
Meeting name	Imbalance Settlement Group (ISG)
Date of meeting	24 November 2009
Paper title	Change Proposal Progression
Purpose of paper	For Decision
Synopsis	This paper provides: <ul style="list-style-type: none">• CP1315 for decision;• details of a change to Code of Practice 4 that the ISG is requested to agree to treat as Housekeeping; and• an update on the status of all Open Draft Change Proposals (DCPs) and Change Proposals (CPs).

1 Summary of Change Proposals for Decision

1.1 CP1315 'Maintenance of Outstation Types as part of Compliance and protocol approval'

1.2 ELEXON raised CP1315 on 25 September 2009. We issued CP1315 for impact assessment (via [CPC00669](#)) in October 2009.

1.3 CP1315 aims to remove the Valid Set of Outstation Types from the Data Transfer Catalogue (DTC) under the Master Registration Agreement (MRA), and instead establish them as part of the Compliance and Protocol Approval process documented in Balancing and Settlement Code Procedure (BSCP) 601¹. If you agree to approve CP1315, we will raise a corresponding DTC CP under the MRA.

1.4 We received 10 responses to CP1315: of these 6 agreed with the CP, 2 disagreed and 2 were neutral.

1.5 We believe that the implementation of CP1315 would remove the existing delays in notifying Parties of new Outstation Types which result in numerous workarounds and manual processes being employed to ensure the correct Outstation Types are defined. We therefore recommend, in light of majority industry support for the identified benefits, that you:

- **APPROVE** CP1315 for implementation in the June 2010 Release.

1.6 CP1319 'Housekeeping change to Code of Practice 4 to correct a Manifest Error'

1.7 We have raised CP1319 to correct a manifest error in Code of Practice (CoP) 4². This error was introduced by CP1288 'Revisions to Meter test points within Code of Practice 4', which we implemented as part of the November 2009 Release.

1.8 CP1288 inadvertently updated the 'Test Point' heading in Table B4³ of Appendix B to 'Cos Ø' from 'Value of Current (I)'. We believe that this manifest error has the potential to cause confusion to participants, and as such, we should correct it as soon as possible.

¹ BSCP601 – 'Metering Protocol Approval and Compliance Testing'

² CoP 4 'Code of Practice for the Calibration, Testing and Commissioning Requirements of Metering Equipment for Settlement Purposes'

³ 'Type C Calibrations for Code of Practices 1 and 2'

- 1.9 We have raised CP1319 (Attachment C) to correct this manifest error. In drafting CP1319 we noted two further (more minor errors) which we have also included in the CP:
- there are six instances where Meter isn't capitalised in Appendix C; and
 - the symbol used to represent the angle 'φ' is not consistent throughout Appendices B and C.

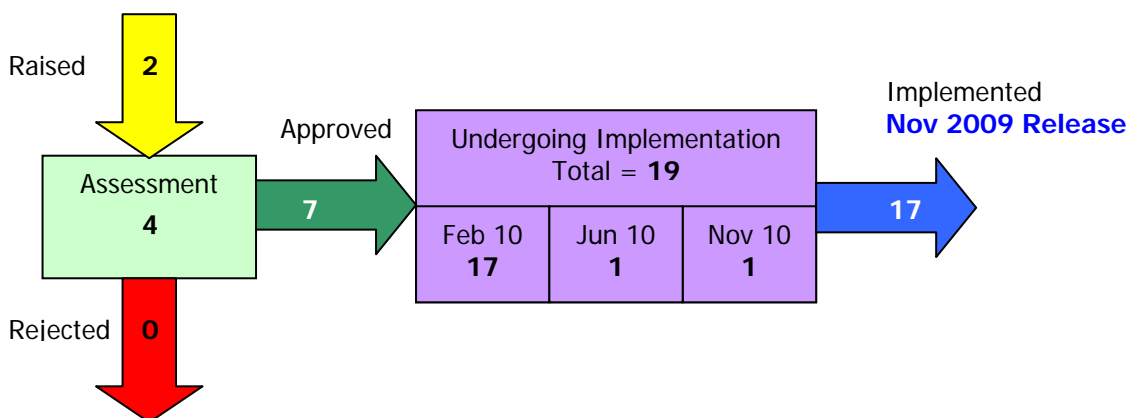
1.10 We believe that the quickest and most efficient way to progress CP1319 is to treat it as a Housekeeping Change (which would mean that we do not need to issue the CP for impact assessment), and for the ISG (and SVG) to agree that we should implement the change 5 Working Days (WDs) after the SVG approves the CP (as we need a decision from both Panel Committees). This approach is consistent with the requirements in BSCP40.

1.11 We are therefore recommending that you:

- **AGREE** that CP1319 is a Housekeeping Change;
- **APPROVE** CP1319 to be implemented 5 WDs after an SVG decision (this would mean that if the SVG also approve the change, CP1319 would be implemented on 8 December 2009); and
- **NOTE** that we will also present CP1319 to the SVG, with the above recommendations.

2 Summary of Open Change Proposals

2.1 There are currently **23** open CPs. The ISG owns **3** CPs, the ISG and SVG co-own **4** CPs, and the SVG owns the remaining **16** CPs. There have been **2** new CPs have been raised since the last ISG meeting. Details of the new CPs are provided in Appendix 3 on page 17.



Please note:

- The numbers in the boxes indicate current number of CPs in a given phase.
- The numbers in arrows show the variance in the past month.

2.2 Since the last ISG meeting no new DCPs have been raised, and there are currently no open DCPs.

3 Summary of Recommendations

3.1 We invite you to:

- a) **APPROVE** CP1315 for inclusion in the June 2010 Release;
- b) **NOTE** the status of all open Change Proposals;
- c) **AGREE** that CP1319 is a Housekeeping Change;
- d) **APPROVE** CP1319 to be implemented 5WDs after an SVG decision (we expect this to be 8 December 2009); and
- e) **NOTE** that we will also present CP1319 to the SVG, with the same recommendations that we have presented in this paper.

Stuart Holmes

ELEXON Change Assessment Consultant

T: 020 7380 4135

List of Appendices:

Appendix 1 – Detailed Analysis of CP1315

Appendix 2 – Current Workaround (between MOAs and DCs) and CP1315 solution

Appendix 3 – New Change Proposals

Appendix 4 – Release Information

List of Attachments:

Attachment A – CP1315 – BSCP601 redlined

Attachment B – CP1315 – CoP 4 redlined

Attachment C – CP1319 – CP1319 v1.0

Attachment D – CP1319 – CoP 4 redlined

Appendix 1 – Detailed Analysis of CP1315 - Maintenance of Outstation Types as part of Compliance and protocol approval

1 Why Change?

1.1 Background

1.2 ELEXON raised CP1315 on 25 September 2009.

1.3 The CP1315 solution is based on [CP1282](#). CP1282 was rejected by the SVG, so that ELEXON could explore other solutions. We did this via six options that we put forward in [DCP0045](#). We selected option 1 in DCP0045 for progression to CP with the support of the SVG, as the majority of respondents felt it to be simpler and more cost effective than the other solutions. Please refer to the [DCP0045 next steps paper](#) for more details.

1.4 The Problem

1.5 'Outstation Type' is a data item contained within the D0268 'Half Hourly (HH) Meter Technical Details' flow and is used by HH Meter Operators (MOAs) and HH Data Collectors (DCs) to specify and determine which protocols must be used in order to dial into a particular Outstation. It is defined in the DTC as a three-character identifier, along with a Valid Set of available codes.

1.6 Outstation Types are not generic but rather act as references to specific Outstation makes and models, as in practice most metering communication protocols are manufacturer-specific. However, this means that if and when a new piece of equipment enters the market, it may not be properly represented by the Valid Set and so the HHDC may not be able to tell which protocol should be used, preventing them from dialling in to the Outstation.

