Issue Report

Issue 57 'Should Half-Hourly Settlement be mandatory for certain Unmetered Supplies customers?'

Contents

About This Document

This document is the Issue 57 Group's Report to the BSC Panel. ELEXON will table this report at the Panel's meeting on 9 October 2014.

This is the main document. It provides details of the Issue Group's discussions and proposed solutions to the highlighted issue and contains details of the Issue Group's membership.

Any questions?

Contact:
Claire Anthony

claire.anthony@elexon.co.uk

020 7380 4293

1 Summary

Background

In Settlement, the accurate allocation of energy volume is as important as having the right volume to allocate. Energy is settled on a Half Hourly (HH) basis and as such, when using estimated consumptions and profiles can lead to large misallocation of energy that can impact Suppliers through imbalance payments.

Applications from telecommunications providers for Unmetered Supply (UMS) Charge Codes have highlighted this issue. The Supplier Volume Allocation Group (SVG) agreed that this issue should be considered further under an Issue Group, and therefore ELEXON raised Issue 57 on 22 May 2014.

Conclusions

The Issue 57 Group agreed by majority that no changes are required to the Balancing and Settlement Code (BSC) or Code Subsidiary Documents (CSDs) and so there was no benefit in progressing this issue any further at this stage. Although the Group agreed in principle that a HH market is more accurate for Settlement, they acknowledged that there is currently no incentive to encourage customers to move from the Non Half Hourly (NHH) market to the HH market.

Consequently, it recommends that no changes should be raised or progressed from this issue.

2 Background

What is Unmetered Supply?

A UMS is a supply of electricity to a particular inventory of equipment in respect of which a Licensed Distribution System Operator (LDSO) has agreed an unmetered connection and has issued a UMS Certificate to the customer.

There are three basic types of UMS:

- streetlights, such as Sox, Son, Son-T light-emitting diodes (LEDs);
- traffic signals, such as traffic lights, belisha beacons and school crossings; and
- miscellaneous, which includes clocks, cable cabinets and cathodic protection.

UMS energy equates to a relatively small amount percentage wise at approximately 1.2% of the annual total. As such errors in UMS pose limited risk to Settlement. However, to UMS customers the energy costs associated with UMS are significant. There are currently four types of UMS customers that have a UMS inventory in Great Britain (GB). These are as follows:

- Councils, which include County, Metropolitan, Parish, Unitary or Borough;
- Highways Agencies;
- telecommunication companies including BT and Virgin Media; and
- other, which includes building developers, utility companies and railways.

Customers are responsible for maintaining a detailed inventory of all their UMS equipment and providing regular updates to their Unmetered Supplies Operator (UMSO), a function of distribution businesses. They are also responsible for contracting with a Meter Administrator (MA) for HH Settlement, which the Supplier is responsible for appointing for Settlement purposes, if the UMS is traded HH.

Current Unmetered Supply arrangements

Under the current UMS arrangements, there are two methods of trading:

- NHH - where unmetered Metering System ID (MSIDs[1]) are settled using an Estimated Annual Consumption (EAC), and a simplistic approach to profiling a UMS using Profile Classes (PCs) 1 'Domestic Unrestricted Customers' and 8 'Non-Domestic Maximum Demand Customers with a Peak Load Factor over 40%'; and
- HH – where unmetered MSIDs are settled using calculations undertaken by an Equivalent Meter (EM) with inputs from additional sources such as Photo Electric Control Unit (PECU) arrays and Central Management Systems (CMS).

While the energy volumes settled using either HH or NHH are likely to be similar, since they both use the same customer inventory information and Charge Codes (for estimating the energy usage of UMS apparatus), the volume allocation is much more sophisticated in HH Settlement.

[1] A unique number relating to a Metering Point and which consists of: (i) a 2 digit number determined by reference to the License Distribution System Operator (LDSO), (ii) a 10 digit reference number provided by the relevant LDSO and (iii) a 1 digit check number provided by the relevant LDSO.

While it is generally accepted that NHH volume allocation using the Profiles makes little impact for small UMS customers (e.g. a parish council with a handful of streetlights), it has the potential to misallocate reasonably large volumes for large customers.

