

April 2003

**INITIAL ASSESSMENT OF
MODIFICATION PROPOSAL P125 -
Apportionment of the Scottish
Interconnector Flows to the
Northern and North Western GSP
Groups for the Purposes of
Calculating Losses**

Prepared by ELEXON Limited

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I DOCUMENT CONTROL

a Authorities

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1.0	04.04.03	Roger Salomone	Final Version

Version	Date	Reviewer	Responsibility
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1.0	04.03.03	Rachel Lindstrom-Thomas	Change Delivery

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
Core Industry Document Owners	Various

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II CONTENTS TABLE

I	Document Control	2
a	Authorities	2
b	Distribution	2
c	Intellectual Property Rights and Copyright.....	2
II	Contents Table	3
1	Summary	4
2	Introduction	5
3	Description of the Modification Proposal	5
4	History of Issue	6
5	Impact on BSC Systems and Processes	7
6	Impact on Documentation	7
6.1	Impact on Balancing and Settlement Code	7
6.2	Impact on Code Subsidiary Documents	7
7	Impact on ELEXON	8
8	Impact on BSC Agent Contractual Arrangements	8
9	Process and Timetable for Progressing the Proposal	8
10	Issues	9
	Annex 1 – Modification Proposal	10

1 SUMMARY

Modification Proposal P125 'Apportionment of the Scottish Interconnector Flows to the Northern and North Western GSP Groups for the Purposes of Calculating Losses' (P125) was raised on 31 March 2003 by Scottish and Southern Energy¹.

P125 proposes an alternative methodology for generating Transmission Loss Factors (TLFs) for the BM Units associated with the England-Scotland Interconnector, on the basis that the existing methodology is believed to discriminate unnecessarily against such BM Units. A methodology based on 'apportioning' the metered volumes across the Interconnector between the two terminal TLF Zones² and then applying a composite of the two resulting TLFs to Interconnector BM Units is proposed.

The Initial Written Assessment (IWA) has identified the following impacts that will need to be assessed and the following key issues that will need to be considered in progressing P125:

- Argument put forward by the Proposer that the current arrangements are 'discriminatory' needs to be assessed;
- Historic data on power flows across the England-Scotland Interconnector needs to be analysed to enable an informed decision to be made as to the most appropriate apportionment of metered volumes between the two terminal zones;
- 'Apportionment' options available need to be identified, assessed and costed (e.g. one end of the spectrum of options could be an even split between the two zones and the other a split based on an accurate reflection of historic metered volumes);
- Legal opinion on the change procedure for the England-Scotland Interconnector zone is required. The Proposer raises a concern that the Balancing and Settlement Code (the 'Code') is ambiguous as to whether or not the Balancing and Settlement Code Panel (the 'Panel') has the power to change the England-Scotland Interconnector zone; and
- Implementation of Modification Proposal P82 'Introduction of Zonal Transmission Losses on an Average Basis' (P82) is scheduled for 1 April 2004. P82 requires that zonal TLFs be published on 1 December 2003. Therefore, the Transmission Loss Factor Agent (TLFA) needs appropriate time to calculate the zonal TLFs beforehand. As a consequence the potential impact of implementing P125 on that timetable needs to be assessed.

On the basis of this IWA, the Panel is invited to:

- a) NOTE the results of the Initial Written Assessment;**
- b) DETERMINE that Modification Proposal P125 should be submitted to the Assessment Procedure in accordance with Section F2.6 of the Code;**
- c) AGREE the Assessment Procedure timetable such that an Assessment Report should be completed and submitted to the Panel for consideration at their meeting of 12 June 2003;**

¹ A copy of the proposal is attached as Annex 1 of this Report.

² The two Transmission Loss Factor Zones (i.e. GSP Groups) into which the individual circuits comprising the England-Scotland Interconnector feed (i.e. the Northern and North Western GSP Groups).

