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## SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

As far as BSCCo has been able to assess, the following parties/documents would be impacted by P216.

Please note that this table represents a summary of the results of BSCCo’s initial assessment. A full impact assessment is currently being undertaken.

Parties	Sections of the BSC	Code Subsidiary Documents
Distribution System Operators <input checked="" type="checkbox"/>	A <input type="checkbox"/>	BSC Procedures <input checked="" type="checkbox"/>
Generators <input checked="" type="checkbox"/>	B <input checked="" type="checkbox"/>	Codes of Practice <input type="checkbox"/>
Interconnectors <input type="checkbox"/>	C <input type="checkbox"/>	BSC Service Descriptions <input 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 type="checkbox"/>
Suppliers <input checked="" type="checkbox"/>	F <input type="checkbox"/>	Communication Requirements Documents <input type="checkbox"/>
Transmission Company <input type="checkbox"/>	G <input type="checkbox"/>	Reporting Catalogue <input type="checkbox"/>
<b>Party Agents</b>		
Data Aggregators <input type="checkbox"/>	H <input type="checkbox"/>	<b>Core Industry Documents</b>
Data Collectors <input type="checkbox"/>	I <input type="checkbox"/>	Ancillary Services Agreement <input type="checkbox"/>
Meter Administrators <input type="checkbox"/>	J <input type="checkbox"/>	British Grid Systems Agreement <input type="checkbox"/>
Meter Operator Agents <input type="checkbox"/>	K <input checked="" type="checkbox"/>	Data Transfer Services Agreement <input type="checkbox"/>
ECVNA <input type="checkbox"/>	L <input type="checkbox"/>	Distribution Code <sup>3</sup> <input checked="" type="checkbox"/>
MVRNA <input type="checkbox"/>	M <input type="checkbox"/>	DCUSA <sup>3</sup> <input checked="" type="checkbox"/>
<b>BSC Agents</b>		
SAA <input type="checkbox"/>	N <input type="checkbox"/>	Grid Code <input type="checkbox"/>
FAA <input type="checkbox"/>	O <input type="checkbox"/>	Master Registration Agreement <input type="checkbox"/>
BMRA <input type="checkbox"/>	P <input type="checkbox"/>	Supplemental Agreements <input type="checkbox"/>
ECVAA <input type="checkbox"/>	Q <input type="checkbox"/>	Use of Interconnector Agreement <input type="checkbox"/>
CDCA <input type="checkbox"/>	R <input type="checkbox"/>	<b>BSCCo</b>
TAA <input type="checkbox"/>	S <input type="checkbox"/>	Internal Working Procedures <input checked="" type="checkbox"/>
CRA <input type="checkbox"/>	T <input type="checkbox"/>	<b>BSC Panel/Panel Committees</b>
SVAA <input type="checkbox"/>	U <input type="checkbox"/>	Working Practices <input checked="" type="checkbox"/>
Teleswitch Agent <input type="checkbox"/>	V <input type="checkbox"/>	<b>Other</b>
BSC Auditor <input type="checkbox"/>	W <input type="checkbox"/>	Market Index Data Provider <input type="checkbox"/>
Profile Administrator <input type="checkbox"/>	X <input type="checkbox"/>	Market Index Definition Statement <input type="checkbox"/>
Certification Agent <input type="checkbox"/>	Z <input checked="" type="checkbox"/>	System Operator-Transmission Owner Code <input type="checkbox"/>
<b>Other Agents</b>		
Supplier Meter Registration Agent <input type="checkbox"/>		Transmission Licence <input type="checkbox"/>
Unmetered Supplies Operator <input type="checkbox"/>		
Data Transfer Service Provider <input type="checkbox"/>		

<sup>3</sup> There may be an interaction between P216 and the Distribution Code and/or the Distribution Connection and Use of System Agreement (DCUSA). However, no actual changes to these Codes are anticipated.

## 1 EXECUTIVE SUMMARY

P216 seeks to provide additional assurance regarding the accuracy and correct application of LLFs used in Settlement by:

- creating a set of high level principles, which all LLF methodologies must adhere to (these principles will sit under BSC Governance);
- requiring an audit of the methodologies used to calculate LLFs to ensure that they are consistent with the principles;
- requiring an audit of the calculation of LLFs to ensure that they are consistent with the audited and approved methodology;
- conducting spot checks to confirm that the correct LLFC has been applied at a Metering System level; and
- allowing only approved and audited LLFs to be used in Settlement.

A detailed description of the P216 solution is provided in Section 3.

The key conclusions of the P216 Modification Group ('the Group') to date are outlined below.

The Group:

- **AGREED** that a single common methodology should not form part of the P216 solution;
- **CONDUCTED** analysis to understand the potential impact of inaccurate LLFs on Grid Supply Point Group Correction Factor (GSPGCF) and Supplier Volumes;
- **CONDUCTED** analysis to better understand how LLFC groupings differ across GSPGs;
- **ISSUED** a questionnaire to Distribution System Operators (DSOs) to aid the Group's understanding of the current LLF methodologies and the differences between methodologies;
- **AGREED** high level principles to be included within BSC Governance, which LLF methodologies must adhere to and will be audited against; and
- **DEVELOPED** audit processes which would be carried out by BSCCo to confirm that the methodologies, calculations and LLFCs applied are correct.

Further information regarding the Group's initial discussions of the areas set out in the P216 Terms of Reference is contained in Section 4.

A summary of the Group's initial views regarding the merits of the Proposed Modification can be found in section 5. A copy of the Group's full Terms of Reference can be found in Appendix 2, whilst a summary of the responses to the Assessment Procedure DSO questionnaire can be found in Appendix 3. Details of the analysis conducted can be found in Appendix 4 and Attachment 2.

## 2 CONTEXT

### 2.1 Background to P216

The BSC Panel considered P216 at its meeting on 9 August 2007 and submitted the proposal to a 2-month Definition Procedure to be conducted by the P216 Modification Group (formed from members of the Governance, Settlement and Volume Allocation Standing Modification Groups). Following the Definition Procedure the Panel agreed that P216 should be submitted to a 4-month Assessment Procedure. The P216 Modification Group ('the Group') has met seven times to date and has agreed the requirements for the Proposed Modification.

## 2.2 Line Loss Factors

Site Specific Line Loss Factor Classes (LLFCs) (and their associated LLFs) represent an estimate of the electrical losses on the distribution network for a particular Metering System between the metering point and the connection to the boundary of the Transmission System. Site Specific LLFCs are often used for larger customers whose sites are connected at higher voltages (most extra high voltage (EHV) sites) and often vary by Settlement Period or the time of year. Site Specific LLFs are normally calculated using load flow engineering analysis and represent technical losses only.

Generic LLFCs (and their associated LLFs,) represent an estimate of the average of the total losses on the distribution network (technical and non-technical) for a particular class of customer/connection voltage between the metering point and the connection to the boundary of the Transmission System for the following year. Generic LLFs tend to vary by the Settlement Period and time of year.

LLFs are required, by Distribution Licences, to represent an accurate reflection of the actual losses on the system. The methodologies used in calculating Line Losses are published by Licensed Distribution System Operators (LDSOs) in their Use of System Charging Statements (sometimes referred to as "Condition 4 Statements"). Links to the Use of System Charging Statements for the seven existing DNOs (Distribution Network Operators) are available in the references section of this document (9.2). IDNOs (Independent DNOs) are also required to publish their LLF methodologies.

## 2.3 Line Loss Factors in the Balancing and Settlement Code (BSC)

Settlement is based on the use of electricity volumes at Transmission System Boundary Points and Grid Supply Points (GSPs); LLFs are used within Settlement to scale a Metered Volume (measured within a Distribution Network) to provide an equivalent volume at the relevant GSP or Transmission System Boundary Point, the scaled volume is then used in Settlement.

Currently the Imbalance Settlement Group (ISG) and Supplier Volume Allocation Group (SVG) approve LLFs (having delegated authority from the Panel) for use in Settlement for CVA and SVA respectively. Prior to the approval of LLFs, some basic checks are undertaken by BSCCo to ensure completeness and for comparison with previously submitted LLFs.

### 2.3.1 Central Volume Allocation (CVA) Line Loss Factors

There are a relatively small number of CVA LLFs (due to the small number of CVA Metering Systems connected to the Distribution System), with LLFs for approximately 100 Metering Systems being approved as part of the annual review last year. CVA LLFs are checked to ensure that:

- the factors are complete (that a full year of data has been submitted);
- the factors are submitted by an Authorised Signatory;
- each LLF is to 5 decimal places;
- each LLF value lies between 0.00000 and 1.99999;
- the submission is received more than 40WDs before the go-live date; and
- where the change from a previous factor for a similar time period is more than double, or less than half the previous value; then BSCCo will confirm the value submitted with the LDSO<sup>4</sup> before approval is requested.

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<sup>4</sup> A change from a factor of 1.01 to 1.02 equates to a doubling of the loss and a change from 1.08 to 1.04 equates to a halving of the loss.

BSCCo will also report, when the LLF is taken for approval, if the Registrant has highlighted an objection to a particular LLF; however, the agreement of LLFs (between the LDSO and the Registrant) is not carried out under the BSC, and the BSC does not currently require the LLF to have been agreed with the Registrant.

The processing and validation of CVA LLFs is described within BSCP28 ('Approval and Notification of CVA LLFs').

### **2.3.2 Supplier Volume Allocation (SVA) Line Loss Factors**

There are a much greater number of SVA LLFs (due to the larger number of SVA Metering Systems); as such these are sent to BSCCo via the D0265 data flow ('Line Loss Factor Data File'). As part of the annual reload process, files are received by BSCCo (from LDSOs) and validated. Further files are received throughout the year, as and when LLFs need to be updated.

BSCP528 ('SVA LLFs for HH and NHH SVA Metering Systems registered in SMRS') describes the processes for validating and approving SVA LLFs. As set out in BSCP528, BSCCo performs a number of validation checks on the LLFCs and associated LLFs to check:

- for completeness (using an MDD comparison) to ensure there are LLFs for all LLFCs;
- whether the percentage change from the previous years submission is less than  $\pm 20\%$  (for updated LLFs only);
- that they were submitted by an Authorised Signatory;
- that they are to 3 decimal places;
- that the submission has been received more than 40WDs before the go-live date;
- that the format of the D0265 is correct; and
- the range of values (which currently must be between 1.000 and 1.250).

The Summary and Validation Reports resulting from this validation are provided to the SVG with the LLFs for approval.

It is noted that BSCCo are currently looking at ways to automate the validation of the D0265 files by using a LuSTRe<sup>5</sup> based solution, to speed up the validation process and to allow a greater sample to be analysed when checking the change in LLF values from one year to the next.

### **2.3.3 Current LLF Assurance**

If a new SVA LLF is not approved prior to the old LLF expiring, then a default value (of 1.000) is used. There is a PARMS Serial (DA02 'Timely Application of LLFs') which records when the Half Hourly (HH) SVA LLFs being applied in Settlement are default LLFs.

If a new CVA LLF is not approved prior to the old LLF expiring, then a default is used. The previous year's values are used where possible, but if there are no values available for the previous year, the LLFs are defaulted to 1.00000.

