Issue Report

Issue 75 'Use of Internet Protocol (IP) address based communication methods for Central Volume Allocation (CVA) Metering Systems'

Contents

About This Document

This document is the Issue 75 Group's Report to the BSC Panel. ELEXON will table this report at the Panel's meeting on 13 June 2019.

There are three parts to this document:

- This is the main document. It provides details of the Issue Group's discussions and proposed solutions to the highlighted issue and contains details of the Workgroup's membership.
- Attachment A contains the Issue 75 proposal form
- Attachment B contains a list of standard Meter communication services that are currently in place, yet to be in place, or being phased out.

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1 Summary

Background

Scottish and Southern Electricity (SSE) raised Issue 75 'Use of Internet Protocol (IP) address based communication methods for Central Volume Allocation (CVA) Metering Systems' on 28 November 2018.

Issue 75 is concerned with whether Registrants of CVA Metering Systems would benefit from being able to communicate data via Internet Protocol (IP)-based methods of communications. It looks at whether ELEXON should update the BSC Services Agreement (the contract with CGI UK IT Limited which allows for the provision of the Central Data Collection Agent (CDCA) service) to support the use of IP based methods of communications to collect CVA data, as they are not currently permitted to do so.

What is the CDCA?

The Central Data Collection Agent (CDCA) is appointed by BSCCo for the purpose of providing a central data collection service relating to Metering Systems collecting, processing and aggregating metered data associated with Metering Systems registered with the Central Registration Agency (CRA)

Conclusions

The Issue Group unanimously agreed that Registrants of CVA Metering Systems would benefit from being able to communicate data via Internet Protocol (IP)-based methods of communications and agreed that BSCCo should change the BSC Services Agreement to allow this.

2 Background

What's the Issue?

Most remotely retrieved metered data for use in CVA is obtained via technologies that will become unreliable by 2025:

- Public Switched Telephone Network (PSTN) will cease service in 2025 due to investment and roll-out of Internet Protocol (IP) based alternatives;
- Circuit Switched Data (CSD) (also known as 2G, a subset of the Global System for Mobile Communications (GSM)) will become increasingly unreliable as it is replaced by 4G/5G. Similarly, the Proposer suggests there are frequent communication issues with CSD based communications in both the SVA and CVA markets. These reliability issues with the communication lines can be attributed to external factors such as inclement weather and the disruption of communication channels; and
- Paknet[1] service will cease by 2025.

In contrast, fixed IP will continue to operate reliably. Fixed IP is a viable alternative to current technologies and is already used by some Registrants, MOAs and Data Collectors in the Supplier Volume Allocation (SVA) market. However, the CDCA is currently unable to communicate with CVA Metering Systems using IP based communication as the BSC Services Agreement does not list IP as an approved method of data retrieval.

The Proposer also contends that both PSTN and CSD technologies have associated line rental charges or SIM card charges, with further charges against each call to retrieve data. In contrast, IP based communications do not have further call charges, as IP based communications work by sending packets of data as opposed to calling over CSD. This results in cost savings (though GPRS has associated data charges).

What is 2G?

2G is commonly used to refer to second-generation cellular technology. Introduced in 1991, 2G introduced data services for mobile telephones, beginning with SMS text messages. It has since been superseded by newer technologies such as 3G and 4G but is still prevalent where data is communicated via the telecommunications networks e.g. Meter data. Because of this prevalence, it is expected that 2G will outlast 3G but this remains to be seen.

What is PSTN?

The Public Switched Telephone Network refers to the network of cables that enable 'landline' telephone connections and is currently maintained by BT.

Current Arrangements

Metering data is collected differently in the CVA and SVA markets. There are some similarities; a Meter Operating Agent (MOA) takes care of Meter maintenance and configuration – both of which require a connection to the Meter – and Meter installation (including communications equipment). However, in the CVA sphere the CDCA fulfils the functions of data Retrieval, data Validation and data submission for the purposes of Settlement.

[1] Paknet, or 'Packet Radio Network', is a low-frequency telecommunications network launched in 1990 and operated solely by Vodafone Group plc. at the time of writing. It allows a User to send and receive short bursts of data between locations using a common radio Bearer Service.

3 Issue Group's Discussions

CVA Metering telecommunications

The Proposer outlined that Issue 75 was raised as the decreasing reliability of current communications technologies in the CVA market are causing metering faults more frequently. Other members affirmed that they had experienced the issue, with a general agreement that the most common CVA metering faults are related to communications (e.g. failure to connect to modem/Meter, breakdown of communications link due to the deterioration of the 2G network).