1.7 At present, altering the Valid Set requires a formal change to the DTC, yet new equipment may be introduced at any time outside the DTC release timescales. The result is that the Valid Set will often be out of date, and participants will frequently have to resort to manual workarounds in order to transfer the necessary information.

1.8 The Current Situation

1.9 The current situation with the use of Outstation Types is that there are **15 Outstation Types** that have recently been approved for use in Settlement. All of these are in use but have no valid code in the DTC. In order to keep the Settlement process working, Supplier Agent hubs are adopting their own workarounds by agreeing the new Outstation Type codes. HHMOAs and HHDCs communicate by e-mail consequently if there is no validation taking place. Please refer to Appendix 2 for diagrams which further illustrate the CP1315 issue.

1.10 New Outstations are continuing to be approved and we expect a further **10 to 15 new types** over the next 6 months due to new 'smart' Meters coming onto the market. It has been suggested that introducing dummy codes into the valid set will eliminate the issues until new codes are introduced. However, we have investigated this approach and consider that using dummy codes in this context only exacerbates the problem.

2 Solution

2.1 The Valid Set of Outstation Types should be removed from the DTC and instead be established as part of the Compliance and Protocol Approval process documented in BSCP601. Under this

approach, once an Outstation has passed protocol testing, an agreed Outstation Type would be established and included in a revised Approval List published on the BSC Website. ELEXON would also send out notifications of any updates via Newscast, while participants could also choose to receive email updates directly via myELEXON.

- 2.2 As soon as the information is published, it can then be used by HHMOAs and HHDCs to configure their communication systems appropriately, so that they can receive the new codes in the D0268 flow.
- 2.3 All existing Outstation Types would remain valid and would be transferred to the relevant entries in the Approval List. Attachment B to this CP provides an example, based on an extract from the current list, with additional columns to show the Equipment Type (i.e. Meter or Outstation) and Outstation Type.
- 2.4 The draft redlining for BSCP601 to show the new process is available in Attachment A.

3 Intended Benefits

- 3.1 The current arrangements prevent new equipment from being used properly in the market. The proposed approach will allow Outstation information to be kept more up to date and in so doing will make it easier for participants to make use of new equipment.

4 Industry Views

- 4.1 We issued CP1315 for impact assessment (via [CPC00669](#)) in October 2009. We received 10 responses; of these 6 agreed with the CP, 2 disagreed and 2 were neutral.
- 4.2 One respondent raised a concern that if the valid set of Outstation Types is removed from the DTC, this means that there is no DTC validation against Outstation Types.
- 4.3 We explained to them that, with the CP1315 solution, although there will be no DTC validation for specific Outstation Type codes, participants can still have their own validation on their systems to prevent them sending/receiving invalid codes and thus we believe it would not cause major impact on the management of Outstation Types. The respondent still feels this CP will reduce the controls preventing input of invalid Outstation Types.
- 4.4 One respondent suggested adding a 'dummy code' or similar ID reference for any Meter that has passed the protocol approval process but does not yet have an Outstation ID reference that is recognised by the DTC. This dummy ID would be included on the initial D0268, from which the associated Data Collector would know to refer to the Protocol Approvals list and assign an Outstation ID accordingly.
- 4.5 We do not believe this is the best approach to address the CP1315 issue, as we believe that creating more dummy codes will only serve to exacerbate the issues further. The DTC's Valid Set already contains **8 'dummy codes'**, all of which are currently in use.
- 4.6 We recognise that the solutions, if implemented, will mean some **system changes for participants**. However we believe the ongoing workarounds between HHMOAs and HHDCs are not robust in the medium to long term. Furthermore, we believe the current situation will deteriorate as more and more Meters are being exchanged for 'smart' Meters, and as new approvals are being made, the ability to keep the DTC in step with technical advancement will be difficult.

5 Impacts and Costs

Market Participant	Cost/Impact	Implementation time needed
ELEXON (Implementation)	Our implementation costs are 1 man day of effort (equating to approximately £240) to implement the necessary documentation changes.	June 2010 Release suitable
HHDCs	Process changes will be required for HHDC to implement the CP. Also occasional system updates will be required as new Outstation Types arise.	June 2010 Release suitable
MOAs	Process changes will be required for MOA to implement the CP.	June 2010 Release suitable
Suppliers	System and process changes will be required for Suppliers to implement the CP.	June 2010 Release suitable

6 Implementation Approach

- 6.1 We recommend that CP1315 is implemented in the June 2010 Release since it is the next available Release. All respondents feel that this implementation date is achievable.

7 Conclusion

- 7.1 The table below summarises the key arguments provided for and against the change:

Pros	Cons
<ul style="list-style-type: none"> CP1315 would prevent the existing delays in notifying parties of new Outstation Types, which results in numerous workarounds and manual processes being employed to ensure the correct Outstation Types are defined. The proposed approach will enable Outstation information to be kept more up to date and in so doing will make it easier for participants. 	<ul style="list-style-type: none"> If the valid set of Outstation Types is removed from the DTC, this means that there is no DTC validation against Outstation Types. The suggested inclusion of non-DTC-validated Outstation IDs within the D0268 will result in a mandatory system change.

8 Recommendation

- 8.1 We recommend, based on the majority industry support for the identified benefits, that you:
- APPROVE** CP1315 for implementation in the June 2010 Release.

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ELEXON Change Assessment

0207 380 4146

Table 1: Industry Impact Assessment Summary for CP1315 - Maintenance of Outstation Types as part of Compliance and protocol approval

IA History CPC number	CPC00669	Impacts	BSCP601	
Organisation	Capacity in which Organisation operates in		Agree?	Days to Implement
Gemserv	MRASCo Ltd		Neutral	--
Independent Power Networks Limited	LDSO, UMSO, SMRA		Neutral	--
IMServ			Yes	30
Stark Software International Ltd	HHDC/HHDA/NHHDC/NHHDA/NHHDR		Yes	0
NPower Limited	Supplier, Supplier Agents		Yes	--
SAIC on behalf of: ScottishPower Energy Management Ltd. ScottishPower Generation Ltd. ScottishPower Energy Retail Ltd. SP Manweb plc. SP Transmission Ltd. SP Distribution Ltd	Supplier, LDSO, HHDA, NHHDA, HHDC, NHHDC, HHMOA, NHHMOA		Yes	0
British Energy Direct Limited	Supplier		No	120
Southern Electric Power Distribution; Keadby Generation Ltd; SSE Energy Supply Ltd; SSE Generation Ltd; and Scottish Hydro-Electric Power Distribution Ltd; Medway Power Ltd; SSE Metering Ltd	Supplier/Generator/ Trader / Party Agent / Distributor		Yes	--
TMA Data Management	HHDC		Yes	--
E.ON UK Energy Services Limited	MOA		No	--

Table 2 - CP1313 Impact Assessment Responses⁴

Organisation	Agree?	Comments	Impacted?	ELEXON Response
Independent Power Networks Limited	Neutral	Agree Change Comment: IPNL would like to comment that a co-ordinated approach with the MRA will need to be taken (if approved) to ensure that the MRA is updated to sign post the changes in BSCP601.	No	Noted. We informed the respondent that a DTC CP will be raised once CP1315 is approved.
IMServ	Yes	Agree change comment: We agree with the change proposed. This will prevent the existing delays in notifying parties of new Outstation Types, which results in numerous workarounds and manual processes being employed to ensure the correct outstation types are defined. Capacity in which Organisation is impacted: HHDC/MOP Impact on Organisation: Process changes Adverse Impact? No	Yes	--
Stark Software International Ltd	Yes	Capacity in which Organisation is impacted: HHDC Impact on Organisation: Occasional system updates as new meter types arise. Adverse impact? No Cost details: £0 Any other comments: Please consider the use of the following codes or publish likely alternatives ASAP: ISKRA MT375 = IMT ISKRA MT423 = FMT EDMI Mk10 = EDM	Yes	We believe this comment provides a good example to demonstrate the necessity of this CP. As indicated here, approved Outstation Types are already in use by HHDCs, without any valid code in DTC. Also we are aware that different HHDCs use different Outstation Types before the DTC codes are published via a DTC release, which causes considerable workarounds between HHDCs and MOAs. We clarified to the respondent that if the CP is approved, we would need to communicate with those who use these codes (HHMOA & HHDCs) for a consensus view before they go live with them.
British Energy	No	British Energy have not agreed with CP1315 for the reasons highlighted below;	Yes	We had conversations with the respondent to get a better understanding of their concerns.