The BSC Audit scope for 2006 to 2007 covers the application of LLFCs by the Supplier Volume Allocation Agent (SVAA) and the notification of LLFs to BSCCo by LDSOs. It is noted that the Audit Scope may change under P207 'Introduction of a new governance regime to allow a risk based Performance Assurance Framework (PAF) to be utilised and reinforce the effectiveness of the current PAF'.

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<sup>5</sup> LuSTRe is an application which provides a control framework that other applications can be run under. It supports file loading, reports, and scripts to control the processing. It can also automatically locate and load files from directories on the LuSTRe or other servers. LuSTRe is a client server application. The Server side part of LuSTRe runs as a service, and will be active all the time that the server is running. The Client (user interface) side of LuSTRe runs on a standard Windows XP system and revolves around configuring the processing and checking its status.

New CVA and SVA LLFCs and associated LLFs (and replacement LLFs for existing LLFCs) can be submitted and approved during the course of the year; these are taken to the SVG and ISG as appropriate.

#### **2.3.4 Previous Consideration of LLF Approval**

Concerns have previously been raised at the SVG, and by the ISG to the Panel on the approval of LLFs for use in Settlement. Concerns were expressed regarding the perceived 'rubber stamping' of submitted LLFCs (and their associated LLFs) and whether the ISG/SVG had the relevant experience to approve the exact figures for LLFCs.

A meeting was held in May 2004 with an ISG member, Licensed Distribution System Operators (LDSOs) and BSCCo to discuss the authorisation processes for CVA LLFs. This resulted in a review of the LLF approval process in 2004.

A paper was presented to the April 2005 Panel (91/012) which explained the current BSC obligations for submitting LLFs for approval. The Panel noted that an Ofgem review of the existing processes would be taking place, and that the Panel paper would be submitted to Ofgem for consideration as part of the review.

One outcome of this review was the agreement that LDSOs would publish their current LLF methodologies as part of their Use of System Charging methodology statements from April 2006, with a note that their LLF calculation methodology is not subject to Authority approval. A review by BSCCo of these statements for April 2007 shows that this is the case.

### **3 DESCRIPTION OF MODIFICATION REQUIREMENTS**

This section details the solution requirements for the Proposed Modification as developed by the Modification Group.

For a full description of the original Modification Proposal as submitted by SmartestEnergy ('the Proposer'), please refer to the P216 Initial Written Assessment (IWA).

#### **3.1 Proposed Modification**

P216 was raised on 30 July 2007 by SmartestEnergy ('the Proposer'). P216 seeks to provide additional assurance and controls over the calculation and application of LLFs in both the SVA and CVA market.

##### **3.1.1 High Level Principles**

All LLF methodologies would be required to comply with the principles described below. These principles will form the basis of the methodology audit and will be included in a Code Subsidiary Document.

1. All LLFs shall be calculated using a generic<sup>6</sup> (non site specific) method except for:
  - a. sites which are CVA and have a demand/generation capacity of greater than 10MW; or
  - b. SVA sites that are connected at EHV<sup>7</sup>; or
  - c. where the customer has requested a site specific LLF, and the DSO is in agreement.
2. All LLFs shall be calculated to 3 decimal places.
3. All site specific LLFs shall account for technical losses only.
4. All generic LLFs shall account for all losses (technical and non technical).

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<sup>6</sup> Definitions of generic and site specific will be created as part of P216.

<sup>7</sup> Where EHV is as defined in the Distribution Licence.

5. Site specific LLF values and the total GSPG losses shall be considered in the calculation of generic LLFs.
6. Generic LLFCs for Import and Export at the same site where the voltage level is the same shall have the same values.
7. There shall be no more than 2 LV and 2 HV generic LLFC Groups<sup>8</sup> in each GSPG, and at least 1 generic EHV LLFC Group.
8. As a minimum, generic LLFs shall be calculated separately for day and night.
9. DSOs shall utilise Settlement data from a Settlement Run at R2 or greater and from a complete 12-month period, for calculating LLFs. The 12-month period to be used shall be determined by the PAB.
10. Changes to the LLF calculation, to take into account market wide issues (e.g. erroneously large EAC/AA or incorrect Energisation Status) can only be made if agreed to be appropriate through the new LLF 'audits'.
11. Robust error detection and correction processes shall be in place throughout the calculation of LLFs.
12. All generic LLFs shall be re-calculated [every year/every 2 years]<sup>9</sup>.
13. All site specific LLFs shall be re-calculated<sup>10</sup> when there has been a relevant change<sup>10</sup> to the site or network, and at least every 5 years.
14. No changes shall be made to approved LLFs for site specific or generic LLFCs mid year. Annual updates will have an effective from date of 1 April. Where default LLFs have been applied due to an audit failure, these may be updated to the approved LLFs on a prospective basis as determined from time to time by the PAB.
15. No retrospective changes shall be made to approved LLFs for either site specific or generic LLFCs other than to correct material manifest errors.

### 3.1.2 Setting Parameters

In line with principle 9, the PAB will approve the date range for which data should be used. The PAB will determine these dates prior to 1 June for the next BSC Year's LLFs. In the first year this determination will be made before 15 April.

For principle 10, the PAB shall determine the extent to which any market wide issues might be taken into account at the same time as determining the date range.

### 3.1.3 Audit of LLF Methodologies

An audit of LLF methodologies will be conducted by BSCCo<sup>11</sup> and will seek to confirm that the written methodologies are consistent with the principles set out in section 3.1.1.

There will be a larger volume of methodologies to be audited in the first year and an increased chance of audit failures. To take this into account, methodologies will be submitted to BSCCo by DSOs by 1 May and the audit process will be completed for all methodologies by 1 August in the first year.

In subsequent audit years, only methodologies that have been revised since the previous approval will be submitted to BSCCo. DSOs would submit their methodologies before 1 August. If a methodology has not been updated, written confirmation should be sent instead of the revised methodology. Any methodology

<sup>8</sup> An 'LLFC Group' means a set of LLFCs that have the same LLFs (and will be defined as part of P216).

<sup>9</sup> The Group have not yet decided whether this principle should read every year or every 2 years. Details of their discussion are available in section 4.2.1.12. Your views would be appreciated as part of the consultation response proforma.

<sup>10</sup> Where a relevant change (defined as part of P216) is a change that will, or is likely to, change the losses attributable to the site. Examples of these types of change include, but are not limited to: changes in the Voltage level or in site use.

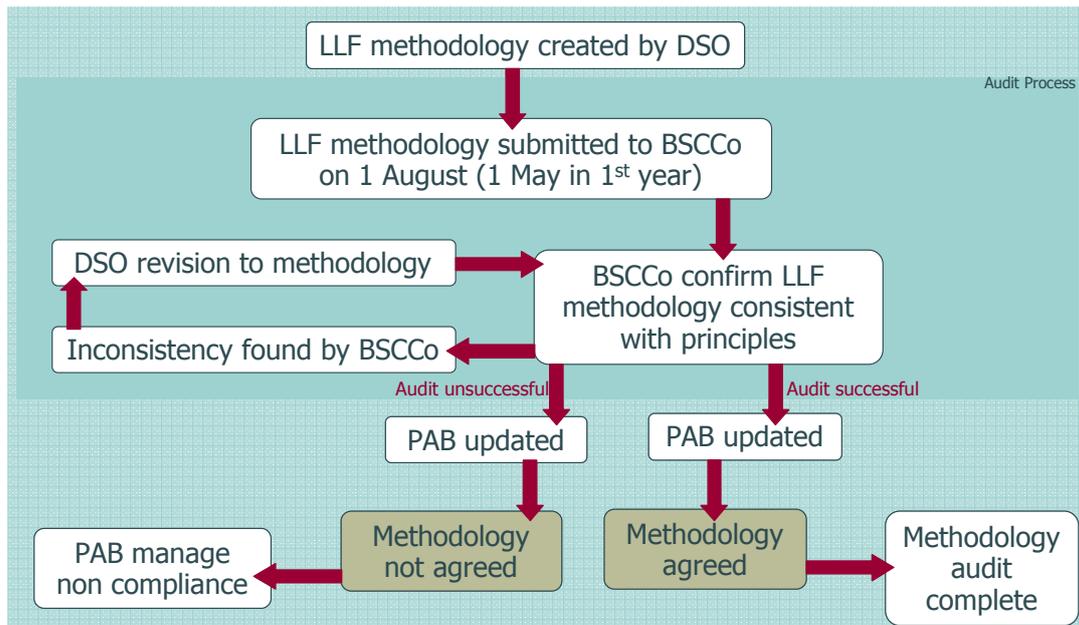
<sup>11</sup> It is noted that BSCCo may choose to sub-contract the audit process to a third party.

which has been changed but which has not been sent to BSCCo by 1 August (or 1 May in the first year) will be considered inconsistent with the BSC.

Once the audit process is complete, BSCCo will issue a final audit report to the DSO by 1 September (or 1 August in the first year) to either confirm that the methodology is compliant, or highlight the areas of non-compliance. The Performance Assurance Board (PAB) will be informed of the audit results and continued non-compliance would be managed through the normal PAB process.

It is noted that the audit process itself may involve the correction and re-auditing of non-compliances, before the final audit report is issued.

The diagram below shows the high level LLF methodology audit process:



**3.1.4 Audit of LLF Calculations**

Where it has been confirmed that an LLF methodology is consistent with the principles, the DSO would complete the calculations for the next year’s LLFs. The LLFs would be submitted to BSCCo by 30 September.

The LLF calculations audit is carried out by BSCCo on site at DSOs. This audit seeks to ensure that LLF calculations are compliant with the BSC and consistent with the audited LLF methodology for that DSO. This audit would be conducted in accordance with the agreed timetable for recalculation in the P216 solution (annually or every two years).

In addition, the LLF calculations audit will include spot checks on LLFCs already applied to Metering Systems during the year to confirm that an LLFC assigned can reasonably be considered to be the correct LLFC (given the usage of that Metering System).

For clarity:

- The audit of LLF calculations will combine the current validation checks undertaken by BSCCo and the new audit requirements in P216;
- The audit of LLF calculations is undertaken for CVA and SVA LLFs;
- The audit of LLF calculations must take place after 1 October and before 30 November;
- BSCCo will agree site visit dates with DSOs by 10 September, where a date cannot be agreed BSCCo will set a site visit date and advise the DSO of this date;

- Following the audit of LLF calculations, LLFs may be resubmitted only as a result of issues noted during the audit. Resubmissions and confirmations must be received by 31 December;
- Non compliances in LLF calculation will be reported to PAB to manage the non compliance;
- All LLFs are taken to SVG and ISG in January for approval; and
- Following approval, CVA LLFs should be sent by BSCCo to the Central Data Collection Agent (CDCA) and SVA LLFs (in D0265 format) sent to the Supplier Volume Allocation Agent (SVAA).