BSC requirements

BSC Section S 'Supplier Volume Allocation' 8.2.3 sets out that:

- *If a Licensed Distribution System Operator determines in accordance with paragraph 8.2.1 that a supply of electricity to a particular inventory of Apparatus qualifies as an Unmetered Supply:*

  (a) it shall issue an Unmetered Supply Certificate to the Customer taking such supply in relation to such inventory;

  (b) such Unmetered Supply Certificate shall state whether the Unmetered Supply to which it relates is an Equivalent Unmetered Supply or a Profiled Unmetered Supply, as agreed between the Licensed Distribution System Operator and the Customer

Although this does not specifically differentiate between NHH and HH trading, 'Equivalent Unmetered Supply' and 'Profiled Unmetered Supply', industry assumes that these are in reference to HH and NHH trading respectively.

Similarly, in BSC Procedure (BSCP) 520 'Unmetered Supplies Registered in SMRS', there is nothing documented about how agreement is reached on how energy is traded. In practice the process is managed between the Supplier, customer and UMSO. However, there is nothing to explain what happens when they do not agree.

In contrast, section 5 'What is Half Hourly and Non Half Hourly Trading?' of the Operational Information Document (OID) guidance document sets out the difference between HH and NHH trading. However, ELEXON recognises that these definitions could be further refined.

What is the issue?

Previous discussion of issue

A similar issue was previously discussed by the UMS User Group (UMSUG)108/07 at its meeting on 16 January 2013. A Proposed Modification was considered which sought to mandate that UMS customers whose annual consumption is greater than 500MWh must be settled on a HH basis. The UMSUG was invited to discuss the draft Modification and to provide its views on the likely level of industry support were it to be raised by a BSC Party.

The UMSUG identified issues from a customer and UMSO perspective with this Modification. Some members clearly indicated that they were not in favour of the change and overall, no BSC Party felt willing to sponsor the Modification. As such, the Proposed Modification was not raised.

What is the issue under Issue 57?

In Settlement, the accurate allocation of energy volume is as important as having the right volume to allocate. Energy is settled on a HH basis and as such, when using estimated

consumptions and profiles can lead to large misallocation of energy that can impact Suppliers through imbalance payments.

Applications from telecommunications providers for UMS Charge Codes have highlighted this issue and the SVG has agreed that this issue should be considered.

Ofgem smarter markets programme

Ofgem has formed a smarter markets programme to look at universal HH Settlement by 2020. It is the accuracy of HH Settlement and the cost savings for consumers, which is the driver for mandating HH. It should be noted that the smart Meters being rolled out will be HH capable which is an enabler.

Although UMS is not directly included in the scope as part of this programme, any solution that removes the existing NHH arrangements would require a new approach to the existing NHH UMS connections. Ofgem is therefore interested in the conclusions of Issue 57.

3 Issue Group's Discussions

Volume allocation

The Group agreed that the HH UMS market is more accurate in terms of volume allocation as there are more sophisticated calculations that can be carried out by the MAs. ELEXON advised that the UMS data for the latest Settlement runs between 1 April 2013 and 31 March 2014 indicated that HH UMS energy represented about 68% of the total UMS energy (spread over 283 MSIDs). The remaining 32% of energy volume being traded was therefore NHH UMS (spread over 27K MSIDs).

The Issue Group noted the four categories of first switch regimes for the various UMS, which are as follows:

1) continuous supplies (e.g. telecommunication companies);

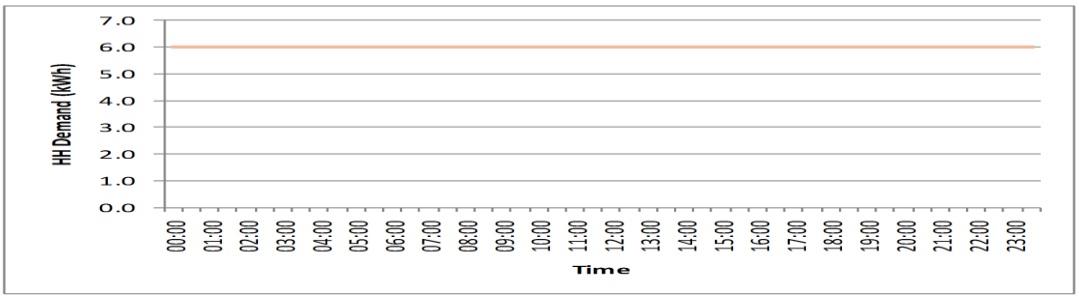
2) dusk to dawn (e.g. street lighting);