⁴ Please note that we only have included responses in this table where the respondent provided additional information.

<p>Direct Limited</p>		<p>Systems</p> <p>The suggested inclusion of non-DTC-validated Outstation IDs within the D0268 will result in a mandatory system change, to accommodate the various references that would be included as new metering types pass the protocol approval process. Since there will be multiple new references, all internal systems receiving D0268s will need to have all validation settings removed for this field, if MTDs are to continue to process successfully. This means that there will be no way for Supplier to proactively highlight "invalid" outstation types that are not recorded in the Protocol Approvals list.</p> <p>Data Quality</p> <p>As CP1315 proposes the removal of a DTC-recognised valid set as a part of the process, there would no longer be any regulation on what is included in the Outstation ID field. This could potentially cause an increased number of manual errors included in this field. If the associated Data Collector cannot determine the protocol due to incorrect entry of Outstation ID, this will result in an increased number of dial failures and D0001s raised, ultimately resulting in an increased level of estimated data being submitted into Settlement. If seen in significant numbers, this could ultimately affect Supplier performance and be detrimental to the agents' ability to adhere to the appropriate PARMS serials. We also have concerns about Proving Tests as the Meter Technical Details received may not contain the Outstation id that has been installed which puts the onus on manual investigation to determine what was installed.</p>	<p>System change</p> <p>We recognise that the solutions, if implemented, will mean some system changes for participants. However, we noted the current situation with the use of Outstation Types is that there are 15 Outstation Types that have recently been approved for use in Settlement, all of which are in use but have no valid code in the DTC. In order to keep the Settlement process working, Supplier Agent hubs are adopting their own workarounds by agreeing new Outstation Type codes between them. We believe the CP1315 solution is a formalisation of such workarounds. Further, we highlighted to the respondent that the current situation would deteriorate as more and more Meters are being exchanged for 'smart' Meters and as new approvals are being made the ability to keep the DTC in step with technical advancement will become difficult.</p> <p>The respondent still has concerns around the DTC compliant system if this CP is implemented.</p> <p><u>Data Quality</u></p> <p>The respondent felt the manual intervention could cause an increased number of dial failures and could consequently impact their agents' ability to adhere to the appropriate PARMS serials.</p> <p>We agreed with the potential data quality issue raised by the respondent.</p> <p><u>Technical Assurance Agent (TAA)</u></p> <p>We do not agree that CP1315 will effect the TAA's ability to assess compliance of the Metering Systems, because the TAA will be able to verify that the physical Outstation on site appears on our list of approved Outstations (rather than verification with the DTC entry).</p>
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		<p>TAA</p> <p>This CP will have an effect on the ability of the TAA to assess compliance of these metering systems if outstation types are not held within the DTC. There will be no check that the TAA could perform against the validity of an outstation type against the D0268 received and therefore, ultimately, this could have the potential impact on settlement of a Cat 1 non-compliance that the TAA would be unable to identify.</p> <p>Counter-Proposal</p> <p>We suggest the following process for consideration;</p> <p>Current DTC-validated Outstation ID set would remain, with the addition of a "dummy" or similar ID reference for any meter that has passed the protocol approval process but does not yet have an Outstation ID reference that is recognised by the DTC. This dummy ID would be included on the initial D0268, from which the associated Data Collector would know to refer to the Protocol Approvals list and assign an Outstation ID accordingly.</p> <p>At the next possible DTC System Release, the approved Outstation ID would be added to the valid set list within the DTC. When this has taken place, there would be a mandatory requirement on Meter Operators to re-send D0268 information with this now-validated Outstation ID included.</p> <p>This would ensure that the integrity of D0268 information within the market is not compromised. Having up-to-date information satisfies the original Justification for Change, as per CP1315.</p>	<p><u>Counter-Proposal</u></p> <p>The respondent suggested that introducing dummy codes into the valid set will eliminate the issues until new codes are introduced. We highlighted to the respondent that the DTC's Valid Set already contains 8 'dummy' codes which are all in use. We believe that creating more dummy codes will only serve to exacerbate the issues further.</p> <p>We also believe the removal of all the existing dummy codes is one of the benefits this CP can bring to the industry.</p>
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		Impact on Organisation's Systems and/or Processes? Yes Capacity in which Organisation is impacted Supplier Impact on Organisation: Systems and process changes Implementation 120WD Comments Implementation of Systems and process changes Would implementation in the proposed Release have an adverse impact? Yes		
Southern Electric Power Distribution; Keadby Generation Ltd; SSE Energy Supply Ltd; SSE Generation Ltd; and Scottish Hydro-Electric Power Distribution Ltd; Medway Power Ltd; SSE Metering Ltd	Yes	Amendments to process and procedures.	No	--
TMA Data Management	Yes	Comments CTMA support the change as we believe it offers the most flexible solution Impact on Organisation's Systems and/or Processes? Yes Capacity in which Organisation is impacted: HHDC Impact on Organisation Systems / Procedures Would implementation in the proposed Release have an adverse impact? No	--	--

