Issue Report

Issue 80 'Increase in minimum data storage requirements within the relevant Metering CoPs[1]'

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About This Document

This document is the Issue 80 Workgroup's (WG) Report to the BSC Panel. ELEXON will table this report at the Panel's meeting on **10 October 2019.**

There are four parts to this document:

- This is the main document. It provides details of the WG's discussions and proposed solutions to the highlighted issue and contains details of the Workgroup's membership.
- Attachment A contains the Issue 80 proposal form.
- Attachment B contains the Issue 80 Request for Information (RfI) responses.
- Attachment C contains the Issue 80 Outstation manufacturer feedback

[1] Codes of Practices

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1 Summary

Background

The Association of Meter Operators (AMO) raised Issue 80 'Increase in minimum data storage requirements within the relevant metering CoPs' on 16 April 2019.

The AMO (the Proposer) raised Issue 80 to consider increasing the minimum data storage requirements within the metering Codes of Practice (CoPs). The WG considered if there is an issue with the current minimum data storage requirements for Outstations and whether a change should be made.

Issue

The Proposer believes that the minimum data storage requirements for Outstations within the metering CoPs are now 30 years old and reflect the cost of memory and equipment at that time. Meter Operator Agents (MOAs) regard this requirement as unreasonably low. The Issue 80 WG was established to review whether the current Balancing and Settlement Code (BSC) requirements for the minimum data storage capacity for Outstations should be amended. The data storage capacity of an Outstation is limited by the amount of memory that can be allocated to data storage. Issue 80 is not looking at the Smart Metering Equipment Technical Specifications (SMETS) but the Proposer notes that SMETS v2.0 requires a minimum of 13 months of Half Hourly (HH) consumption data and three months of HH export data.

The Proposer believes increasing Outstation memory requirements has two main benefits. Firstly, it would reduce the risk of estimated data entering Settlement, caused by data being overwritten (when out of memory). Secondly, it would be a proactive step in supporting a potential future move to 15 minutes Settlement.

Conclusions

The Issue 80 WG considered whether the minimum data storage capacity for Outstations within the metering CoPs should be increased. To help Issue 80 WG considerations a Request for Information (RfI) was issued prior to the first WG meeting to get industry views on the matter and potential impacts should a BSC Party or ELEXON raise a CP. The RfI outcome can be found in Section 3 of this paper. In addition, ELEXON engaged with Outstation manufacturers to help determine potential impacts for increasing minimum data storage requirements. Outstation manufacturer feedback can be found in Section 3 of this report with more detailed feedback provided in Attachment C.

The WG believed the current minimum data storage capacity requirements for Outstations could cause an issue where an Outstation could not be read for a period longer than the data storage capacity of the Outstation, resulting in estimated data entering Settlement. This could happen where there is a remote communications issue with the Outstation and/or where local access, to get a hand held reads using a Hand Held Unit/Local Interrogation Unit, is problematic.

Proposed Changes

The WG identified four, but related potential changes:

What is a Meter?

Section X Annex X-1 defines a **Meter** as a device which measures Active or Reactive Energy

What is an Outstation?

Section X Annex X-1 defines an **Outstation** as an equipment which receives and stores data from a Meter(s) for the purpose, inter alia, of transfer of that metering data to the CDCA or a Data Collector, as the case may be, and which may perform some processing before such transfer and may be one or more separate units or may be integral with the Meter.

Outstation channel

An Outstation channel is a memory storage area within an Outstation where Demand Values (e.g. Import/Export kW or Import/Export kVAr) or other data (e.g. a pulse count), are stored. An Outstation channel number is the unique identifier for that memory storage area.

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- Increase the minimum data storage capacity for Settlement Outstations to 250 days per channel at 30 minutes integration periods;
- Mandate specific selectable integration periods[2] for CoPs 3, 5, and 10 and add a test for this requirement (and for CoPs 1 and 2) into BSCP601;
- Amend BSCP601 testing requirements as a consequence of amending the Outstation data storage requirements;
- Mandate the number of Outstation channels to be used for data storage for Settlements purposes.

The WG agreed to take forward all of these proposals, except the third proposal to amend the testing requirements.