3) dawn to dusk (e.g. traffic signalling); and

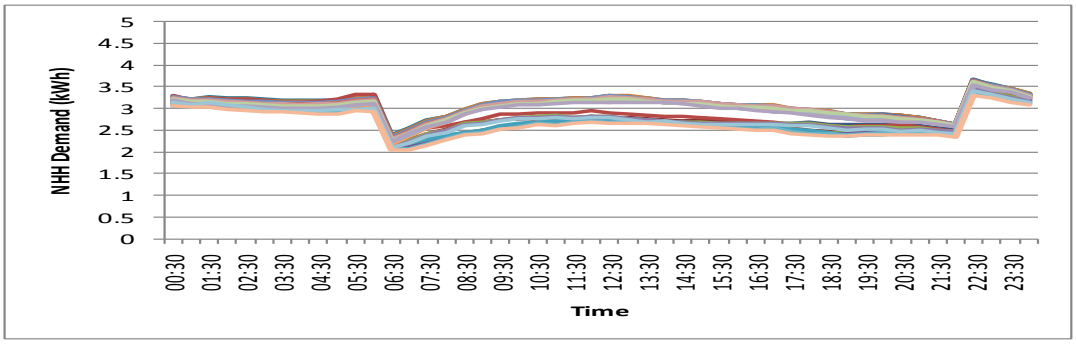
4) half night and pre-dawn (e.g. part night switch off).

ELEXON demonstrated the difference between the HH and NHH volume allocation for continuous supplies as shown in the graphs below:

HH Volume Allocation: continuous supplies



NHH Volume Allocation: continuous supplies



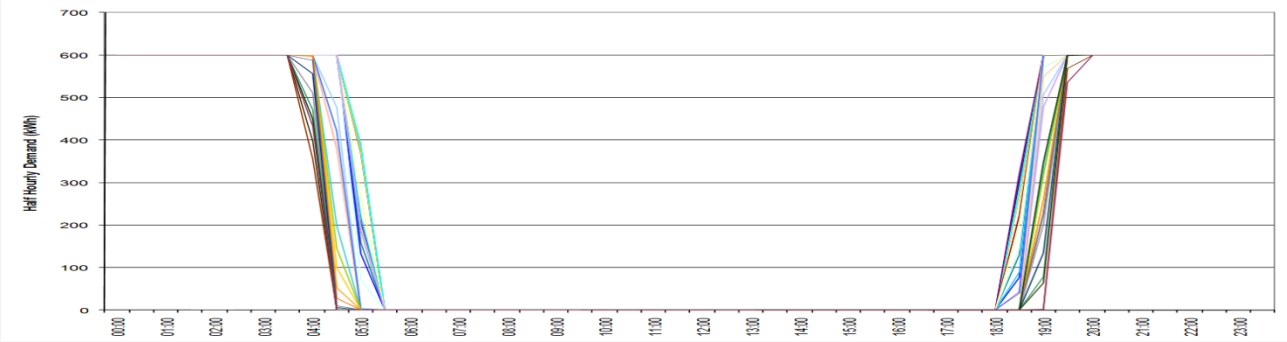
The Group highlighted that there are very obvious differences in the levels of allocation of energy for NHH and HH during the day. The Group also noted that the NHH arrangements use PC 8 for volume allocation. While this PC has little seasonal temperature response, it does have a weekday and weekend pattern which UMS would not have. Therefore the use of PC 8 is not ideal for the allocation of UMS energy.

What are Switch Regimes?