E.ON UK Energy Services Limited	No	<p>Comments: We have significant Issues with this approach. If it is the intention to retain the concept of a valid set of outstation types (as would appear to be the case) then validation is required within the participants systems to ensure that only valid values are loaded into their systems. Whilst these valid values are held within the MDD system then there is an established mechanism for identifying and implementing changes. Under the proposed regime an parallel system will need to be establish to publicise and implement changes both internally and externally.</p> <p>In addition changes will be required to the data item definition within the DTC.</p> <p>Impact on Organisation's Systems and/or Processes? Yes</p> <p>Capacity in which Organisation is impacted: MOA</p> <p>Impact on Organisation See Above</p>	Yes	<p><u>Validation</u></p> <p>We explained to the respondent that, with the CP1315 solution, although there will be no DTC validation, participants can still have their own validation on their systems to prevent them sending/receiving invalid codes and thus we believed it would not cause major impact to metering Outstation Types.</p> <p>The respondent still prefers the current mechanism of maintaining the Valid Set as they believe that changes via formal DTC release provide more assurance.</p> <p><u>Communications</u></p> <p>We explained to the respondent that the Valid Set of Outstation Types should be established as part of the Compliance and Protocol Approval process documented in BSCP601. Once an Outstation has passed protocol testing, an agreed Outstation Type would be established and included in a revised Approval List published on the BSC Website. (Participants should sign up myELEXON and tag the document 'CoP Compliance and Protocol Approvals List' on the ELEXON website, so that they will receive email updates via myELEXON directly whenever there is an update in the document.)</p> <p>Although the SVG considered the above communication method to be the right way forward for DCP0045, the respondent remained unconvinced about the robustness of the communications. He suggested an alternative communication method which would require participants' positive confirmations to reflect the changes were acknowledged by the participants following ELEXON's notification. We agreed with the respondent's suggestion as it will ensure the robustness of the communications.</p>
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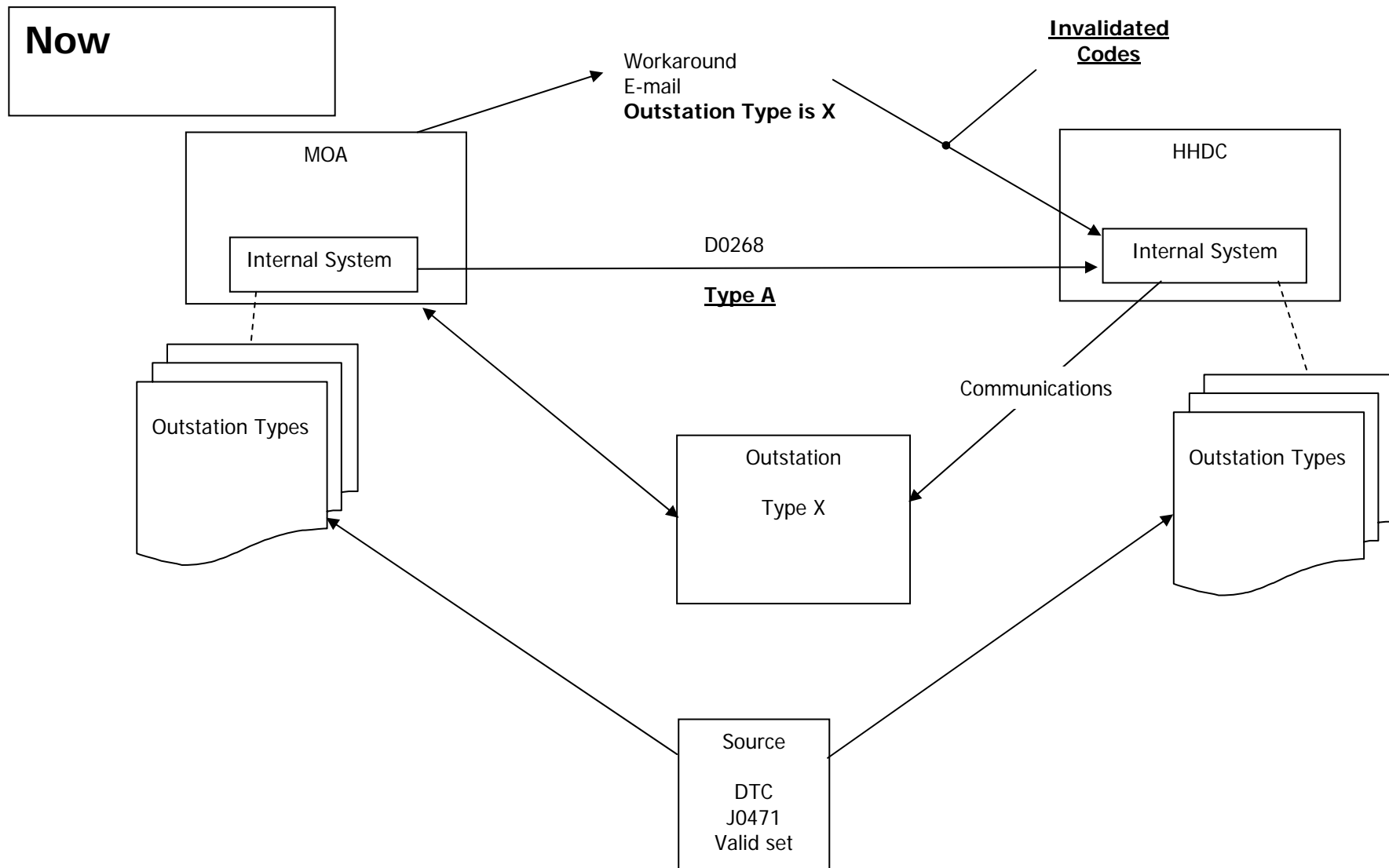
We did not receive any comments on the redline text.

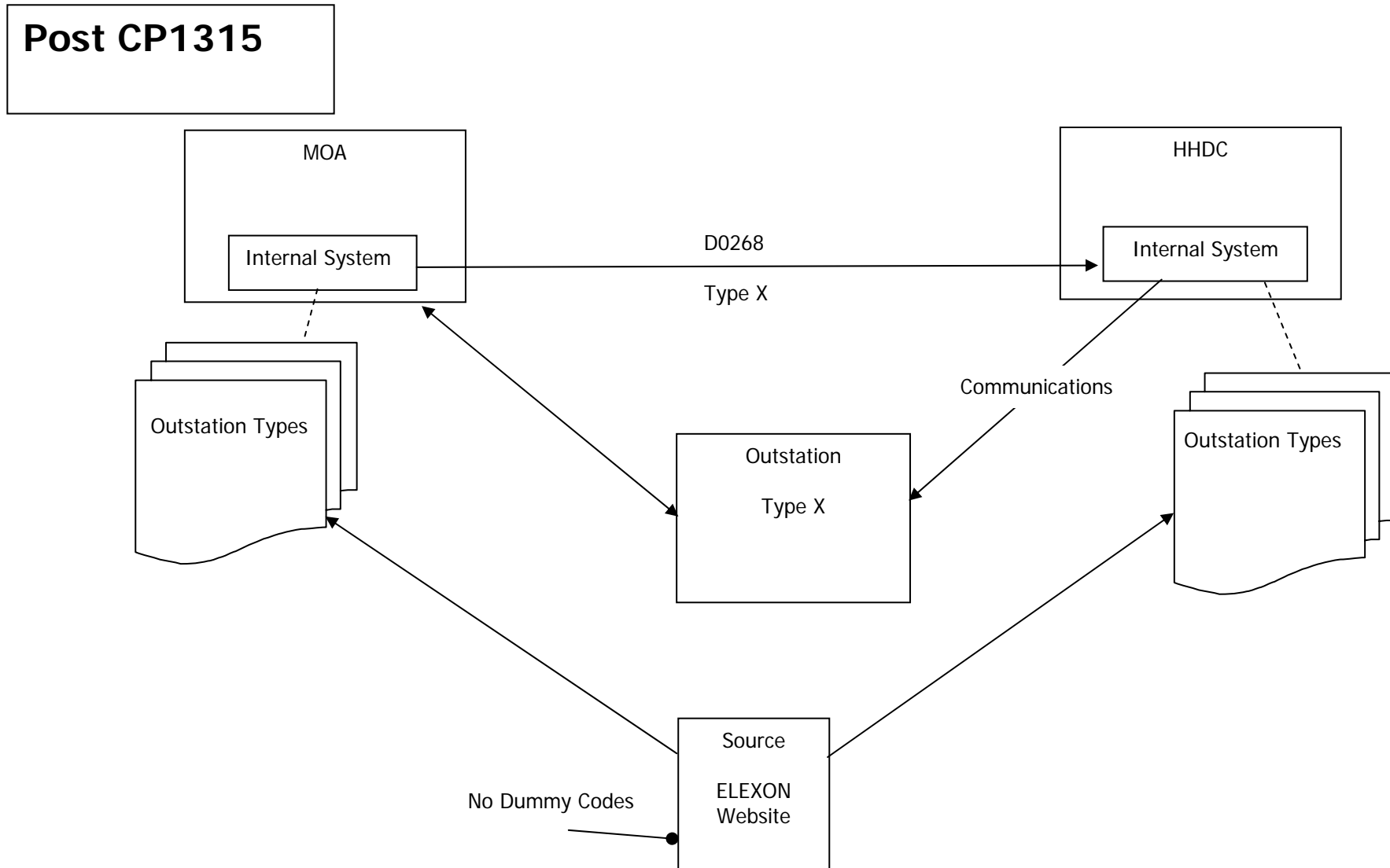
Appendix 2 – Current Workaround (between MOAs and DCs) and CP1315 solution

In the following examples, Type X is an Outstation Type that has been approved for use in Settlement, but has no valid code in the DTC. The HHDC may not be able to tell which protocol should be used, therefore preventing them from dialling in to the Outstation.

Current situation - In order to keep the Settlement process working, Supplier Agent hubs are adopting their own workarounds by agreeing new Outstation Type codes between them.

Post CP1315 - Participants will be notified by ELEXON (if they register on myELEXON) to update the valid set of Outstation Types so that HHDCs can dial in to the Outstation more efficiently.