The WG is not proposing to change certain BSCP601 test requirements, as it believed the existing requirements were sufficient for testing, i.e. testing:

- Outstation clock drift without clock trimming;
- Outstation clock drift without a power supply; and
- that the memory was storing data without a power supply,

for the currently specified minimum period (i.e. 10 days for CoPs 1 and 2 and 20 days for CoPs 3, 5 and 10).

Moreover, requiring the above testing over 250 days would be too burdensome and costly.

The WG agreed that Outstation manufacturers would be required to confirm that their existing Outstations would remain compliant with the new versions of the CoPs by submitting a letter to ELEXON confirming compliance.

What is Demand Period?

Demand Period means the period over which Active Energy, Reactive Energy or Apparent Energy are integrated to produce stored Demand Values.

What is Demand Value?

Demand Values means, expressed in kW, kvar or kVA, twice the value of kWh, kvarh or kVAh recorded during any Demand Period. The Demand Values are half hour demands and these are identified by the time of the end of the Demand Period.

Change Proposals

The WG agreed the first two proposals should be progressed in the same Change Proposal (CP), and the fourth proposal should be progressed in a separate CP:

Change Proposal 1

- Increase the minimum data storage capacity for Settlement Outstations to 250 days per channel at 30 minutes integration periods;
- Mandate specific selectable integration periods for CoPs 3, 5, and 10 and add a test for this requirement (and for CoPs 1 and 2) into BSCP601;

Change Proposal 2

- Mandate the number of Outstation channels to be used for data storage for Settlements purposes.

Further detail and justification for these recommendations can be found in Sections 3 and 4 of this report. The WG are seeking a BSC Party to raise two CPs. In the event that a BSC Party does not volunteer to raise these changes, ELEXON will raise the CPs on behalf of the Issue 80 WG.

[2] CoPs refer to the integration period as a Demand Period.

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2 Background

An Outstation is an item of Metering Equipment which receives and stores data from a Meter(s). Its other main purpose is to transfer that metered data to a Half Hourly Data Collector (HHDC – for Outstation channels registered in the Supplier Meter Registration Service (SMRS)) or the Central Data Collection Agent (CDCA – for Outstation channels registered in the Central Meter Registration Service (CMRS)). An Outstation may be integral with a Meter or separate from a Meter(s).

What are the current Outstation storage requirements?

Section 5.5.1 'Data storage' of the CoPs sets out the minimum data storage requirements for Outstations. The data storage capacity of an Outstation is limited by its memory capacity. The data storage requirements were originally determined within the Pooling and Settlement Agreement, based on the technology available at that time. The minimum storage capacity may have been based on the 'Final Reconciliation' run at the time, SF ('Settlement Final') which is now known as the Initial Settlement Run.

The following table sets out the current minimum data storage capacities for Demand Values for each Outstation channel, with a 30 minute integration period.

Metering Code of Practice (CoP)	Minimum data storage capacity per Outstation channel
CoP1 – exceeding 100MVA	10 days
CoP2 – not exceeding 100MVA	10 days
CoP3 – not exceeding 10MVA	20 days
CoP5 – up to 1MW	20 days
CoP10 – up to 100kW	20 days

- The metering CoPs set out the minimum requirements for Metering Equipment used for Settlements purposes i.e. for Settlement Meters, measurement transformers, Communications Equipment, Outstations and wiring.
- The storage capacity of an Outstation is limited by its memory capacity and the current data storage requirements for Settlements purposes were originally determined under the Pooling and Settlement Agreement back in the early 1990's, based on the technology available at the time.
- Where any material change is made to any Metering Equipment, the version of the CoP current at the time of that material change is, from that time, the relevant CoP in respect of that Metering Equipment.
- Outstations can store non-Settlement data. The WG questioned the rationale for storing non-Settlement data. It was noted that non-Settlement data could include for example current, voltage, GSM signal strength and temperature. Outstations used for storing non–Settlement data tend to have a considerable amount of memory.
- If you double the number of channels of data, at a certain integration period (e.g. 30 minutes), an Outstation is required to store you, effectively, halve its available storage capacity. If the integration period for the channel data is halved from 30

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minutes to 15 minutes then this will also, effectively, halve the available storage capacity.

What is the Issue raised?

