

DCC SMETS1 PROGRAMME

SMETS1 COMMUNICATION SERVICES FORUM

March 2017



AGENDA

Agenda Item	Times
Coffee / Breakfast	09:30
Introduction and agenda walkthrough	10:00 (10 mins)
Communication Services Options Recap	10:10 (30 mins)
Breakout 1: Describe the challenges of operating a mixed estate of SMETS1 Meters that have different functional offerings (as in IEPFR options 5 & 6)	10:40 (40 mins)
Breakout 1 reporting	11:20 (20 mins)
Breakout 2: Describe approaches to maintenance of enrolled SMETS1 Smart Metering Systems	11:40 (40 mins)
Breakout 2 reporting	12:20 (20 mins)
Q&A	12:40 (20 mins)
Lunch	13:00
Access to SMEs	From Lunch

BREAKOUT GROUPS

Group 1

Terry Underwood	Aprose
Paul Clarke	SSE
Stuart Haughton	Calvin Capital
Chris Beard	CGI
Joe Mills	OVO Energy
William Wilson	GLOBAL-365
Bjorn Suetens	SSE
Seth Chapman	Morrison Data Services

Group 2

Adrian Cave	British Gas
Nikki Duggan	Chameleon Technology
Philip Doyle	Reverve
Aled Huish	Good Energy
Nikhel Jethwa	SSE Networks
Stephen McLaughlin	Scottish Power
Andy Knowles	Utilita Energy
David Leck	CGI
Simon Woodward	Extra Energy

