Balancing and Settlement Code

BSC Procedure

Unmetered Supplies Data Services

BSCP700

Version 0.5

Date: 24 May 2023

BSCP700 relating to the Unmetered Supplies Data Services

1. Reference is made to the Balancing and Settlement Code and, in particular, to the definition of "BSC Procedure" in Section X, Annex X-1 thereof.

2. This is BSC Procedure 700, Version 0.5 relating to the Unmetered Supplies Data Services.

3. This BSC Procedure is effective from DD MM YYYY.

4. This BSC Procedure has been approved by the BSC Panel or its relevant delegated Panel Committee(s).

Amendment Record

Version	Date	Description of Change	Changes Included	Mods/Panel/Committee Refs.
0.1	09/01/2023	First Draft	MHHS Programme	
0.2	06/02/2023	Following Initial Reviews	MHHS Programme	
0.3	17/03/2023	Following Consultation	MHHS Programme	
0.4	28/4/2023	Following Comment Review	MHHS Programme	
0.5	24/05/2023	Following CCAG	MHHS Programme	

Contents

1 Introduction

1.1 Scope and Purpose of the Procedure

All energy transfers at points of connection and/or supply via circuits connected to the Licensed Distribution System shall be metered, except in a limited number of defined circumstances. These exceptions, are known as Unmetered Supplies (UMS), shall be at the discretion and approval of the Unmetered Supplies Operator (UMSO) acting on behalf of the Licensed Distribution System Operator (LDSO). The UMSO shall only consider providing an UMS at an exit point in accordance with Statutory Instrument (SI) 2001 No. 3263. The requirements to allow for a UMS are set out in the SI and be can found in BSCP704 Unmetered Supplies Operations.

The SI also gives details to the Disputes process.

1.2 BSC Procedure

This BSC Procedure (BSCP) sets out the requirements for UMS Data Service (UMSDS) registered in Supplier Meter Registration Service (SMRS). This procedure also sets out the Unmetered Supplies Data Service (UMSDS) requirements for Equivalent Meter functionality

1.3 Main Users of Procedure and their Responsibilities

This BSCP should be used by Suppliers, UMSDS, LDSOs, UMSOs and UMS customers.

The SVAA will be managing the Industry Standing Data in addition to performing the Supplier Volume Allocation (SVA) role, and therefore SVAA is the Industry Standing Data Manager (ISDM).

1.4 Use of the Procedure

This BSCP shall be followed when it is agreed that the exit point qualifies to be energised without a Meter and is therefore an UMS.

1.5 Balancing and Settlement Code Provision

This BSCP has been produced in accordance with the provisions of the Balancing and Settlement Code (the Code), and in particular the provisions of Section S8 ‘Unmetered Supplies’.

1.6 Trading

The Supplier shall appoint Party Agents and send the registration details to SMRA.

The Supplier shall advise the UMSO of the appointed UMSDS. The UMSO shall send a UMS Inventory to the UMSDS appointed for an MSID. Where the UMSO requires more than one PECU array to be installed for an MSID, the UMS Inventory shall identify the Apparatus, suitably codified with a different Sub-Meter assigned to each PECU array. Where a CMS is required, the UMSO shall create and send a UMS Inventory to the UMSDS detailing the Apparatus that is to be managed by the CMS.

In addition, any agreed updates to the UMS Inventory shall be advised to the appointed UMSDS.

1.7 Associated BSC Procedures

BSCP40	Change Management.
BSCP501	Supplier Meter Registration Service.
BSCPXXX	Changes to Industry Standing Data.
BSCP515	Licensed Distribution.
BSCP537	Qualification Process for SVA Parties, SVA Party Agents and CVA MOAs.
BSCP704	Unmetered Supplies Operations

1.8 Acronyms and Definitions

1.8.1 Acronyms

The terms used in this BSCP are defined as follows:

BSC	Balancing and Settlement Code
BSCCo	Balancing and Settlement Code Company
BSCP	Balancing and Settlement Code Procedure
CMS	Central Management System
DIP	Data Integration Platform
EFD	Effective From Date
EM	Equivalent Meter
GSP	Grid Supply Point
Id	Identifier
ISD	Industry Standing Data
kWh	Kilowatt Hour
LDSO	Licensed Distribution System Operator
MDS	Market-wide Data Service
mCMS	Measured Central Management System
MSID	Metering System Identifier
OID	Operational Information Document
PECU	Photo Electric Control Unit
SMRS	Supplier Meter Registration Service
SVA	Supplier Volume Allocation
UMS	Unmetered Supplies
UMSDS	Unmetered Supplies Data Service
UMSO	Unmetered Supplies Operator of the LDSO
UMSUG	Unmetered Supplies User Group
UTC	Co-ordinated Universal Time

WD	Working Day

1.8.2 Definitions

Full definitions of the above acronyms and other defined terms used in this BSCP are, where appropriate, included in the Code. For clarification, definitions are provided below for terms specifically associated with UMS:-

"Apparatus" means all equipment in which electrical conductors are used, supported or of which they may form part;

"Applicant" means a person applying to the BSCCo for a Charge Code, Switch Regime code or for Equivalent Meter approval;

"Astronomical Almanac" means the Astronomical Almanac published annually by the Stationery Office or other suitable publication;

"Central Management System" means a system that is able to dynamically control and manage the electrical load used by Apparatus registered as an Unmetered Supply;

"Charge Code" means a code assigned to unmetered equipment that specifies the associated circuit watts and other technical information for the equipment"

"CMS Manufacturer" means a person marketing a Central Management System;

"CMS Test Agent" means a UMSDS appointed to carry out testing of a CMS in accordance with the relevant test specification;

"Dawn" means 30 minutes before Sunrise;

"Detailed Inventory" means an inventory of Apparatus as specified in the Section titled Standard File Format for Detailed Inventories in the Operational Information Document;

"Dusk" means 30 minutes after Sunset;

"Equivalent Meter" means the hardware and software as defined in Appendix 4.3;

"Inventory Sequence Number" means a sequential number used to positively identify a later version of inventory data for that relevant MPAN."

"Market Message" - means a structured communication sent between two Market Participants in the form and with the content required (and as otherwise specified) by the Data Specification.

"Measured Central Management System" means a subset of Central Management System that is able to use feedback from an active measuring device to dynamically control and manage the electrical load used by UMS Apparatus;[1]

"PECU Array" means the hardware described in Appendix 4.5;

[1] Measured Central Management Systems (mCMS) shall not be used for controlling street lighting. Apparatus that controls street lighting can use active measurement but must follow the testing and approval process for CMS rather than mCMS. BSCCo may from time to time update the Operational Information Document (OID) to provide further guidance on the uses of mCMS.

"Sub-Meter" means a unique identifier that an Equivalent Meter uses to associate the inventory items within an MSID with different groupings such as PECU array, CMS or split of inventory at customer request"

"Sunrise" means the time when the sun's apparent disc is below and tangential to the horizon at sea level and to the east of the observer;

"Sunset" means the time when the sun's apparent disc is below and tangential to the horizon at sea level and to the west of the observer;

"Switch Regime" means a code assigned to unmetered equipment that specifies the switching, dimming times and other technical information for the equipment."

"UMS Inventory" means a summarised version of the Detailed Inventory provided to the UMSO by the Customer to the UMSO, provided to the UMSDS as a D0388 UMS Inventory Flow."; and

"UMSDS System" means the software and hardware operated by the UMSDS and used to calculate UTC Period Level Consumption or export.

2 Responsibilities of the UMSDS

2.1 UMSDS activity

The UMSDS must be qualified to operate as a Data Service in line with the BSC Qualification Process. [MHHS-BR-DS-133]

UMSDS must operate an approved Equivalent Meter. [MHHS-BR-DS-070]

The UMSDS is responsible for the following:

a) receiving a copy of the agreed UMS Inventory of the UMS Apparatus for an MSID, together with agreed updates, from the UMSO; [MHHS-BR-DS-061]

b) on being appointed, obtain details of the Central Management System from the customer, UMSO and/or CMS provider; [MHHS-BR-DS-067]

c) validating and processing the D0388 UMS Inventory information into the EM, generating a D0389 UMS Inventory Response flow to the UMSO. [MHHS-BR-DS-062]

d) using the latitude and longitude information for the MSID appropriate to the installed Apparatus; [MHHS-BR-DS-017]

e) validating all Charge Codes and Switch Regimes against the Operational Information Document (OID) and associated ISD; [MHHS-BR-DS-069]

f) ensuring UTC Period Level Consumption from the EM is available to BSC Central Systems submitted in according with section 3.7, to meet the Volume Allocation Run timescales set out in the Master Settlement Timetable; and

g) retaining Settlement data in accordance with PSL100 ‘Non-Functional Requirements for Licensed Distribution System Operators and Party Agents’.