The minimum data storage requirements within the metering CoPs are now 30 years old and reflect the cost of memory at that time. MOAs regard this requirement as unreasonably low and, through this Issue, should be reviewed. Outstation memory is now cheaper and it is cost effective to increase Outstation memory. Also, more memory will allow more time to retrieve metered data from an Outstation at a site where there is a remote communications issue and/or where local access, to get a hand held read, is problematic.

Justification for Examining Issue

The Proposer believes the current requirements are perverse as the higher materiality sites have a shorter minimum data storage capacity, although this is to an extent mitigated by the requirement in the metering CoPs to use main/check Meters, primary/secondary Outstations and, at some sites, duplicate communication lines for the metering CoPs applicable to larger sites.

Reviewing the memory requirements could benefit Settlement accuracy relating to new/significantly changed Metering Systems and ensure that new Outstations being installed will be fit for anticipated future requirements, such as 15 minutes Settlement Periods[3].

Potential Solution raised

The Issue WG considered the issue, including responses from the RfI, to help determine what the suitable minimum data storage capacity for Outstations should be in the CoPs. The Proposer initially suggested a period of 60 days (6 channels of 30 minutes integration periods) would seem a minimum however, to further futureproof the Metering Equipment then over 100 days may be appropriate.

[3] Settlement Periods are 30 minutes in duration as are Demand Periods in the CoPs.

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3 Issue Group's Discussions

To help with WG considerations ELEXON and the Proposer agreed to issue an RfI (Attachment B) prior to the meeting for responses to be considered during the meeting.

Two Issue 80 WG meetings were held. The first meeting was held on 24 June 2019 and focused on whether the minimum data storage requirements for Outstations is an issue and if there is a need to change the current minimum data storage requirements. During the meeting WG Members acknowledged the RfI was an appropriate route to address the issue and industry views.

Given the lack of Outstation manufacturer responses to the RfI the WG requested that ELEXON directly engage with Outstation manufacturers to help determine the impact of the proposed change to Outstation data storage requirements.

The second Issue 80 meeting was held on 19 September 2019 to discuss Outstation manufacturer feedback and clarify the proposed change to data storage, the change to selectable integration periods and the suggestion in the RfI for mandating the minimum number of channels that should be programmed into Outstations.

Overview of the BSC Issue process

The Issue 80 WG discussions started with ELEXON giving an overview of the BSC Change process and the Issues process specifically. ELEXON outlined the circumstances in which a BSC Party can raise an Issue (e.g. when the Party would like to discuss a concern or issue with the wider industry) and how this process differs to the Modification Procedures. The members were informed that the output of the Issue process is a final Issue Report to the Panel. The WG members were informed that a BSC Party can take forward a Modification or Change Proposal at any point in the Issue process. The Panel recently approved Issue WG Terms of Reference (ToR). Under the ToR the WG are required to help develop and recommend potential solutions. Where a CP is recommended and a Party does not come forward to raise it, ELEXON will raise the CP on behalf of the WG.

Defining the Issue

The Proposer provided background of the issue noting that:

- The minimum data storage requirements for Settlement Outstations within the metering Codes of Practice (CoPs) are now 30 years old and reflect the reality of memory costs at that time.
- Data storage is limited by Outstation memory capacity.
- Outstations are being produced with larger memory than the minimum data storage requirements for Settlement Outstations.
- If a change is made it will not impact already installed Outstations except in the event of a material change being made to the Metering Equipment.
- The desire to increase Outstation memory has been discussed previously. In September 2017 ELEXON emailed 10 Outstation manufacturers (those with compliant Outstations on the CoP Compliance and Protocol Approval list) and asked them if their existing Outstations would comply with a proposed storage period of 30, or 60 days, with 15 minutes integration periods. Only one

Metering Equipment

Means Meters, measurement transformers (voltage, current or combination units), metering protection equipment including alarms, circuitry, associated Communications Equipment and Outstations and wiring

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manufacturer confirmed that their integral Outstation Meter could comply already (6 channels with 15 minute integration periods for 60 days). The others either did not respond (eight), or said they would respond (one), but didn't.

- Increasing Outstation memory would be pragmatic and sensible, allowing Outstations to keep metered data for longer.

