marginal' (i.e. scaling factor of 0.5) & defined in the Code
TLF Calculation	Annual Ex-ante
Validity of TLFs	One BSC Year (April to March)
Zonal Groupings	<u>Generation</u> – GSP Groups <u>Demand</u> – GSP Groups
Type of Flow to be Modelled	Direct Current (DC)
Network Configuration Data	Historic Intact Data
Process for Conversion of Metered Volumes into Nodal Metered Volumes	Specified mapping
Process for Conversion of Nodal TLFs into Zonal TLFs	'Volume-weighted' Averaging
Process for Conversion Half-hourly TLFs into Annual TLFs	Time-weighted Averaging

⁴ See section 7 of this report for details of the assessment that led to these recommendations.

⁵ See section 4 of the Assessment Report (available at www.elexon.co.uk).

4.2 Description of the Alternative Modification

The TLFMG established an Alternative Modification having considered a number of potential schemes for delivering zonal differentiation of transmission losses. A narrow majority of the TLFMG believed that phased implementation of P82 would smooth the impact of zonal differentiation and protect forward contracts made prior to the introduction of such an arrangement.

The table below summarises the key characteristics of the Alternative Modification:

Feature	Alternative Modification (P82)
TLF Methodology (TLFM)	'Scaled Marginal' (i.e. scaling factor of 0.5) & defined in the Code
TLF Calculation	Annual Ex-ante
Validity of TLFs	One BSC Year (April to March)
Zonal Groupings	<u>Generation</u> – GSP Groups <u>Demand</u> – GSP Groups
Type of Flow to be Modelled	DC
Network Configuration Data	Historic Intact
Methodology for Converting Metered Volumes into Nodal Metered Volumes	Specified mapping
'Averaging' Process for Converting Nodal TLFs into Zonal TLFs	'Volume-weighted' averaging
'Averaging' Process for Converting Half-hourly TLFs into Annual TLFs	Time-weighted Averaging
Phasing	Linear 'Beta' Phasing over 4 Years

5 RATIONALE FOR PANEL RECOMMENDATIONS

The Panel considered the P82 Assessment Report at its 14 November 2002 meeting. On the basis of the analysis undertaken by the TLFMG, the modelling results and the consultation responses received, the Panel decided to recommend to the Authority that neither the Proposed Modification nor the Alternative Modification should be made. The Panel concurred with the view held by a substantial minority of the TLFMG, and a narrow majority of the consultation respondents, neither would better facilitate achievement of the Applicable BSC Objectives.

5.1 Rationale for Recommendations

The Panel, was of the opinion that the putative increase in the efficiency of the operation of the Transmission Network (i.e. Applicable BSC Objective (b)) and enhancement in competition (i.e. Applicable BSC Objective (c)) ascribed to the Proposed Modification by the TLFMG were not proven. Conclusive evidence that the proposed zonal differentiation would allocate the cost of transmission losses more accurately than the current arrangements had not, in the Panel's opinion been presented. In addition, the Panel was of the opinion that, on balance, the effect of any gains in the accuracy of cost allocation would be outweighed by the industry-wide costs associated with implementation of the Alternative Modification. Furthermore, a majority of Panel members believed that the phased implementation which differentiates the Alternative Modification from the Proposed Modification would not be sufficient to yield a net benefit.

The Panel agreed with the TLFMG's recommendation that, should the Authority determine that either the Proposed Modification or the Alternative Modification should be made, the Implementation Date should be 1 April 2004.

5.2 Panel Discussion

In addition to making recommendations in terms of the Applicable BSC Objectives, views on the basis for the TLFMG's recommendations, the cost-benefit undertaken by National Economic Research Associates (NERA), the weight of opinion amongst consultation responses, and the wider context within which P82 should be considered were expressed.

First, several Panel members noted that both the TLFMG in formulating its recommendations and consultation respondents were divided in their opinions.

Second, the Panel discussed the cost-benefit analysis undertaken by NERA concluding that neither the Proposed Modification nor the Alternative Modification would yield a net benefit. One Panel member expressed the view, which was supported by several other members, that the analysis was sensitive to the assumptions made regarding costs and prices. He further suggested that some of the assumptions were questionable. Another member was of the opinion that the differential impact on market participants ought not to be the only consideration of a cost-benefit analysis – the net impact on transmission losses ought to be considered. For example, an overall reduction in losses would be beneficial. Finally, one member noted that the cost-benefit analysis had not addressed the issue of additional complexity in the market rules potentially acting as a barrier to entry.

Third, two Panel members noted that the majority of consultation responses appeared to believe that neither the Proposed Modification nor an, at that time, unspecified alternative would better facilitate achievement of the Applicable BSC Objectives. One member noted that all non-BSC Party respondents opposed both the Proposed Modification and the Alternative Modification.