#### **3.1.4.1 Audit Scope**

The audit of LLF calculations will be carried out for each DSO and will include the following checks (it is noted that some of these checks may be performed before the site visit, if appropriate):

1. Confirm all LLFs submitted have effective from dates of 1 April;
2. Confirm that SVA LLFs were submitted by a Category X Signatory
3. Confirm that CVA LLFs were submitted by a Category P Signatory;
4. Confirm all LLFs submitted are calculated to 3 decimal places<sup>12</sup>;
5. For SVA LLFs, confirm that the D0265 file is in accordance with the format defined in the Data Transfer Catalogue (DTC);
6. Confirm that the number of Settlement Periods for each Settlement Date matches the number of LLFs for each LLFC on that date;
7. Confirm that all LLFC IDs submitted are entered in MDD or an application has been made to do so and that LLFs have been submitted for all LLFCs contained in MDD;
8. Conduct a validation check. The auditor may request that LLFs that fail validation be highlighted to the DSO for comment:
  - a. all SVA LLFs which are  $<0.000$  or  $>1.250$ ;
  - b. all CVA LLFs which are  $<0.000$  or  $>1.999$
  - c. all revised SVA LLFs which are  $>\pm 20\%$  of last years value<sup>13</sup>;
  - d. all revised CVA LLFs which are not within  $-50\%$  to  $+100\%$  of the last years value;
  - e. all new sites with new LLFs (that were not included in last year's submission);
9. Check a representative sample (which is determined by PAB, based on risk assessments and will include LV, HV, EHV and site specific LLFs) of LLFs to confirm that they have been calculated in accordance with the audited methodology. This check will be performed at the DSOs offices, and will include discussions with the DSO and consideration of the audit trail.
10. Check a representative sample of Metering Systems (which is determined by PAB, based on risk assessments and will include LV, HV, EHV and site specific LLFs) to confirm that the correct LLFC has been applied. This check will be performed at the DSOs offices. For clarity, this check will look at the application of an LLFC to Metering Systems during the last year.

<sup>12</sup> It is noted that this is a change for CVA LLFs. This may have system/process impacts. The Group would appreciate your views on this change and a clear idea of the extent of the impact.

<sup>13</sup> It is noted that there may be an increased number of LLFs picked up in the first year due to potential changes in LLF methodologies resulting from P216.

**3.1.4.2 Following the Site Visit**

Within 5WDs of the site visit, BSCCo will provide the DSO a site visit report detailing any non-compliance identified during the audit, or confirming that no issues were identified.

It is noted that the audit process itself may involve the correction and re-auditing of non-compliances, before the final audit report is issued.

By 31 December the DSO will either confirm that the original LLFs should be used or send the revised LLFs, confirming that the non-compliances identified in the audit have been corrected and that no other changes have been made.

Following receipt of the revised submissions/confirmations BSCCo will draft papers for SVG and ISG recommending that:

- all LLFs that have passed the methodology and calculation audits are approved;
- all LLFs that have failed one aspect of the audit are not approved (no granularity is provided as to which aspect was failed);
- for all non approved LLFs a default value is used. This default is the last LLF which has been approved. Where no LLF has been approved, the default should be the generic LLFs for that voltage level (from the relevant GSPG)<sup>14</sup>.

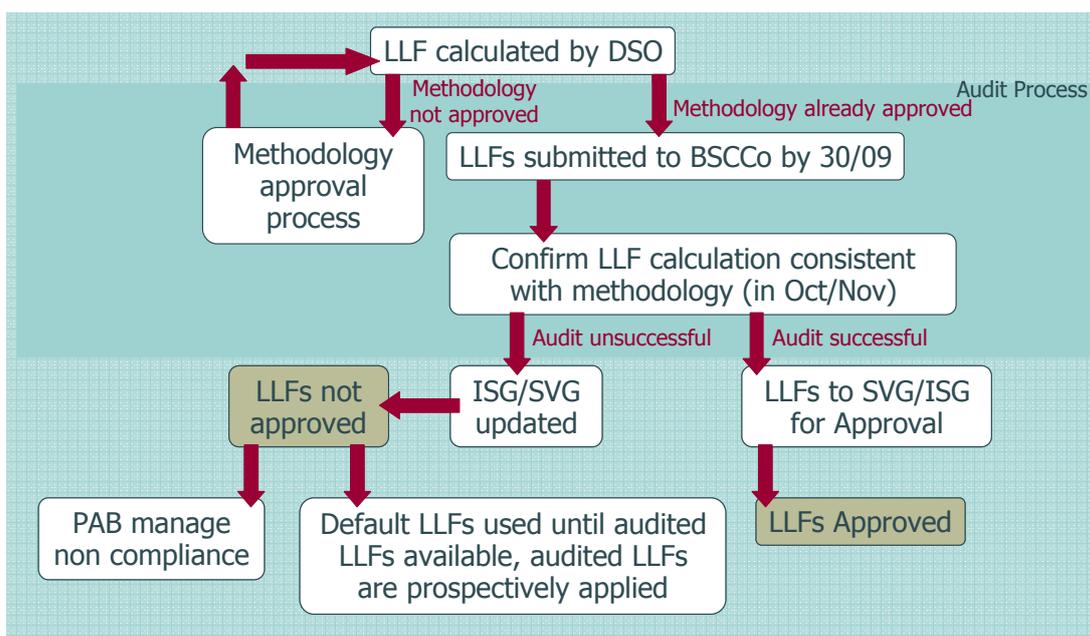
Following receipt of the revised submissions/confirmations, BSCCo will draft a paper for the PAB. This paper will identify all non-compliances from the audit. PAB will manage the non-compliances under the normal error correction processes.

**3.1.4.3 Resolved Non-Compliances**

All non-compliances should be corrected by 1 April (or before the effective from date). Where an audit failure is confirmed corrected by the PAB after 1 April, the PAB may choose to approve the revised data and confirm that it may be used prospectively for the rest of the year. The SVG or ISG will be updated when the PAB has approved LLFs during the year.

**3.1.4.4 Diagram**

The diagram below shows the high level LLF calculation audit process:



<sup>14</sup> It is noted that this represents a change to the default rules for both SVA and CVA.

### 3.1.5 New LLFs for New Sites

When a new Metering System is created during the year, this site will need to have LLFs assigned to it, these LLFs must be calculated using the latest approved and audited methodology.

For new sites that are assigned to an existing LLFC no audit is required. However, where a new Metering System is assigned to a new LLFC (e.g. a new site specific set of LLFs), the LLFs must then be audited before they are approved by the ISG or SVG.

The new LLFs audit process is the same as the process described in section 3.1.4, except for checks 9 and 10, which are excluded. In normal circumstances a site visit would not be required.

The timings for this audit will be shifted, depending on when the LLFs are needed in Settlement. Each new set of LLFs that does need to be audited would have to be submitted at least 50WDs before the effective from date of the LLFs. Each set of new LLFs, which do not need to be audited, would be submitted at least 40WDs before the effective from date.

Changes would not be made to LLFs for existing Metering Systems during the year.

### 3.1.6 Proposed Modification – Timetable for LLF Approval

The timetable below pulls together the timescales for each of the audit processes described above, in sections 3.1.2 to 3.1.5.

Date	Action
<b>Methodologies Audit</b>	
Year 1: by 1 May	Methodologies submitted to BSCCo
Year 1: by 1 August	Methodologies audit complete
Year >1: by 1 August	Any amended methodologies submitted to BSCCo
Year >1: by 1 September	Amended methodologies audit complete
<b>Calculations Audit</b>	
By 30 September	LLFs submitted to BSCCo for calculations audit
Between 1 October and 30 November	Calculations audits conducted by BSCCo on site at DSOs
Within 5WDs of the end of the site visit	Final audit calculation report sent to DSO by BSCCo
By 31 December	Revised LLFs submitted, or confirmation that original LLFs should be used sent by DSO
In January	Paper taken to ISG and SVG to approve LLFs or the use of defaults
<b>New Sites</b>	
At any time during the year and ≥50WDs before effective from date	LLFs for a new Metering System submitted (where the LLFC doesn't exist)
≥50WDs before effective from date	Calculations audits conducted by BSCCo
≥45WDs before effective from date	Final audit calculation report sent to DSO by BSCCo
≥40WDs before effective from date	Revised LLFs submitted, or confirmation that original LLFs should be used sent by DSO
≥40WDs before effective from date	LLFs for a new Metering System submitted (where the LLFC already exists)
>40WDs before effective from date	Paper taken to ISG and SVG to approve LLFs or the use of defaults

## 4 AREAS RAISED BY THE TERMS OF REFERENCE

This section outlines the initial conclusions of the Modification Group regarding the areas set out in the P216 Terms of Reference and the processes described above in section 3.

## 4.1 Analysis

### 4.1.1 LLFC Groupings

Analysis of the LLFC Grouping was undertaken by a Group member, and is attached in Appendix 4. This analysis shows, for each GSPG, the number of LLFCs with different LLF values (the number of 'LLFC Groups'). The number of LLFC Groups is then split down into:

- Flat LLFC Groups – indicating that all the LLFs for that LLFC group are the same;
- Profiled LLFC Groups – indicating that some level of profiling is used in that LLFC, e.g. day/night; and
- LV/HV/EHV and site specific LLFC Groups – showing how the LLFC Groupings are split across the voltages<sup>15</sup>.

The Group noted that there are differences in the number of LLFC Groups, which vary from 7 to 52 and that the proportion of flat to profiled LLFC Groups also varies (e.g. SPOW has no profiled LLFC Groups, whereas Laing and SWEB are all profiled).

The Group noted a smaller variation in the number of LLFC Groups assigned to each of the voltages, with all DSOs having a maximum of 2 LV, 2 HV and 1 EHV LLFC Groups. As expected, the number of site specific LLFC Groups varied considerably, due to the differing number of site specific sites in each GSPG. It is noted that there is not a complete data set for the LV, HV, EHV and site specific<sup>14</sup>.

The Group noted that the differences between GSPGs could be due to:

- network set up (i.e. what types of site are connected at which voltage);
- area (i.e. an industrialised area will have more site specific sites and therefore more LLFC Groups); and
- historical differences in how LLFCs are assigned (e.g. for an industrial site, whether they have a generic EHV LLFC assigned or a site specific LLFC assigned).

The Group agreed that it would be possible to minimise differences in the number of LV and HV LLFC Groupings going forward by including principles to limit this number.

### 4.1.2 LLF Sensitivity Analysis

The Group undertook analysis to understand the potential impact of altering LLF values on Supplier energy volumes and the application of GSPGCF. The analysis was undertaken for 10 Settlement Dates in a single GSP Group. The LLF values were changed to:

- increase and decrease the overall losses;
- increase and decrease site specific losses only;
- increase and decrease Export losses only;
- switch Summer and Winter Line Loss Factors; and
- change the LV/HV weighting, while maintaining the level of overall losses.

The increases and decreases used match the SVA LLF validation limit of  $\pm 20\%$ .

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<sup>15</sup> The Group member highlighted that this analysis was only possible with the data included in the DSO questionnaire, and so only DSOs who had provided data non-confidentially in response to question 5 of the questionnaire were included here.

#### 4.1.2.1 Increase/Decrease Percentage

The Group noted that a  $\pm 20\%$  change in an LLF value would be extreme and that it is unlikely that all losses, or even individual losses would vary to this extent. However, the Group noted that  $\pm 20\%$  is used in the current SVA validation processes and so represents the extent of a change to LLF values that would pass through validation.

The Group agreed that the graphs illustrate how the impact varies from Supplier to Supplier and that the results could be linearly extrapolated to show how other changes to LLFs might impact Suppliers.

#### 4.1.2.2 Variations and Impacts

The Group noted that there are no particular conclusions to be drawn from seasonal variations and that the 10 dates considered showed very similar patterns when the same change to losses was made.