A member clarified the differences between requirements for data storage for Settlement purposes and 'memory'. The 'memory' used for 'data storage' (i.e. generally – e.g. interval data (e.g. DVs) and software upgrades) can be greater than the minimum data storage requirements for Outstations for Settlement purposes, and non-Settlement data (and software upgrades) stored within Outstations can use up the 'memory' and potentially impact the memory available for storing Settlement data. Some Outstations reserve parts of the memory for specific channels in the Outstation so additional non-Settlement data such as voltage and temperature data storage won't impact the Settlement channels.

The WG noted that Ofgem is looking at possibly changing the Imbalance Settlement Period (ISP) to 15 minutes as part of the Clean Energy Package. This could increase the number of DVs required to be stored by an Outstation (if integration periods and the ISP have to be aligned). The WG considered the implications of the ISP changing to 15 minutes from the current 30 minutes. The WG noted that the Imbalance Settlement Period (ISP) must change from 30 minutes to 15 minutes as part of European law (the Electricity Balancing Guideline and the Clean Energy Package). This could increase the number of Demand Values required to be stored by an Outstation (if integration periods and the ISP have to be aligned as required by the Clean Energy Package).

In accordance with Article 53 of the Electricity Balancing Guideline this change to 15 minutes is required by 18 December 2020 unless regulatory authorities have granted a derogation or an exemption. We understand that Ofgem is actively considering an exemption that would avoid the need to change to 15 minutes in GB.

Questions for the Workgroup to consider

ELEXON drafted a series of key questions for consideration by the WG and these are outlined in the table below. They cover topics which were raised in the RfI as well as additional points highlighted in the proposal form, found in Attachment A. The WG discussions and conclusions are detailed in this report.

Questions considered under Issue 80	
1	Is there an issue with current Outstation memory?
2	What is the reason for making the change?
3	Is there a need to increase Outstation memory?
4	Who will it affect?
5	What is the extent of the problem?
6	What are the benefits and impacts?

Table 1: A summary of questions considered under Issue 80

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Is there an issue with current Outstation memory?

RFI responses

An RfI to seek industry views on increasing Outstation data storage capacity was issued prior to the first WG meeting. The Issue 80 RfI is provided at Attachment B to this document.

The following 10 BSC Parties provided responses. No Outstation manufacturers responded to the RfI.

Respondent	No. of Parties/Non-Parties Represented	Role(s) Represented
Solarplicity	1	Supplier
EDF Energy Generation	1	Generator
Robin Hood Energy	1	Supplier
Npower Group Ltd	1	Supplier Agent: MOA, DC, DA
SSE Metering Ltd	1	Supplier Agent: MOA
Scottish Power Dataserve	1	Supplier Agent: HHDC
IMServ	1	Supplier Agent: Data Collector & Meter Operator
EDF Energy	1	Supplier
Stark Software Int Ltd.	1	Supplier Agent: DC/DA
TMA Data Management Ltd	1	Supplier Agent: HHDC, HHDA, NHHDC and NHHDA

Below are the RFI questions and high level responses. More detailed responses with comments are provided as Attachment B.

Questions	**Responses**	
1. Should the minimum data storage capacity for outstations be increased?	Yes	9
	No	0
	Neutral	1
	Other	0
2. If you are an Outstation manufacturer with a CoP compliant Outstation, what is the data storage capacity for 1, 4 and 6 Demand Values with a 30 minute Demand Period? What is the data storage capacity for 1, 4 and 6 Demand Values with a 15 minute Demand Period?	Yes	0
	No	1
	Neutral	9
	Other	0
	Yes	7

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3. Do you believe the minimum data storage capacity should be the same for each metering Code of Practice?	No	2
	Neutral	1
	Other	0
4. Do you agree with the Proposer that Outstations are already being sold with considerably more memory than the current minimum BSC requirement?	Yes	10
	No	0
	Neutral	0
	Other	0
5. If the BSC requirements changed, would you need to seek re-approval for your product range? If so and with whom? How much would it cost to comply with the example options?	Yes	1
	No	3
	Neutral	3
	Other	3
6. Have you experienced instances of data being overwritten or lost which additional memory would have resolved?	Yes	4
	No	3
	Neutral	3
	Other	0
7. When performing data retrieval is there any constraint on the time required or the amount of data to be retrieved, either remotely or locally?	Yes	5
	No	2
	Neutral	3
	Other	0
8. Do you have further comments on Issue 80?	Yes	4
	No	4
	Neutral	2
	Other	0

The WG reviewed the RfI responses and noted the below points:

- Most Outstations are sold with more data storage capacity than the minimum data storage requirements for Settlement Outstations.
- CoPs 1 and 2 have higher materiality compared to the others. The WG should consider whether Outstation data storage capacity requirements should be the same for all Outstations and what value it should be.
- There were no responses from Outstation manufacturers. ELEXON took an action to engage with Outstation manufacturers to determine impacts of the proposed change. Feedback for Outstation manufacturers is provided as Attachment C of this report.