Finally, several Panel members expressed the opinion that assessment of both the Proposed Modification and the Alternative Modification needed to take account of the wider context within which the industry was located. One member expressed the view that planning and political considerations were more significant factors in the siting of generation than the allocation of transmission factors and that the demand-side would not respond to any locational signals introduced by zonal differentiation of losses. Opinions were also expressed that assessment of the Proposed Modification and the Alternative Modification needed to take into account the potential interaction of locational loss signals and the TNUoS Charging Methodology. Several members noted that the proposed implementation date of 1 April 2004 was the same date targeted for the implementation of BETTA, and that the potential interaction needed to be taken into account. The Panel concluded however, that consideration of BETTA, in accordance with the view it expressed earlier in the Assessment Procedure, was outside the *vires* of the Code.

6 LEGAL TEXT TO GIVE EFFECT TO THE PROPOSED MODIFICATION

6.1 Proposed Modification: Conformed Version

Attached as Annex 2 of this report.

6.2 Proposed Modification: Clean Version

Attached as Annex 3 of this report.

6.3 Alternative Modification: Conformed Version

Attached as Annex 4 of this report.

6.4 Alternative Modification: Clean Version

Attached as Annex 5 of this report.

7 ASSESSMENT

On the basis of the analysis, consultation and assessment undertaken during the Assessment Procedure, the TLFMG recommended that Panel recommend rejection of the Proposed Modification but that the Alternative Modification should be made⁶. However, it should be noted that opinion amongst the TLFMG was divided and views were polarised as to whether or not the Proposed Modification and the Alternative Modification would better facilitate achievement of the Applicable BSC Objectives.

A majority of the TLFMG judged that the benefits of increased efficiency in the operation of the Transmission Network (i.e. Applicable BSC Objective (b)) and enhanced competition (i.e. Applicable BSC Objective (c)) delivered by the Proposed Modification would exceed its implementation costs. Increased accuracy in the allocation of the cost of transmission losses would result in more efficient despatch in the short-term and more efficient location of generation and demand in the long-term. In addition, competition would be enhanced through the promotion of efficient entry/exit and the prevention of inefficient entry/exit to and from the market due to the elimination of the cross-subsidy inherent in the current allocation of the losses. However, that phased implementation of P82 was essential to provide a smooth transition to zonal differentiation of losses and protect contracts made prior to the introduction of such arrangements.

The view held by a substantial minority of the TLFMG was that neither of the Proposed Modification nor the Alternative Modification would better facilitate achievement of the Applicable BSC Objectives. The view being that the putative increase in the efficiency of the operation of the Transmission Network (i.e. Applicable BSC Objective (b)) and enhancement in competition (i.e. Applicable BSC Objective (c)) associated ascribed the Proposed Modification by the TLFMG were not proven. Conclusive evidence that the proposed zonal differentiation would allocate the cost of transmission losses more accurately than the current arrangements had not been presented. In addition, the Panel was of the opinion that, on balance, the effect of any gains in the accuracy of cost allocation would be outweighed by the industry-wide costs associated with implementation of the Alternative Modification. Furthermore, a majority of Panel members believed that the phased implementation which differentiates the Alternative Modification from the Proposed Modification would not be sufficient to yield a net benefit.

The impact assessments received from ELEXON, the BSC Agent, the Transmission Company and Parties suggested that the earliest possible implementation date would be 11 November 2003. However, given that both the majority of the TLFMG and consultation respondents believed that implementation should coincide with the start of a financial year and the date of a contracting round, the 1 April 2004 was recommended by the TLFMG.

8 SUMMARY OF REPRESENTATIONS

8.1 Report Phase Consultation

Summary of responses to consultation on Draft Modification Report to be inserted upon receipt. Copies to be inserted as Annex 1.

⁶ See sections 5 and 8 of the Assessment Report (available at www.elexon.co.uk).

8.2 Assessment Procedure Consultation

A summary and copies of the representations received and considered by the TLFMG under the Assessment Procedure consultation on this proposal can be found in Attachment 7 of the Assessment Report This Modification Report should be read in conjunction with that Assessment Report.

ANNEX 1 – REPRESENTATIONS

Copies of representations on Draft Modification Report to be inserted upon receipt.

ANNEX 2 – 'CLEAN' LEGAL TEXT (PROPOSED MODIFICATION)

See Attachment 2.

ANNEX 3 – ‘CONFORMED’ LEGAL TEXT (PROPOSED MODIFICATION)

See Attachment 3.

ANNEX 4 – 'CLEAN' LEGAL TEXT (ALTERNATIVE MODIFICATION)

See Attachment 4.

ANNEX 5 – ‘CONFORMED’ LEGAL TEXT (ALTERNATIVE MODIFICATION)

See Attachment 5.