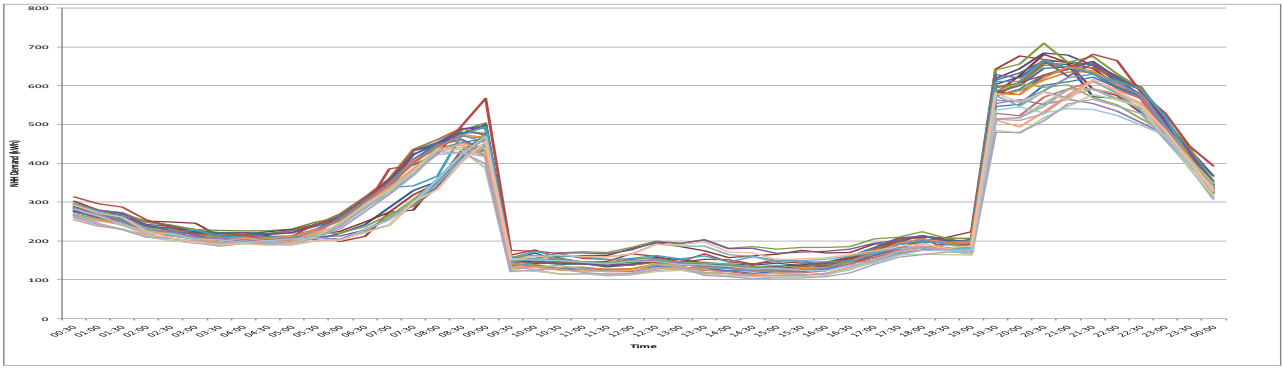
Switch Regimes are three digit codes that allow the operating hours for equipment to be determined.

ELEXON also demonstrated the difference between the HH and NHH volume allocation for dusk to dawn supplies:

HH Volume Allocation: dusk to dawn supplies



HH Volume Allocation: dusk to dawn supplies



These supplies use PC 1 for NHH Settlement. The Group highlighted that there is again an obvious difference between NHH and HH volume allocation during the day and night and noted that PC 1 does have a temperature response effect as well as a weekday and weekend pattern which UMS apparatus would not have.

A member of the Group (representative of the Highways Agencies) advised that highways are a unique system which do not fit into the standard profiles for billing, for example, they do not replicate street lighting (dusk to dawn). They highlighted that this has been a problem for over 15 years. The member also noted that highways need specific consideration due to having different mechanisms which would need further discussion as part of an Issue Group. The Group agreed that this is outside the scope of Issue 57.

How accurate is HH data?

As detailed above, the Group agreed that the HH market is more accurate in terms of volume allocation. They also agreed that the volume calculation is more accurate since in the HH market, the times that equipment turns on and off are fed into the calculation e.g. from PECU arrays or CMS event files, which should be more representative of true operating hours. However, they highlighted that some customers in the NHH market are not able to adopt systems such as CMS without transferring to the HH market.

Central Management System

The Group discussed whether customers should use a CMS. Using a CMS, the operator can choose exactly when to switch each individual street light on or off and/or by how much to reduce the lamp power. This allows any number of switching events and dimming levels.

The Group noted that CMS ensures that as soon as a piece of apparatus is put onto CMS, the inventory is accurately reflected on the system.

Issues

Customer issues

The Group noted that there may be potential energy savings for customers if they choose to move from the NHH to HH market. However, the Group acknowledged that to do this, a customer may have to make a considerable investment in a CMS, which would require a substantial and upfront cost. The Group agreed that customers may not see the benefits of moving from the NHH to HH market due to the addition of these upfront costs. However they noted that a CMS has certain advantages, including being able to switch existing portfolios on and off without updating their lighting stock. They therefore agreed that it may be in the customer's best interests to make this move if it would be more beneficial in the longer term.

However, the Group noted that there are also ongoing costs for customers as resources are needed for data to be submitted every month. Members of the Group commented that although this is not an explicit requirement, it is assumed that HH data will be submitted on a monthly basis. Members of the Group also commented that Distribution Use of System (DUoS) charges raised a number of resource issues, however it was noted that these have been eliminated under Distribution Connection and Use of System Agreement (DCUSA) DCP 130 'Remove the discrepancy between NHH and HH UMS tariffs'.