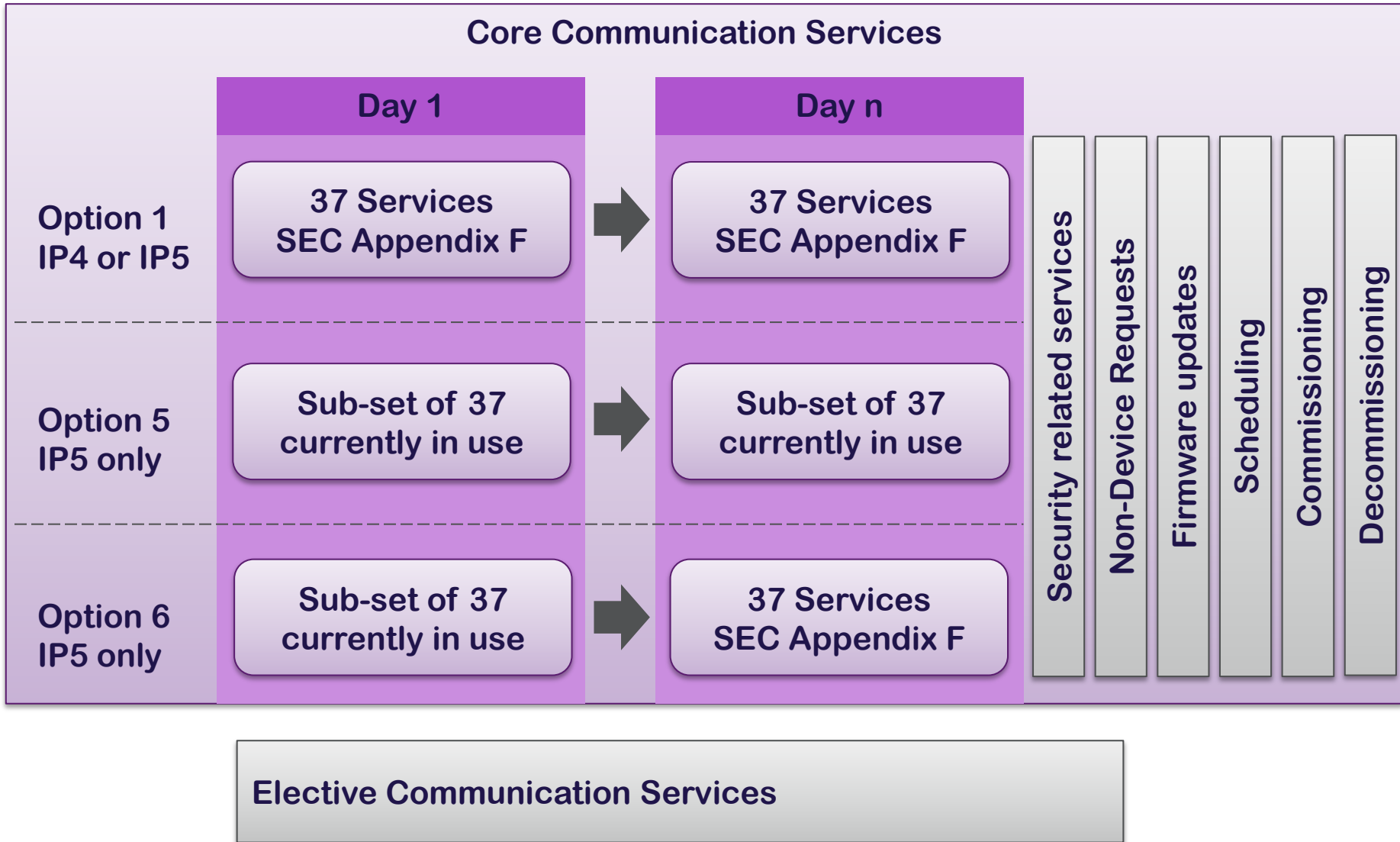
Group 3

Peter Simister	CGI
Martin Christie	E.ON
Marc Brook	Economy Energy
Paul Akrill	IMServ
Stuart Evans	Scottish Power
Jay Adams	Secure Meters
Carolyn Burns	Utiligroup
Paul Skillings	British Gas

Group 4

Gerry Conboy	Trilliant
John Flaherty	Ecotricity
Ashley Pocock	EDF Energy
Claire Leitch	TMA Data Management Ltd
Leon Ross	SSE
Jane Lucy	The Labrador
James Burbridge	Utilita Energy
Nigel Orchard	Pilot Systems
Mark Pitchford	Npower

SMETS1 COMMUNICATION SERVICES



MINIMUM SMETS1 SERVICES

SEC 5.5 – Appendix F

APPENDIX F – MINIMUM COMMUNICATION SERVICES FOR SMETS1 METERS

Ref	Description	Eligible Users
1.1	Update Import Tariff (prepayment)	Import Supplier, Gas Supplier
1.1	Update Import Tariff (credit)	Import Supplier, Gas Supplier
1.2	Update Price (prepayment)	Import Supplier, Gas Supplier
1.2	Update Price (credit)	Import Supplier, Gas Supplier
1.5	Update Balance	Import Supplier, Gas Supplier
1.6	Update Payment Mode	Import Supplier, Gas Supplier
2.1	Update Prepay Configuration	Import Supplier, Gas Supplier
2.2	Top Up Device	Import Supplier, Gas Supplier
2.3	Update Debt	Import Supplier, Gas Supplier
2.5	Activate Emergency Credit	Import Supplier, Gas Supplier
3.2	Restrict Access – CoT	Import Supplier, Gas Supplier
3.3	Clear Event Log	Import Supplier, Gas Supplier
4.1	Read Instantaneous Import Register Values	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter
4.2	Read Instantaneous Export Register Values	Export Supplier, Electricity Distributor
4.3	Read Instantaneous Prepayment Register Values	Import Supplier, Gas Supplier

MINIMUM SMETS1 SERVICES (CONTINUED)

Ref	Description	Eligible Users
4.4	Retrieve Billing Data Log	Import Supplier, Gas Supplier
4.8	Read Profile Data	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter, Export Supplier, Other User
4.10	Read Network Data	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter
4.11	Read Tariff	Import Supplier, Gas Supplier, Other User
4.16	Read Active Power Import	Import Supplier, Electricity Distributor
6.2	Read Device Configuration	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter, Export Supplier, Registered Supplier Agent, Other User
6.4	Update Device Configuration (Load Limiting)	Import Supplier, Gas Supplier
6.5	Update Device Configuration (Voltage)	Electricity Distributor
6.6	Update Device Configuration (Gas Conversion)	Gas Supplier
6.7	Update Device Configuration (Gas Flow)	Gas Supplier
6.8	Update Device Configuration (Billing Calendar)	Import Supplier, Gas Supplier
6.11	Synchronise Clock	Import Supplier, Gas Supplier
6.12	Update Device Configuration (Instantaneous Power Threshold)	Import Supplier, Gas Supplier
6.13	Read Event or Security Log	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter, Registered Supplier Agent

MINIMUM SMETS1 SERVICES (CONTINUED)