The Group considered the analysis provided and agreed that impact on Suppliers varies depending on their portfolio. Suppliers with a high number of NHH domestic customers benefit when all LLFs are increased (due to the application of GSPGCF), while Suppliers with a high number of HH customers benefit when all LLFs are reduced.

A Group member observed that, given how GCF can be impacted by minor changes in application of losses the application of GCF to NHH was brought into question. The Group noted that changing GCF is outside the scope of P216.

The Group agreed that the most useful graphs are those showing the impact of reappportioning losses from LV to HV and vice versa while maintaining the overall volume of losses (included as Figures 17-20 in Attachment 2); as they represent the most likely scenarios.

#### 4.1.2.3 Materiality

The costs noted on the graphs are aggregated for a full Settlement day for a single GSPG, and could be multiplied by 365 to gain an indication of the materiality over the course of the year.

The table below gives the approximate range of the materiality shown in each of the graphs included in the LLF Sensitivity Report.

Type of LLF Variation	Approximate range of the materiality of the impacts on individual Suppliers
Overall losses increased	+£3,000 to -£4,000
Overall losses decreased	+£2,500 to -£2,000
Site specific LLFs increased	+£40 to -£20
Site specific LLFs decreased	+£30 to -£50
Export LLFCs increased	+£100 to -£150
Export LLFCs decreased	+£400 to -£150
Switch Summer LLFs to Winter LLFs	+£6,000 to -£7,000
Switch LLFs Winter to Summer LLFs	+£8,000 to -£7,000
HV LLFs increased	+£1,500 to -£1,500
HV LLFs decreased	+£1,250 to -£1,000

One member noted that they believed that the materiality shown in the graphs could be considered significant to Suppliers, while other members disagreed. The Group agreed to consult on the significance of the materiality shown.

The full analysis report, including details of the calculation undertaken, results and more detailed conclusions is attached as a separate document - Attachment 2.

## 4.2 Principles

The Group agreed that to audit LLF methodologies and calculations under BSC Governance, some requirements detailing what is expected in an LLF methodology/calculation would be needed. These requirements might take the form of high level principles that current methodologies could be adapted to incorporate or they could be at such a detailed level that, in effect, a single, common methodology is used by all DSOs.

The Group noted that, even if a common methodology were to be part of the final solution, high level principles would still be needed to form the basis of the methodology.

### 4.2.1 High Level Principles<sup>16</sup>

The Group discussed the high level principles included in section 3.1.1, the aim of these principles is either to form the framework for a common methodology or to increase/maintain the level of sameness across existing methodologies. The Group's discussion around each of these principles is described below.

#### 4.2.1.1 Principle 1

*All LLFs shall be calculated using a generic (non site specific) method except for:*

- a. *sites which are CVA and have a demand/generation capacity of greater than 10MW; or*
- b. *SVA sites that are connected at EHV<sup>17</sup>; or*
- c. *where the customer has requested a site specific LLF, and the DSO is in agreement.*

The Group agreed that the split between site specific and generic LLFs is different in different GSPGs and agreed that this area would be key to getting greater consistency between DSO calculations.

The Group discussed possible 'cut off' points for assigning site specific LLFs and noted that too many site specific LLFs could be very expensive for DSOs to calculate and manage. The Group also noted that site specific LLFs weren't necessarily better, as they exclude non-technical losses, so these are attributed to an ever decreasing number of sites, as the number of sites with site specific LLFs increases. The Group agreed that site specific LLFs are most useful for large and relatively unusual sites (in terms of demand/generation patterns).

The Group agreed that all large CVA sites would have site specific LLFs. The Group felt that a capacity rather than the voltage level was most likely to be representative of the size of the CVA site.

There was disagreement on whether all SVA EHV sites should have site specific LLFs and whether a reasonable degree of flexibility is added by including point c. Some group members felt that there should be a capacity threshold for these sites (as for CVA), while others felt there should be more flexibility for DSO. The Group agreed to consult on this principle.

The Group discussed an additional principle which would require large HV sites to have site specific LLFs, but agreed that this should not be included because large HV sites could be included as a result of point c.

The Group were keen to understand how many sites would need to change from generic to site specific and vice versa, as a result of this principle. Therefore a specific question relating to this has been included on the Impact Assessment proforma.

#### 4.2.1.2 Principle 2

*All LLFs shall be calculated to 3 decimal places.*

<sup>16</sup> The Group formed these principles following discussion of the DSO Questionnaire responses, a summary of the responses received is included in Appendix 3 and the actual responses are provided in Attachment 1.

<sup>17</sup> Where EHV is as defined in the Distribution Licence.

The Group noted that CVA LLFs are currently calculated to 5 decimal places and SVA LLFs are calculated to 3 decimal places. One Group member felt strongly that as far as possible there should be consistency between CVA and SVA requirements. The Group discussed possible reasons for the difference and felt that 5 decimal places was falsely accurate as the error bands would be relatively large for a LLF calculation to 5 decimal places. The Group agreed that all LLFs should be calculated to 3 decimal places although Parties are asked to confirm via the consultation response whether this would require changes to software<sup>18</sup>.

#### **4.2.1.3 Principle 3**

*All site specific LLFs shall account for technical losses only.*

The Group members present, who were DSOs, confirmed that site specific LLFs in their distribution systems are intended to account for technical losses (electrical losses) only, and the Group agreed that this should be the same across all GSPGs. The Group noted that this would mean that all non-technical losses (including theft) within the GSPG are applied to sites with generic LLFs.

#### **4.2.1.4 Principle 4**

*All generic LLFs shall account for all losses (technical and non technical).*

The Group agreed that principle 4 is needed to balance principle 3 and clarify that all non technical losses would be applied to sites with generic LLFs.

#### **4.2.1.5 Principle 5**

*Site specific LLF values and the total GSPG losses shall be considered in the calculation of generic LLFs.*

The Group agreed that the total losses in the GSPG should be calculated, as should the total losses being applied to site specific sites and used in the calculation of generic LLFs. This will help to ensure that the total losses in the GSPG are accounted for.

#### **4.2.1.6 Principle 6**

*Generic LLFCs for Import and Export at the same site, where the voltage level is the same, shall have the same values.*

The Group agreed by majority that in general Import and Export LLFs would be the same.

Some members of the Group expressed strong disagreement with this principle and expressed concern that Import and Export have different actual losses as they represent different flows of energy. These Group members highlighted that this principle may actually decrease the accuracy of LLFs and impact generators negatively. One member of the Group noted that existing software is likely to need to be modified (including disabling of functionality that allows to calculate more accurate generation losses per voltage level) to be compliant with this principle.

One member felt strongly that this principle is in line with the embedded generation principles.

The Group considered adding a phrase to say 'unless it has been demonstrated that the losses on Import and Export are materially different' but felt that this could be misused and that, while easily provable (and verifiable) for site specific LLFs it would not be for generic LLFs.

The Ofgem representative confirmed that this principle is not in direct conflict with the Distribution Licence.

#### **4.2.1.7 Principle 7**

*There shall be no more than 2 LV and 2 HV LLFC Groups<sup>8</sup> in each GSPG, and at least 1 generic EHV LLFC Group.*

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<sup>18</sup> The Group noted that any value with 5 decimal places and ending 00 (e.g. 1.01100) would be considered to be calculated to 3 decimal places of accuracy.

In analysing the LLFC Groupings (details of this analysis are included in section 4.1.1 and Appendix A4.2) the Group agreed that it would be helpful to limit the number of generic LLFC Groups for LV and HV. In looking at the data available the Group agreed that this should be set at 2 for HV and 2 for LV, as this was currently the maximum number of LLFC Groups per DSO.

The Group agreed that by requiring DSOs to have a generic EHV LLFC, this could be used as a default when an audited and approved value is not available for an EHV site.

#### **4.2.1.8 Principle 8**

*As a minimum, generic LLFs shall be calculated separately for day and night.*

The Group noted that some DSOs don't use any profiling for LLFs, (with all LLFs in a specific LLFC having the same value) while some DSOs calculate LLFs separately for several different time periods. For example:

- Night 00:30 – 07:30;
- Monday – Friday 16:00 – 19:00 November to February;
- Monday–Friday 07:30–16:00 & 19:00-20:00 November to February; and
- All other times.

The Group agreed that, while they would not want to prevent greater accuracy, it would be useful to have greater similarity in the granularity of the profiling of LLFs. The Group agreed that, as a minimum, separate calculations should be undertaken for day and night, and noted that this does not necessarily mean that the day and night values will be different. One member noted that they would be surprised if the values were the same.

#### **4.2.1.9 Principle 9**

*DNOs shall utilise Settlement data from a Settlement Run at R2 or greater and from a complete previous 12-month period, for calculating LLFs. The 12-month period to be used shall be determined by the PAB.*

Looking at the DSO questionnaire responses, the Group noted that all DSOs use Settlement data to calculate overall losses. In terms of the run type, all respondents indicated that they use the 'best available' or 'R2 or greater'. In discussing this principle, the Group noted that the Group members present, who were DSOs, used data from different time periods and agreed that it would be beneficial to create greater conformity between the LLF calculation inputs.

The Group considered requiring the year of data to be a full BSC Year, or another date range, specified in the BSCP, but agreed that it would be more sensible to provide a flexible date that can be changed from year to year provided all DSOs use the same year.

It was also agreed that all DSOs should use data from R2 or greater as this would be more accurate than using data from earlier Settlement Runs. It would be up to the individual DSO to decide whether to use data from the latest run type or whether to use all of the data from one Settlement Run e.g. all R2 data.

#### **4.2.1.10 Principle 10**

*Changes to the LLF calculation, to take into account market wide issues (e.g. erroneously large EAC/AA or incorrect Energisation Status) can only be made if agreed to be appropriate through the new LLF 'audits'.*

The Group noted that one DSO present had previously taken account of a market wide issue (and the likely level of correction) when calculating LLFs. The Group agreed that this could be of benefit, but that it should be done in a centralised way, so that this issue is considered equally in all GSPGs. It was agreed that the PAB should decide whether there are any market wide issues that could be accounted for in the LLF calculation at the same time as it determines which full year of data to use. The auditor would then confirm whether this information is included in each of the LLF methodologies.

**4.2.1.11 Principle 11**

*Robust error detection and correction processes shall be in place throughout the calculation of LLFs.*

All respondents to the DSO questionnaire confirmed that they do have error detection/correction processes in place, and the Group agreed that this is important in picking up potentially erroneous LLFs. The Group agreed that this is even more important where approved LLFs are more difficult to change (under the P216 solution).

The Group agreed that, in some instances where a significant material error has been created, there should be enough flexibility to correct these. This forms principle 15.

**4.2.1.12 Principle 12**

*All generic LLFs shall be re-calculated [every year/every 2 years].*

The Group noted that currently, there are no requirements over how often an LLF should be recalculated, and agreed that there should be a maximum length of time between calculations. The Group agreed that the timescales should be different for site specific and generic LLFs.

For generic LLFs the Group noted that one member, who was a DSO, calculates these every year, while another calculates every 2 years (this is to allow for the effect of the calculation to show in the Annual Demand Ratio (ADR), such that the DSO can understand the impact of their LLFs). The DSO who recalculates every two years believed that by recalculating every year, although the LLFs would change slightly, the calculation would not be any more accurate and the slight change would simply result in a random fluctuation.

