

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

Target Audience	BSC Parties and interested organisations
Date Published	15 April 2014
Deadline for responses	Friday 9 May 2014, 5pm
Summary	<p>We are consulting on revised GSP Group Correction Scaling Weights based on a revised methodology and approach to the volume errors that have been estimated in the Non Half hourly and Half Hourly markets.</p> <p>Parties are invited to respond to this consultation using the proforma, which is available on the Consultations page of the ELEXON website. Responses should be returned to bsc.admin@elexon.co.uk by 5.00pm on Friday 9 May 2014.</p>

1. Introduction

- 1.1 Grid Supply Point (GSP) Group Correction is the mechanism that adjusts Suppliers' Metered Volumes in each GSP Group so that they, in aggregate, match the GSP Group Take. GSP Group Correction is not applied to all Supplier consumption – the mechanism accounts for error in Metered Volumes and is applied to those types of consumption deemed to be the source of this error.
- 1.2 Supplier consumption is split by Consumption Component Class (CCC), and GSP Group Correction Scaling Weights determine how much correction is applied to each CCC. CCC enables SVA energy volumes to be grouped by its characteristics, e.g. Half Hourly/Non Half Hourly, metered/unmetered, Import/Export, actual/estimated and losses/Metered Volumes. Appendix 1 gives the full list of CCCs.
- 1.3 Following industry consultation, the BSC Panel agreed to apply GSP Group Correction to HH loss volumes from April 2013 (Panel 188/11). Energy lost on the distribution network is estimated as a proportion of metered consumption using Line Loss Factors (LLFs), and the error in estimating this volume was deemed to apply to both the NHH and HH market. Extending GSP Group Correction to include HH losses was seen as a better reflection of the sources of error that are addressed through GSP Group Correction.
- 1.4 When agreeing the revised weights, the SVG noted that GSP Group Correction would not be applied to HH consumption because it was believed that the error associated with these volumes could not be quantified. Nevertheless, the SVG agreed (and Panel endorsed) that GSP Group Correction should be applied to HH consumption from April 2014 subject to a review of the Scaling Weights in 2013 which would seek to quantify the level of HH error.
- 1.5 ELEXON presented a paper to the SVG at its December 2013 meeting (SVG154/05), this was after a review by ELEXON during 2013. The paper summarised the analysis ELEXON performed during 2013 which presented the estimated values of error in each CCC group and suggested that if HH Consumption Scaling Weights were to be applied then a value of 0.1 was recommended. The SVG recommended to the Panel that ELEXON raise a Standing Issue to consider changing the BSC's correction of Export error, and that in the interim, GSP Group Correction should not be applied to any Export Metered Volumes or losses (whether NHH or HH). The SVG also recommended that the Panel still approve the revised Scaling Weights, but that each of these Scaling Weights should be applied only to Import and not to Export.
- 1.6 ELEXON presented the above SVG recommendations at its December 2013 meeting (Panel 219/10). The Panel agreed with the SVG's recommendation that the revised Scaling Weights still be approved but only applied to Import not Export. Furthermore, the Panel agreed that a Standing Issue be raised to consider the application of GSP Group Correction to Export (Issue 55).

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

1.7 The table below shows the recent history of GSP Group Correction Scaling Weights. This is shown by grouped CCCs, for a full breakdown of all CCCs please see Appendix 1.