- d) **DETERMINE that the Assessment Procedure should be undertaken by the Transmission Loss Factor Modification Group; and**
- e) **AGREE any refinement to the Modification Group Terms of Reference.**

Note that the proposed timetable assumes that no modelling will be undertaken as part of the P125 Assessment Procedure.

2 INTRODUCTION

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

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

3 DESCRIPTION OF THE MODIFICATION PROPOSAL

P125 proposes an alternative methodology for generating Transmission Loss Factors (TLFs) for the BM Units associated with the England-Scotland Interconnector, on the basis that the existing methodology is believed to discriminate unnecessarily against such BM Units.

The current treatment of BM Units associated with the England-Scotland Interconnector is as follows:

1. 'Load Flow Model' is run to generate half-hourly nodal³ TLFs for each node on the transmission system (including the two terminal nodes of the England-Scotland Interconnector – Stella West and Harker);
2. resulting TLFs for Stella West and Harker are weighted by the power flow across the Interconnector (where the flow is deemed to be split evenly between the two nodes);
3. volume-weighted TLFs are summed and then divided by the total flow across the England-Scotland Interconnector to produce a half-hourly TLF for BM Units associated with that Interconnector (i.e. a 'thirteenth zone'); and
4. half-hourly zonal TLFs are time-weighted to generate a single, annual, TLF for the 'Thirteenth Zone'.

According to the Proposer, the current methodology is 'discriminatory' on two accounts. First, BM Units associated with the England-Scotland Interconnector are treated differently from all other BM Units. Second, unlike other transmission loss zones, the legal text suggests that the England-Scotland Interconnector TLF Zone cannot be altered by the Panel and that a Modification Proposal would be required to change it. Moreover, a practical alternative methodology, which avoids such 'discrimination', is believed to exist.

The methodology proposed in P125 is based on the principle of 'apportioning' the metered volumes across the England-Scotland Interconnector between the two terminal TLF Zones and then applying a composite of the two zonal TLFs for the relevant zones to Interconnector BM Units. The apportionment

³ A 'node' is a point on an electrical network at which (a) a power flow onto or off the network can occur or (b) two or more circuits (forming part of the network) meet.

would be based on the historical power flows across the two sets of circuits (i.e. those feeding into the Northern and North Western TLF Zones) that comprise the England-Scotland Interconnector.

4 HISTORY OF ISSUE

The current treatment of the Scottish Interconnector for the purposes of zonal transmission losses was developed and recommended by the Transmission Loss Factor Modification Group (TLFMG) during the Modification Proposal P82 'Introduction of Zonal Transmission Losses on an Average Basis' (P82) Assessment Procedure.

TLFMG deliberations came to the conclusion that the England-Scotland Interconnector would require special treatment under P82, owing to its unique situation. Unlike the England-France Interconnector, the England-Scotland Interconnector does not feed into a single TLF Zone (which are based on GSP Groups). Instead, the circuits that comprise the England-Scotland Interconnector feed into two TLF Zones. Therefore, it was deemed inappropriate to assign BM Units associated with it to a transmission loss zone coincident with one of the existing GSP Groups. Two potential solutions to this issue were identified and considered:

1. **Option 1: 'Apportionment'** - splitting the metered volume associated with the England-Scotland Interconnector between the two TLF Zones into which it feeds and applying a composite TLF based on the TLFs for these two zones. However, the Central Data Collection Agent (CDCA) aggregates metered volumes at the level of the England-Scotland Interconnector as a whole and not at the level of the multiple individual circuits which comprise it. Therefore, any apportionment would be arbitrary and would affect would the zonal TLFs for all BM Units within the two zones in question. Aggregating metered volumes at the level of the individual circuits comprising the England-Scotland Interconnector would require CDCA to employ additional aggregation rules to establish the two power flows; and
2. **Option 2: 'Creation of an Additional Zone'** – additional transmission loss zone exclusively for the England-Scotland Interconnector and associated BM Units.