The Group discussed the possibility for creating a requirement where the LLF must be recalculated if the ADR is outside a certain band, but were unable to decide on a band that would be suitable.

Several Group members favoured an annual calculation to ensure that more recent Settlement data is used, while others felt that 2 years is adequate.

For site specific LLFs, the Group agreed that the most important time to recalculate would be when there is a material change to the site or network, including changes in operating regime. One member felt strongly that as time goes on a series of smaller changes may combine to create a material change over time. Therefore, the Group agreed that 5 years would be a good backstop, given the burden of recalculating site specific LLFs is significantly greater than for generic LLFs. This forms principle 13 (below).

**4.2.1.13 Principle 13**

*All site specific LLFs shall be re-calculated when there has been a material change to the site or network, and at least every 5 years.*

See text in section 4.2.1.12 above for the Group's discussion of this principle.

**4.2.1.14 Principle 14**

*No changes shall be made to approved LLFs mid year. Annual updates will have an effective from date of 1 April. Where default LLFs have been applied due to an audit failure, these may be updated to the approved LLFs on a prospective basis as determined from time to time by the PAB.*

The Group noted that this principle is included in the P216 Proposed Modification and so is required to form part of the P216 solution.

One member disagreed with this principle as they believed that it would unduly impact customers. For example, a newly connected wind farm will often agree revised LLFs with the DSO when a year of actual data is available. This is to correct the rough estimates made when the wind farm came on line. Under the P216 solution, this revision could not be made until the next 1 April.

One member noted that while one participant may gain when retrospective changes are made to LLFs, another will lose. The member therefore believed that retrospective changes should not be made.

The Group also agreed that this doesn't prevent LLFs which have previously failed an audit being prospectively applied when the audit is passed, as the original LLFs applied were defaults rather than approved and audited LLFs.

In addition, this doesn't prevent LLFs for new sites being agreed and applied in Settlements.

**4.2.1.15 Principle 15**

*No retrospective changes shall be made to approved LLFs for site specific or generic LLFCs, other than to correct material manifest errors.*

The Group agreed that, once approved, LLFs should not be changed, although it was noted that material errors should be corrected to protect Settlement accuracy.

**4.2.2 Common Methodology**

The Group discussed the concept of a common methodology and agreed that this would require a much more detailed set of rules than that described by the high level principles proposed by the Group. The detail of the rules would be such that the processes for calculating and allocating LLFs would be entirely consistent across GSPGs, save for the differences arising from the physical network.

The Group agreed that there are several varieties of a potential common methodology. These are common methodologies where:

- a. it is applied by each individual DSO to their area;
- b. it is centrally administered by a single body for all areas;
- c. it is centrally administered for generic LLFs (which are assigned a proportion of the total GSPG losses), but applied by the individual DSO for site specific LLFs (which are calculated using load flow analysis of the network).

The Group agreed the following pros and cons for each of these options:

<b>Common Methodology for calculating LLFs in all GSP Groups</b>	
<b>Pros</b>	<b>Cons</b>
<b>Option A (applied by each DSO)</b>	
<p>Increased transparency in how LLFs are calculated</p> <p>Somewhat greater consistency in how LLFs are calculated across GSPGs</p> <p>Improved accuracy (in applying the rules agreed)</p>	<p>Difficult to ensure that DSOs are undertaking exactly the same analysis (in relation to the judgements and estimates needed in calculating LLFs) this will reduce the transparency/consistency</p> <p>Accuracy is only in terms of the rules agreed, not the actual losses</p> <p>A complex set of rules would need to be agreed, so a significant initial effort would be needed. This would be costly</p> <p>DSOs may be required to make significant and costly changes to their systems and processes</p> <p>Potential divergence in DSO methodologies over time</p> <p>The same data would be needed from each DSO area (network data), this may not be easily available and it is inefficient in terms of duplicating data</p> <p>No significant decrease in audit costs, and potentially an increase as more checks would have to be put in place to ensure that the methodologies don't diverge from the original set of detailed rules</p>

<b>Common Methodology for calculating LLFs in all GSP Groups</b>	
<b>Pros</b>	<b>Cons</b>
<b>Option B (administered centrally)</b>	
<p>Increased transparency in how LLFs are calculated</p> <p>Significantly greater consistency in how LLFs are calculated across GSPGs</p> <p>More efficient in the long term (reduced cost of calculating the losses)</p> <p>Reduced need for auditing the calculation/reduced audit costs</p> <p>Significantly improved accuracy (in applying the rules agreed)</p> <p>Potentially more stability for Suppliers in forecasting how the GSPGCF will be affected by LLFs</p>	<p>Accuracy is only in terms of the rules agreed, not the actual losses</p> <p>A complex set of rules would need to be agreed, so a significant initial effort would be needed. This would be costly</p> <p>Procurement costs (for the new central administrator of the process)</p> <p>Apportionment of the costs of the procurement and ongoing service needs to be carefully considered to reflect costs on those who benefit</p> <p>Ongoing costs would be incurred by the central administrator to maintain 'shadow' network models for each DSO and keep these updated (these would be needed to calculate site specific LLFs)</p> <p>The same data would be needed from each DSO area (network data), this may not be easily available and it is inefficient in terms of duplicating data</p>
<b>Option C (generic is applied centrally and site specific is applied by the DSO)</b>	
<p>Increased transparency in how LLFs are calculated</p> <p>Greater consistency in how LLFs are calculated across GSPGs</p> <p>Reduced costs for the central agent (as they will not need to undertake complex load flow modelling for site specific LLFs)</p> <p>Benefits of DSOs knowledge of their networks will not be lost for load flow modelling</p> <p>Slightly more efficient in the long term (reduced cost of calculating the losses and auditing the calculation)</p> <p>Significantly improved accuracy (in applying the rules agreed)</p> <p>Potentially more stability for Suppliers in forecasting how the GSPGCF will be affected by LLFs</p>	<p>Difficult to ensure that DSOs are undertaking exactly the same calculation (in relation to the judgements and estimates needed) this will reduce the transparency/consistency (<i>applicable to site specific LLFs only</i>)</p> <p>Accuracy is only in terms of the rules agreed, not the actual losses</p> <p>A complex set of rules would need to be agreed, so a significant initial effort would be needed. This would be costly</p> <p>Potential divergence in DSO methodologies over time (<i>applicable to site specific LLFs only</i>)</p> <p>Procurement costs (for the new central administrator of the process)</p> <p>Apportionment of the costs of the procurement and ongoing service needs to be carefully considered to reflect costs on those who benefit</p> <p>The same data would be needed from each DSO area (network data), this may not be easily available and it is inefficient in terms of duplicating data</p>

Several Group members noted that by aiming for a common methodology the P216 proposed solution (high level principles and audit processes) would be put at risk, as there is potential for the common methodology to prove so complex that the Proposed Modification fails. It was also noted that the work involved in formulating a common methodology would require several more months work, and so any potential benefits that may be gained under the current Proposed solution would be delayed.

In light of the pros and cons discussed, the Group agreed that a common methodology should not form the basis of the solution under P216; and noted that it could be considered at some point in the future under another Modification or Issue. It was noted that there are other avenues under which this can be pursued, including the Distribution Charging Methodologies Forum (DCMF).

The Group noted that charging methodologies themselves had been raised as an area for discussion under the Ofgem Codes review.

#### **4.2.3 Placement within the BSC**

The Group agreed that the following should sit within a new BSCP (BSCP28 and BSCP528 would be removed):

- High level principles; and
- New audit processes/timetables (detailed versions).

The BSC itself would contain requirements:

- for there to be an audit of LLF methodologies and calculations (and for these to be easily auditable);
- for there to be a set of high level principles (and for the LLF methodologies to comply with the principles and the LLF calculations to follow the approved methodologies); and
- for a new BSCP to be created (including the new BSCP name).

These lists are indicative and not intended to be exhaustive.

### **4.3 Audit Processes**

#### **4.3.1 Auditor**

The Group agreed that BSCCo should conduct audits of the LLF calculations and methodologies and noted that BSCCo may choose to sub contract the audit processes under this solution.

#### **4.3.2 Processes and Timing**

The Group discussed the 3 types of audit required by P216 – an audit of LLF methodologies, an audit of LLF calculations and a spot check on the application of LLFCs.

##### **4.3.2.1 Audit of LLF Methodologies**

The Group discussed the process and agreed that this would be an audit of the written methodology statements, and that this should be carried out prior to the calculation of the next year's LLFs (to reduce the potential of re-calculation to be needed).

The Group agreed that this audit would be conducted by BSCCo and would check that the written methodology statements are compliant with the principles described in section 3.1.1.

The Group members, who were DSOs, indicated that they undertake LLF calculations between September and December, and the Group noted that the audit of LLF methodologies would need to take place before this. The Group agreed that the LLF methodologies to be used in the next set of calculations should be submitted to BSCCo on the 1 August each year for auditing.

The Group agreed that in the first year there are more likely to be non-compliances and so the audit process would be completed by 1 August (rather than starting on the 1 August) for the first year of the audit only.

The Group agreed that there should be discussion between the DSO and BSCCo to correct non-compliances in the methodologies before a final report is drafted. If non-compliances cannot be resolved then the Group confirmed that PAB should be informed and the normal error correction processes should be utilised.

The Group thought that SVG/ISG would not need to be updated at this stage of the process, as until the audit of LLF calculations is completed there won't be any LLFs to approve. The Group confirmed that this would mean that other Parties are not aware of the DSOs non-compliance.

#### **4.3.2.2 Audit of LLF Calculations**

The Group agreed that BSCCo would carry out the audit of LLF calculations. The Group noted that LLFs are currently submitted 40WDs before the effective from date, but that more time would be needed for a more extensive validation/audit process.

The Group agreed that:

- the audit should take place at DSOs offices as further explanation/discussion may be needed when unexpected results are found.
- the audit would encompass most of the current validation checks, and extend these to check whether the calculations are compliant with the principles (as described in 3.1.1).
- for the audit of LLF calculations, there should be a dialogue between BSCCo and the DSO to allow for the correction of non-compliances in the calculations before a final report is drafted.
- PAB should be updated on the outcome of each audit and should be provided with the detail necessary to manage any non-compliance.

The SVG or ISG should be updated only on the successful or unsuccessful completion of both audits (methodology and calculation), and would not be provided with any details of the failure. The Group noted that this would mean that it would be publicly known that a DSO's LLFs have not been approved, but the reason why would not be.

#### **Initial Discussion - Timetable**

The LDSO Group members present indicated that they usually completed their calculations by the end of December, so the Group initially agreed that LLFs would be submitted on 31 December. This would mean that the audit of LLF calculations would take place in the first few weeks of January, to allow for the finalised LLFs to be submitted by 40WDs before 1 April (allowing 10WDs for report drafting and for the revised LLFs to be submitted).

#### **Further Discussion – Timetable**

After further consideration, the Group agreed that the initial timetable discussed was very tight, and would allow only a few weeks to complete all of the LLF calculation audits and finalise the results. To allow more time, it was suggested that all the timescales should be brought forward. The audit processes could then take place in October/November and the final LLF submissions would be made by 31 December.

The Group agreed that it would be beneficial to undertake the audit earlier to provide more time for corrections, if needed. The Group agreed to consult on this approach<sup>19</sup>.