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- The WG considered whether the CoPs should include a definitive number of channels e.g. 3 channels (import only site) and 6 channels (export/import site). Members noted that a change to the number of channels mandated for particular sites should be progressed separately from increasing the minimum data storage capacity requirements for Settlement Outstations. It was noted that CoP1 is the only CoP where all Measurement Quantities (MQs) and Demand Values are mandatory (unless subject to a BSCP32 'Metering Dispensations'). CoPs 2, 3, 5 and 10 have optionality ("Import or Export metering need only be installed where a Party requires this measurement to meet system or plant conditions").

Measurement Quantity

An electrical energy quantity which may be required to be measured, e.g. Active Import (AI), Active Export (AE), Reactive Import (RI) and Reactive Export (RE).

Is there an issue with current Outstation data storage capacity?

The RfI responses did not highlight issues with Outstation data storage capacity. Most respondents pointed out that most of Outstations available already store far more data than is currently required by the CoPs. The WG considered the rationale for increasing Outstation data storage capacity given no key concerns were raised in the RfI. Members noted the reasons below for increasing Outstation data storage capacity:

- It takes time to resolve communication failure issues.
- There are issues with lost data. This affects Outstations of some manufacturers more than others.
- Engagement with Outstation manufacturers is required to determine whether there will be costs for changing the minimum Outstation data storage capacity requirements.
- Outstations sold currently do not have an issue with storage. However, CoPs need to be more in line with current technology. Increasing the minimum data storage capacity requirements in the CoPs would raise the bar for all Outstation manufacturers so that there are a number of Outstations on the market that will be fit for the future and doing so may encourage competition.

Metering Dispensation

A derogation from a requirement(s) in the relevant metering Code of Practice. These can be sought by BSC Parties for financial or practical reasons and are approved by the BSC Panel (or one of its Panel Committee(s)). They can be approved on a temporary or lifetime basis and can be site specific or generic.

Given that no Outstation manufacturers responded to the RfI, WG members advised that ELEXON further engage with manufacturers to gauge the impact of changes to minimum Outstation data storage capacity requirements. A WG Member, who works for a Meter/Outstation manufacturer reported that the cost of memory for Outstations was cheap (<£1). Although the changes may impact replacement Outstations, it's important that Outstation manufacturers are informed of changes likely to impact them in the future.

Who will it affect?

Following the WG meeting ELEXON engaged with Outstation manufacturers to determine the impact of increasing minimum Outstation data storage requirements within the CoPs.

Outstation manufacturers were asked to respond to the below questions:

1. What is the current storage capacity of your Outstation(s)? – How many days and how many channels at 30min Demand Periods can your CoP compliant Outstation store?
2. Does your Outstation have selectable Demand Periods? If so, what are they?

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3. If you have to increase minimum Outstation memory requirements (and have selectable Demand Periods of 5, 10, 15, 20 and 30 minutes for CoPs 3, 5 and 10) how much of an impact would this be? If relevant to your company (i.e. a manufacturer of integral Outstation Meters) do you have do get new Measuring Instruments Directive (MID) and/or Office of Product Safety and Standards approval for your integral Outstation Meter?

ELEXON reported to the WG that it took considerable effort to get responses from manufacturers. Repeated emails and phone calls were required, alongside on-line research to seek answers to these questions.