The TLFMG concluded that the creation of an additional zone was the preferred option because it was based on current aggregation rules for metered volumes across the England-Scotland Interconnector and would not, therefore, require changes to the CDCA service and incur associated costs.

The legal text for P82 explicitly states how the England-Scotland Interconnector will be treated - that it will be deemed to lie in an additional zone, rather any of the zones coincident with existing GSP Groups (Annex T-2, paragraph 4.6) (i.e. as per Option 2).

Draft legal text, the paragraph dealing with the treatment of BM Units associated with the England-Scotland Interconnector, was discussed and agreed by the TLFMG on 5 November 2002.

The legal text, as part of the draft P82 Modification Report, was issued to all BSC Parties and consulted on last year. The report was issued for consultation on 21 November 2002, with a deadline for responses of 4 December 2002. None of the responses received raised any concerns regarding the proposed treatment of the England-Scotland Interconnector.

The Authority approved P82 on 17 January 2003 and implementation of the P82 arrangements is in progress. On 13 March 2003, the Panel agreed a paper prepared by BSCCo defining the 13 TLF Zones, including the England-Scotland Interconnector zone. Prior to that meeting, Scottish and Southern informed BSCCo that they had concerns over the treatment of the England-Scotland Interconnector for the purposes of calculating transmission losses.

5 IMPACT ON BSC SYSTEMS AND PROCESSES

The following impacts on BSC Systems and processes have been identified:

BSC System / Process	Potential Impact of Proposed Modification
Calculation of Transmission Loss Factors	The TLFA would have to use a different, though no more complex, methodology to compute the TLF for the England-Scotland Interconnector TLF Zone.
Collection and Aggregation of Metered Data	The CDCA would need to establish the power flows across the England-Scotland Interconnector into the two terminal zones in England and provide them to BSCCo.

6 IMPACT ON DOCUMENTATION

6.1 Impact on Balancing and Settlement Code

The following impacts on the Code have been identified:

BSC Section	Potential Impact of Proposed Modification
Annex T-2: Transmission Loss Factors	Paragraph 4.6 would need to be amended to reflect new methodology for calculating the TLF for England-Scotland Interconnector TLF Zone.
V: Reporting	CDCA might need to be required to report historic data on the split of the power flow across England-Scotland Interconnector into and out of each terminal TLF Zone to BSCCo.
Annex X-1: General Glossary	New metered volume aggregation (i.e. power flow across England-Scotland Interconnector into and out of each terminal TLF Zone) might need to be introduced as a defined term in the glossary

6.2 Impact on Code Subsidiary Documents

The following impacts on the Code Subsidiary Documents have been identified:

Code Subsidiary Document	Potential Impact of Proposed Modification
CDCA Service Description	Change required to reflect requirement to aggregate the historic metered volumes across England-Scotland Interconnector into and out of each of the TLF Zones and to provide them to BSCCo.
Reporting Catalogue	Would need to be updated to include any flow from CDCA to BSCCo containing historic data on the split of the power flow across England-Scotland Interconnector into and out of each terminal TLF Zone.

Code Subsidiary Document	Potential Impact of Proposed Modification
Data Catalogues	Would need to be updated to include any flow from CDCA to BSCCo containing historic data on the split of the power flow across England-Scotland Interconnector into and out of each terminal TLF Zone.
TLFA Service Description	Change required to specify new methodology for generating the TLF for the England-Scotland Interconnector TLF Zone.

7 IMPACT ON ELEXON

The following impacts on BSCCo have been identified:

Area of Business	Potential Impact of Proposed Modification
Interaction with TLFA	BSCCo would need to inform the TLFA of the nature of the apportionment of metered volumes across the England-Scotland Interconnector between the two terminal TLF Zones and, as a consequence, the formula to apply when generating the TLFs for England-Scotland Interconnector TLF Zone.
BSC Agent Impact Assessment	BSCCo will need to obtain an impact assessment from the TLFA to identify any impacts that changing the methodology for computing the TLF for the England-Scotland Interconnector TLF Zone would have on that BSC Agent during the set up of its service.