Ref	Description	Eligible Users
6.15	Update Security Credentials	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter
6.23	Update Security Credentials (CoS)	Import Supplier, Gas Supplier
7.1	Enable Supply	Import Supplier
7.2	Disable Supply	Import Supplier, Gas Supplier
7.3	Arm Supply	Import Supplier, Gas Supplier
7.4	Read Supply Status	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter, Export Supplier, Registered Supplier Agent
11.1	Update Firmware	Import Supplier, Gas Supplier
11.2	Read Firmware Version	Import Supplier, Gas Supplier, Electricity Distributor, Gas Transporter, Export Supplier, Registered Supplier Agent, Other User

AS-IS SERVICES & ELECTIVE SERVICES

As-Is Services

- **SMSOs may support more or less than the 37 Minimum SMETS1 Services**
- **Some SMSO bundle services into business process transactions**
- **Support for prepayment is not universal among SMSO solutions**
- **Support for the SRs for which Electricity Distributors and Gas Transporters are Eligible User Roles varies**

Elective Services

- **As-Is services (i.e. those currently available from SMSOs) that are in excess of the core DCC offering are proposed to be made available as elective services, if required**
- **Could be implemented for any of the Meter cohorts for which they are currently supported**
- **Independent of Integration Path or Communication Services Option**

SECURITY RELATED SERVICES

Service Request Variant	Service Request Name	Eligible Users
6.15	Update Security Credentials	Import Supplier (IS) Gas Supplier (GS)
6.23	Update Security Credentials (CoS)	Import Supplier (IS) Gas Supplier (GS) Electricity Distributor (ED) Gas Transporter (GT)

Table 4 – Minimum SMETS1 Services Relating to Security Credentials

SMETS1 does not mandate a particular security model – this varies across the different implementations

The model proposed for the SMETS1 Service needs to account for these variations and would not place Users’ security credentials on devices

Device security credentials would be managed by DCC and its service providers according to agreed policies and procedures

We consider that SRs 6.15 and 6.23 are therefore not relevant to the SMETS1 Services

NON-DEVICE REQUESTS & SCHEDULING

Service Reference	Description
8.2	Read Inventory (Current and Future Suppliers may use this service request)
8.4	Update Inventory

Table 5 – Non-Device Requests for the SMETS1 Services

Service Reference	Description
4.8	Read Profile Data
4.10	Read Network Data
4.16	Read Active Power Import

Table 6 – Minimum SMETS1 Services eligible to be DCC Scheduled in DUIS

FIRMWARE UPDATE

In SMETS2, there are two SRs associated with firmware updates

- 11.1 Update Firmware triggers distribution of the firmware image to the target device – this is included in the Minimum SMETS1 Services
- 11.3 Activate Firmware instructs the device to install the firmware image in question – this is not included in the Minimum SMETS1 Services

SMETS1 compliant meters are required to receive, verify and install firmware updates – there is no (device) requirement to separate these functions

Two approaches to SMETS1 firmware updates were outlined:

1. Define a SMETS1 specific Update Firmware service that combines distribution and activation of the firmware image
2. Mimic the SMETS2 approach by including a separate Activate Firmware service in the SMETS1 core communication services

COMMISSIONING, DE-COMMISSIONING & PROVISION OF SIM CARDS

- Not included in 37 Minimum SMETS1 Services
- IEPFR includes options for provision by DCC to Users of a service for Eligible Meters to be commissioned first in the DCC (in addition to Enrolment post-commissioning)
- IEPFR proposed aligning with the SMETS2 Service Requests used during commissioning & decommissioning
- Suppliers intending to maintain SMETS1 Smart Metering Systems may procure additional communications hubs post enrolment, which may imply a role for DCC in facilitating provision of SIM cards

COMMISSIONING (CONTINUED)

Service Reference	Description	Comment
12.2	Device Pre-notification	Needed for SMETS1 and will require additional data items if new SMETS1 devices are to be added and/ or if complete asset data set for all assets to be Enrolled is not loaded to DCC systems outside of DUIS (e.g. IMSI). A mechanism is needed to initiate activation of a SIM in CHF.
8.1.1	Update HAN Device Log	Needed to enable whitelisting of SMETS1 devices on communications hubs.
8.1.1	Commission Device	Needed to mark SMETS1 meters as Commissioned in the SMI.
8.7.1	Join Service (Critical)	An equivalent may be needed to enable SMETS1 meters to authenticate PPMID-like devices that join the HAN. In the case of SMETS1, this would not be a Critical command, as there would be no GBCS Pre-Command to return to the user for signing.
8.7.2	Join Service (Non-Critical)	An equivalent may be needed to enable SMETS1 meters to authenticate IHDs that join the HAN.
6.20.1	Set Device Configuration (Import MPxN)	Not a SMETS1 requirement, however more than one meter type supports this and it is in use by more than one Supplier.
8.4	Update Inventory	Non-Device Request. May be used to set status of a CHF to 'Commissioned'.