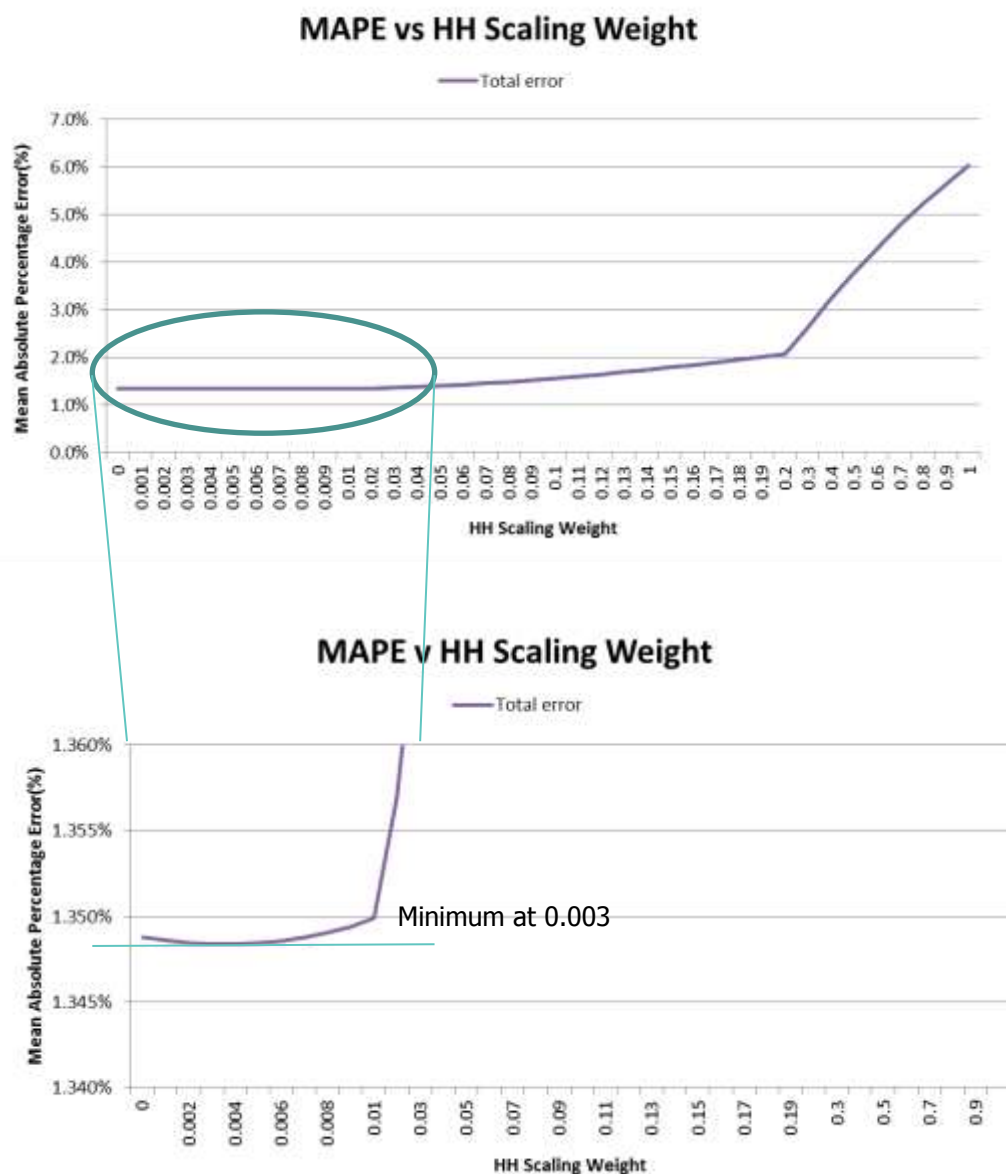
GSP Group Correction Scaling Factors			
Consumption Type	Original Weights	Revised Weights (Effective 1 April 2013)	Revised Weights (Effective 1 April 2014)
NHH Import Consumption	1.0	1.0	1.0
NHH Import Losses	1.0	2.3	2.25
HH Import Consumption	0	0	0.1
HH Import Losses	0	1.0	0.94
NHH Export Consumption	1.0	1.0	1.0
NHH Export Losses	1.0	2.3	2.3
HH Export Consumption	0	0	0
HH Export Losses	0	0	0

1.8 The Issue 55 working group was convened to address the issue of the Group Correction Factor Scaling Weight correction mechanism correcting Import and Export CCCs in opposing directions, resulting in 'competing corrections' of Import and Export if the Scaling Weight was to be applied to HH Export.

2. Issue 55 summary

- 2.1 The Issue 55 working group was provided with an overview of GSP Group Correction and the context within which GSP Group Correction Scaling weights are used. Part of the overview focussed on how the volume of Half Hourly error had been calculated.
- 2.2 In its review in 2013 (SVG154/05), ELEXON calculated the estimated total volume of HH error ELEXON using two sources of data relating to two GSP Groups:
- Trading Disputes data; and
 - Data derived from the BSC Audit Report
- 2.3 For Issue 55, based on new evidence submitted by a party, ELEXON produced a new model. This suggests, based on a new methodology that the optimum Scaling Weight for HH Metered Volumes is 0.003 (changed from 0.1 recommended in 2013, SVG154/05). However, it should be noted that this estimate assumed that HH error is correlated. An industry Supplier had produced a similar model which indicated an optimal scaling weight of 0.007 also not assuming that the HH error was uncorrelated.
- 2.4 The new ELEXON model generates 1000 samples of HH correction at GSP level, based on real Settlement data, and shows the outcome of the mean average percentage error (MAPE) across HH and NHH using the GSP Group Correction Factor (GSPGCF) calculation. The outcome of how the MAPE changes as the HH scaling weight changes can be seen here:

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT



- 2.5 The ELEXON new model assumes that the GSP Group error is normally distributed. This was based on analysis done on actual GSP group correction values across all GSP groups over a year. The results of this analysis can be found in the Appendix 2.
- 2.6 Both models showed that any larger values of HH Consumption Scaling Weights would increase mean average percentage error in both NHH and HH settlement.
- 2.7 The group recommended that it was not worth using such a potentially vanishingly small number (if HH error is assumed to be uncorrelated) and the Scaling Weight should be set back to zero. There was also a concern that the BSC and Supplier systems could not hold a number to 3 decimal places without changes being implemented, potentially, at a cost which would outweigh any benefits. ELEXON are investigating the possible changes to MDD.
- 2.8 Given the change the group recommendation was to reverse the newly implemented value for HH import consumption, it was agreed that a further recommendation should be made to retrospectively apply this

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

change back to the effective date of 1 April 2014 to remove any application of the non-zero scaling weights for HH consumption following the next reconciliation run.