The Group considered the NHH statistics for UMS data provided by ELEXON of the annualised energy as at Initial Settlement (SF) Run for 7 April 2014. This is detailed in the table below (the conditional formatting simply shows which NHH categories are most prominent in each GSP Group):

gsp_group_id	GSP name	Cat A - Continous	Cat B - Dusk-dawn	Cat C - Part night	Cat D - Dawn-dusk	NHH Energy (MWh)	Cat A - Continous	Cat B - Dusk-dawn	Cat C - Part night	Cat D - Dawn-dusk
_A	Eastern	65,635.3	22,237.0	732.8	2,750.8	91,355.9	72%	24%	1%	3%
_B	East Midlands	57,786.9	25,425.5	378.2	9,214.5	92,805.1	62%	27%	0%	10%
_C	London	45,677.5	41,961.2	474.2	3,905.8	92,018.8	50%	46%	1%	4%
_D	Manweb	27,963.0	94,879.5	188.6	0.0	123,031.1	23%	77%	0%	0%
_E	Midlands	63,147.8	35,978.3	808.7	5,094.8	105,029.6	60%	34%	1%	5%
_F	Northern	34,817.8	215,000.9	647.5	1,747.2	252,213.5	14%	85%	0%	1%
_G	North West	41,440.3	13,390.1	3.9	0.0	54,834.4	76%	24%	0%	0%
_H	Southern	46,930.3	19,025.8	1,114.8	698.7	67,769.6	69%	28%	2%	1%
_J	South East	33,159.7	10,814.7	1,244.2	2,178.9	47,397.6	70%	23%	3%	5%
_K	South Wales	8,887.1	5,717.9	422.7	0.3	15,028.0	59%	38%	3%	0%
_L	South West	15,288.1	5,718.6	668.4	0.6	21,675.6	71%	26%	3%	0%
_M	Yorkshire	37,614.2	61,160.2	1,577.8	975.4	101,327.7	37%	60%	2%	1%
_N	South Scotland	83,867.2	89,778.0	1,984.6	3.3	175,633.1	48%	51%	1%	0%
_P	Scottish Hydro	16,381.4	8,791.9	247.4	42.1	25,462.7	64%	35%	1%	0%
	totals	***578,597***	***649,880***	***10,494***	***26,613***	1,265,582.68	46%	51%	1%	2%

ELEXON advised that 236 MSIDs account for 82% of NHH UMS energy. ELEXON highlighted that only 36 customers are above 500MWh. Members of the Group commented that a large NHH customer would therefore have a submission frequency similar to that of a HH customer.

The Group also considered the statistics provided by ELEXON that in the latest run from 1 April 2013 – 31 March 2014, NHH UMS energy represented about 32% of total UMS energy, spread over nearly 28K MSIDs. The Group agreed that if customers transferred to the HH market it would be more accurate for Settlement but noted that there also needs to be an incentive for customers to do so. They also acknowledged that if customers could see the benefit in transferring then they would have already done so.

Members of the Group also observed that there are regional differences, particularly, in the Northern and Manweb Grid Supply Point (GSP) Group's where a number of large authorities have not transferred to the HH market. The Group agreed that there has started to be a natural trend to CMS in HH by local authorities. However they noted that there are financial implications such as the substantial upfront costs, which prevent authorities from being able to use a CMS straight away.

Supplier issues

Members of the Group agreed that Suppliers prefer HH trading for UMS where customers have the resource to do so. They noted that Suppliers' main driver is accuracy so having regular updates is crucial to them. The Group agreed that NHH profiles help in forecasting but HH profiles help in terms of accuracy. They emphasised that currently, HH UMS data is not corrected but NHH UMS is. They also acknowledged that there needs to be an incentive for the customer to trade HH and noted that certain areas such as the London Boroughs are a bigger challenge.

A member of the Group commented that a key driver for Suppliers is predictability which is provided by the profile. This is because everything that fits into the pricing schedule is considered valuable as energy will always be allocated to a time of the day when prices are lower. The same member noted that Suppliers do not want to take risks so if they know what customers want (NHH and HH) then they can factor this in. The Group therefore highlighted that Suppliers need to have better pricing in order to incentivise customers.

The Group noted that Settlement issues can cause disadvantages for Suppliers in having to pick up the imbalance in relation to MSIDs and NHH multiple MSIDs which take time to resolve. The Group agreed that if Suppliers trade dynamically using PECU arrays then there will be more savings. However if they trade passively, it is assumed that costs will be 1% higher than PECU array. Members of the Group commented that costs for PECU arrays are not decreasing.