#### **4.3.2.3 Spot Check on LLFC Application**

The Group agreed that the spot check on LLFC application would form part of the audit of LLF calculations, to prevent additional site visits being required if this check were to be done separately.

#### **4.3.3 Audit Failure**

The Group noted that P216 requires that LLFs that have failed audits are not used in Settlement.

The Group agreed that where an LLF audit (either methodology or calculation) is failed, PAB would manage the non-compliance and that all non-compliances should be resolved by 1 April (or the effective from date for new sites). Where non-compliances have not been resolved by 1 April, the Group agreed that a default would be used.

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<sup>19</sup> If you would like to provide comments on the timetable suggested, please do so as part of your consultation response.

The default used would be the last LLFs approved for that site, or where no LLFs have been approved under this process, the generic LLFs for that voltage would be used. The Group agreed that generic LLF values would be more accurate than just using a value of 1.000, which is the current default.

The Group agreed that following an audit failure, where the calculation or methodology have been corrected and the audited values become available, the PAB should have the authority to approve LLFs.

The Group discussed whether the use of the approved and audited LLFs should be retrospective or prospective. Some members believed that they should be retrospective, so as to correct the full year of data. Other members believed that, in line with principle 15, changes should not be made retrospectively, and any changes resulting from corrected audit failures should be applied prospectively only. The Group agreed that a question should be asked to obtain further views on whether changes should be prospective or retrospective.

The Group agreed that this does not conflict with principle 14 (no mid year changes to audited and approved LLFs); as default LLFs will have been applied for the first part of the year do not constitute audited and approved LLFs.

#### **4.3.4 New LLFs during the year**

The Group confirmed that the Proposed Modification requires that LLFs for existing sites do not change during the audit year; and that those new sites (that come on-line during the year) which have new LLFCs must be audited before their LLFs can be approved and used in Settlement.

The Group agreed that there is likely to be a relatively low number of new sites coming on-line during the year. These new sites may require a new LLFC (e.g. a new factory requiring site specific LLFs), or may be assigned to an existing LLFC (e.g. a new domestic property). The Group felt that any new sites present a low enough risk to Settlement to have a relatively limited audit before they are approved, provided the methodology used has already been approved. In addition, sites that are assigned to current LLFCs will not require auditing as the LLFs would have been approved as part of the previous years process.

The Group considered an Alternative Modification where no audit is required for sites with new LLFCs, but agreed not to develop this, agreeing that a small audit (similar to the current validation checks) would be more suitable.

The Group suggested that DSOs would be unlikely to want to change their methodology when calculating new LLFs mid year.

#### **4.3.5 Independent Distribution System Operators (IDSOs)**

The Group noted that IDSOs are also required to publish their methodologies<sup>20</sup>.

Both of the IDSOs who responded to the DSO Questionnaire indicated that they will match the host-DSOs LLFs for each GSPG; therefore they do not undertake their own calculation.

The Group agreed that IDSOs should be included in the audit processes, and agreed that given the risk-based approach to the sampling (determined by PAB) IDSOs are likely to have a relatively small audit when compared to the host-DSOs. The Group noted that if IDSOs did increase in size over time, the sampling is likely to grow with them.

The Group noted that IDSOs don't have access to all of the data needed to be compliant with principle 5. The Group agreed that mirroring the host LLF values would be considered compliant, providing that the correct value is chosen and the host DSO methodology has been approved. The Group agreed to consult on the approach to auditing IDSOs suggested in the currently proposed P216 solution.

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<sup>20</sup> Ofgem are currently liaising with IDSOs to agree and publish these methodologies.

#### 4.3.6 CVA and SVA

The Group felt that the differences in validating CVA and SVA LLFs should be minimised, and that the processes followed for auditing CVA and SVA LLFs should be the same. However, the level of sampling during the audit of LLF calculations might be higher for CVA LLFs to take account of the increased risk associated with CVA Metering Systems.

#### 4.4 Distribution Licence Requirements

The Ofgem representative confirmed that there is no conflict with the Distribution Licence due to principle 6.

The Group noted Distribution Licence condition 4A.2B and agreed that it does not conflict with the current P216 solution. Licence condition 4A.2B states that:

*“Standard Condition 4A. Charges for Use of System*

*1. The licensee shall prepare a statement, in a form approved by the Authority, which sets out the basis on which charges will be made for the use of the system (“the charging statement”), which:*

*a) is in such a form and contains such detail as would enable any person to make reasonable estimate of the charges to which he would become liable in respect of use of system; and*

*b) from 1 April 2005, is prepared in accordance with the use of system charging methodology.*

*2. The statement referred to in paragraph 1 shall include:*

*a) a schedule of charges for the distribution of electricity under use of system;*

*b) a schedule of adjustment factors to be made for distribution losses, in the form of additional supplies required to cover those losses;”*

*c) Continues...*

#### 4.5 Implementation Approach

The Group discussed possible implementation dates, and agreed that these will be dependent on the results of the Impact Assessment.

One member of the Group expressed a preference to have the revised process in place for the April 2009 LLF submissions. The Group noted that this would be particularly tight given the need for the methodologies audit to start in the previous May (2008).

One member suggested that the audit could be postponed to the second year, to allow enough time to implement P216 before the April 2009 submissions. This would mean that the methodologies in use must be compliant with the high level principles for April 2009, but that the LLFs would not be audited before they are approved in the first year to allow additional time for the audit processes to be implemented.

#### 4.6 Costs and Benefits

The Group has not yet discussed the costs and benefits of P216. These will be discussed by the Group as part of the Assessment Procedure, following this Consultation and Impact Assessment.

### 5 ASSESSMENT OF MODIFICATION AGAINST APPLICABLE BSC OBJECTIVES

This section outlines the initial views of the Modification Group regarding the merits of **P216** against the Applicable BSC Objectives.

The initial **MAJORITY** view of the Modification Group was that the Proposed Modification **WOULD NOT** better facilitate the achievement of Applicable BSC Objectives (c) and (d) when compared to the current Code baseline, for the following reasons:

#### **Applicable BSC Objective (c)**

- effective competition would not be improved, as there is already a level playing field in the way that methodologies are published and LLFs approved;
- the potential materiality of any error associated with inaccurate LLFs has not been proven and stable ADR values imply that any issues are not of significance; and
- generation sites could be unfairly and negatively impacted as a result of principle 6 (where generic LLFCs for Import and Export at the same site are required to have the same LLF values), and principle 15 (where no retrospective changes to LLFs would be allowed).

#### **Applicable BSC Objective (d)**

- the administration of the balancing and settlement arrangements would be less efficient due to the increased costs of the audit processes.

The **MINORITY** view, that Applicable Objectives (c) and (d) **WOULD** be better facilitated by the Proposed Modification, was supported for the following reasons:

#### **Applicable BSC Objective (c)**

- analysis shows that Suppliers will be impacted in different ways by changing LLF values. While the extent of the impact is open to debate, the variance between different types of Supplier is significant and will negatively affect competition;
- audits will provide Suppliers with assurance that the originally applied LLF values are correct; and disallowing retrospective changes will give Suppliers increased confidence in their expected imbalance position.

#### **Applicable BSC Objective (d)**

- high level principles will provide increased transparency in the way that LLFs are derived for use in Settlement.

The Group unanimously agreed that the Proposed Modification would have a neutral impact on Applicable BSC Objectives (a) and (b). Some Group members also felt that there would be a neutral impact on Applicable BSC Objective (d).

The Group noted that the Proposer was unable to be present at the meeting when views on the Applicable BSC Objectives were discussed; and that he continues to support the P216 Proposed Modification.

## **6 ESTIMATED IMPACT OF MODIFICATION ON SYSTEMS, PROCESSES AND DOCUMENTATION**

An initial assessment has been undertaken by BSCCo in respect of all BSC systems, documentation and processes. The following have been identified as being potentially impacted by P216. These impacts will be updated following the industry wide Impact Assessment which is being carried out in parallel with the consultation.

**a) Impact on BSC Systems and Processes**

No significant impact anticipated. LLF processing (e.g. by SVAA) will remain the same.

**b) Impact on BSC Agent Contractual Arrangements**

No significant impact anticipated.

**c) Impact on BSC Parties and Party Agents**

It is expected that P216 would impact DSOs (both LDSOs and IDSOs), Generators and Suppliers.

It is anticipated that LLF methodologies would initially need to be revised to ensure that they are consistent with the high level principles. This may involve changes to the DSO systems which should be detailed in DSO impact assessment responses. In addition, DSOs would be subject to additional checks regarding the accuracy and methodology used to calculate LLFs. LLFs would need to be submitted earlier to allow for the audit processes, and there would be additional restrictions as to when updated LLFs can be approved and used.

Suppliers, Generators and Supplier Agents may find that, as a result of new principles applied to methodologies for calculating LLFs, LLFs change when P216 is implemented. There is potential for an increase in the application of default LLFs while methodologies are being updated.

**d) Impact on Transmission Company**

No impact anticipated.

**e) Impact on BSCCo**

Area of Business	Potential Impact of Proposed Modification
CVA and SVA Operations	<p>BSCCo processes for facilitating the approval of LLFs by the Panel (as delegated to SVG and ISG) would need to be updated to take into account the additional audit requirements proposed.</p> <p>If one or more of the SVA LLF audits proposed were to be included within the current validation system, then this would require the BSCCo operational processes and the validation system to be updated.</p> <p>If BSCCo manages the new audit processes in-house, additional changes would be needed to accommodate this and ensure that the relevant expertise is available to manage the more thorough audit processes.</p>
Performance Assurance	<p>Remedial action resulting from failed audits would need to be managed within the Performance Assurance Framework.</p>
Procurement	<p>If BSCCo chose to out source the proposed audit processes a new service provider would need to be procured and terms agreed.</p>
Implementation	<p>BSCCo would need to implement the proposed changes. This process is likely to include Code Subsidiary Document drafting, process walkthroughs, education, and could include the procurement of a new BSC Agent or service provider.</p>

**f) Impact on Code**

<b>Code Section</b>	<b>Potential Impact of Proposed Modification</b>
B (The Panel)	The Panel are responsible for the current LLF approval processes (although this is delegated to the ISG and SVG), there may be minor changes needed to update this approval process.
E (BSC Agents)	Relatively unlikely to be impacted as it is recommended that BSCCo carry out the audits.
K (Metering Systems)	Changes are likely to be needed, particularly for section K 1.7 which relates to LLFs and LLF approval.
Z (Performance Assurance)	Changes may be needed to document the responsibilities of PAB in managing non-compliances arising from the LLF audits

**g) Impact on Code Subsidiary Documents**

<b>Document</b>	<b>Potential Impact of Proposed Modification</b>
BSCP28 (Approval and Notification of CVA LLFs)	BSCP28 will no longer be used to document the CVA LLF process as a joint CVA and SVA process will be included in a new BSCP.
BSCP528 (SVA LLFs for HH and NHH SVA Metering Systems registered in SMRS)	BSCP528 will no longer be used to document the SVA LLF process as a joint CVA and SVA process will be included in a new BSCP.
New BSCP	A new BSCP will document all of the SVA and CVA LLF processes.