Outstation manufacturer feedback

At its second meeting the WG noted the below Outstation manufacturer feedback:

Collated Feedback	
Number of Outstation manufacturers contacted	10 (8 responded)
Current Compliant Outstations	32
How many Outstations would comply if proposed change to memory capacity is made?	17 **Comply** Manufacturer confirmed – 10 Assumed based on research – 7 **Still sold** Of the 17 Outstations, 14 are still sold. Manufacturer confirmed – 7 (1 of which to be phased out) Assumed based on research – 7
How many would not comply or not sure?	15 **Not comply** Manufacturer confirmed – 5 Assumed based on research – 10

The detailed Outstation manufacturer feedback is provided as Attachment C of this document. Key findings from Outstation manufacturer engagement are summarised as follows:

- Some manufacturers confirmed their Outstations would be able to comply with the proposed change (17/32 Outstations could comply). In addition, ELEXON's research helped determined Outstations likely to comply (or not comply) with the proposed minimum data storage requirements.
- Some manufacturers noted that they may not modify existing Outstations to meet the proposed requirements and some are no longer sold. The WG argued that if manufacturers are not required to make changes they won't. Mandating a requirement in the CoPs (and confirming it through testing) will ensure new Outstations are CoP compliant.
- The WG were concerned that increasing the data storage capacity requirements may adversely limit the available choice of Outstations in CoPs 3, 5 and 10 for current transformer (CT) operated Meters (with integral Outstations). However,

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they believed the market would respond and manufacturers would increase data storage capacities in their Outstations if the CoPs were amended. Further, the WG noted that a Registrant could raise a Metering Dispensation to allow existing Outstation types to 'live out their life' even if a material change was made to the Metering Equipment at a site

- Should the minimum data storage capacity requirements be increased, manufacturers of Outstations may require time to implement changes. Timelines should be put in place for when the minimum data storage capacity requirements should be changed to help limit the impact. ELEXON proposes an Implementation Date approximately 12 months after approval for the Outstation data storage capacity requirements CP.

- Manufacturers of Outstations may not be willing to change if they are focusing on other industry issues such as Smart Meters, but the WG believed market forces would drive new Outstation offerings in the CoP arena.

The WG noted the effort ELEXON had taken to contact Outstation manufacturers and to review published equipment specifications.

Material Change

BSC Section L defines Material Change as a change to the Metering Equipment other than a change by way of repair, modification or replacement of any component which is not, in the judgement of the Meter Operator Agent acting in accordance with Good Industry Practice, a substantial part of the Metering Equipment even where an enhanced or equivalent component is used for the repair, modification or replacement rather than an identical component.

What are the possible benefits and impacts?

The WG noted the benefits and impacts of increasing the minimum Outstation data storage capacity requirements and noted the following:

Increase minimum Outstation data storage capacity requirements across the CoPs

The WG propose to increase the minimum data storage capacity for Settlement Outstations to 250 days per channel at 30 minutes integration periods. This will allow for 125 days at 15 minutes integration periods per channel should a 15 minutes Imbalance Settlement Period (ISP) be implemented i.e. it will cover four months of data storage to align with the four month Final Reconciliation (RF) Run proposed by the Market-wide Half Hourly Settlement (MHHS) report by the Design Working Group's (DWG). Outstations can be easily reprogrammed if there is a move to a 15 minutes integration period. There is no material increase in costs, regardless of number of days, as the cost for different memory capacities is negligible.

Final Reconciliation (RF) Run

BSC Section U defines the Final Reconciliation (RF) Run as the last required Timetabled Reconciliation Settlement Run.

Benefits

The WG noted the below benefits for increasing minimum data storage capacity requirements:

- Increasing minimum data storage requirements will mean MOAs have longer to fix Meter faults without losing data.
- General Packet Radio Service (GPRS) could be turned off in the next few years. Communications Equipment will need replacing providing an opportunity to replace existing Outstations.
- Some Outstation manufacturers are currently producing Outstations that meet the proposed requirements. Changing the CoPs will improve and simplify industry standards.
- The change to 15 minutes integration periods will be a transitional activity for the industry. Future proofing the CoPs means that, if it happens, less Outstations will need replacing. The larger data storage capacity Outstations installed can simply be reprogrammed to 15 minutes integration periods from 30 minutes integration periods and preserve a decent amount of data storage (125 days). Increasing the minimum data storage capacity requirements could lead to new and significantly

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modified Outstations which are more resilient to data loss resulting from communications failures.

- As part of Issue 80 further analysis, ELEXON tried to estimate the impact to Settlement from estimated data caused by overwritten data but was not able to get the data. According to the Central Data Collection Agent (CDCA) there is no issues with data being overwritten for Central Volume Allocation (CVA) Outstations.
- The proposed change will not impact but benefit Settlement by providing less estimated reads.