Where the UMS customer requires the UMSDS to contact a PECU Array or access data from a Central Management System (CMS) or Measured Central Management System (mCMS) the UMSDS shall be required to have a direct relationship with the UMS Customer to facilitate collection of the data required for the UMSDS calculations.

2.2 Recording of Data

The UMSDS shall record sufficient details in respect of a MSID enable the UMSDS to perform its functions as UMSDS and to operate the Equivalent Meter. "These details shall include:

- the Settlement Days for which the UMSDS is appointed by the Supplier;
- the relevant MSID;
- the UMSO appointed to the MSID;
- the geographical position defined by the UMSO for that MSID or, where these are defined by the UMSO, the geographical positions for related Sub-Meters of the inventory for that MSID;

- the indicator defined by the UMSO as to whether a PECU Array is required for that MSID or for related Sub-Meters of the UMS Inventory where these Sub-Meters are agreed with the UMSO;

- the energisation status associated with the MSID in SMRS and

- the indicator defined by the UMSO as to whether a Central Management System is required for that MSID or for related Sub-Meters as per the D0388 UMS Inventory where these Sub-Meters are agreed with the UMSO.

The UMSDS shall record and use such Industry Standing Data (ISD) as is considered appropriate by the BSC Panel (having regard to the UMSDS's functions) and shall, in particular, use only ISD for those items in relation to which there is a ISD entry or other information provided by the UMSO where such information does not conflict with ISD.

2.3 Equivalent Meter Audit Requirements

The UMSDs shall ensure that audit trails are maintained between:

- data requested and data sent (or received) in relation to transfers of data between outgoing and incoming UMSDS.

2.4 Resolution of Queries and Disputes

The UMSDS shall respond to queries raised by the Supplier, UMSO, the Market-wide Data Service, the BSC Auditor and the LDSO.

In the event of any dispute as to whether an item of ISD is appropriate or, as the case may be, affects the accuracy of Settlement, the decision of the Panel shall be final.

2.5 Recording Devices

The UMSDS shall ensure that the import or export of electrical energy by every MSID to which it is appointed is accurately recorded by the correct use of an Equivalent Meter.

2.6 Systems and Processes

The UMSDS shall use systems and processes so approved in accordance with BSCP537 in the operation its Services. These systems and processes must also comply with all other applicable requirements set out in the Code and other relevant CSDs. Code Subsidiary Documents.

2.7 Termination of Appointment of UMSDS

The UMSDS will be responsible for continuing to perform the role of the UMSDS for the settlement days of its appointment even after their de-appointment, until the Final Settlement run, and for any subsequent Dispute runs. Details of the processes to be followed when there is a Change of UMSDS are set out in Section 3.3.

2.8 The UMS Inventory

The UMSDS shall record a history of the D0388 UMS Inventory and their effective from dates input to the Equivalent Meter.

Details of the processes to be followed for new and updated D0388 UMS Inventory are described in more detail in Sections 3.1 and 3.2 of this document.

Where the D0388 UMS Inventory is not provided by the UMSO the UMSDS shall request the UMSO to provide the correct information and inform the associated Supplier if it is not provided in time to allow data to be submitted for the Initial Settlement Run for any MSID to which the UMSDS has been appointed

2.9 General UMSDS Requirements

2.9.1 Flexible Settlement Period duration [MHHS-BR-DS-137]

The UMSDS should, where possible, build in the ability to configure the settlement period duration during their solution design, in order to support any future move to a different Settlement Period duration.

2.9.2 Publish data via the DIP in agreed ISO8601 date/time format [MHHS-BR-DS-138]

The UMSDS must publish data following ISO8601 format - YYYY-MM-DDTHH:MM:SS±TZH:TZM.

2.9.3 Message addressing [MHHS-BR-DS-139.2]

The UMSDS must derive and populate the DIP addressing (primary recipients) for all outbound interfaces in line with the rules described in the [interface specification: Document].

2.9.4 Process data in a timely manner [MHHS-BR-DS-142]

The UMSDS must process data and share outputs with other parties in line with timescales set as defined in the [Document]

2.9.5 Qualification for DIP access [MHHS-BR-DS-143.2]

The UMSDS must undergo Qualification in order to realise operational access to the DIP.

2.9.6 Manage DIP error messages [MHHS-BR-DS-143]

The UMSDS must obtain DIP form error messages in line with the [End to End Solution Architecture: Document], review the impacted data and re-issue corrected messages/transactions as required.

2.9.7 Inbound DIP message validation [MHHS-BR-DS-143.1]

The UMSDS must return DIP error messages in line with the [End to End Solution Architecture: Document]. Unexpected and/or un-processable messages should be returned to the DIP/ originating party

2.9.8 Ensure responses received [MHHS-BR-DS-144]

The UMSDS, when transacting via the DIP, must ensure that they implement monitoring so as to identify where expected responses are not received within standard DIP SLA's, as outlined in the [Document], so that the appropriate investigative/ resolution activity can be undertaken.

2.9.9 DIP activity/ performance dashboard [MHHS-BR-DS-144.1]

The UMSDS must have familiarity with and actively monitor any DIP tools for tracking flows, as outlined in the [End to End Solution Architecture: Document], so that the necessary investigative action can be taken when required.

2.9.10 Reporting requirements [MHHS-BR-DS-145]

The UMSDS must provide and receive reports in line with agreed reporting requirements and delivery methods.

2.9.11 Ability to use existing Market Message flows [MHHS-BR-DS-149]

The UMSDS requires the continued use of Market Message flows, UMSDSs should ensure that if they plan to service customer types that utilise these processes then a mechanism will be required for transmitting/receiving Market flows.

2.9.12 Validate data [MHHS-BR-DS-152]

The UMSDS should implement data validation steps and techniques that they feel are appropriate to ensure the most accurate and efficient delivery of the service.

2.9.13 Electricity Enquiry Service [MHHS-BR-DS-156]

The UMSDS will consult with the Electricity Enquiry Service (EES, also known as ECOES) to obtain the current data associated with an MSID in cases where a query arises around the accuracy of data held.

2.9.14 Manage data on receipt of interfaces [MHHS-BR-DS-157]

The UMSDS must maintain and update their records with any data received on interfaces to ensure the most accurate and efficient delivery of the service.

2.9.15 Receive proposed appointment service request [MHHS-BR-DS-007]

The UMSDS must obtain Registration Service Request for Service Appointments, with the UMSDS proposed appointment requests, via the appropriate interface on the DIP.

2.9.16 Validate and respond to proposed appointment service request [MHHS-BR-DS-008]

The UMSDS must confirm that they are certified to service the connection type and able to contractually deliver the UMSDS based on the information contained in the proposed appointment request and publish a response (acceptance or rejection) on the DIP via the appropriate interface. Where the UMSDS rejects an appointment request, a rejection reason should be provided in the response. The UMSDS should be aware that following the initial acceptance the appointment remains "prospective" and there is a possibility that it may need to be lapsed.

2.9.17 Notification of third party providers [MHHS-BR-DS-009]

The UMSDS must, where required, make their own arrangements for notifying any third party service providers via a mechanism agreed bilaterally.

2.9.18 Existing appointment amendment [MHHS-BR-DS-011]

The UMSDS must be able to process requests to vary the conditions of an existing appointment received via the appropriate interface. These should be validated and an outcome returned using the appropriate interface. In the case of rejection, a rejection reason should be provided in the response and the existing appointment will continue unamended.

2.9.19 Receive Registration notification of the UMSDS accepted/rejected appointments [MHHS-BR-DS-012.1]

The UMSDS must obtain Registration Service Appointment Status Notification updates, acknowledging the Prospective UMSDS accepted/rejected appointments, via the appropriate interface on the DIP and maintain records accordingly.

2.9.20 Receive the UMSDS lapsed notification [MHHS-BR-DS-012]

The UMSDS must obtain Registration Service Appointment Status Notifications, with the UMSDS lapsed appointments, via the appropriate interface on the DIP and update records accordingly so as to ensure that the appointment does not become effective.

2.9.21 Receive the UMSDS appointment notification [MHHS-BR-DS-013]

The UMSDS must obtain Registration Service Notification of Service Appointment & Supporting Info updates, confirming a UMSDS appointment, via the appropriate interface on the DIP and update records with MPAN. For the avoidance of doubt this is the message that indicates that an appointment will/has taken effect.

2.9.22 Receive de-appointment notification [MHHS-BR-DS-018]

The UMSDS must obtain Registration Service Notification of Service De-Appointments via the appropriate interface on the DIP and maintain records accordingly.

2.9.23 Termination of third party arrangements [MHHS-BR-DS-019]

The UMSDS must, where required, make their own arrangements for terminating any third party service providers via a mechanism agreed bilaterally.