Table 25 – DUIS Service Requests involved in commissioning SMETS2 Smart Metering Systems

DEVICE ALERTS

- “Read Event or Security Log” is included in 37 Minimum SMETS1 Services
- Alerts
- Devices are capable of logging numerous types of (manufacturer specific) events and may be configured to prioritise these differently
- A number of alerts are mandated in SMETS1 (see below)
- Devices may push priority alerts, to be forwarded to Users

Description	SMETS1 GSMS Ref.	SMETS1 ESMS Ref.
Low Battery Alert	4.3.5.1 (ii)	n/a
Loss of Power Alert	4.3.5.2 (v)	n/a
Low Credit Alert	4.3.6.2 (iv)	5.3.6.2 (iv)
Disablement Alert	4.3.6.2 (v)	5.3.6.2 (v)
Physical Tamper Alert	4.3.9.2 (ix)	5.3.9.2 (ix)
Unauthorised Access Alert	4.3.9.3 (viii)	5.3.9.3 (viii)
Load Limit Alert	n/a	5.3.5.1 (iii)
Average RMS Over Voltage Alert	n/a	5.3.10.1 (ii) (c)
Average RMS Under Voltage Alert	n/a	5.3.10.1 (iii) (c)
RMS Extreme Over Voltage Alert	n/a	5.3.10.2 (ii)
RMS Extreme Under Voltage Alert	n/a	5.3.10.3 (ii)
RMS Voltage Sag Alert	n/a	5.3.10.4 (ii)
RMS Voltage Swell Alert	n/a	5.3.10.5 (ii)

SUMMARY OF CONSULTATION FEEDBACK (ANONYMISED)

- Support expressed for continued availability of “as-is” services that are outside of the 37 Minimum SMETS1 Services
 - as elective services; and
 - as part of core offering.
- There was broad agreement on the range of options taken forward in the IEPFR.
- Regarding the options that were taken forward, there were comments on:
 - availability of services relevant to Network Operators;
 - clarity of service definitions;
 - stranding risk;
 - interdependency with IP options.
- Regarding security related service requests 6.15 and 6.23, there were comments on:
 - how CoS is supported; and
 - key renewal.
- Non-Device Requests were generally accepted as being necessary.
- A range of views were expressed regarding the approach to firmware updates, including retention of current SMSO arrangements.
- Comments that certain meter cohorts may hold schedules at the device level.
- Suggestion that existing SMSO commissioning methods could be supported, potentially alongside a standard set of service requests.

CONSOLIDATED OUTPUTS FROM BREAKOUT SESSIONS



BREAKOUT SESSION 1

DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)



BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Cost

- **“Colossal” cost associated with inability to offer consistent services to customers**
- **Economics may preclude enrolment of SMETS1 outliers**
- **Detailed analysis of the service request options is required including cost/benefit analysis of full suite against mapping of the currently used services across SMETS1.**
- **There was an agreement that if the solutions required the suppliers to have different set of processes to manage each of the cohorts (to support on gain) then this will put the costs significantly up.**

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Time

- **Option 5 was considered to be the ‘as-is’ option maintaining the status quo akin to ‘giving up’. However, it could be the fastest delivery option.**
- **Option 6 duration of maximum 1 year from go-live to steady state**

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Complexity

- **DCC knowledge of SMETS version is a possible mechanism for conveying SMETS1 device capability**
- **General consensus that a standard set of SMETS1 services is essential**
- **Lack of standard SMETS1 set may have adverse effect on customer experience**
- **General consensus that prepayment is essential**
- **General feeling amongst the participants was that enrolment should not be allowed if no prepayment services were included.**
- **Options 5/6 will require DCC to manage all the SMSO services and bring them all together.**
- **More clarity is required regarding the number of meters/cohorts that do not support prepayment.**
- **All agreed that prepayment services should be part of the core services offered.**
- **For the cohorts that support prepayment what is the extent? Full set, basic set, a subset of?**
- **Questions were raised whether anything less than a full suite of prepayment services will be unacceptable.**