Impacts

Potential impacts for increasing data storage capacity requirements are as follows:

- Manufacturers may be reluctant to produce Outstations in line with the proposed changes if they do not see the benefit. There is a risk that less Outstation manufacturers will produce compliant Outstations should other models become non-compliant leaving the industry with less, and possibly more expensive, choices. The remaining Outstation manufacturers could end up charging more for the few available CoP compliant Outstations. The Issue 80 WG had particular concerns about the availability of compliant CT operated Meters (with integral Outstations) for CoP3 sites if the proposed change, to increase the data storage capacity to 250 days per channel, is made.
- The proposed change will require any new Metering Equipment installations to adhere to the new requirements or where a material change is made to existing Metering Equipment.

Further Workgroup views

- There are different reasons for estimated reads. It's difficult to know what is causing data estimation, for example it could be as a result of overwritten data, and faulty Meters.
- A member questioned whether manufacturers would be able to adapt to new requirements.
- A member also questioned if the increase to 250 days per channel at 30 minutes integration periods could have impact on Settlement. If an Outstation has less memory, Data Collectors (DCs) have more of an incentive to retrieve quickly before it's overwritten. The WG noted that most Suppliers require DCs to provide 98% of reads in a short period of time through their Service Level Agreements (SLAs).

Amend the BSCP601 testing requirements as a consequence of increasing the Outstation data storage capacity

The WG considered potential impacts to BSCP601 testing noting that:

- CoPs 1 and 2 require Outstations to be able to support the Outstation clock, calendar and all data for a period of 10 days without an external supply connected. CoPs 3, 5 and 10 for a period of 20 days without an external supply connected. The data storage tests in BSCP601 could be impacted.

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- CoPs 1 and 2 require the Outstation clock to remain within ±10 seconds of UTC (Co-ordinated Universal Time) after 10 days without any clock trimming and that each integration period be within ± 0.1% (of 30 mins). CoPs 3, 5 and 10 require the Outstation clock to remain within ± 20 seconds of UTC after 20 days without any clock trimming and that each integration period be within ± 0.1% (of 30 mins). The Outstation clock drift tests in BSCP601 could be impacted.

The WG agreed that no changes will be made to the BSCP601 testing requirements as a result of the proposed change. It is believed the existing requirements were sufficient for testing clock drift and that the memory was storing data. Moreover, requiring testing of 250 days would be too burdensome and costly.

A manufacturer noted that it would be a problem for Outstation manufacturers to put a meter in a test lab for 250 days. Any clock test over 250 days will also be an issue, especially if anything else in the testing process fails and tests need to be repeated. The industry should be cautious of putting additional onerous testing requirements on metering devices over and above what is required by existing international/European metering standards.

In addition to increasing the minimum Outstation data storage capacity requirements the WG also considered for the following changes to be made to the CoP requirements:

Mandate the number of Outstation channels to be used for data storage for Settlements purposes as follows:

- 6 channels for SVA sites
- 4 channels for CVA sites
- 6 channels where there is a split between SVA/CVA i.e. follow SVA requirements

The WG agreed the above change subject to checking potential impacts with the National Electricity Transmission System Operator (NETSO)/Transmission System Owners and Licensed Distribution System Operators (LDSOs) and their requirements for Reactive Energy MQs and DVs for Use of System (UoS) charging.

Mandate selectable integration periods for CoPs 3, 5, and 10 and add a test for this requirement (and for CoPs 1 and 2) into BSCP601.

Only CoPs 1 and 2 require selectable integration periods (30, 20, 15, 10 and 5 minutes) but there is no test in the compliance testing specification in BSCP601 to confirm this. CoPs 3, 5 and 10 have no such requirement.

The WG agreed to propose selectable integration periods for CoPs 3, 5 and 10, the same as in CoPs 1 and 2, and add a test to BSCP601 to confirm this requirement is met.

The WG recommend that CPs be raised as follows:

Change Proposal 1

Increase the minimum data storage capacity for Settlement Outstations to 250 days per channel at 30 minutes integration periods; and

Mandate selectable integration periods for CoPs 3, 5, and 10 (the same ones as in CoPs 1 and 2) and add a test for this requirement (and for CoPs 1 and 2) into BSCP601.