- 2.9 Based on the theory behind the modelling the group was presented a method of calculating the most effective Scaling Weight to minimise errors through settlements. This method was to use the established statistical equation called the standard error allocation fraction. This can be seen in Appendix 3.
- 2.10 The group recommended, by majority, that the equation should be used going forward to calculate what the optimal scaling weights should be for all CCCs. It was then agreed that the optimal value would be considered on its potential impacts on Settlement, e.g. a vanishingly small value could still be rejected.
- 2.11 Using this formula would not only change the HH Consumption value but also shows changes to be necessary for NHH and HH Losses. This is based on using the analysis ELEXON performed on the value of error in each of these CCC groups and substituting these values in to the standard error allocation fraction for GSPGC SW found in Appendix 3. The outcome of this suggests that the minimum for HH losses is again very close to 0 and the Scaling Weight for NHH losses should be roughly half the value it currently is.

3. Summary of Scaling Weight proposal

- 3.1 Based on the issue group's recommendation the table below outlines the new proposed Scaling Weight values:

Consumption Type	Original Weights	Revised Weights (Effective 1 April 2013)	Revised Weights (Effective 1 April 2014)	Proposed Weights (Effective 20 August 2014 ¹ , MDD v219 ²)
NHH Import Consumption	1.0	1.0	1.0	1.0
NHH Import Losses	1.0	2.3	2.25	1.2
HH Import Consumption	0	0	0.1	0
HH Import Losses	0	1.0	0.94	0
NHH Export Consumption	1.0	1.0	1.0	1.0
NHH Export Losses	1.0	2.3	2.25	1.2
HH Export Consumption	0	0	0	0

¹ The consultation would like to examine whether BSC Parties or impacted companies have any objection to applying these weights retrospectively to the beginning of April

² The 20 August has been chosen to align with the MDD go live date for v219. This is due to the timescales required to gain approval from the Panel.

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

Consumption Type	Original Weights	Revised Weights (Effective 1 April 2013)	Revised Weights (Effective 1 April 2014)	Proposed Weights (Effective 20 August 2014 ¹ , MDD v219 ²)
HH Export Losses	0	0	0	0

Consultation Question 1:

Given the Issue group's review are you happy with the change in approach to calculating Scaling Weights?

Consultation Question 2:

Would you be happy to agree to the new value of Scaling Weights to go live on 20 August 2014?

Consultation Question 3:

Given that this change is mid-year and considered material the Issue Group has recommended a retrospective change to 1 April 2014 for the HH Metered Scaling Weight value. Do you object to retrospectively changing this Scaling Weights to the beginning of April? Please give reasons.

Consultation Question 4:

As an example if the Scaling Weight was retrospectively applied the way it would be done would be to overwrite the Scaling Weight in MDD for HH Metered from April 2014 (0.1) with the new proposed Scaling Weight (0). Do you agree with this approach, if not what impacts does it have on your organisation?

- 3.2 It is also recommended that these scaling weights get reviewed every two years or on any significant changes to CCC volumes e.g. If P272 'Mandating HH Settlement for Profile Classes 5 to 8' were to be implemented.

4. Next steps

- 4.1 It is proposed that the revised GSP Group Correction Scaling Weights (based on the Issue groups recommendations) be implemented in the July MDD changes v219 (Go-Live 20 August 2014), with the HH Consumption Component Class being implemented retrospectively to 1 April 2014. Parties are invited to review the analysis and its findings and provide comments.
- 4.2 Parties are invited to respond to this consultation using the proforma, which is available on the Consultations page of the ELEXON website. Responses should be returned to bsc.admin@elexon.co.uk by 5.00pm on Friday 9 May 2014.
- 4.3 Any responses to this consultation will be presented to the SVG at its meeting in June for the SVG to make a recommendation to the Panel for its next meeting.