2.9.24 Send notification of a customer direct contract [MHHS-BR-DS-031]

The UMSDS must publish a Customer Direct Contract Advisory on the DIP via the appropriate interface for each MPAN that forms part of the contract, this will also include the contract end date. This can be done only by the incumbent The UMSDS and where a contract has been formally agreed with the customer.

2.9.25 Receive customer direct contract response [MHHS-BR-DS-032]

The UMSDS must obtain Registration Service Customer Direct Contract Advisory Responses via the appropriate interface on the DIP.

2.9.26 Manage acceptance of customer direct contract [MHHS-BR-DS-033]

The UMSDS must, for accepted responses, maintain records to show which MPANs have been flagged as a customer direct contract.

2.9.27 Coordination of customer direct contract appointments [MHHS-BR-DS-034]

The UMSDS must continue to manually coordinate the appointment of MPANs within the contract with other industry participants.

2.9.28 Amendment or termination of customer direct contract [MHHS-BR-DS-035]

The UMSDS must have the ability to cancel or change the end date of a customer direct contract using the appropriate interface on the DIP.

2.9.29 Manage rejection of customer direct contract [MHHS-BR-DS-036]

The UMSDS must investigate any rejections of customer direct contracts and re-submit as appropriate.

2.9.30 Coordination of failed customer direct contract [MHHS-BR-DS-037]

The UMSDS must, in the case of rejection for an existing contract, liaise with their customer and other participants to determine why it appears overlapping contracts might exist.

2.9.31 Publish timely data [MHHS-BR-DS-040]

The UMSDS must process and publish all data in line with timescales set out in the Operational Choreography document.

2.9.32 Identify Load Shapes to be used for estimating [MHHS-BR-DS-082]

The UMSDS must, where required for estimating, identify (based on MPAN Registration data) the load shapes associated with each MPAN from the Load Shape Category table in Industry Standing Data. The UMSDS should maintain a record of any load shapes used.

2.9.33 Submit validated UTC Period Level Consumption Data [MHHS-BR-DS-093]

The UMSDS must publish/republish validated UTC Period Level Consumption Data (kWh to 3 decimal places) on the DIP using the appropriate interface for all appointed MPAN's in line with the Operational Choreography document for each day of their appointment.

2.9.34 Submit validated UTC Period Level Consumption Data (updated) [MHHS-BR-DS-094]

The UMSDS must republish updated validated UTC Period Level Consumption Data (kWh to 3 decimal places) as actual data, improved estimates or revised input data become available. ADS/SDS must re-estimate if new consumption data, meter reads or Meter

Technical Details are received. UMSDS must reprocess data on receipt of updated Inventory Data, PECU Array Data or CMS Data, or where there is a change to ISD.

2.9.35 Receive Consumption Data rejections [MHHS-BR-DS-094.1]

The UMSDS must obtain UTC Settlement Period Level Consumption Data Rejections, sent by Central Settlements on the DIP, via the appropriate interface, investigate the validation failures and resubmit as appropriate.

2.9.36 Receive Default Consumption [MHHS-BR-DS-094.2]

The UMSDS must obtain Notification of Defaulted UTC Settlement Period Consumption Data provided by Central Settlements via the appropriate interface on the DIP and maintain records accordingly. The UMSDS could choose to use the characteristics data to derive and validate the load shape used for the default consumption values. In the case of UMSDS it should be noted that the GSP Group ID will not be required to determine the load shape.

2.9.37 Maintain records of submitted data [MHHS-BR-DS-095]

The UMSDS must keep a record of data submitted for audit purposes, as outlined in the Non Functional requirements.

2.9.39 Investigate and resolve issues [MHHS-BR-DS-097]

The UMSDS must support investigations and resolution of issues highlighted by Central Settlements reporting and feedback from other participants.

2.9.40 Receive de-appointment with reason of CSS deregistration [MHHS-BR-DS-104]

The UMSDS must obtain Registration Service Notification of Service De-Appointments, with a de-appointment reason of deregistration, via the appropriate interface on the DIP and maintain records accordingly.

2.9.41 Consumption treatment following de-appointment [MHHS-BR-DS-105]

The UMSDS must cease submission to settlement for any settlement dates after the effective date of its de-appointment. For clarity, the UMSDS retains responsibility for submitting data for the dates that they were appointed for, even after they have been de-appointed.

2.9.42 Receive change of energisation notification [MHHS-BR-DS-106]

The UMSDS must obtain Registration Service Notification of Change of Energisation Status updates via the appropriate interface on the DIP and maintain records accordingly.

2.9.43 Investigate consumption on de-energised [MPAN MHHS-BR-DS-107]

The UMSDS must escalate to the Supplier or UMSO where it is identified that consumption is occurring on a MPAN that is de-energised. However, this should not prevent it's submission into settlements.

2.9.44 Process change of energisation reads [MHHS-BR-DS-116]

The UMSDS must re-process any UTC Period Level Consumption Data previously submitted to settlements, where advised of an energisation status change and no actual consumption has been recorded, particularly where this is back-dated.

2.9.45 Receive Meter Point Location (MPL) address/GSP Group ID update notification [MHHS-BR-DS-125]

The UMSDS must obtain MPL address/ GSP Group ID updates via the appropriate interface on the DIP and maintain records accordingly.

2.9.46 Receive Energy Direction update notification [MHHS-BR-DS-130.2]

The UMSDS must be able to obtain Energy Direction updates via the appropriate interface on the DIP and maintain records accordingly.

2.9.47 Receive Metered Status update notification [MHHS-BR-DS-130.3]

The UMSDS must be able to obtain Metered Status updates via the appropriate interface on the DIP and maintain records accordingly.

2.9.48 Receive Import/Export linkage update notification [MHHS-BR-DS-130.5]

The UMSDS must be able to obtain Import/Export linkage updates via the appropriate interface on the DIP and maintain records accordingly.

2.9.49 Receive Profile Class/SSC update notification [MHHS-BR-DS-130.6]

The UMSDS must obtain legacy data item (Profile Class/SSC) updates from Registration Service via the appropriate interface on the DIP and maintain records accordingly.

2.9.50 Data retention and audit [MHHS-BR-DS-141]

The UMSDS must retain data in line with the Non Functional requirements.

2.9.51 Most accurate data for each settlement run [MHHS-BR-DS-150]

The UMSDS must ensure that its systems and processes operate in such a way as to support the most up to date and accurate data being available to settlements in advance of the cut off for each formal settlement run as outlined in the [Document].

3 Interface and Timetable Information

3.1 Prospective Appointment of the UMSDS

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.1.1 [BP003 Step 220] [MHHS-BR-DS-002]	Receipt of Prospective Appointment Request	UMSDS receives and validates Prospective Appointment Request.	SMRS	UMSDS	IF/PUB-033 SMRS Appointment Request	DIP Interface
3.1.2 [BP-003 Step 221]	Consider Prospective Appointment and determine response	Provide Response to Appointment Request. If accepted, proceed to 3.1.4, otherwise proceed to 31.3.	UMSDS	SMRS	IF/PUB-034 Response to Appointment Request	DIP Interface
3.1.3 [BP-003 Step 221]	Within [1 hour] of receipt of the notification in 3.1.2 where Appointment is rejected	UMSDS reject Appointment and discontinues and further processes.	UMSDS	SMRS	IF/PUB-034 Rejection Response to Appointment Request	DIP Interface
3.1.4 [BP-003 Step 221]	Within [1 hour] of receipt of the notification in 3.1.2 where Appointment is accepted	Accept Appointment.	UMSDS	SMRS	IF/PUB-034 Acceptance Response to Appointment Request	DIP Interface

3.2 Confirmation of UMSDS Appointment

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.2.1 BP-003 Step 340] [MHHS-BR-DS-029]	For the Prospective Appointment	UMSDS Appointment confirmed as Effective. The notification will also include details of any linked Associated Export MSIDs which will need to be processed.	SMRS	UMSDS	IF/PUB-036 Service Provider Notification of Appointment	DIP Interface
3.2.2 [MHHS-BR-DS-017]	Following 3.2.1	Request from the UMSO the mode of EM operation (Passive or Dynamic. The default position is a passive calculation unless advised otherwise by the UMSO) and agree the location, if any, of the PECU Array(s) and other factors relevant to the PECU Array Siting Procedure in 4.5.	UMSO	UMSDS	Where not using the default position (Passive), advise UMSDS of the mode of operation (Dynamic PECU or CMS), and agree the location, if any, of the PECU Array(s) and other factors relevant to the PECU Array Siting Procedure in 4.5.	Electronic or other agreed method
3.2.3 [MHHS-BR-DS-017] [MHHS-BR-DS-064]	Following 3.2.2	The UMSDS and UMSO will use the default Sub-Meter, unless they agree to use a specific Sub-Meter ID.	UMSO	UMSDS	Agreed Sub-Meter Id(s)	Electronic or other agreed method
3.2.4 [MHHS-BR-DS-031]	Following confirmation of appointment where direct contract with customer	UMSDS manages Customer Direct Contract Indicator	UMSDS	SMRS	IF/PUB-038 Customer Direct Contract Advisory	DIP Interface