8 IMPACT ON BSC AGENT CONTRACTUAL ARRANGEMENTS

Implementation of P82 is scheduled for 1 April 2004. P82 requires that zonal TLFs be published on 1 December 2003. Therefore, the TLFA needs appropriate time to calculate the zonal TLFs beforehand. As a consequence the potential impact of implementing P125 on that timetable needs to be assessed, to ensure that the TLFA's ability to comply with its contractual obligations is not undermined.

9 PROCESS AND TIMETABLE FOR PROGRESSING THE PROPOSAL

BSCCo recommend a two-month Assessment Procedure, carried out by the TLFMG to address the issues summarised in Section 1 above and expanded on in Section 10 below. The following timetable is recommended for the Assessment Procedure:

Date	Milestone	Business
15 April 2003	TLFMG Meeting 1	Scope requirement of Assessment Procedure
30 April 2003	TLFMG Meeting 2	Issue consultation and request impact assessments
26 May 2003	TLFMG Meeting 3	Conclusion of assessment of Modification Proposal
12 June 2003	BSC Panel Meeting	Presentation of Assessment Report

The proposed timetable assumes that no modelling will be undertaken as part of the P125 Assessment Procedure.

10 ISSUES

The following issues will need to be considered and addressed in progressing P125:

- Argument put forward by the Proposer that the current arrangements are 'discriminatory' needs to be assessed;
- Historic data on power flows across the England-Scotland Interconnector needs to be analysed to enable an informed decision to be made as to the most appropriate apportionment of metered volumes between the two terminal TLF Zones;
- 'Apportionment' options available need to be identified, assessed and costed (e.g. one end of the spectrum of options could be an even split between the two zones and the other a split based on an accurate reflection of historic metered volumes);
- Legal opinion on the change procedure for the England-Scotland Interconnector zone required. The Proposer raises a concern that the Code is ambiguous as to whether or not the Panel has the power to change the England-Scotland Interconnector zone;
- Implementation of Modification Proposal P82 'Introduction of Zonal Transmission Losses on an Average Basis' (P82) is scheduled for 1 April 2004. P82 requires that zonal TLFs be published on 1 December 2003. Therefore, the TLFA needs appropriate time to calculate the zonal TLFs beforehand. As a consequence, the potential impact of implementing P125 on that timetable needs to be assessed; and
- Implementation of the British Electricity Trading and Transmission Arrangements (BETTA) will remove the concept of an England-Scotland Interconnector from Settlement. Therefore, any arrangements, existing or otherwise, for treatment of BM Units associated with that Interconnector will only be in place until BETTA is implemented.