**h) Impact on Core Industry Documents and Other Documents**

<b>Document</b>	<b>Potential Impact of Proposed Modification</b>
Distribution Connection and Use of System Agreement	It is assumed that no changes will be required to the DCUSA, however any interaction between this and the P216 solution will need to be considered.
Distribution Code	It is assumed that no changes will be required to the Distribution Code; however any interaction between this and the P216 solution will need to be considered.

**i) Impact on Other Configurable Items**

No impact anticipated.

**j) Impact on BSCCo Memorandum and Articles of Association**

No impact anticipated.

**k) Impact on Governance and Regulatory Framework**

No impact anticipated.

**7 DEVELOPMENT PROCESS**

For the purposes of the impact assessment, respondents should assume that P216 would be implemented as a stand-alone development project managed by BSCCo.

## 8 TERMS USED IN THIS DOCUMENT

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

Acronym/Term	Definition
ADR	Annual Demand Ratio: ADR is a measure of the variation between the total annual profiled Non Half Hourly (NHH) consumption and the total annual metered NHH consumption (as deduced from GSP Group Takes and HH consumption).
CVA	Central Volume Allocation
DSO	Distribution System Operator (Independent or Licensed)
DTC	Data Transfer Catalogue
EATL	EA Technology Limited
EHV	Extra High Voltage - over 22kV or at a substation with a primary voltage of 66kV or above.
Embedded Generation	Term used for any electricity generating plant that is connected to a distribution network. These networks are owned and operated by the DNOs.
GSP	Grid Supply Point
GSPGCF	Grid Supply Point Group Correction Factor
HV	High Voltage - a voltage typically exceeding 1000 Volts and less than 22kV.
IDSO	Independent Distribution System Operator
ISG	Imbalance Settlement Group
LDSO	Licensed Distribution System Operator
LLF	Line Loss Factor
LLFC	Line Loss Factor Class
PAB	Performance Assurance Board
SVA	Supplier Volume Allocation
SVG	Supplier Volume Allocation Group
TAA	Technical Assurance Agent

## 9 DOCUMENT CONTROL

### 9.1 Authorities

Version	Date	Author	Reviewer	Reason for Review
0.1	10/12/07	Ysanne Hills	Sarah Jones	For technical review
0.2	10/12/07	Ysanne Hills	David Jones	For Modification Group review
1.0	17/12/07	P216 Modification Group	P216 MG	For industry consultation and impact assessment

### 9.2 References

	Document Title	Owner	Issue Date
1	<a href="#">Trading Operations Report (presented to the August 2007 Panel)</a>	ELEXON	August 2007
2	<a href="#">SVG Paper SVG/38/480</a>	ELEXON	22/03/04
3	<a href="#">SVG Paper SVG/40/011</a>	ELEXON	21/05/04
4	<b>NEDL Use of System Charges Statements</b> <a href="http://www.ceelectricuk.com/lib/liDownload/550/NEDL%20-%20July%202007%20-%20Condition%204%20Statement%20-%20Final.pdf?CFID=235229&amp;CFTOKEN=62005211">http://www.ceelectricuk.com/lib/liDownload/550/NEDL%20-%20July%202007%20-%20Condition%204%20Statement%20-%20Final.pdf?CFID=235229&amp;CFTOKEN=62005211</a>	CE Electric	July 2007
5	<b>YEDL Use of System Charges Statements</b> <a href="http://www.ceelectricuk.com/lib/liDownload/552/YEDL%20-%20July%202007%20-%20Condition%204%20Statement%20-%20Final.pdf?CFID=235229&amp;CFTOKEN=62005211">http://www.ceelectricuk.com/lib/liDownload/552/YEDL%20-%20July%202007%20-%20Condition%204%20Statement%20-%20Final.pdf?CFID=235229&amp;CFTOKEN=62005211</a>	CE Electric	July 2007

6	<b>Central Networks East Charging Statement</b> <a href="http://www.eon-uk.com/downloads/CNEastUoSCharging_statement_April_2007final.pdf">http://www.eon-uk.com/downloads/CNEastUoSCharging_statement_April_2007final.pdf</a>	Central networks	April 2007
7	<b>Central Networks West Charging Statement</b> <a href="http://www.eon-uk.com/downloads/CNWestUoSCharging_statement_April_2007.pdf">http://www.eon-uk.com/downloads/CNWestUoSCharging_statement_April_2007.pdf</a>	Central Networks	April 2007
8	<b>London Network Charging Statement</b> <a href="http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-lpn-chargesforuse-elecdistsyst-011007.pdf">http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-lpn-chargesforuse-elecdistsyst-011007.pdf</a>	EDF Energy	October 2007
9	<b>East of England Network Charging Statement</b> <a href="http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-eqn-chargesforuse-elecdistsyst-011007.pdf">http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-eqn-chargesforuse-elecdistsyst-011007.pdf</a>	EDF Energy	October 2007
10	<b>South East England Network Charging Statement</b> <a href="http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-spn-chargesforuse-elecdistsyst-011007.pdf">http://www.edfenergy.com/hold/regulatory/downloads/edfenergynetworkks-spn-chargesforuse-elecdistsyst-011007.pdf</a>	EDF Energy	October 2007
11	<b>Scottish Hydro Electric Power Distribution Charging Statement</b> <a href="http://www.scottish-southern.co.uk/SSEInternet/index.aspx?id=654">http://www.scottish-southern.co.uk/SSEInternet/index.aspx?id=654</a>	<u>Scottish &amp; Southern Energy</u>	July 2007
12	<b>Southern Electric Power Distribution Charging Statement</b> <a href="http://www.scottish-southern.co.uk/SSEInternet/uploadedFiles/About_Us/Our_Businesses/Energy_Systems/SEPD/Contract_Management/Charging_Statements_and_Look_Up_Tables/SEPDDUoSCharges0708v15310707pdf.pdf">http://www.scottish-southern.co.uk/SSEInternet/uploadedFiles/About_Us/Our_Businesses/Energy_Systems/SEPD/Contract_Management/Charging_Statements_and_Look_Up_Tables/SEPDDUoSCharges0708v15310707pdf.pdf</a>	<u>Scottish &amp; Southern Energy</u>	October 2007
13	<b>SP Distribution Charging Statement</b> <a href="http://www.scottishpower.com/uploads/C4AStatementSPDistributionAugust07.pdf">http://www.scottishpower.com/uploads/C4AStatementSPDistributionAugust07.pdf</a>	Scottish Power	August 2007
14	<b>SP Manweb Charging Statement</b> <a href="http://www.scottishpower.com/uploads/C4AStatementSPManwebApril2007final.pdf">http://www.scottishpower.com/uploads/C4AStatementSPManwebApril2007final.pdf</a>	Scottish Power	April 2007
15	<b>United Utilities' Use of System Charges Statements</b> <a href="http://www.unitedutilities.com/resources/files/1421_United%20Utilities%20Licence%20Condition%204A%20Statement%20(Use%20of%20System%20Charges)%202006-07.pdf">http://www.unitedutilities.com/resources/files/1421_United%20Utilities%20Licence%20Condition%204A%20Statement%20(Use%20of%20System%20Charges)%202006-07.pdf</a>	United Utilities	April 2006
16	<b>WPD South West Charging Statement</b> <a href="http://www.westernpower.co.uk/servercode/showdocument.asp?ID=272">http://www.westernpower.co.uk/servercode/showdocument.asp?ID=272</a>	Western Power Distribution	April 2007
17	<b>WPD South Wales Charging Statement</b> <a href="http://www.westernpower.co.uk/servercode/showdocument.asp?ID=271">http://www.westernpower.co.uk/servercode/showdocument.asp?ID=271</a>	Western Power Distribution	April 2007

## APPENDIX 1: APPLICABLE BSC OBJECTIVES

For reference the Applicable BSC Objectives, as contained in the Transmission Licence, are:

- (a) The efficient discharge by the licensee [i.e. the Transmission Company] of the obligations imposed upon it by this licence [i.e. the Transmission Licence];
- (b) The efficient, economic and co-ordinated operation of the GB transmission system;
- (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;
- (d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements.

## APPENDIX 2: PROCESS FOLLOWED

### ESTIMATED COSTS OF PROGRESSING MODIFICATION PROPOSAL<sup>21</sup>

Please note: these costs are for the Assessment Procedure only. The estimated costs for the Definition Procedure were provided in the Initial Written Assessment and were approximately £16,000 in total.

<b>Meeting Cost</b>	£ 3,500
<b>Legal/Expert Cost</b>	£ 8,000
<b>Impact Assessment Cost</b>	£ 12,000
<b>ELEXON Resource</b>	130 man days £ 40,000

Copies of all documents referred to in the table below can be found on the [P216 page of the ELEXON Website](#).

Date	Event
30/07/07	Modification Proposal raised by Smartest Energy
09/08/07	IWA presented to the Panel
03/09/07	First Definition Procedure Modification Group meeting held
06/09/07	Second Definition Procedure Modification Group meeting held
12/09/07	Definition Procedure Consultation issued
18/09/07	Definition Procedure consultation responses returned
21/09/10	Third Definition Procedure Modification Group meeting held
11/10/07	Definition Report presented to the Panel
22/10/07	First Assessment Procedure Modification Group meeting held
13/11/07	Second Assessment Procedure Modification Group meeting held
20/11/07	Third Assessment Procedure Modification Group meeting held
05/12/07	Fourth Assessment Procedure Modification Group meeting held
12/12/07	Fifth Assessment Procedure Modification Group meeting held
13/12/07	Interim Report presented to the Panel
19/12/07	Sixth Assessment Procedure Modification Group meeting held
20/12/07	Consultation issued for industry consideration
20/12/07	Requirements Specification issued BSC Agent impact assessment

<sup>21</sup> 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](http://www.elexon.co.uk/documents/Change_and_Implementation/Modifications_Process_-_Related_Documents/Clarification_of_Costs_in_Modification_Procedure_Reports.pdf).

Date	Event
20/12/07	Request for Party/Party Agent impact assessments request issued
20/12/07	Request for Transmission Company analysis issued
20/12/07	Request for BSCCo impact assessment issued

## MODIFICATION GROUP MEMBERSHIP

Member	Organisation	2007					
		22/10	13/11	20/11	05/12	12/12	19/12
David Jones	ELEXON (Chairman)	✓	✓	✓	✓	✓	✓
Ysanne Hills	ELEXON (Lead Analyst)	✓	✓	✓	✓	✓	✓
Colin Prestwich	SmartestEnergy (Proposer)	✓	✓	✓	✓	✓	✗
Glenn Sheern	E.ON UK	✓	✓	✗	✗	✗	✗
Maurice Smith	Campbell Carr	✗	✗	✗	✗	✗	✗
María Isabel Liendo	Scottish Power Energy Networks	✓	✗	✗	✓	✓	✓
James Evans	British Energy	✓	✓	✗	✓	✓	✓
Rosie McGlynn	EDF	✓	✓	✗	✓	✓	✗
Andrew Manning	npower	✗	✗	✗	✓	✓	✓
Andrew Neves	Central Networks	✗	✓	✓	✓	✓	✓
Eric Graham	Independent	✗	✗	✗	✓	✓	✗
Nigel Lloyd	Western Power Distribution	✓	✓	✓	✓	✓	✓
Attendee	Organisation						
Shantok Karavadra	ELEXON (Lawyer)	✗	✓	✓	✓	✗	✗
Justin Andrews	ELEXON (DA)	✓	✓	✗	✗	✓	✗
Sarah Jones	ELEXON (DA)	✗	✓	✓	✓	✓	✗
Keith Banwaitt	ELEXON (Operational)	✓	✓	✓	✓	✓	✓
Simon Polley	Ofgem	✓	✓	✓	✓	✓	✓
Mark Field	npower	✗	✓	✗	✗	✗	✗
Robert Arbon	Campbell Carr	✓	✓	✓	✓	✓	✓
Richard Cullen	ELEXON (Operational)	✗	✗	✗	✗	✓	✓

## MODIFICATION GROUP TERMS OF REFERENCE

**Modification Proposal P216 will be considered by the P216 Modification Group, comprised of members of the Volume Allocation Modification Standing Group (VASMG), Governance Standing Modification Group (GSMG), Settlement Standing Modification Group (SSMG) and Distribution Company Representatives in accordance with the following Terms of Reference.**

### P216 – Audit of LLF Production

#### Definition Procedure

The Modification Group will carry out a Definition Procedure in respect of Modification Proposal P216 pursuant to section F2.5 of the Balancing and Settlement Code.