3.2.5 [MHHS-BR-DS-032] [MHHS-BR-DS-033]	Following 3.2.4	SMRS provides Customer Direct Contract Advisory Response and UMSDS maintain records to show which MPANs have been flagged as a customer direct contract	SMRS	UMSDS	IF/PUB-039 Customer Direct Contract Advisory Response	DIP Interface
3.2.6		Go to Section 3.4 Provision of an UMS Inventory				

3.3 Termination of an Appointment

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.3.1 [BP-007 Step 140]		UMSDS Receives De-appointment	SMRS	UMSDS	IF/PUB-037 Notification of Service De-Appointment	DIP Interface
3.3.2 [BP-003 Steps 740 and 760] [MHHS-BR-DS-030]	If linked Associated Export MSID	UMSDS receives Export MSID de-appointments to a MSID and maintains records accordingly. UMSDS should note this message will be automatically triggered when a change of Data Service has successfully completed for the linked import MSID.	SMRS	UMSDS	IF/PUB-037 Notification of Service De-Appointment	DIP Interface

3.4 Provision of an UMS Inventory

3.4.1 [BP-004 Step124] [MHHS-BR-DS-061]	Within 2 hours of Confirmation of UMSO Appointment or UMSO has agreed amendments to Detailed Inventory with Customer	UMSDS receives UMS Inventory from UMSO	UMSO	UMSDS	D0388 – UMS Inventory	Electronic or other agreed method
3.4.2	Validate UMS Inventory against OID and ISD and respond to 95% of inventory items by end of the next working day.	UMSDS validates D0388 Inventory against the OID and ISD. See Sections 3.7 and 3.13.	UMSDS		Internal Process	
3.4.3 [BP-004 Step128] [MHHS-BR-DS-062] [MHHS-BR-DS-063]	Following 3.4.1 If UMS Inventory fails validation.	Reject D0388 UMS Inventory.	UMSDS	UMSO	D0389 – UMS Response	Electronic or other agreed method.
3.4.5 [BP-004 Step128] [MHHS-BR-DS-062] [MHHS-BR-DS-063]	If UMS Inventory passes validation.	Process using EM and send response to UMSO and where appropriate, send a copy of UMS extracted from the EM to the Customer.	UMSDS	UMSO, Customer	D0389 – UMS Response Report of UMS Inventory content.	Electronic or other agreed method . Paper or electronic method as agreed.

3.4.6 [MHHS-BR-DS-070]	For duration of UMSDS appointment	Initiate Data Collection Processes (as set out in 3.7)	UMSDS			

3.5 Change of UMSDS

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.5.1	Within 1 WD of confirmation of Appointment	Request sufficient information to enable the incoming UMSDS to assume responsibility for the MSID. This data may exclude that data provided by the Supplier pursuant to paragraph 2.2.	New UMSDS	Old UMSD	As agreed.	Electronic or other agreed method.
3.5.2	Within 1 WD of 3.5.2	Transfer information.	Old UMSDS	New UMSDS	As agreed.	Electronic or other agreed method.
3.5.3	Following 3.5.3	Initiate Data Collection Processes (as set out in 3.7)	New UMSDS			

3.6 Change of Energisation Status of an MSID

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.6.1 [BP-008 Step155]		UMSDS receives notification of Change of Energisation Status	SMRS	UMSDS	IF/PUB-008 Registration Service Change of Energisation Status Notification	DIP Interface
3.6.2 [METH004 Section 10.1]	If de-energised	UMSDS Receives a D0388 UMS Inventory with a zero Charge Code.	UMSO	UMSDS	D0388 – UMS Inventory	Electronic or other agreed method

3.7 Data Collection Activities

REF.	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.7.1 [BP004 Steps 133 and 130] [MHHS-BR-DS-064] [MHHS-BR-DS-066]		The UMSDS must contact the PECU Array and collect the data. Following collection the UMSDS must monitor PECU Array data in accordance with 4.6.4.	UMSDS		Internal Process	
3.7.2 [BP004 Steps 131 and 134] [MHHS-BR-DS-068]		The UMSDS must contact the CMS and collect and validate the CMS Event log data. If the event log fails validation go to CMS - Fault Reporting Section 3.12.	UMSDS		Internal Process	
3.7.3 [BP004 Step 129] [MHHS-BR-DS-071]		Load PECU and CMS Data into the EM	UMSDS		Internal Process	

3.8 Data Processing Activities

3.8.1 [BP005 Step 10] [MHHS-BR-DS-085] [MHHS-BR-DS-090]		Produce, validate or recalculate[2], consumption data from the EM for each MSID for each UTC Day.	UMSDS		Internal Process	
3.8.2 [BP005 Step 30] [MHHS-BR-DS-078]	If consumption is invalid	UMSDS Receives Load Shape Data From LSS. The UMSDS must be able to, in exceptional circumstances reprocess previously submitted data when a new load shape is made available. The scenarios where Load Shape data is used for defaulting is set out in Section 4.4.	LSS	UMSDS	IF/PUB-022 Load Shape Period Data	DIP Interface
3.8.3 [BP005 Step 20] [BP005 Step 40]	Following 3.8.2	If no data available use appropriate Default Load Shape Data to estimate consumption	UMSDS		Internal Process	

[2] Recalculation of consumption data will be required from time to time as more accurate data becomes available such as revised UMS Inventories, , PECU Array data, CMS Event logs (limited to 28 days) and correction of standing data errors.

3.8.4 [BP005 Step 50] [BP005 Step 60]		Submit UTC Settlement Period Level Consumption Data	UMSDS	MDS, LSS, LDSO, and Supplier	IF/PUB-021 UTC Settlement Period Consumption Data	DIP Interface
3.8.5 [BP019 Step 85]	If MDS Exception Report is Published	UMSDS receives an Exception Report from MDS	MDS	UMSDS	IF/PUB-014 Rejected - UTC Settlement Period Consumption Data	DIP Interface
3.8.6	Following 3.8.5	UMSDS resolves issues with rejected data based or Self Describing Error Code	UMSDS		Internal Process	
3.8.7	Following 3.8.6	UMSDS re-submits UTC Settlement Period Level Consumption Data	UMSDS	MDS, LSS, LDSO, and Supplier	IF/PUB-021 UTC Settlement Period Consumption Data	DIP Interface
3.8.8 [BP019 Step 85]	Following an MDS Run	UMSDS receives details of Defaulted Data	MDS	UMSDS	IF/PUB-013 Notification of Defaulted UTC Settlement Period Consumption Data	DIP Interface
3.8.9	Following 3.8.6	UMSDS resolves issues with Defaulted Data and return to 3.8.2	UMSDS			Internal Process
3.8.10 [BP010 Step 70]	At any time	UMSDS receives Notification of Registration Data Item Changes	SMRS	UMSDS	IF/PUB-018 Notification of Registration Data Item Changes	DIP Interface
3.8.11	Following 3.8.10	UMSDS updates Registration Data	UMSDS			Internal Process

3.8.12	At any time	UMSDS receives Supplier Advisory Notification to Data Service	SMRS	USMDS	IF/PUB-024 Supplier Advisory Notification to Data Service	DIP Interface
3.8.13	At any time	UMSDS receives notification of Annual Consumption	SMRS	UMSDS	IF/PUB-040 Notification of [Calculated] Annual Consumption	DIP Interface

3.9 Approval of an Equivalent Meter

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.9.1	At any time	Submit request for EM approval.	UMSDS/ Prospective UMSDS	BSCCo	Details of EM type, including software and hardware versions.	Email, fax, post
3.9.2	Within 2 WD of 3.9.1	Confirm receipt and request any further details as necessary.	BSCCo	UMSDS/ Prospective UMSDS		Email, fax, post
3.9.3	Within 5 WD of 3.9.2	Provide example of test schedule and details of EM Test Agents.	BSCCo	UMSDS/ Prospective UMSDS t	EM test schedule, EM Test Agents.	Email, fax, post
3.9.4	Within 10 WD of receipt of 3.9.3	Agree test schedule.	UMSDS/ Prospective UMSDS	BSCCo	Re-drafted schedule (if required).	As agreed
3.9.5	Within 10 WD of 3.9.4	Agree EM Test Agent with BSCCo.	UMSDS/ Prospective UMSDS	BSCCo	Notification of EM Test Agent.	As agreed
3.9.6	Within 10 WD of 3.9.5.	Liaise with EM Test Agent to undertake EM testing.	UMSDS/ Prospective UMSDS	EM Test Agent	Notification of EM Test Agent.	As agreed
3.9.7	As agreed with Applicant.	Undertake testing and submit report to Applicant.	EM Test Agent	UMSDS/ Prospective UMSDS	EM Test Report.	Email or post
3.9.8	Following completion of testing	Submit EM approval request to BSCCo	UMSDS/ Prospective UMSDS	BSCCo	Approval request, EM Test Report and any other supporting information.	Email or post
3.9.9	At next opportune UMSUG meeting	Prepare and present report to UMSUG requesting recommendation for approval of EM.	BSCCo	UMSUG	UMSUG Paper.	Internal process