Appendix 3 – New Change Proposals

CP	CVA/ SVA	Title	Description	Raised
CP1317	SVA	Removal of requirement for NHHMOAs to notify NHHDCs of metering work before the event	<p>CP1182⁵ created a single generic Party Service Line (PSL) to resolve the duplication between the requirements in the PSLs and the corresponding BSC Procedures (BSCPs).</p> <p>CP1234⁶ moved the functional requirements of PSL110 'SVA Meter Operation' into BSCP514⁷ and BSCP550⁸.</p> <p>As a result of merging two paragraphs from PSL110 v16.0 (paragraphs 1.5.1.2 & 1.5.1.3) into BSCP514 (paragraph 2.4.1 b), a 'new' obligation has inadvertently been placed on Non Half Hourly (NHH) MOAs to give sufficient notice, except in an emergency, to the associated NHHDC of the removal, reprogramming, energisation or de-energisation of any Meter.</p> <p>CP1317 proposes removing this obligation.</p>	30/10/09
CP1318	SVA	Minor Changes to BSCP601 ⁹	CP1318 proposes to correct a number of minor errors which exist in BSCP601, so that the document will be clearer to the Compliance Testing Agent and Applicants who are looking to submit Metering Equipment for compliance testing.	30/10/09
CP1319	CVA & SVA	Housekeeping Change to correct a manifest error in Code of Practice 4	CP1319 proposes correcting a manifest error introduced into CoP4 by CP1288 ¹⁰ and some other more minor errors.	12/11/09

⁵ CP1182 - 'Creation of a generic Party Service Line'

⁶ CP1234- 'Movement of the functional requirements within PSL110 to BSCP514 and BSCP550, following the creation of a generic non functional PSL (PSL100) via CP1182'

⁷ BSCP514 - 'SVA Meter Operations for Metering Systems Registered in SMRS'

⁸ BSCP550 - 'Shared SVA Meter Arrangement of Half Hourly Import and Export Active Energy'

⁹ BSCP601 – 'Metering Protocol Approval and Compliance Testing'

¹⁰ CP1288- 'Revisions to Meter test points within Code of Practice 4'

Appendix 4 – Release Information

Key to Release Plan

Change Proposals and Modification Proposals in **BLACK** text represents SVA changes, **RED** text represents CVA changes and **BLUE** text represents changes which impact both the SVA and CVA arrangements.

The Authority decision dates are provided in the following format:	
P	Modification Proposal number
(< date)	Date by which a determination must be made by the Authority in order for the Modification Proposal to be implemented within the indicated release
Pro✓/Pro✗	Indicates that the Panel's recommendation to the Authority was to Approve/Reject the proposed Modification
Alt✓/Alt✗	Indicates that the Panel's recommendation to the Authority was to Approve/Reject the Alternative Modification

		Release Date			
		February 2010 Scope (Imp. Date 25 Feb 10)	June 2010 Scope (Imp. Date 24 Jun 10)	November 2010 Scope (Imp. Date 24 Jun 10)	Standalone Releases
Change Proposals	Pending		1315, 1316, 1317, 1318		There are currently no changes in a stand alone release.
	Approved	1295, 1296, 1297, 1298, 1299, 1301, 1302, 1303, 1304, 1306, 1307, 1308, 1310, 1311, 1312, 1313, 1314	1309	1267	
Modifications	Pending	Currently there are no Modifications targeted at this Release.	Currently there are no Modifications targeted at this Release.	Currently there are no Modifications targeted at this Release.	
	Approved				
Updates		The scope of the February 2010 Release has now been finalised, with 17 CPs to be implemented. CP1311 includes a software development to the EAC/AA application, for which design work is being completed with Logica. The Programme Board has approved the PID & Plan and Resource & Budget. The total Release budget is £63k, £30k of which are demand led costs.			

Draft CP Scope of the February 2010 Release

CP	Title	Impacts	BSC Agent (Demand Led)	ELEXON Operational		Total
				Man Days	Cost	
CP1295	Process for distribution of MDD Updates not included in D0269/D0270 flows	BSCP505, BSCP508, SVA Data Catalogue Vol. 1 and Vol. 2	£6,000	20	£4,400	£10,400
CP1296	Mandatory Capability to Record Reactive Power Demand (kvar) Values in Code of Practice 5 (CoP5) Meters	BSCP601, CoP5	£0	2	£440	£440
CP1297	Mandatory Capability to Record Reactive Power Demand (kvar) Values in Code of Practice 10 (CoP10) Meters	BSCP601, CoP10	£0	2	£440	£440
CP1298	Requirement on MOAs to Configure Meters to Record Half Hourly Reactive Power Data (for Half Hourly Settled CT-Metered Customers)	BSCP514	£0	2	£440	£440
CP1299	Requirement on Half Hourly Data Collectors to Collect and Report Reactive Power Data (where the Meter is configured to record it)	BSCP502	£0	2	£440	£440
CP1301	Registration Requirements for System Connection Points between Onshore Distribution Systems and Offshore Transmission Systems	BSCP25, BSCP75, CRA URS	£700	4	£880	£1,580
CP1302	Requirement on Half Hourly Data Collectors to Validate Reactive Power Demand Values	BSCP502	£0	2	£440	£440
CP1303	Requirement on Half Hourly Data Collectors to Estimate Missing Reactive Power Demand Values	BSCP502	£0	2	£440	£440
CP1304	Exclusion of certain Site Visit Check Codes (SVCC) within the Long Term Vacant (LTV) site process	BSCP504	£0	1	£220	£220
CP1306	Removal of second criterion for identifying a site as Long Term Vacant (LTV)	BSCP504	£0	1	£220	£220
CP1307	Minor Changes to the Long Term Vacant Site Process	BSCP504	£0	1	£220	£220
CP1308	Changes to Long Term Vacant Site process where a reading is obtained via a warrant	BSCP504	£0	1	£220	£220
CP1310	Clarifications to Gross Volume Correction Process	BSCP504	£0	2.5	£550	£550
CP1311	Replacing Erroneous Forward Looking EACs	BSCP504	£18,700	55	£12,100	£30,800

CP	Title	Impacts	BSC Agent (Demand Led)	ELEXON Operational		Total
				Man Days	Cost	
CP1312	Use of Gross Volume Correction in Post Final Settlement Runs	BSCP504	£0	2.5	£600	£600
CP1313	Remove ELEXON from the Minimum Eligible Amount (MEA) request process	BSCP301, NETA Interface Definition and Design (IDD) Part 1, NETA Agent Interface Definition and Design (IDD) Part 2.	£3,200	8	£1,800	£5,000
CP1314	Housekeeping change to SAA Service Description	SAA Service Description	£0	0	£0	£0
Total¹¹			£28,600	108	£23,850	£52,450

¹¹ A Tolerance of 20% applies for both Demand Led costs and ELEXON Operational Costs



CP1315 Attachment A – BSCP601 v12.2 conformed Redlined Text v0.3

The following section has been extracted from BSCP601 v12.2 conformed, which incorporates the redlined changes for CP1275 v2.0 approved for November 2009 Release.

Section 1.1 Scope and Purpose of the Procedure

This BSC Procedure defines the processes for Meter Manufacturers, Meter Operator Agents, Suppliers, Half Hourly Data Collectors and other Half Hourly Metering Equipment users to apply for Compliance Testing and Protocol Approval. This procedure covers the application process, submission of Metering Equipment, communications with the Compliance and Protocol Testing Agents, the issue and removal of certificates. For the avoidance of doubt, this procedure applies only to Half Hourly Metering Equipment.

Protocol Approval

This process is defined to:

- a) Approve a Protocol for Settlement purposes; and
- b) ensure that a qualified Half Hour Data Collector is capable of appropriate communications with Metering Equipment.