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

For more information, please contact:

Kevin Spencer, Market Advisor

kevin.spencer@elexon.co.uk

020 7380 4115

Chris Braley, Market Analyst

chris.braley@elexon.co.uk

020 7380 4108

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

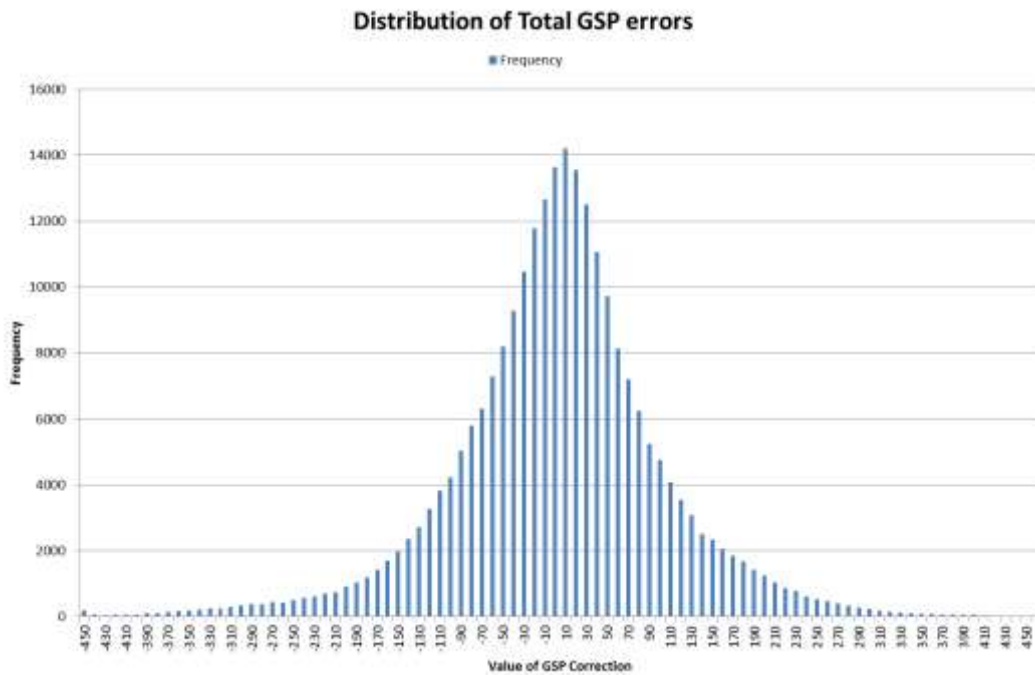
Appendices

Appendix 1 – List of Consumption Component Classes (CCCs)

Consumption Component Class Id	Measurement Quantity Id	Data Aggregation Type	Metered/ Unmetered Indicator	Consumption Component Indicator	Actual/ Estimated Indicator	AA/EAC Indicator
6	AE	H	M	C	A	
7	AE	H	M	M	A	
8	AE	H	M	L	A	
14	AE	H	M	C	E	
15	AE	H	M	M	E	
16	AE	H	M	L	E	
32	AE	N	M	C		E
33	AE	N	M	C		A
34	AE	N	M	L		E
35	AE	N	M	L		A
1	AI	H	M	C	A	
2	AI	H	U	C	A	
3	AI	H	M	M	A	
4	AI	H	M	L	A	
5	AI	H	U	L	A	
9	AI	H	M	C	E	
10	AI	H	U	C	E	
11	AI	H	M	M	E	
12	AI	H	M	L	E	
13	AI	H	U	L	E	
17	AI	N	M	C		E
18	AI	N	M	C		A
19	AI	N	U	C		E
20	AI	N	M	L		E
21	AI	N	M	L		A
22	AI	N	U	L		E
23	AI	H	M	C	A	
25	AI	H	M	M	A	
26	AI	H	M	L	A	
28	AI	H	M	C	E	
30	AI	H	M	M	E	
31	AI	H	M	L	E	

2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

Appendix 2 – Results of GSPGC Analysis, is Group Correction normally distributed?



2014 REVIEW OF GSP GROUP CORRECTION SCALING WEIGHTS CONSULTATION DOCUMENT

Appendix 3 – Standard error allocation fraction

$$a_i = \frac{\sigma_i^2 + \sum_{j \neq i} \rho_{ij} \sigma_i \sigma_j}{\sum_j \sigma_j^2 + \sum_j \sum_{k \neq j} \rho_{jk} \sigma_j \sigma_k}$$

Let a_i be the error allocation fraction

Substituting this into the GSP Group Correction Factor equation gives:

$$SW_i \propto (V_{GC_i} * \sigma_i^2 + \rho_{ik} \sigma_i \sigma_k * V_{GC_k})$$

To summarize in words,

$$GSPGCSW_i \propto (volume_i * std\%_i^2 + correlation_{ik} * std\%_i * std\%_k * volume_k)$$

where subscripts i and k indicate the group of CCCs, $std\%$ indicates the proportional standard deviation, and $correlation_{ik}$ stands for the correlation (range -1 to 1) between group i and k.