The Issue group also acknowledged that this was leading to difficulties in transferring Meters reliant on fixed-IP communication methods from the SVA market to the CVA market. There was unanimous agreement that the use of IP based communications would help the CDCA retrieve data from remote sites that currently suffer from communication issues.

The practicalities of IP adoption and utilisation were discussed by the Issue 75 group, including:

- The BSC Services Agreement;
- Private IP vs. Public IP; and
- Potential rate of adoption.

An Issue Group member highlighted that enabling the use of IP based communications could potentially lower ongoing costs for MOAs (after the relevant infrastructure is established) and leave costs charged via the BSC Services Agreement unchanged.

The Issue Group considered the likely rate of adoption of IP by MOAs. It was thought that the adoption would likely be commercially driven and occur as a gradual evolution rather than revolution, hence would not create a risk to the reliability of fledgling infrastructure. However, it was noted that if mobile-telephone communication network operators announce the redundancy of current technologies earlier than expected there could be a significant increase in the pace of adoption, unless an alternative were to be found.

What is the difference between Public and Private IP?

A Public IP address is an IP address that can be accessed over the internet, whereas a Private IP address is used to assign computers within a Virtual Private Network (VPN), meaning they will not be directly exposed to the internet. A VPN

Types of IP based communication

The Issue Group considered whether a specific type of IP-based communication should be selected (e.g. version four, version six, etc.), but eventually agreed that it would be unnecessarily limiting and risked creating the same issue of unreliability in the future. The different types of standard communications services that are in place, as well as those that are being phased out and those that are yet to be introduced, are listed in Attachment B.

Security: Private IP vs. Public IP

The Issue group considered the merits of mandating the use of Private IPs rather than public. It was acknowledged that the security of the GB energy system is paramount and the discussion surrounding CVA Metering System communications reflected this. Several Issue group members made the point that network security is already robust before public vs. private IP is considered, as mobile telephone network operators, Meter manufacturers and MOAs all have their own security measures in place.

Costs associated with VPNs

Following an impact assessment concerning the installation and maintenance of VPNs, a representative of the subcontractor currently providing the CDCA service confirmed that a VPN connection would not incur any incremental increase in installation or ongoing costs to MOAs if that VPN is of a standard configuration to that currently implemented by the CDCA. This position has been confirmed by CGI IT UK Limited, who act as the CDCA.

The Issue Group also discussed how the following anomalous (non-standard) situations should be approached:

- The use of a provider to implement a VPN where the costs are disproportionate compared to other providers favoured in the market;
- A VPN configuration that does not comply with the current standards; or
- A fixed IP connection on a hard-to-reach site, with high initial infrastructure costs.

There was initial concern that the cost of these situations could be passed through the CDCA to ELEXON and, ultimately, to BSC Parties through their funding shares. Issue Group members felt it would be unfair for BSC Parties to bear the costs for Registrants' commercial decisions, noting that they would expect them to absorb their own costs, as is done elsewhere outside of Settlement obligations.

The unanimous view was that the likelihood of ELEXON (via the CDCA) being asked to bear the costs of an expensive non-standard installation are incredibly low. ELEXON confirmed that the requirement for the support of non-standard IP-based communications methods would not be included in any updates to the BSC Services Agreement, so BSC Parties would be protected from an unexpected increase in their funding shares.

It was agreed that the benefits of progressing a BSC amendment to safeguard against the costs of excessive non-standard installations being passed through to industry via the CDCA were vastly outweighed by the costs, as this situation is highly unlikely and would constitute a separate issue due to the expected unique circumstances therein.

The Issue Group unanimously agreed that Registrants should absorb the costs of non-standard installations as it would likely be a commercial decision.

The future of telecommunications

Given the collection of subject matter experts, ELEXON and the Proposer thought it appropriate to use the opportunity to discuss the various issues associated with changes to telecommunications in the next 5-6 years, predominantly related to the SVA market.

The transient point discussed was that existing infrastructure and hardware is likely to become increasingly redundant. Moreover, mobile telephone network operators, to the best knowledge of Issue Group members, are not adequately investing in dedicated metering infrastructure due to the relatively small sector of revenue that the industry accounts for. They went on to conclude that there was little that they could do at this time to address these issues as the necessary technologies do not yet exist. They discussed how this could be addressed at a future time e.g. forming a BSC Issue group to assemble expertise from across the industry.