ANNEX 1 – MODIFICATION PROPOSAL

Modification Proposal	MP No: P125 <i>(mandatory by BSCCo)</i>
Title of Modification Proposal <i>(mandatory by proposer):</i> Apportionment of the Scottish Interconnector flows to the Northern and North Western GSP Groups for the purposes of calculating losses.	
Submission Date <i>(mandatory by proposer):</i> 31 March 2003	
Description of Proposed Modification <i>(mandatory by proposer):</i> This Modification seeks to amend Annex T-2 of Section T of the Balancing and Settlement Code to place the treatment of the Scottish Interconnector on an equitable footing with the other TLF Zones referred to in Paragraph 4.1 of Annex T-2 of Section T. It seeks to apportion, that is split, the metered volume associated with the Scottish Interconnector between the two GSP Groups into which is connected and apply a composite Transmission Loss Factor (TLF) based on the TLFs for these two zones. Information on the metered volumes at each of the terminating nodes of the Scottish Interconnector circuits is available to do this.	
Description of Issue or Defect that Modification Proposal Seeks to Address <i>(mandatory by proposer):</i> The submission of Paper 59/017 to the 13 th March 2003 Panel gave rise to a number of issues associated with the suitable TLF Zones to be enacted with the application of Modification P82; approved by the Authority on 17 th January 2003, for implementation on 1 st April 2004. In particular it is clear that the methodology of having a non physical 13 th TLF Zone, to apply only to the Scottish Interconnector, is incorrect, unnecessary and discriminatory and that a better, more efficient, solution would be to apportion the Scottish Interconnector between the Northern ("TLFZ_6") and North Western ("TLFZ_7") TLF zones. With regard to the recommendations of the paper 59/017, the Panel was asked to endorse the 13th TLF zone for the Scottish Interconnector, and to approve the TLF Zone definitions. However, it is not clear that the Panel has a vires to do this. Modification Proposal P82 clearly stated that the TLF zones would be based on the geographical area of GSP Groups and this is reflected in paragraphs 3.1 and 3.2 of the paper 59/017. However, paragraph 3.3 of the paper 59/017 then states that a 13th zone will be deemed to exist for the termination of the Scottish Interconnector. This is incorrect, unnecessary and discriminatory. It is incorrect because the Code is based on GSP Groups, of which there are twelve, into two of which the Scottish Interconnector is connected. It is unnecessary because the TLFs for the two zones in which the Interconnector terminates can be calculated using an apportionment of the Interconnector flows between the two zones. It is discriminatory because it would apply different TLFs to import/export flows associated with different BM Units within the same GSP Group. It appears to have been an oversight on the part of BSC Parties, Elexon, the Panel and the Authority to allow this singularly discriminatory treatment of the Scottish Interconnector, particularly since no such discriminatory treatment is to be applied to any other interconnector.	

Modification Proposal	MP No: P125 <i>(mandatory by BSCCo)</i>
<p>The more efficient, economic and non discriminatory methodology for dealing with the Scottish Interconnector flows is to calculate the TLFs for the Northern ("TLFZ_6") and North Western ("TLFZ_7") TLF zones using an apportionment of the Scottish Interconnector metered volumes between the two terminal nodes of Stella West and Harker. The Scottish Interconnector BM Units can then be subject to a TLF calculated as the weighted average of the Northern ("TLFZ_6") and North Western ("TLFZ_7") TLFs, using the same weighting as was used to apportion the flows.</p> <p>Furthermore, it would appear that the Panel does not have the vires (as suggested in the Recommendations of the 59/017 paper) to amend the proposed Scottish Interconnector TLF zone. If so then this further exacerbates the discriminatory aspects of the proposals in that the <u>Scottish</u> Interconnector BM Units are the only ones whose zonal location cannot be changed (by the Panel, as outlined in Section 2 of the 59/017 paper) without a change to the BSC rules. It appears to have been an oversight on the part of BSC Parties, Elexon, the Panel and the Authority to allow this singularly discriminatory treatment of the Scottish Interconnector TLF compared to the setting of the other twelve TLFs in the future. An explanation of how this oversight may have come about is set out in the attached paper "TLFMG and the 13th Zone".</p>	
<p>Impact on Code <i>(optional by proposer):</i></p> <p>Minor change to Annex T-2 of Section T of the Balancing and Settlement Code to apportion the Scottish Interconnector between the Northern ("TLFZ_6") and North Western ("TLFZ_7") TLF zones using an apportionment of the Scottish Interconnector metered volumes between the two terminal nodes of Stella West and Harker and remove Paragraph 4.6 of Annex T-2 of Section T.</p>	
<p>Impact on Core Industry Documents <i>(optional by proposer):</i></p> <p>Minor.</p>	
<p>Impact on BSC Systems and Other Relevant Systems and Processes Used by Parties <i>(optional by proposer):</i></p> <p>This Modification avoids the need to develop BSC Systems and Other Relevant Systems and Processes Used By Parties to accommodate a 13th TLF Zone.</p>	
<p>Impact on other Configurable Items <i>(optional by proposer):</i></p>	
<p>Justification for Proposed Modification with Reference to Applicable BSC Objectives <i>(mandatory by proposer):</i></p> <p>(b) (iii) promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase (as defined in the Transmission Licence) of electricity;</p> <p>(c) that the Code is given effect without undue discrimination between Parties or classes of Party; and</p> <p>(d) consistent with the full and proper discharge of the functions and responsibilities of the Panel and BSCCo, that the Code is given effect as economically and efficiently as is reasonably practicable.</p>	