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Complexity

- **All parties agreed that gaining supplier should be able to operate a meter seamlessly irrespective of the meter type (S1 or S2). Single/similar interface, one request, etc.**
- **Service users should have similar experience to SMETS2 .**
- **A mismatch of services across suppliers' solutions will be complex if 'as-is' is maintained.**
- **Systems, people and processes are all affected in this scenario.**
- **Fault diagnosis would be more difficult.**
- **More work would be needed to understand if commissioning all types of meters is required or support of current supplier specific commissioning processes.**

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Risk

- Obligation to provide prepayment
- Reputational damage including
 - Customer confusion – what meter do I have? Etc.
 - Leaflets would need generalising or holding specific meter versions
- Security of certificates

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

General

- There was some discussions regarding Option 2 & 3 and why were they discounted and whether there was value in bringing them in scope.
- There were suggestions to revisit the core 37 service offering
 - Does it have to be 37?
 - What about option 2 & 3?
 - This exercise might reduce the cost and user impact.
- It was highlighted that there is a need to understand in details what these 37 service requests are.
 - Are these use-cases as opposed to service requests?
 - Are they all used?
 - There is a need to map current 'as-is' services
- There was confusions around IEPFR wording. It was not clear what constitutes a 'service' and a 'service request' and whether these terms have been used interchangeably across the document

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

General

- **If it is a relatively small proportion of meters that are with an SMSO that is unable to support prepayment then may be manageable by exception through rip-and-replace:**
 - **Might be harder for energy suppliers that specialise in prepayment;**
 - **Will impact customer perception of smart meters if rip-and-replace still needed.**
- **Might it be possible to move a meter between SMSOs if another SMSO does support the meter and the required Communication Services?**

BREAKOUT SESSION 1 - DESCRIBE THE CHALLENGES OF OPERATING A MIXED ESTATE OF SMETS1 METERS THAT HAVE DIFFERENT FUNCTIONAL OFFERINGS (AS IN IEPFR OPTIONS 5 & 6)

Criteria	Option 5	Option 6
General	Likely to build permanent solution to manage exception cases.	Likely to manage manually by exception.
Change Cost	Likely to be quite costly	Some cost to set up processes etc. to manage Cost to operate processes – extra staff?
Ongoing Cost	Some additional operational cost Cost to rip-and-replace where necessary (plus cost to MAPs)	No extra costs once standardisation is achieved.
Time to Deliver	c. 1 year Work would start on confirmation of detailed Communication Services coverage of each SMSO	Relatively quick to set up
Risk	Extra layer of errors and exception cases to be managed – risk that it is harder to resolve incidents.	Risk of human error.

BREAKOUT SESSION 2

DESCRIBE APPROACHES TO MAINTENANCE OF ENROLLED SMETS1 SMART METERING SYSTEMS



BREAKOUT SESSION 2 - DESCRIBE APPROACHES TO MAINTENANCE OF ENROLLED SMETS1 SMART METERING SYSTEMS

- Configuration of alerts
 - Too many pushed to user (not of interest), or
 - Alerts that are required by user not pushed
 - Too many may lead to unnecessary volume of network traffic
 - No ability to configure alert behaviour in 37 SMETS1 services
 - No comms hub alerts – this is required.
- Firmware
 - Central Firmware Library (SEC Mod) applicable to SMETS1?
 - MAPs have an interest in playing a role in ensuring firmware is up to date
 - Do all SMETS1 Meters support/ require a two stage firmware update process anyway?
 - Firmware could cause stranding because:
 - It's too hard for some providers (resource dedication to understand the complexity may not be available)
 - It might be more cost effective to remove and replace with a meter that the supplier is used to operating
 - Sequencing may cause devices to become un-interoperable , i.e. the sequence is incorrectly applied
 - Will we have a SMETS2 model of emergency firmware release?

BREAKOUT SESSION 2 - DESCRIBE APPROACHES TO MAINTENANCE OF ENROLLED SMETS1 SMART METERING SYSTEMS

- **Maintenance**
 - Can a meter with an integral comms hub be replaced after SMETS1 End Date?
Unclear in regs
 - What constitutes a replacement?
 - Redeployment of no-fault returns by MAPs is complex and relies on manufacturers resetting devices > costly and unlikely to happen
 - Suppliers plan to run down stock of SMETS1 meters during install period in the run up to SMETS1 End Date > no requirement for DCC commissioning service
 - Roaming rules for SIMs > can these be managed to ensure reliable comms?
 - No commercial relationships with manufacturer may drive a removal of devices.
 - CPL style external body to assess meters for compliance.
- **Future dating and sequencing of service requests**
 - Clarity required on whether these are supported in all IEPFR options