Informally, we have been made aware that at least one alternative to current arrangements is under development and that industry participants are assessing its viability. Full details are not known at this stage, and the unanimous conclusion was that if communications issues required further discussion, a market participant would raise a further Issue Group.

4 Conclusions

CVA Metering telecommunications

The Issue Group agreed that ELEXON should update the BSC Services Agreement to enable Registrants of CVA Metering Systems to utilise IP, and that the type of IP available (i.e. public or private) should not be restricted as it would be unnecessarily limiting. ELEXON issued an Impact Assessment to this effect to its service provider, who confirmed the expected cost of this change to be minimal.

Private IP vs. Public IP

The Issue Group unanimously agreed that the type of IP used should not be mandated as it would be unnecessarily limiting (described in Section 3 of this paper) and potentially costly - the use of a VPN requires the establishment of a VPN and maintenance, each having an associated cost, whereas Public IP is free. ELEXON reviewed the relevant Code Subsidiary Documents (CSDs) and noted there is already a requirement within the Communication Requirements Document that appropriate security protocols are in place, mandating mutual assurance.

Use of VPNs

The CDCA service provider confirmed that the installation of VPNs compliant with the current standard would incur no additional installation or ongoing costs to the Registrant. The Issue Group unanimously agreed that Registrants should absorb the costs of non-standard installations as it would likely be a commercial decision.

ELEXON confirmed that no provisions in the BSC Services Agreement shall be made for non-standard IP-based communications. A further change to the Agreement would be required to be raised by any impacted party, and the Issue Group was unanimous in its agreement that this situation is highly unlikely.

The future of telecommunications

The Issue Group acknowledged that a risk to metering telecommunications is approaching over the coming decade as a variety of telecommunication technologies become redundant. Moreover, there was acknowledgement that there was little that the industry could do about it at this point in time as the technologies to do so are not available.

Next Steps

The Issue Group agreed that:

- ELEXON will update the BSC Services Agreement (which is the contract with CGI under which they provide the CDCA service) to ensure that all standard IP-based methods of communications are supported by the CDCA at no additional charge to BSC Parties; and
- No provision in the contract shall be made for non-standard IP-based methods of communications, this would require a further change to the BSC Services Agreement to be raised by the impacted party.

Appendix 1: Issue Group Membership

Issue Group membership and attendance

Issue 75 Group Attendance			
Name	Organisation	31 Jan 19	23 May 19
Chris Wood	ELEXON *(Chair)*	✓	✓
Craig Murray	ELEXON *(Lead Analyst)*	✓	✓
Jeremy Caplin	ELEXON *(Design Authority)*	✓	✓
Chris Day	ELEXON *(Metering Specialist)*	✓	✓
Matt Wood	ELEXON *(Supply Chain Management – Contract specialist)*	✓	✓
Adam Cox	ELEXON	✓	✗
Haydn Wyllis	Scottish and Southern Energy (SSE) *(Proposer)*	✓	✓
Alastair Wilson	Scottish and Southern Energy Networks (SSEN)	✓	✓
Beatrice Chong	National Grid	✓	✗
Calvin McFarlane	npower	✓	✗
Chris Collins	Scottish Power	✗	✗
Colin Gentleman	Scottish and Southern Energy (SSE)	✓	✓
Ewan Graham	Natural Power	✓	✗
Garry Lister	npower	✓	✗
Geoff Matthews	IMServ	✓	✓
John Marshall	Scottish Power	✗	✓
Lilli Carr	Smartest Energy	✓	✓
Lorna Short	RWE	✓	✓
Peter Macintyre	Scottish and Southern (SSE)	✗	✗
Peter Rees	Siemens	✓	✓
David Siggers	EDF	✗	✓
Richard Turner	EDF	✗	✓
Daniel Lewis	EDF	✗	✓
John Marshall	Scottish Power	✗	✓
Michael Jarman	IMServ	✗	✓

Appendix 2: Glossary & References

Acronyms

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

Acronyms	
Acronym	Definition
CDCA	Central Data Collection Agency
CoP	Code of Practice
CP	Change Proposal
CVA	Central Volume Allocation
GSM	Global System for Mobile Communications
IP	Internet Protocol
MOA	Meter Operator Agency
PSTN	Public Switched Telephone Network
SVA	Supplier Volume Allocation
VPN	Virtual Private Network