Distributor issues

The Group noted that including a threshold value for HH settlement may cause issues where part of the portfolio is on an independent network. ELEXON advised that this issue is being looked at under CP1414 'Combining LDSO and Embedded LDSOs UMS Inventories on to single LDSO MSID'. This change proposes to give UMS customers the option to trade their UMS connections from embedded Distribution Systems under a single distribution MSID, which would be achieved by combining such inventories of connections with the existing inventory linked to the already-registered host distributor's MSID.

The Group agreed that there should be better interaction with customers to ensure more accurate inventories. However, the Group argued that UMSO's would have a resourcing issue as they would have to send these inventories to the MA. However they noted that MA costs are likely to be low for substation lighting and heating. A member of the Group commented that there had been less than a 1% change in the past ten years.

Potential benefits

The Group considered the benefits of mandating HH Settlement for certain UMS customers. The Group agreed that the proposed changes would enable more accurate Settlement both on a daily and yearly basis. They also noted that using a CMS has the benefit of being even more accurate in HH.

The Group agreed that there should be incentives for customers to encourage them to move from the NHH to HH market. They noted that the accuracy of the inventory would be improved i.e. what is contained within it and how the energy has been calculated, which would prove beneficial for customers.

Potential criteria for a mandate

The Group considered the solution of setting a MWh limit at which customers would be required to be settled on a HH basis. The Group agreed that this limit should be set across the customers MSIDs rather than on a per MSID basis to prevent customers simply dividing their UMS inventories across additional MSIDs to avoid the mandate. Members of the Group commented that the size of the inventory cannot be controlled.

ELEXON initially suggested a value of 500MWh based on the figures identified in its earlier discussions (as detailed on page 8), however it was agreed that this limit should be increased. A member suggested 6GWh as per the carbon threshold, however the majority of the Group did not agree that this was an appropriate figure. A member noted that 10GWh is a suitable figure for most local authorities and proposed that this is used as a starting figure.

The Group discussed how we would treat current HH customers above the agreed limit or customers who subsequently fall below the limit. They agreed that it should be a customer's choice whether they trade NHH or HH although it was noted that energy volume is the underlying driver. They also commented that a customer may have a number of MSIDs which they can choose to combine within a distribution area and GSP.

Overall, the Group recommended a 10GWh threshold figure per GSP Group and licensed distribution area per customer should a Modification be raised.

Potential implementation date for mandate

The Group considered the most appropriate Implementation Date for the possible mandate.

The majority of the Group agreed that April 2016 would be the most suitable Implementation Date with a potential mandate value of 10GWh, if a Modification was progressed and sent to the Authority by December 2015. The Group also recommended that this value should then decrease after a couple of years following a review, which would require a further Modification.

The Group noted that as there are no physical system changes required (only changes to customer interaction), April 2016 would give both industry and customers sufficient notice to make the changes. Members of the Group also advised that this change would then align with Proposed Modifications P300 'Introduction of new Measurement Classes to support Half Hourly DCUSA Tariff Changes (DCP179)' and P272 'Mandatory Half Hourly Settlement for Profile Classes 5-8' (if approved).

A minority of the Group disagreed with the proposed Implementation Date and suggested an alternative Implementation Date of April 2019 to coincide with Supplier contract rounds.

Potential Modification

The Group discussed whether a Modification should be raised to include the 10GWh threshold value into the BSC. The majority agreed with the change in principle as the HH market is more accurate for Settlement purposes. However, they noted that Suppliers would need to consider better pricing to incentivise customers more. They also agreed that it should be a customer's choice to move to the HH market and that implementing a mandate may be detrimental to Applicable BSC Objective (c). This is because it could increase costs overall, which would not be beneficial to competition.

Members also commented that the absence of an incentive only highlights that customers would have to spend money to move to the HH market and do not identify the benefits of doing so or they would have already done so. The Group therefore agreed that the benefit to Applicable BSC Objective (b) would be extremely low and therefore not efficient or proportionately better than the existing baseline.

Overall the Group recommended by majority that a Modification **should not** be raised at this time but noted that a Party can raise the change in the future if they so wish.

What are the Applicable BSC Objectives?

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

(b) The efficient, economic and co-ordinated operation of the National Electricity 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 of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

4 Conclusions

Conclusions

The Group considered the issue and after extensive discussions, concluded that, although the majority of the Group agreed with the change in principle that the HH market is more accurate for Settlement, no changes were required to the BSC or CSDs at this time. However, the Group noted that a Party could raise the potential Modification discussed in the future if they so wish.