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.9.10	Within 5 WD of 3.9.9.	Notify Applicant of UMSUG recommendation. If EM approval is not recommended, liaise with Applicant and provide details of additional information or testing required. Return to 3.8.7 or 3.8.8 as necessary. If EM approval is recommended proceed to 3.8.11.	BSCCo	Applicant	UMSUG recommendation and any supporting information.	Email or post
3.9.11	At next opportune Panel meeting	Prepare and present report to Panel recommending EM for approval or rejection as appropriate.	BSCCo	Panel	Panel Paper.	Internal process
3.9.12	Within 5 WD of 3.9.11	Notify Applicant of Panel decision. If EM not approved, liaise with Applicant and recommend next steps.	BSCCo	Applicant	Panel decision and any supporting information.	Email or post
3.9.13	Within 5 WD of 3.9.12	Update Approved EM list on BSC Website with details of approved EM	BSCCo		EM Approval Details.	Internal Process

3.10 Equivalent Meter Fault Reporting[3] - Investigating Inconsistencies [MHHS-BR-DS-147.2]

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.10.1	When a potential fault or inconsistency is identified for which the UMSDS is responsible, which means that data may be or is missing and/or incorrect.	Advise of the potential for a fault or inconsistency.	Any Participant	Supplier, UMSDS	Details of the potential fault.	Electronic or other agreed method.
3.10.2	Within 5 WD of identification of a potential fault.	Investigate the potential fault and rectify it as required.	UMSDS			Internal Process.
3.10.3	As soon as reasonably practical following 3.10.2.	Report the fault and the dates covered by the fault and the date and time of rectification.	UMSDS	Supplier, UMSO	Details of the fault, including the dates covered by the fault and the date and time of rectification.	Electronic or other agreed method.
3.10.4	Following 3.10.3, where it is possible to re-run the EM system to rectify the error.	UMSDS re-submits UTC Settlement Period Level Consumption Data and manages any Message failures	UMSDS	MDS, LSS, LDSO, and Supplier	IF/PUB-021 UTC Settlement Period Consumption Data	UMSDS

[3] Failures related to PECU Arrays are covered in 4.6.5.

3.11 Approval of Central Management System

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.11.1	At any time	Notify BSCCo of intention to apply for CMS approval.	CMS Manufacturer	BSCCo	Details of CMS type, including software and hardware versions.	Email, fax, post
3.11.2	Within 2 WD	Confirm receipt and request any further details as necessary.	BSCCo	CMS Manufacturer	Acknowledgement of notification.	Email, fax, post
3.11.3	Within 5 WD	Provide relevant CMS test specification and details of CMS Test Agents.	BSCCo	CMS Manufacturer	CMS test specification, CMS Test Agents.	Email, fax, post
3.11.4		Appoint CMS Test Agent.	CMS Manufacturer	CMS Test Agent	Details of CMS type, including software and hardware versions.	Email, fax, post
3.11.5	Within 5 WD	Notify BSCCo of appointed CMS Test Agent.	CMS Manufacturer	BSCCo	Notification of CMS Test Agent.	Email, fax, post
3.11.6		Liaise with CMS Test Agent to prepare a CMS test evidence report, including testing of the CMS by the CMS Test Agent, as detailed in the CMS test specification.	CMS Manufacturer	CMS Test Agent	CMS test evidence report.	Email, fax, post
3.11.7		Verify CMS test evidence report and provide confirmation of test results.	CMS Test Agent	CMS Manufacturer	Verification of CMS test evidence report and confirmation of successful testing.	Email, fax, post
3.11.8	Following completion of successful testing by CMS Test Agent	Submit CMS approval request to BSCCo.	CMS Manufacturer	BSCCo	CMS test evidence report, CMS Test Agent testing results and any other supporting information.	Email, fax, post

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.11.9	Within 10 WD	Check CMS test evidence report for compliance with CMS test specification and determine if further witness testing required to be carried out by BSCCo. If witness testing required, liaise with CMS Manufacturer and/or CMS Test Agent to arrange testing If CMS test evidence report confirms compliance without witness testing proceed to 3.16.11	BSCCo	CMS Manufacturer, CMS Test Agent	Details of areas requiring further witness testing to confirm compliance with CMS test specification.	Email, fax, post
3.11.10		BSCCo to carry out witness testing in liaison with CMS Manufacturer and CMS Test Agent. If witness testing reveals non-compliance with CMS test specification revert to 3.10.6. If testing confirms compliance with CMS test specification proceed to 3.10.11.	BSCCo	CMS Manufacturer, CMS Test Agent	Details of non-compliance with CMS test specification.	Email, fax, post
3.11.11	At next opportune UMSUG meeting	Prepare and present report to UMSUG requesting recommendation for approval of EM.	BSCCo	UMSUG	UMSUG Paper.	Internal process

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.11.12	Within 5 WD of 3.11.11.	Notify CMS Manufacturer of UMSUG recommendation. If CMS approval is not recommended, liaise with CMS Manufacturer and provide details of additional information or testing required. Return to 3.11.6, 3.11.7 or 3.11.8 as necessary. If CMS approval is recommended proceed to 3.11.13.	BSCCo	CMS Manufacturer, CMS Test Agent	UMSUG recommendation and any supporting information.	Email, fax, post
3.11.13	At next opportune SVG meeting	Prepare and present report to SVG recommending CMS for approval or rejection as appropriate.	BSCCo	SVG	SVG Paper.	Internal process
3.11.14	Within 2 WD	Notify CMS Manufacturer of SVG decision. If CMS not approved, liaise with CMS Manufacturer and recommend next steps. If CMS approved, proceed to 3.11.15.	BSCCo	CMS Manufacturer	SVG decision and any supporting information.	Email, fax, post
3.11.15	Within 2 WD	Update Approved CMS list on BSC Website with details of approved EM	BSCCo		CMS Approval Details.[4]	Internal Process

[4] Approval shall only be given to the software and hardware versions tested. Any subsequent changes to software and/or hardware shall be reported to BSCCo with details of the changes. These shall be referred to UMSUG to consider whether approval can be extended or re-approval is required.

3.12 Central Management System - Fault Reporting

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.12.1	When a potential fault or inconsistency with the CMS data being used by the UMSDS for the energy calculations is identified	Advise of the potential for a fault or inconsistency.	Any Participant	UMSDS	Details of the potential fault.	Electronic or other agreed method.
3.12.2	Within 5 WD of identification of a potential fault.	Investigate the potential fault and rectify it as required. If investigations show that fault is with Equivalent Meter data for which the UMSDS is responsible, proceed to 3.12.4 If investigations show that fault is with CMS data being provided to the UMSDS, proceed to 3.12.3	UMSDS			Internal Process.
3.12.3	Following 3.12.2 where fault is with CMS data being provided to the UMSDS.	If fault is with Customer's UMS Inventory notify the Customer and UMSO. If fault is with data received in CMS event logs, proceed to 3.12.7	UMSDS	Customer, UMSO	Details of the potential fault or inconsistency. e.g. mismatched CMS Unit References, invalid D0388 UMS Inventory, etc.	Email, fax, post
3.12.4	Within 20 WD	Investigate fault and rectify it as required. If fault not rectified within 20 WD proceed to 3.12.6.	UMSO	UMSDS	D0388 UMS Inventory	Electronic or other agreed method.