Metering Equipment Compliance

This process is defined to ensure that Metering Equipment is designed and manufactured to the requirements of the relevant Code/s of Practice. Each Compliance Approval is specific to that Metering Equipment tested including type reference and any firmware and software versions. Metering Equipment firmware and software updates not affecting Compliance need not be re-approved. Notification of any such change is to be provided to BSCCo. On successful completion of the Compliance Testing process, BSCCo shall select an appropriate code which is to be used in conjunction with the SVA Data Transfer Network data item J0471 'Outstation Type'. This code shall be available on the Compliant and protocol approved Metering Equipment list which can be found on the BSC Website www.elexon.co.uk.

[CP1275v2.0]When applying for Compliance Approval in respect of Metering Equipment, the Meter Manufacturer should acknowledge, on its application form included at section 3.1.3, its intention to provide relevant Settlement outstation Protocols to BSC Parties (via their Party Agents) upon request. The Meter Manufacturer should also acknowledge, on its application form included at section 3.1.3 its intention to make available to Meter Operator Agents, upon request, the Meter Manufacturer's software that will enable the Meter Operator Agent to re-configure the relevant Meters and/or Outstations (the "Configuration Software"). The Meter Manufacturer may require the disclosure of Settlement Outstation Protocols and Configuration Software to be subject to a confidentiality agreement¹. [CP1275v2.0]

Section 1.2 -3.5.13 no changes

¹ [CP1275v2.0]Confidentiality agreements shall not prohibit Party Agents from fulfilling their BSC obligations.

CP1315 Attachment - CoP Compliance and Protocol Approvals

No	Manufacturer	Model	Meter Type	Outstation Type	Compliance							Protocol						
					CoP1 Latest Issue Issue 2 23/02/2006	CoP2 Latest Issue Issue 4 23/02/2006	CoP3 Latest Issue Issue 5 01/09/1998	CoP5 Latest Issue Issue 6 01/09/1998	CoP6 Latest Issue Issue 4 01/12/1998	CoP7 Latest Issue Issue 2 18/11/1996	Mserv Europe Ltd HHDC & CDCA	Metering Services Ltd HHDC	Npower Northern Ltd HHDC	Scottish & Southern Energy Plc HHDC	Siemens Metering Services HHDC	SP Dataserve Ltd HHDC	Stark Software International Ltd HHDC	
1	ABB Meters	PPM Issue 1	PM2 and PM3	GP1			Issue 2 22/04/1997	Issue 4 22/04/1997				01/02/2005	22/04/1997	22/04/1997	22/04/1997	22/04/1997	22/04/1997	22/04/1997
2	ABB Meters	PPM Issue 2	PM2 and PM3	GP2			Issue 2 22/04/1997	Issue 4 22/04/1997				01/02/2005	22/04/1997	22/04/1997	22/04/1997	22/04/1997	22/04/1997	22/04/1997
3	PRI	Calmu 3+	Calmu 3+	CMU			Issue 3 05/08/1997	Issue 4 05/08/1997				01/02/2005	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
4	Schlumberger	Indigo +	P5A	INP			Issue 3 29/09/1997	Issue 4 29/09/1997				01/02/2005	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
5	Horstmann	Intacom 3	NU098	H13					Issue 4 12/07/1999			12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999
6	Schlumberger	Indigo +	P6A	IN6					Issue 4 12/07/1999			12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999	12/07/1999
7	PRI	Sprint XP	SxD xxx XP	PRM				Issue 6 24/02/2000				01/02/2005	04/01/2001	04/01/2001	04/01/2001	04/01/2001	04/01/2001	04/01/2001
8	PRI	Premier	P3Vxxx, P31xxx, P3Wxxx, P3M xxx	PRM		Issue 3 (see note 2) 13/07/2006	Issue 5 13/07/2006	Issue 6 24/02/2000				01/02/2005	04/01/2001	04/01/2001	04/01/2001	04/01/2001	04/01/2001	04/01/2001
9	ABB Meters	A1700 (Vision)	PB3	VIS		Issue 3 (see note 3) 21/02/2006	Issue 5 21/02/2006	Issue 6 24/02/2000				01/02/2005	18/05/2000	18/05/2000	18/05/2000	18/05/2000	18/05/2000	18/05/2000
10	ABB Meters	OPUS	Outstation	GOP	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994					27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
11	Kenda/NGC	OSME	Outstation	OSM	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994					27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
12	Kenda/NGC	CM10	Outstation	C10	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
13	Kenda/NGC	CM11	Outstation	C11	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
14	Baydel/NGC	MITRE	Outstation		Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
15	Kenda	MEDO	Outstation	KME	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
16	Kenda	METEOR	Outstation	KMO	Issue 1/2 (see note 3) 06/11/2008	Issue 1/4 06/11/2008	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
17	Landis & Gyr	FCL-1	Outstation	FCL	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
18	Landis & Gyr	FAF21	Outstation	FAF	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
19	Landis & Gyr	FAF22	Outstation	FAF	Issue 1 (see note 3) 10/01/1994	Issue 1 10/01/1994	Issue 1 10/01/1994				ElServer 7.3.13 on Windows XP, SP2 13/10/2008	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001	27/03/2001
20	Electricity de France	n/a	n/a	-	pre Issue 1 30/03/1990	10/01/1994	10/01/1994					30/03/1990	30/03/1990	30/03/1990	30/03/1990	30/03/1990	30/03/1990	30/03/1990

DRAFT

Change Proposal – BSCP40/02	CP No: 1319 <i>Version No: v1.0</i> <i>(mandatory by BSCCo)</i>
Title <i>(mandatory by originator)</i> Housekeeping Change to correct a manifest error in Code of Practice 4	
Description of Problem/Issue <i>(mandatory by originator)</i> Code of Practice 4 (CoP4) deals with the testing, commissioning and calibration of Metering Equipment. It specifically references the tests that are required on Meters both before installation and during their in-service lives. Following the November 2009 BSC release, a manifest error in CoP4 has been highlighted which we believe should be corrected at the earliest possible opportunity. We changed the "Test Point" heading in Table B4 ¹ of Appendix B in CoP4 from "Value of Current (I)" to "Cos Ø" in error when we implemented CP1288 (Revisions to Meter test points within Code of Practice 4) as part of the November 2009 Release. In addition, we have noticed that: <ul style="list-style-type: none"> • there are six instances where Meter isn't capitalised; and • the symbol used to represent the angle 'φ' isn't consistent throughout the document. 	
Proposed Solution <i>(mandatory by originator)</i> CP1319 proposes to: <ul style="list-style-type: none"> • amend the "Test Point" heading in Table B4¹ of Appendix B in CoP4 to read: "Value of Current (I)"; • capitalise the six instances of 'meter' in Appendix C (under Table C1 (a) and under Table C3 (a)) of CoP4; and • correct all instances where an incorrect symbol for 'φ' is used. This will mean changes to Appendix B (Tables B1, B2, B3, B4 and B5) and Appendix C (Tables C1, C1 (a) and C2). We recommend that 'φ' is adopted (rather than 'Ø' which is used in some instances) as 'φ' is used in the diagram following table B1, which is extracted from the British Standards. 	
Justification for Change <i>(mandatory by originator)</i> Correcting this error will provide clear and consistent information to market participants and prevent confusion.	
To which section of the Code does the CP relate, and does the CP facilitate the current provisions of the Code? <i>(mandatory by originator)</i> Yes, this CP will remove a manifest error and several inconsistencies within CoP4, thereby better facilitating the provisions of both Section L and CoP4.	

¹ 'Type C Calibrations for Code of Practices 1 and 2'

Estimated Implementation Costs *(mandatory by BSCCo)*

The estimated ELEXON implementation cost is 1 man day, which equates to £240.

Configurable Items Affected by Proposed Solution(s) *(mandatory by originator)*

CoP4 'Code of Practice for the Calibration, Testing and Commissioning Requirements of Metering Equipment for Settlement Purposes'.