The Group recommended that Suppliers need to have better pricing in order to incentivise customers more. Members also agreed that transferring into the HH market should be a customer's choice and that currently, there is nothing incentivising them to do so or they would have done so already.

Overall, the majority of the Group agreed that no further action should be taken and agreed that Issue 57 should **be closed**. ELEXON will update both the SVG and UMSUG on the outcome of this issue.

Appendix 1: Issue Group Membership

Issue Group membership and attendance

Issue 57 Group Attendance		
Name	Organisation	7 July 2014
Simon Fox	ELEXON *(Chair)*	✓
Claire Anthony	ELEXON *(Lead Analyst)*	✓
Kevin Spencer	ELEXON *(Design Authority)*	✓
Violeta Argyropoulou	ELEXON (*Design Authority*)	✓
Mike Hawkins	Western Power Distribution	✓
Ben Fuller	British Gas	✓
Walter Hood	IBM on behalf of ScottishPower	✓
Steve Davis	Amey	✓
Chris Horton	Northern Powergrid	✓
Barry Dockney	Highways Agencies	✓
Tom Chevalier	Power Data Associates	✓
Donna Townsend	ESP Electricity Limited	✓
Andrew Sherry	Electricity North West	✓
Neil Fitzsimons	Brookfield Utilities UK	✓
Derek Westney	npower	✓
Donna-Marie James	UK Power Networks	✓
Hazel Cotman	UK Power Networks	✓
Rachael Burn	E.ON	✓

Appendix 2: Glossary & References

Acronyms

Acronyms used in this document are listed in the table below.

Glossary of Defined Terms	
Acronym	Definition
BSC	Balancing and Settlement Code *(document)*
BSCP	Balancing and Settlement Code Procedure *(document)*
CMS	Central Management Systems
CSD	Code Subsidiary Document
DCP	DCUSA Change Proposal
DCUSA	Distribution Connection and Use of System Agreement
DUoS	Distribution Use of System
EAC	Estimated Annual Consumption
EM	Equivalent Meter
GSP	Grid Supply Point
HH	Half Hourly
LDSO	License Distribution System Operator
LED	light-emitting diode
MA	Meter Administrator
MSID	Metering System ID
NHH	Non Half Hourly
OID	Operational Information Document *(document)*
PC	Profile Class
PECU	photo electric control unit
SF	Initial Settlement Run
SVG	Supplier Volume Allocation Group *(Panel Committee)*
UMS	Unmetered Supplies
UMSO	Unmetered Supplies Operator
UMSUG	Unmetered Supplies User Group

External links

A summary of all hyperlinks used in this document are listed in the table below.

All external documents and URL links listed are correct as of the date of this document.

External Links		
Page(s)	Description	URL
4	BSC page on the ELEXON website (BSC Section S)	http://www.elexon.co.uk/bsc-related-documents/balancing-settlement-code/bsc-sections/
4	BSCPs page on the ELEXON website (BSCP520)	http://www.elexon.co.uk/bsc-related-documents/related-documents/bscps/
4	BSC Guidance Notes page on the ELEXON website (OID)	http://www.elexon.co.uk/bsc-related-documents/bsc-guidance-notes/
4	UMSUG 108 page on ELEXON website	http://www.elexon.co.uk/meeting/umsug-108/
5	Smarter Markets Programme page on Ofgem website	https://www.ofgem.gov.uk/electricity/retail-market/market-review-and-reform/smarter-markets-programme
8	DCP130 page on Ofgem website	https://www.ofgem.gov.uk/publications-and-updates/distribution-connection-and-use-system-agreement-dcusa-dcp130-remove-discrepancy-between-non-half-hourly-nhh-and-half-hourly-hh-unmetered-supplies-ums-tariffs
9	CP1414 page on ELEXON website	http://www.elexon.co.uk/change-proposal/cp1414/
10	P300 page on ELEXON website	http://www.elexon.co.uk/mod-proposal/p300/
10	P272 page on ELEXON website	http://www.elexon.co.uk/mod-proposal/p272-mandatory-half-hourly-settlement-for-profile-classes-5-8/