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.12.5	Following 3.12.4, where it is possible to re-run the EM system to rectify the error.	UMSDS sends corrected data.	UMSDS	MDS, LSS, LDSO, and Supplier	IF/PUB-021 UTC Settlement Period Consumption Data	DIP Interface
3.12.6	Following 3.12.4 where fault has not been rectified within 20 WD.	If fault is with Customer's inventory or with the inventory details in the CMS, UMSO shall take action to ensure the UMSO and Customer comply with the UMS Connection Agreement and National Terms of Connection	UMSO	Customer, UMSDS	Details of fault and actions required by Customer to rectify fault.	Email, fax, post.
3.12.7	Following 3.12.3 where fault is with event logs	If fault is with single Customer's CMS data e.g. missing/invalid event logs, time discrepancies, erroneous switching patterns, etc. If fault is with multiple customer instances of CMS proceed to 3.12.10.	UMSDS	CMS Manufacturer, Customer, UMSO	Details of the CMS fault causing errors in the energy calculations.	Email, fax, post.
3.12.8	Within 20 WD	CMS Manufacturer to liaise with UMSDS, Customer and UMSO (as necessary) to send corrected event logs that rectify fault.	CMS Manufacturer	UMSDS	Corrected event logs.	Electronic or other agreed method.
3.12.9	Following 3.12.8, where it is possible to re-run the EM system to rectify the error.	UMSDS sends corrected data.	UMSDS	MDS, LSS, LDSO, and Supplier	IF/PUB-021 UTC Settlement Period Consumption Data	DIP Interface

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.12.10	Following 3.121.8 where fault has not been rectified within 20 WD or same fault occurring in multiple instances of CMS	UMSDS to send details of fault and discussions with CMS Manufacturer to rectify fault.	UMSDS.	BSCCo, CMS Manufacturer	Report details of the CMS fault causing errors in the energy calculations being provided to Settlement including list of Customers using the faulty CMS and affected UMSOs.	Email, fax, post.
3.12.11	Within 20 WD	BSCCo to liaise with CMS Manufacturer and UMSDS to agree action plan to resolve fault.	BSCCo	CMS Manufacturer, UMSDS	Agreed action plan.	Email, fax, post
3.12.12	If fault not rectified in accordance with action plan.	BSCCo to advise CMS Manufacturer of failure to meet action plan requirements	BSCCo	CMS Manufacturer, UMSDS	Notification of failure and intention to refer to UMSUG.	Email, fax, post
3.12.13	At next opportune UMSUG meeting	Prepare and present report to UMSUG to consider removal of CMS approval.	BSCCo	UMSUG	UMSUG Paper.	Internal process
3.12.14	Within 5 WD following 3.12.13	If the UMSUG recommendation is to remove approval, notify CMS Manufacturer, affected Customers, UMSOs and UMSDSs. Proceed to 3.12.15. If recommendation of UMSUG is to retain approval of CMS, subject to fault rectification and/or repeat of CMS approval process.	BSCCo BSCCo	CMS Manufacturer Customers, UMSOs UMSDSs CMS Manufacturer Customers, UMSOs UMSDSs	UMSUG recommendation and any supporting information. UMSUG recommendation and any supporting information.	Email, fax, post. Email, fax, post.

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.12.15	At next opportune SVG meeting	Prepare and present report to SVG recommending removal of CMS approval.	BSCCo	SVG	SVG Paper.	Internal process
3.12.16	Within 5 WD of 3.12.15	Notify CMS Manufacturer of SVG decision. If CMS approval removed, proceed to 3.12.17. If decision of SVG is to retain approval of CMS, subject to fault rectification and/or repeat of CMS approval process.	BSCCo	CMS Manufacturer Customers, UMSOs, UMSDSs	SVG decision and any supporting information.	Email, fax, post
3.12.17	Within 5 WD of 3.121.16	Update Approved CMS list on BSC Website with details of approved EM	BSCCo		CMS Approval Details.	Internal Process
3.12.18	Where CMS approval has been withdrawn	UMSO shall take action to ensure the UMSO and Customer comply with the UMS Connection Agreement and National Terms of Connection and notify the UMSDS	UMSO	Customer UMSDSs.	Details of CMS approval removal and actions required by Customer to rectify fault.	Email, fax, post.

3.13 UMSDS accesses Industry Standing Data

REF	WHEN	ACTION	FROM	TO	INFORMATION REQUIRED	METHOD
3.13.1 [BP004 Step 136] [MHHS-BR-DS-139]	Each time ISD is published	UMDS Receives notification of ISD Update	ISD	UMSDS	IF/PUB-047 Notification of the Publication of a Downloadable Asset	DIP Interface
3.13.2 [BP004 Step135] [MHHS-BR-DS-069]	Following 3.13.1	UMSDS Accesses ISD data using Distribution Delivery URI	UMSDS	ISD	Distribution Delivery URI	
3.13.3 [BP004 Step132]	Following 3.13.2	UMSDS Validates and Stores ISD Data	UMSDS		Internal Process	
3.13.4	If data not readable and / or incomplete.	Send notification to ISDM and await re-publish of the ISD data	UMSDS	ISDM		E-mail
3.13.5	Following 3.13.3	Ensure all ISD affecting the accuracy of Settlement is accurately entered and used in performing its functions.[5]	UMSDS			Internal Process.
3.13.6	As soon as possible after data in correct format.	Update database.	UMSDS.			Internal Process.

[5] The UMSDS must utilise Industry Standing Data to identify the relevant DIP ID/Role or Market Message Market Participant ID/Role, as appropriate, to be used when communicating over the DIP/DTN. [MHHS-BR-DS-139.1]

3.14 Change of Connection type

On change of Connection Type from unmetered the UMSDS will be automatically de-appointed by SMRS and the MSID will be de-appointed as per Section 3.3.

If the Connection Type and therefore Market Segment is updated in SMRS to unmetered, the process set out in Section 3.1 will be followed.

4 Appendices

4.1 Unmetered Charge Codes

The categories of Unmetered Apparatus can be found in the OID and associated Charge Codes obtained in the Industry Standing Data:

- UMS Charge Codes (Entity M9)
- UMS Manufacturer Equipment LED Range Charge Codes (Entity M10)

4.2 Switch Regimes

The Switch Regime is described in the OID and a complete list may be found in the Industry Standing Data:

- UMS Switch Regimes (Entity M11)
- UMS Variable Power Switch Regimes (Entity M12)

The approval process for new Charge Codes and Switch Regimes can be found in BSCP704 Unmetered Supplies Operations. The process for updating the Industry Standing data can be found in [Document].

4.3 Equivalent Meter and Central Management System Specification

The specification below is insufficient for a Code of Practice but describes the required functionality of Equivalent Meters used to provide Settlement consumption data for Unmetered Supplies**.**

New hardware and software systems complying with the EM Specification may be developed and submitted to the UMSUG and the BSC Panel for approval in accordance with Section 3.9 Approval of New Equivalent Meter. Once approved, a system may be used in conjunction with any other hardware and software so long as there is no material impact on the Equivalent Meter's original approval. Where such impact is believed to be material, further approval should be sought.

4.4 Equivalent Meter – Calculations

The UMSDS is required to provide consumption data for the whole period of their appointment. EMs must undertake the calculations as defined below:

For the UMS Inventory effective on the relevant day for that Sub-Meter, for either:

- each CMS controlled item, or
- each Charge Code & Switch Regime combination.

Multiply the number of items by the circuit watts (full or dimmed as appropriate) for the relevant Charge Code by the seconds attributable (full or dimmed as appropriate) to the Switch Regime and divide by 1,000 to determine the kWh in each UTC period.

For each Sub-Meter, the seconds attributable to the Switch Regime in each UTC Period are derived, in order, from:

(1) For CMS controlled items, the switching times and power level information in the event file received from the CMS System (or where events have not been received at the time of the calculation use defaulting arrangements defined);

(2) For PECU Array determined items, the switching events recorded by the PECUs representing the Switch Regime in the Primary PECU Array (or the Secondary PECU Array where data from the Primary Array is not available and where a Secondary Array is defined) which passes validation. Where data is not available from the Primary or Secondary PECU Array, switching times from the default Switch Regime shall be used in accordance with 3 & 4 below;

(3) For items with a Switch Regime not determined by a PECU Array but linked to the sunset/sunrise times, then the times as defined by the Switch Regime in conjunction with the Astronomical Almanac; or

(4) For items with fixed switching times, then those times defined by the Switch Regime.

(5) Where it is not possible to determine consumption values for the MSID from the above steps, then use Load Shaping data as described in Section 4.9.

For each MSID, sum the kWh for each combination described above for each Sub-Meter, rounding the calculation for each UTC period per Sub Meter to three decimal places. Repeat for each period of the UTC Day.

PECU Arrays [MHHS-BR-DS-065]

4.5 PECU Array Siting Procedure

4.5.1 Overview

The UMSDS shall maintain and operate the PECU Array or, as the case maybe, PECU Arrays used for a particular MSID. The siting of the PECU Arrays will be agreed between the UMSO and the UMSDS and be located in an area with a high density of apparatus unless otherwise agreed between the UMSO and the UMSDS.

4.5.2 Siting Factors

The factors to be considered when determining the location and number of PECU Arrays are:

a) Centres of population and hence concentrations of load;

b) Distance from another PECU Array;

c) Topography;

d) Customer boundaries;

e) GSP Group boundaries;

f) Total load controlled; and

g) Access.