Impact on Core Industry Documents or System Operator-Transmission Owner Code *(mandatory by originator)*

None

Related Changes and/or Projects *(mandatory by BSCCo)*

None

Requested Implementation Date *(mandatory by originator)*

This Change Proposal is to correct a manifest error and several minor inconsistencies which have been noted following the November 2009 Release.

In normal circumstances the next available release would be June 2010 (as the February Release has closed to new changes). However, given the nature of CP1319, we recommend that it is implemented **5 Working Days** after an ISG and SVG decision.

Version History *(mandatory by BSCCo)*

This is version 1.0 for approval.

Originator's Details:

BCA Name.....Sherwin Cotta

Organisation.....ELEXON

Email Address.....sherwin.cotta@elexon.co.uk

Telephone Number.....0207 380 4361

Date.....12 November 2009

Attachments: ~~Y~~N*

Attachment A – Redlining for CoP4 (7 pages)



Redlining for CP1319 against CoP4 (v7.0) v0.1

Forward – no changes

Appendix A – no changes

APPENDIX B. TEST POINTS

Meter Calibrations should be performed at the test points (values of currents) indicated in the following tables. The measured errors at these test points should not exceed the percentage error limits stated in the tables in Appendix C.

Where a test point is outside the range of the value of current given in the relevant table in Appendix C, the percentage error limit shall be taken from the percentage error limit from the value of current closest to the test point value. For example, for a CoP2 Class 0.5 active Meter, Tables B1 and B4 require it to be tested with a value of current of $0.01I_n$ at unity power factor. However, for this value of current and power factor there is no corresponding percentage error limit in Table C2. In this case the value of current (at unity power factor) nearest to $0.01I_n$, for a transformer operated Meter, is the range $0.02I_n \leq I < 0.05I_n$. Therefore, the appropriate percentage error limit will be +/- 1.0 %.

It should be noted that I_b refers to the basic current of a whole current Meter, I_n refers to the rated current of a transformer operated Meter and I_{max} to the maximum current rating of a Meter.

1. Type A Calibration Test Points

Table B1: Type A Meter Calibrations for Codes of Practice 1 and 2

Test Point	Active Meter			Reactive Meter		
	Cos ϕ			Sin ϕ		
Value of current (I)	Unity	0.5 Inductive	0.8 Capacitive*	1	0.5 Inductive	0.5 Capacitive
0.01 I_n	X					
0.02 I_n		X	X			
0.05 I_n	X (3), Y			X, Y		
0.1 I_n		X	X		X	X
1.0 I_n	X (2), Y (5)	X (4)	X	X, Y	X	X
1.0 I_{max} or 1.2 I_n or 1.5 I_n or 2.0 I_n^{**}	X (1)	X	X	X	X	X

Notes:

These tests shall be carried out for Import/Export directions, as registered in SMRS or CMRS for a given metering point. If the same measuring element is used for both Import and Export one additional test point only (at $1.0 I_n$, Unity Power Factor, balanced) is required in the reverse direction.

X= all elements combined.

Y = each element on its own.

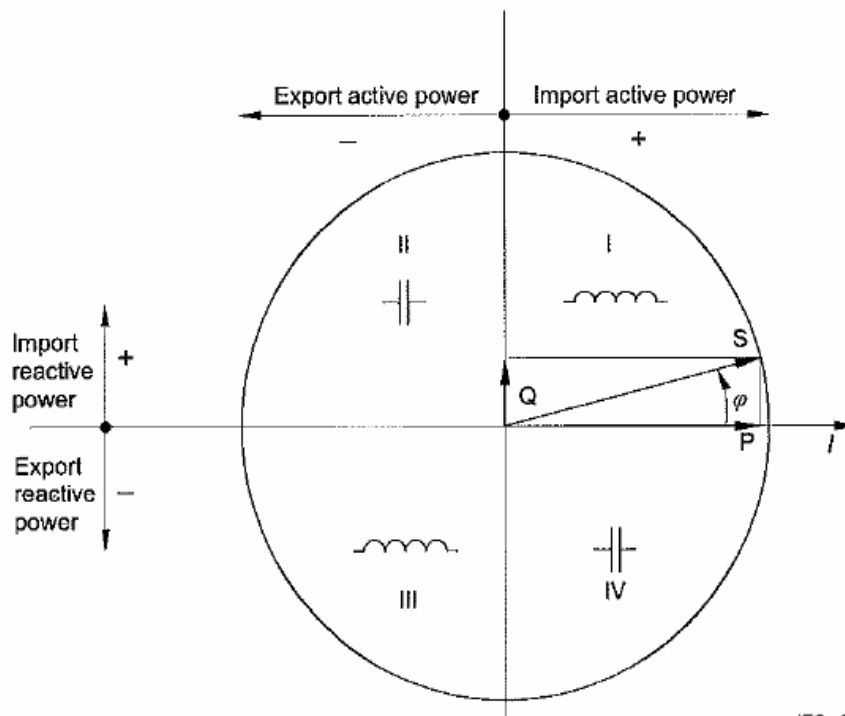
X,Y means tests should be carried out on all elements combined and each element on its own.

*Tests at 0.5 capacitive Power Factor are acceptable.

** Determined by overload capacity of circuit. If unspecified test at $1.0 I_{max}$.

Numbers in brackets identifies, for reference only, those tests specified in Statutory Instruments 1998 No. 1566 Schedule 1, Table 2 and Schedule 3, Table 2.

Geometric representation of active and reactive power



NOTE 1 Diagram in accordance with clauses 12 and 14 of IEC 60375.

NOTE 2 Reference of this diagram is the current vector (fixed on right-hand line).

NOTE 3 The voltage vector V varies its direction according to the phase angle φ .

NOTE 4 The phase angle φ between voltage V and current I is taken to be positive in the mathematical sense (counter clockwise).

BS EN 62053 – 23*

Table B2: Type A Meter Calibrations for Codes of Practice 3, 5, 6 and 7

Test Point	Active Meter		Reactive Meter
Value of current (I)	Cos ϕ		Sin ϕ
	Unity	0.5 Inductive	1
0.05 I _b /I _n	X (3)		
1.0 I _b /I _n	X (2), Y (5)	X (4), Y (6)	X
1.0 I _{max}	X (1)		
Notes: These tests shall be carried out for Import/Export directions, as registered in SMRS or CMRS for a given metering point. If the same measuring element is used for both Import and Export one additional test point only (at 1.0 I _b /I _n , Unity Power Factor, balanced) is required in the reverse direction. X = all elements combined. Y = each element on its own. X,Y means tests should be carried out on all elements combined and each element on its own. Numbers in brackets identifies, for reference only, those tests specified in Statutory Instruments 1998 No. 1566 Schedule 1, Table 2 and Schedule 3, Table 2.			

2. Type B Calibration Test Points

Table B3: Type B Meter Calibrations for Codes of Practice 1 and 2

Test Point	Active Meter			Reactive Meter		
Value of current (I)	Cos ϕ			Sin ϕ		
	Unity	0.5 Inductive	0.8 Capacitive*	1	0.5 Inductive	0.5 Capacitive
0.05 I _n	X (3)			X		
0.1 I _n		X	X		X	X
1.0 I _{max} or 1.2 I _n or 1.5 I _n or 2.0 I _n **	X (1)	X	X	X	X	X
Notes: These tests shall be carried out for Import/Export directions, as registered in SMRS or CMRS for a given metering point. If the same measuring element is used for both Import and Export one additional test point only (at 1.0 I _n , Unity Power Factor, balanced) is required in the reverse direction. X= all elements combined. *Tests at 0.5 capacitive Power Factor are acceptable. ** Determined by overload capacity of circuit. If unspecified test at 1.0I _{max} . Numbers in brackets identifies, for reference only, those tests specified in Statutory Instruments 1998 No. 1566 Schedule 1, Table 2 and Schedule 3, Table 2.						