Change Proposal 2

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Mandate the number of Outstation channels to be used for data storage for Settlements purposes.

The changes are to be progressed after the Final Issue 80 report has been submitted to the BSC Panel. The WG are seeking a Party to raise these CPs. In the event that a BSC Party does not volunteer ELEXON will raise the CPs on behalf of the Issue 80 WG.

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4 Conclusions

Following discussions as part of Issue 80, changes to the minimum Outstation data storage capacity requirements have been agreed as recommendations to the BSC Panel.

Subject to views from the Panel on the conclusions of the Issue 80 WG, CPs will be progressed to:

- Increase the minimum data storage capacity requirements for Settlement Outstations to 250 days per channel at 30 minutes integration periods. This CP will also mandate selectable integration periods for CoPs 3, 5, and 10 and add a test for this requirement (and for CoPs 1 and 2) into BSCP601; and
- Mandate the number of Outstation channels to be used for data storage for Settlements purposes.

Workgroup Recommendation

Increase minimum outstation memory requirements

The majority of the Issue 80 WG believe the current minimum data storage capacity requirements for Outstations are an issue because it takes time to resolve communication issues and there are instances of lost Settlement data. Having additional data stored would allow for more data to be retrieved, once an Outstation is read, resulting in less estimated data entering Settlement. In addition, most Outstations are sold with more Outstation memory than the minimum data storage required for Settlement and memory is now cheaper than it was in the 1990s. The minimum data storage requirement for Settlement purposes should therefore be increased. The WG believe the industry should be more cognizant of future demands and look to raise standards over the long term.

Should the changes be progressed and implemented, Outstation manufacturers will be asked to confirm that their existing Outstations would remain compliant with the new versions of the CoPs by submitting a letter to ELEXON confirming compliance.

Some Outstation manufacturers will need time to redesign existing or develop new Outstation types to meet the new requirements so this should feed into the implementation timescale for a CP. The need to use up any existing stock of Outstations should feed into the implementation timescale for a CP. The WG initially recommend a 12 month implementation lead time.

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Appendix 1: Glossary & References

Acronyms

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

Acronyms	
AMO	Association of Meter Operators
BSC	Balancing & Settlement Code
CBA	Cost Benefit Analysis
CDCA	Central Data Collection Agent
CMRS	Central Meter Registration Service
CoP	Metering Code of Practice
CP	Change Proposal
CRS	Central Registration Service
CT	Current Transformer
CVA	Central Volume Allocation
DC	Data Collector
DP	Demand Period
DWG	Design Working Group
DV	Demand Value
GPRS	General Packet Radio Service
HHDC	Half Hourly Data Collector
ISP	Imbalance Settlement Period
LDSO	Licensed Distribution System Operator
MQ	Measurement Quantity
MHHS	Market-wide Half Hourly Settlement
MID	Measuring Instruments Directive
MOA	Meter Operator Agent
NETSO	National Electricity Transmission System Operator
RF	Final Reconciliation (RF) Run
RfI	Request for Information
SMETS	Smart Metering Equipment Technical Specifications
SMRS	Supplier Meter Registration Service
SVA	Supplier Volume Allocation
UoS	Use of System (UoS)
UTC	Co-ordinated Universal Time
WG	Workgroup

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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
2	Issue 80 page on ELEXON Website	https://www.elexon.co.uk/smg-issue/issue-80/
2	Metering Codes of Practice on ELEXON Website	https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/codes-of-practice/
3	BSCP601 on ELEXON Website	https://www.elexon.co.uk/csd/bscp601-metering-protocol-approval-and-compliance-testing/
6	CoP Compliance and Protocol Approval list on ELEXON Website	https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/codes-of-practice/codes-practice-compliance-protocol-approvals/
7	Clean Energy Package on the European commission website	https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans
7	Electricity balancing guideline on the ENTSOE website	https://www.entsoe.eu/network_codes/eb/
10	BSCP32 on the ELEXON Website	https://www.elexon.co.uk/csd/bscp32-metering-dispensations/
11	Measuring Instruments Directive (MID) Meter approvals	https://www.gov.uk/guidance/mid-approved-gas-and-electricity-meters
14	BSCP601 on the ELEXON Website	https://www.elexon.co.uk/csd/bscp601-metering-protocol-approval-and-compliance-testing/

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