4.5.3 Sharing PECU Arrays

One PECU Array may provide data for more than one EM. Also, more than one PECU Array may provide data for the same EM. There will be instances when one PECU Array will service the requirements of part of, or more than, one Customer.

The EM will log all switching actions to at least the nearest second.

Where a shared PECU Array is being used by two or more different UMSDSs, then one should take the lead and ensure that the others are informed of any changes to PECUs or other details, in a timely manner, in advance of the changes being implemented.

4.5.4 Determining the Use of Multiple or Single PECU Arrays

The number of PECU Arrays may be subject to decisions on the number of PECU types that can be populated in the PECU Array. More than one PECU Array may be required if the population of PECUs for a customer cannot be reasonably represented on a single PECU Array of 30 PECUs. Furthermore, the size of the customer's area might require more than one PECU Array to facilitate accurate calculation of Burn Hours. It is possible for the UMSDS to calculate the Annual Burn Hours for any latitude and longitude. If the differences between the proposed Array sites are very small (i.e. less than +/- 2%) then this would suggest that one Array should be sufficient. If actual Burn Hours are available for existing Arrays this data could also be used.

4.5.5 Research

The following research may be carried out to determine the siting of PECU Arrays.

If there is latitude and longitude information contained in the customer's Detailed Inventory for each item of Equipment, then it should be possible for the UMSO (and/or UMSDS) to perform a load weighted longitude/latitude calculation to determine the ideal location of a single PECU Array.

Where detailed Equipment location is not known, then it is possible to perform the calculation described above using published population numbers for the major towns in the customer's area.

4.5.6 PECU Array Variations

In considering any variation of the number of PECU Arrays as stated in the overview paragraph above, the parties shall have due regard to the need:

a) to reasonably minimise costs; and

b) to achieve the required accuracy in each UTC Period.

If a variation in the number and location of PECU Arrays is proposed by the UMSDS but is not agreed by the UMSO research may be carried as stated above. While such research is carried out and during any period of discussions, a supply may be commenced on the basis of the lesser of the number of PECU Arrays proposed.

Failing any agreement after research and discussion the matter may be referred to the BSC Panel for resolution.

4.6 PECU Array Operating Procedure

4.6.1 Types of PECUs

There are different types of PECUs, with different operating characteristics. Therefore, so that the operation of the PECU Arrays reflect reality:

a) PECUs used in the PECU Array are to be representative of type, manufacturer and age of the population they are representing;

b) The PECUs in the PECU Array are to be proportional to the various types in the area covered by the PECU Array; and

c) The number and types of PECUs will be determined by the UMSDS in accordance with this section.

4.6.2 PECU Representation in Equivalent Meter

The operation of each PECU is deemed to be proportional to the population on the PECU Array of that type of cell, e.g. if there are 8 cells of one type, then the operation of each one will represent the operation of one eighth i.e. 12.5% of the load controlled by that type of cell.

Where the calculation indicates that the load controlled requires less than one PECU in the PECU Array, it may be omitted from the PECU Array (and default arrangements should then apply). Where the calculation indicates that the load controlled requires more than one PECU in the PECU Array, it shall be populated with at least three PECUs.

4.6.3 Multiple PECU Arrays

If more than one PECU Array is used per UMS Inventory, then the operation of a PECU cell is deemed to be proportional to the population of that type of PECU controlled load within the area covered by that PECU Array. Therefore, where more than one PECU Array is used per UMS Inventory, then the items controlled by each PECU Array must be assigned to the respective Sub-Meter.

4.6.4 PECU Array Maintenance and Upkeep

Each PECU Array shall be installed, maintained and operated in accordance with Good Industry Practice. When contacting the PECU Array, the UMSDS shall ensure that any difference between the PECU Array second counter and the EM clock time equivalent does not exceed 20 seconds in any 24 hour period. When the difference does exceed 20

seconds, the PECU Array switching data should not be retrieved and the EM should be reset such that time on PECU Array and the EM are synchronised.

The UMSDS shall monitor the performance of the PECU Arrays. Where the monitoring of the PECU Arrays indicates that a single PECU is out of line with other PECUs of identical type in the same PECU Array to such an extent that the PECU is no longer representative then such PECUs shall be removed from the calculation and a retrospective calculation will be made using the remaining cells. Failed or unrepresentative PECUs should be replaced at the next available opportunity.

Where the UMSDS has identified failed or unrepresentative PECUs, and set about arranging the replacement of those PECUs, the UMSDS will determine if there are enough remaining PECUs of the same type (following the rules on representation), and if not exclude all PECUs of that type from its calculations, and use either results from a Secondary PECU Array, or apply default arrangements for that cell type.

At least annually, or in the event of a significant change to the UMS Inventory, the UMSDS shall ensure that the PECU Arrays are populated with PECUs in accordance with this section.

4.6.5 PECU Array Failure

If PECU data is not available then data from an appropriate PECU Array or default data shall be used.

In the event of data recovery the UMSDS will rerun EM calculations for the UTC Period day affected, and submit the corrected UTC Settlement Period Consumption data via the DIP.

4.6.6 Minimum Specification PECU Arrays

PECU Array characteristic	Requirement
Minimum Specification for PECU Arrays Number of Photocells per PECU Array	30
Arrangement of Cells	Any arrangement which ensures no over shadow of one cell on another.
Mounting Platform	Flat platform which can be fitted on a flat roof or supported on a single upright for wall mounting.
Mounting for Photocells	NEMA photocell sockets and 6 blanking plates to cater for miniature cells where required, in a waterproof housing.
Waterproof Housing	All equipment externally located must be protected by a weatherproof enclosure.
Data Collection	To capture the switching on and off times of each cell at time of operation for a minimum of 7 days and 28

	events per cell. Rolling Barrel (data overwrites once the logger is full).
Clock or time counter	The PECU Array must have a clock or time counter that can be synchronised with the EM.
Operating Temperature -20 to +50 degree Celsius.	-20 to +50 degree Celsius.
Communication	Protocol Determined by the EM to permit interrogation for remote data collection.

4.7 Equivalent Meter Functionality

Equivalent meters have two types of operation either as:-

a) Passive meters which allocate the Unmetered consumption across the UTC periods by a mathematical relationship of annual burning hours to the daily time of sunrise and sunset; and

b) Dynamic meters which allocate the Unmetered consumption across the UTC periods by reference to the operation of a number of actual PECUs, or by making use of actual switching times reported by a Central Management System. In either case the equivalent meter defaults to a passive mode using calculated times of switch operation in the event of the actual switching times not being available.

4.7.1 Functions of an EM in Passive Mode.

a) The UMSDS shall be able to add, delete and modify all information required to define each MSID and to relate it to the Customer, LDSO and Supplier.

b) The system shall be able to load and validate a file in the format of the D0388 – UMS Inventory. After processing the system shall generate a file in the format of the D0389 – UMS Response to send to the UMSO.

c) The UMSDS shall be able to add, delete and modify Charge Code and their associated circuit watts for both full load circuit loading and dimmed load ratings as appropriate.

d) The UMSDS shall be able to add, delete and modify Switch Regimes and their associated operating times. The system shall be populated using the offsets and fixed times defined in the OID and associated ISD for each Switch Regime.

e) The system shall use the average latitude and longitude information and a sunrise/sunset algorithm to calculate the time of sunrise and sunset for each day within two minutes of the sunrise and sunset times as derived from the Astronomical Almanac.

f) The system shall calculate, as defined above the import and export in kWh for each UTC period in UTC for each MSID.

g) The system shall publish the UTC Period Level Consumption data.

4.7.2 Functions of an EM in Dynamic Mode using PECU Data

In addition to the functions of a passive meter listed above, the following are required for an EM using PECU data:-

a) The system shall be able to use any one PECU Array for the calculations of more than one MSID.

b) The system shall be able to use more than one PECU Array for the calculations of one MSID.

c) In the event that a PECU in a PECU Array fails to operate, the system shall compensate in its calculations by dividing that portion of load allocated to the faulty cell between the functioning cells of the same type as the failed cell.

d) If PECU Array data is not available for any day then a data from an alternative specified PECU Array shall be used for the calculations. If that data is not (h) the system shall provide an audit trail of changes to data held available then default PECU Switch Regime shall be used. The appropriate default Switch Regimes are defined in the OID associated ISD.

e) The system shall maintain details for each PECU in a PECU Array relating to location, type, manufacturer, date of manufacture and model number.

f) The system shall be able to download data from the PECU Array.

g) The system shall monitor PECUs on the PECU Array and advise the UMSDS of any failed units.

h) The system shall monitor the PECU Array second counter for time keeping and advise the UMSDS when the deviation exceeds the warning level as determined by the UMSDS.

i) The UMSDS shall be able to produce switching times from a decoded PECU Array file.

j) The system may provide a facility to apply time switch operations in accordance with a normal distribution about the nominal switching times. The standard deviation of the normal distribution shall be set by the UMSDS.

k) The system shall provide facilities to retrospectively recalculate data for resubmission as required in section 3.7".

l) The system shall be synchronised to UTC.