The Modification Group will produce a Definition Report for consideration at the BSC Panel Meeting on 11 October 2007.

The Modification Group shall consider and/or include in the Definition Report as appropriate:

- the scope and aims of each of the audits suggested;
- how inaccurate LLFs might impact on GSP Group Correction Factor, how significant any impact is for settlement and the appropriateness of assessing this issue under P216;

- whether the rules for LLF methodologies should be Code defined (and constructed by the Modification Group as part of the Modification) or approved and amended from time to time by, for example, a Panel Committee; and
- confirm that the audits proposed are within the scope of the BSC, as opposed to any other governance arrangements.

### **Assessment Procedure**

The Modification Group will carry out a Definition Procedure in respect of Modification Proposal P216 pursuant to section F2.6 of the Balancing and Settlement Code.

The Modification Group will produce an Interim Report for consideration at the BSC Panel Meeting on 13 December 2007. This report will confirm whether the Group are pursuing a solution based on a common LLF methodology for all GSP Groups, and whether additional time is needed to complete this.

The Modification Group will produce an Assessment Report for consideration at the BSC Panel Meeting on 14 February 2008.

The Modification Group shall consider and/or include in the Assessment Report as appropriate:

- who should conduct each of the audits and checks described in P216 (e.g. an existing or new BSC Agent/service provider or ELEXON) and to whom reports should be provided to;
- the detailed scope, approach and timing for each of the checks described in P216 and how these could be changed in the future;
- the procedure to be followed if an LLF fails one or more audits, including any default rules;
- the rules/principles to be included in the BSC which LLF methodologies must comply with, and the level of detail that these rules should go into (what LLFs represent (i.e. the actual or technical losses on a line) should be defined, potentially as part of these rules);
- any changes needed to the process for new LLFs being approved during the course of the year;
- the differences between SVA and CVA LLFs and whether the differences identified lead to variances in audit approach;
- analyse the number and types of Metering Systems in the existing LLFC groupings;
- any interaction with approved Modifications, such as P197 ('SVA Qualification Processes Review') and P207 ('Introduction of a new governance regime to allow a risk based Performance Assurance Framework (PAF) to be utilised and reinforce the effectiveness of the current PAF');
- costs-benefits analysis - whether the perceived risk to Settlement justifies the impact/cost of providing each of the suggested audits, and the level of detail of the LLF principles) (including undertaking analysis to see how changes in the LLF values impact Settlement (volumes and GSPGCF) and Parties);
- conclude whether a common LLF methodology should be determined;
- consider the impact of P216 on Independent Distributor Networks ; and
- Confirmation that there is not a conflict between the P216 solution and the Licence requirement 4A.2B on Distributors.

### **APPENDIX 3: SUMMARY OF DSO QUESTIONNAIRE ANSWERS**

The Group issued a questionnaire to all DSOs (IDSOs and LDSOs) to aid in their understanding of how LLFs are currently calculated and the differences between DSOs calculations. 8 responses were received, from: CE Electric; Central Networks; Scottish and Southern; Scottish Power; United Utilities; Western Power Distribution; Laing O'Rourke Energy (IDSO); and The Electricity Network Company (IDSO).

A summary of the answers received is available below and the full non-confidential responses (excluding question 5) are attached in a separated document, Attachment 1.

	Question	Summary of Answers
1	What criteria do you use to determine whether a site should have a site specific LLFs (i.e. a LLF calculated or estimated exclusively for the site) or non site specific (generic) LLFs? For example: Is the criteria based on voltage, capacity (kVA), DUoS tariffs, trading arrangements (SVA or CVA sites) or some other criteria? Please state the criteria and any supporting rationale.	Always generic for smaller SVA sites. Usually site specific for all CVA sites. The split between site specific and generic is usually around SVA EHV sites.  IDSOs mirror the host network.
For the calculation of site specific LLFs:		
2a	Do you use a Load flow and substitution model?	5 – yes 1 – no (see the answer to Q2aii for what is used)
2ai	If yes, please give details of the type of model used, and how much of the network is analysed for each site?	Load flow model used, usually calculating the difference with and without the customer.
2aii	If no, how do you calculate your site specific LLFs?	Use the EATL model for specific sites.
2b	What input parameters do you use? In particular, how do you treat time-dependent loads (i.e. do you take an average, RMS value, etc)? Also, how do you treat the other loads (or generation) connected in the local network and at which loads do you run the analysis.	Usually profiled/metered demand/generation and network model data.
2c	How do you estimate these inputs, and how are they sourced?	Sourced from asset certificates, load flow models and Settlement data.
2d	Do you ever change site specific LLFs during the year?	4 – yes 1 - no
2di	If yes, what reasons are there for changing LLFs mid year?	This is unusual. Due to a material change - examples given included a new site or a significant change to site usage.
For generic LLFs:		
3a	Do you use the EA Technology methodology for calculating non-site specific LLFs?	4 – no 3 - yes
3ai	If not, which methodology do you use?	3 – own methodology IDSOs – mirror host network
3aii	If not, why have you opted for this methodology over the EA Technology one (other than for commercial reasons)?	1 – our methodology is similar to EA anyway. 2 – historical reasons/we weren't part of the development of the EATL Methodology.
3aiii	If yes, why did you choose the EA Technology methodology (except for commercial reasons)?	Reasons included: It is an improvement on previous methods. Due to the move to HH profiles. We participated in the development.
3aiv	If yes, how do you use the EA Technology model?	A limited number of responses received.  Those that did respond to this question indicated that they use the model to establish fixed and variable losses or to estimate LAFs for STOD tariff periods at different voltage levels.
3b	Are you planning to move to a new methodology?	5 – no 2 – yes/possibly
3bi	If yes, why?	To improve accuracy.
3bii	If yes, which methodology are you planning to move to?	1 – newLAF 1 – a methodology similar to EATL
3biii	If no, why not?	4 – current methods are fit for

		purpose/simplest for us.
3c	How do you estimate the <b>overall</b> losses in the network?	4 – units distributed vs. units entering. 2 – as described in the Licence.
3d	Which voltage level are you attributing the majority of losses to? How do you ensure that the allocation method (e.g. EA technology, newLAF or other) takes into account this assumption?	4 – LV 2 – depends on the results of the modelling IDSOs – mirror host network
3e	If using EA technology or newLAF (or other method if applicable), where do you source the network data from? In particular, how do you reflect “technical” losses (fixed and variable). How often are these variables updated?	5 – network data/assets register IDSOs – mirror host network <u>Updates:</u> 1 – when there are changes 3 – annually 1 – last change in 1999, next in 2008
3f	Do you use settlement data to calculate your LLF allocation?	6 – yes
3fi	If yes, at what stage of reconciliation do you take the data (e.g. R1, R2)	3 – R2+ 2 – R3 1 – best available
3fii	If yes, at what level of granularity is the data used? (e.g. half-hourly, monthly, annual)	5 – HH 1 - annual
3fiii	If no, what other method do you use to allocate overall losses (as per question 3.c above) to the different voltage levels and customer groups?	A limited number of responses received. The respondent that did comment indicated that they used an iterative process to match engineering losses to estimated total losses.
3g	Do you ever change the allocation of a non-site specific LLFC (or the associated LLFs) to a site during the year?	4 – yes 2 – no
3gi	If yes, what reasons are there for changing LLFC or LLFs mid year?	Unusual. 2 – changes to the site 2 – better data becomes available
4	Do you have any error detection process in the calculation of LLFs?	6 - yes
4a	If yes, what happens when errors are detected?	Detect errors by: 3 – comparing the results to last years 1 – auditing the model used 2 – checking inputs 1 – using an internal approval processes
5	Please can you provide ELEXON a full list of the LLFCs that are active in each of your GSPG(s) with the MPAN count associated with each LLFC, and stating which LLFCs are site specific, LV, HV, EHV or generic.	Non-confidential, collated answers received are provided in the table below.

	Generic MPAN Count	Generic LLFCs	Site specific MPAN Count	Site Specific LLFCs
<b>NEEB</b>	1,576,178	61	99	110
<b>YELG</b>	2,220,410	77	73	76
<b>LENG</b>	1,071	9	0	0
<b>SWAE</b>	1,067,568	114	89	58
<b>SWEB</b>	1,497,872	67	43	34
<b>MIDE</b>	2,463,391	63	21	8
<b>EMEB</b>	2,633,499	62	58	49
<b>NORW</b>	2,545,505	76	95	68

**APPENDIX 4: LLFC GROUPINGS ANALYSIS TABLE**

The Group’s analysis of the data provided in this table is available in section 4.1.1.

Licensed/ Independent	LDSO	LDSO	IDSO	IDSO	LDSO	IDSO	IDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO	LDSO
GSPG	EELC	EMEB	ENC	Energetics	HYDE	IPN	Laing	LOND	MANW	MIDE	NEEB	NORW	SEEB	SOUT	SPOW	SWAL	SWEB	YELG
Company	EPN	CNE			SHPD			LPN	SP	CNW	NEDL	UU	SPN	SE	SP	WPD	WPD	YEDL
Total	16	24	37	17	8	35	9	49	17	7	33	31	17	52	5	13	10	30
Flat	6	8	6	1	4	2	0	7	5	3	30	27	13	7	5	1	0	1
Profiled	10	16	31	16	4	33	9	42	12	4	3	4	4	45	0	12	10	29
LV Network	Data not collected	1	Data not collected	1	1	1	Data not collected	Data not collected	Data not collected	1	Data not collected	1						
LV Sub		0								0	1	1				0		1
HV Network		1								1	1	1				1		1
HV sub		0								0	0	0				0		0
EHV		0								1	0	1				1		1
SSP		22								4	30	27				10		26

**ATTACHMENT 1: COMPLETE RESPONSES TO THE DSO QUESTIONNAIRE**

A complete set of the non-confidential DSO questionnaire responses are attached as a separate document (Attachment 1).

**ATTACHMENT 2: LLF SENSITIVITY ANALYSIS REPORT**

This attachment provides the full LLF Sensitivity Analysis Report which looks at the potential impact of LLFs on Supplier volumes. This is attached as a separate document (Attachment 2).