Type B Meter Calibration for Codes of Practice 3, 5, 6 and 7

For Codes of Practice 3, 5, 6 and 7:

1. Calibrate at prevailing load when the load current $> 0.1 I_n$ (or $> 0.1 I_b$ for whole current Meters) and Power Factor $> \pm 0.8$; or
2. Calibrate using an injection test when the load current $< 0.1 I_n$ (or $< 0.1 I_b$ for whole current Meters) and/or Power Factor $< \pm 0.8$. The injection test shall use as a minimum 1 test point at a current of $> 0.1 I_n$ (or $> 0.1 I_b$ for whole current Meters) and Power Factor $> \pm 0.8$.
3. Only the active Meter needs to be tested for Type B Meter Calibrations.

3. Type C Calibration Test Points**Table B4: Type C Meter Calibrations for Codes of Practices 1 and 2**

Test Point	Active Meter			Reactive Meter		
	Cos ϕ			Sin ϕ		
Value of current (I)(Cos θ)	Unity	0.5 Inductive	0.8 Capacitive*	1	0.5 Inductive	0.5 Capacitive
0.01 I_n	X					
0.02 I_n		X	X			
0.05 I_n	X(3),Y			X,Y		
0.1 I_n		X	X		X	X
1.0 I_{max} or 1.2 I_n or 1.5 I_n or 2.0 I_n^{**}	X (1)	X	X	X		

Notes:
 These tests shall be carried out for Import/Export directions, as registered in SMRS or CMRS for a given metering point. If the same measuring element is used for both Import and Export one additional test point only (at 1.0 I_n , Unity Power Factor, balanced) is required in the reverse direction.
 X= all elements combined.
 Y = each element on its own.
 X,Y means tests should be carried out on all elements combined and each element on its own.
 *Tests at 0.5 capacitive Power Factor are acceptable.
 ** Determined by overload capacity of circuit. If unspecified test at 1.0 I_{max} .
 Numbers in brackets identifies, for reference only, those tests specified in Statutory Instruments 1998 No. 1566 Schedule 1, Table 2 and Schedule 3, Table 2.

Table B5: Type C Meter Calibrations for Codes of Practices 3, 5, 6 and 7

Test Point	Active Meter		Reactive Meter
Value of current (I)	Cos ϕ		Sin ϕ
	Unity	0.5 Inductive	1
0.05 I _b /I _n	X (3)		
1.0 I _b /I _n	X (2), Y (5)	Y (6)	X
Notes: These tests shall be carried out for Import/Export directions, as registered in SMRS or CMRS for a given metering point. If the same measuring element is used for both Import and Export one additional test point only (at 1.0 I _b /I _n , Unity Power Factor, balanced) is required in the reverse direction. X= all elements combined. Y = each element on its own. X,Y means tests should be carried out on all elements combined and each element on its own. Numbers in brackets identifies, for reference only, those tests specified in Statutory Instruments 1998 No. 1566 Schedule 1, Table 2 and Schedule 3, Table 2.			

APPENDIX C. MEASURED ERRORS

The following tables state the percentage error limits for each Class of Meter and include both whole current Meters and CT/VT operated Meters. Reference should be made to the relevant Code of Practice for the minimum Meter Class accuracy requirements.

It should be noted that I_b refers to basic current of a whole current Meter, I_n to the rated current of a transformer operated Meter and I_{max} to the maximum current rating of a Meter.

1. Accuracy Tables for Active Meters

Table C1: Summary of Class accuracy requirements for Class 0.2S and Class 0.5S Meters (single-phase Meters and polyphase Meters with balanced loads)

Value of current (I)	Power factor (Cos ϕ)	Percentage error limits for Meters of Class	
		0.2S	0.5S
0.01 I _n ≤ I < 0.05 I _n	1	+/- 0.4	+/- 1.0
0.05 I _n ≤ I ≤ I _{max}	1	+/- 0.2	+/- 0.5
0.02 I _n ≤ I < 0.1 I _n	0.5 inductive	+/- 0.5	+/- 1.0
	0.8 capacitive	+/- 0.5	+/- 1.0
0.1 I _n ≤ I ≤ I _{max}	0.5 inductive	+/- 0.3	+/- 0.6
	0.8 capacitive	+/- 0.3	+/- 0.6

Source: BS EN 62053 - 22*

Table C1(a): Summary of Class accuracy requirements for Class 0.2S and Class 0.5S Meters (polyphase Meters carrying a single-phase load, but with balanced polyphase voltages applied to voltage circuits):

Value of current (I)	Power Factor (Cos ϕ)	Percentage error limits for Meters of Class	
		0.2s	0.5s
$0.05I_n \leq I \leq I_{max}$	1	± 0.3	± 0.6
$0.1I_n \leq I \leq I_{max}$	0.5 inductive	± 0.4	± 1.0

Source: BS EN 62053 – 22*

The difference between the percentage error when the Meter is carrying a single-phase load and a balanced polyphase load at rated current I_n and unity power factor shall not exceed 0.4% and 1.0% for Meters of classes 0.2s and 0.5s respectively.

For example the maximum permitted error at I_{max} and unity power factor for a class 0.2s meter is $\pm 0.2\%$ when the meter is being tested under balanced load conditions and $\pm 0.3\%$ under single phase load conditions. This would allow an overall difference of 0.5% but the additional requirement limits this to 0.4% for a class 0.2s meter.

Table C2: Summary of Class accuracy requirements for Class 0.5, Class 1 and Class 2 Meters (single-phase Meters and polyphase Meters with balanced loads)

Value of current (I)		Power factor (Cos ϕ)	Percentage error limits for Meters of Class		
For whole current Meters	For transformer operated Meters		0.5	1	2
$0.05 I_b \leq I < 0.1 I_b$	$0.02 I_n \leq I < 0.05 I_n$	1	± 1.0	± 1.5	± 2.5
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	± 0.5	± 1.0	± 2.0
$0.1 I_b \leq I < 0.2 I_b$	$0.05 I_n \leq I < 0.1 I_n$	0.5 inductive	± 1.3	± 1.5	± 2.5
		0.8 capacitive	± 1.3	± 1.5	-
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5 inductive	± 0.8	± 1.0	± 2.0
		0.8 capacitive	± 0.8	± 1.0	-

Source: BS EN 62053 – 11* and BS EN 62053 - 21*

2. Accuracy Tables for Reactive Meters

Table C3: Summary of Class accuracy requirements for Class 2 and Class 3 Meters (single-phase Meters and polyphase Meters with balanced loads)

Value of current (I)	Sin ϕ (inductive or capacitive)	Percentage error limits for Meters of Class
-------------------------	-----------------------------------------	---------------------------------------------

For whole current Meters	For transformer operated Meters		2	3
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	+/- 2.0	+/- 3.0
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5	+/- 2.0	+/- 3.0

Source: BS EN 62053 23*

Table C3(a): Summary of Class accuracy requirements for Class 0.2S and Class 0.5S Meters (polyphase Meters carrying a single-phase load, but with balanced polyphase voltages applied to voltage circuits):

Value of current (I)		Sin ϕ (inductive or capacitive)	Percentage error limits for Meters of Class	
For whole current Meters	For transformer operated Meters		2	3
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	+/- 3.0	+/- 4.0
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5	+/- 3.0	+/- 4.0

Source: BS EN 62053 – 23*

The difference between the percentage error when the Meter is carrying a single-phase load and a balanced polyphase load at basic current I_n and $\sin \phi = 1$ for direct connected Meters, respectively at rated current I_n and $\sin \phi = 1$ for transformer operated Meters, shall not exceed 2.5% and 3.5% for Meters of classes 2 and 3 respectively.

For example the maximum permitted error at I_n and $\sin \phi = 1$ for a class 2 \mathbb{m} Meter is +/- 2.0% when the \mathbb{m} Meter is being tested under balanced load conditions and +/- 3.0% under single phase load conditions. This would allow an overall difference of 5.0% but the additional requirement limits this to 2.5% for a class 2.0 \mathbb{m} Meter.

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Appendix D – no changes

Appendix E – no changes