Modification Proposal	MP No: P125 <i>(mandatory by BSCCo)</i>
Details of Proposer:	
<p style="padding-left: 40px;">Name: Garth Graham</p> <p style="padding-left: 40px;">Organisation: Scottish and Southern Energy plc</p> <p style="padding-left: 40px;">Telephone Number: 01738 457377</p> <p style="padding-left: 40px;">Email Address: garth.graham@scottish-southern.co.uk</p>	
Details of Proposer's Representative:	
<p style="padding-left: 40px;">Name: John Sykes</p> <p style="padding-left: 40px;">Organisation: Scottish and Southern Energy plc</p> <p style="padding-left: 40px;">Telephone Number: 01628 584590</p> <p style="padding-left: 40px;">Email Address: john.sykes@scottish-southern.co.uk</p>	
Details of Representative's Alternate:	
<p style="padding-left: 40px;">Name: Mike Harrison</p> <p style="padding-left: 40px;">Organisation: Scottish Power Energy Trading Limited</p> <p style="padding-left: 40px;">Telephone Number: 0141 568 4469</p> <p style="padding-left: 40px;">Email Address: mike.harrison@scottishpower.com</p>	
Attachments: Yes (one attachment)	
If Yes, Title and No. of Pages of Each Attachment: TLFMG and the 13 th Zone (1 page)	

TLFMG and the 13th Zone (text attached to Proposal)

The notion of a separate zone for the Scottish Interconnector came about from the modeling work undertaken as part of the work on Modifications P82 (and P75), but it was not clear that this formed part of the proposal. What was used as a modeling methodology has persisted to be part of the Code.

At the 5th November 2002 TLFMG meeting the draft legal text for P82 was tabled and discussed. This text was very much draft. It was seen by the TLFMG for the first time at the meeting, and reference to "Zones, nodes and mappings" made no explicit reference to the number of zones, with zone definition left entirely to the discretion of the Panel. There were square bracket references to Interconnectors and other systems connection points. The TLFMG was reminded that the scope of the BSC is only E&W, and the group had instruction from the Panel that analysis should not extend outside E&W. Many comments were made at the meeting, including explicit queries about technical details of the treatment of Interconnectors - circuits, nodes, metering and zone. It is understood that Elexon undertook to look at these issues in detail, taking into consideration (but not necessarily following) the previous Pool work on zonal losses, and to include the treatment of Interconnectors as a report consultation issue.

On the 6th November 2002 the revised Draft Assessment Report was sent to the TLFMG. This did not include legal drafting.

Subsequently, at Panel Meeting 52 on the 14th November 2002, documentation (paper 52/013) was submitted to the Panel that included explicit reference to Interconnector Zones (Annex T2 4.6). It is not clear that the TLFMG had an opportunity of seeing the revised legal text before Panel Meeting 52 and did not comment on the specific changes to the legal text in the Panel paper. It should be noted that this was a busy time, with P74/78 progressing in parallel, and a large volume of paperwork associated with losses and other issues. The Panel recommended, at the 14th November 2002 meeting, that this matter proceed to Report. On 21st November the P82 Draft Modification Report consultation, including draft legal text, was issued with comments due back by 4th December 2002. At its meeting on 12th December the Panel considered and agreed Paper 54/006 recommending the rejection of P82.