4.7.3 Functions of an EM in Dynamic Mode using CMS Data

Where a Customer wishes to use a CMS such customer must interact and engage the UMSDS for the purposes of providing the CMS data for the dynamic calculations.

An EM may use the detailed switching and load information recorded and reported by a Central Management System to allocate UTC Period Level Consumption Data. In this case the CMS itself may be operated by the UMSDS or the Customer, however the UMSDS system (the system that is used to calculate the consumption), must be operated by a UMSDS Qualified in accordance with BSCP537, who retains the overall Settlement responsibility for the quality of the data submitted by the Customer via the CMS.

In addition to the functions of a passive meter listed above, the following requirements apply. Each requirement may relate to the CMS, the UMSDS system or both.

a) The following rules shall be followed when populating the D0388:

The UMSDS system shall allow the UMSDS to add, delete and modify control information for each MSID electronically - in the case of Inventory changes these will be provided by the UMSO using the D0388 UMS Inventory. The following rules shall be followed when processing the D0388 UMS Inventory:

The Number of Items associated with each CMS Unit Reference is the same as that contained in the Detailed Inventory and shall identify the number of items (e.g. lamps) associated with each CMS Unit Reference.

The Charge Code associated with each CMS Unit Reference shall be the normal code for the lamp running at full load. The Switch Regime shall be set to one of the ISD approved codes specified for use with CMS.

b) The CMS controller devices operating each item of equipment should be summed and included as a single row in the D0388 UMS Inventory. Each different type of CMS controller shall have its own Charge Code and will be assigned a continuous Switch Regime of 998 and a CMS Unit Reference of ‘ControllerXX’ where XX is the used to differentiate the entries, so the first entry would be 01, followed by 02, etc. The CMS shall record the operational switching times and power levels set for each unit and shall make this data available to the UMSDS in the form of an operational event log on a daily basis. The log shall include the CMS Unit Reference, the time and date at which the load was switched and the power level expressed as a percentage of the circuit watts defined in the ISD for the relevant Charge Code;

c) Where the CMS and UMSDS system are operated as separate applications, the switching time and load information shall be provided to the UMSDS in the following standard format text file. Where the CMS and UMSDS system are integrated, the application must be able to produce the file on request for testing and audit purposes, however other methods may be used for transferring data between the two applications on a routine basis:

Filename: mmmmmmmyyyymmddvvv.log

where:

mmmmmmm = Sub-Meter ID (alphanumeric)

yyyymmdd = date to which the events pertain

vvv = version number

log = file extension

with all characters in lower case

File header: HMMMMMMMMYYYYMMDDVVV

where:

H = header identifier, capital H

MMMMMMM = Sub-Meter ID (lower case alphanumeric)

YYYYMMDD = date to which the events pertain

VVV = version number

File body: UUUUUUUUUUUUHHMMSSPPP.PPI

where:

UUUUUUUUUUUU = CMS Unit Reference (alphanumeric)

HHMMSS = time in hours, minutes and seconds, in UTC throughout the year

PPP.PP = percentage of base power i.e. undimmed power level applied to the lamp, to 2 decimal places

I = information flag (alphanumeric)

File trailer: TNNNNNNN

where:

T = trailer identifier, capital T

NNNNNNN = total number of lines including header and trailer

All lines must be the correct length and terminated with a carriage return, including all tail lines.

The information flag 'I' in the file body may be used to provide any further information relating to the data contained within the operational event log, e.g. if there are omissions, errors, etc. An alphanumeric value must be provided, although the value used for this information flag and how it is used by the CMS or the UMSDS are currently not prescribed under the BSC, so the CMS manufacturer can specify its use/structure (and agree any such functionality with the relevant UMSDS if agreed by the UMSDS).

For each CMS Unit Reference which is reported in a log file the time (HHMMSS) for each entry must differ. Any revisions to previously-reported data for events of one or

more CMS Unit Reference (e.g. after repair of a fault or re-establishment of communications) shall all be provided in an incremental contiguous file version number for the date to which the events pertain. Typically, subsequent file versions are incremental updates containing only that data for CMS Unit References for which data has changed or was not previously reported. On occasions it may be necessary for a subsequent file version to be a complete refresh of the previously reported CMS Unit Reference event data for that date. The approach to be used, and the way in which updated information should be identified, shall be as agreed between the CMS operator and the UMSDS.

d) The UMSDS system shall calculate, by an approved method, the import or export kWh consumption values in each half hour settlement period in UTC for each MSID using the switching times and power level information reported in the operational event log.

e) The UMSDS system shall generate an exception list detailing any CMS Unit References reported in the D0388 UMS Inventory but which are not contained in the operational event log. The exception list shall be produced for each day of the report for which any CMS Unit References are missing, and shall be provided to the contracted Customer on a monthly basis as a matter of routine, and additionally upon request from the UMSO and/or Customer.

f) In the event that all or part of the operational event log is not available for any reason, the UMSDS system shall apply data representative of the Switch Regime indicated in the D0388 UMS Inventory provided by the UMSO (i.e. 999 or 998). This regime shall be applied for each of the affected Settlement Days affected.

g) The UMSDS system shall recalculate the half hourly consumption once data from previous days becomes available and shall submit this revised data as required in section 3.7

h) The UMSDS system shall provide an audit trail of changes to data held.

i) The hardware and software associated with any Central Management System shall be installed, maintained and operated in accordance with Good Industry Practice, with clocks synchronised to UTC and accurate to within ± 20 seconds.

j) The UMSDS shall provide ad-hoc extracts of the CMS operational event data received from such system to the UMSO on request.

4.8 UMSDS Validation of the UMS Inventory

UMSDS shall use the following sequence to validate the information provided in the D0388 UMS Inventory which will then be used to create a subsequent D0389 UMS Response.

Using any received D0388 UMS Inventory, select an MSID from the process queue and the record with the lowest Inventory Sequence Number for that MSID, then process in the following order:

4.8.1 Initial checks

Perform initial checks which negate any further detailed validation, once failure of a check occurs, then the set of data for that MSID and that Inventory Sequence Number is rejected. So, in order the checks are:

a) File received from incorrect UMSO or invalid MSID

If received from the incorrect UMSO, identified from MSID initial two digits and UMSO MPID; or if the MSID is invalid (e.g. wrong length or check digit does not validate) then the Inventory is rejected. If it fails these tests then it is rejected with Response Reason Code = B

b) Inventory Sequence Number error.

If the Inventory Sequence Number is equal to, or lower, than the Inventory Sequence Number currently recorded as processed (accepted or rejected) by the EM for that MSID then the Inventory is rejected; or there are two identical Inventory Sequence Numbers for a MSID in the process queue, it is therefore uncertain which set of data is correct, both will be rejected. If it fails these tests then it is rejected with Response Reason Code = C

c) Invalid Effective From Date.

If the effective from date is outside the valid range, then it will be rejected. If it fails these tests then it is rejected with Response Reason Code = D

d) No appointment

If the UMSDS is not appointed to the MSID for the effective from date of the inventory, then it is rejected. If it fails this test then it is rejected with Response Reason Code = E

e) Invalid Sub-Meter

If the Sub-Meter is not valid for the MSID, then it is rejected. If it fails these tests then it is rejected with Response Reason Code = F

If any of the initial checks fail, then the Inventory Sequence Number will be marked for rejection, see Section 4.8.3. The information provided will not be applied to the EM.

If all the initial checks are all passed then detailed checks of the inventory content should commence.

4.8.2 Detailed Checks

When validating the content all the following checks should be performed for all of the inventory data provided for the Inventory Sequence Number so that a complete list of rejections is reported to the UMSO. The following sequence is a hierarchy of checking and reporting:

a) Invalid Switch Regime

A single entry of any invalid Switch Regime identified in any of the Sub-Meters, identified with UMS Error Code = A.

b) Invalid Charge Code

A single entry of any invalid Charge Code identified in any of the Sub-Meters, identified with UMS Error Code = B.

c) Invalid combination of a valid Charge Code associated with a valid Switch Regime

Where the combination of a valid Charge Code (including controllers) or a valid Switch Regime are identified as an invalid combination as defined in current OID and ISD, then a single entry of the invalid combination is identified with UMS Error Code = C.

Invalid Switch Regime and invalid Charge Codes will have been reported against Error Code A & B respectively and will not be reported again in this group.

d) Invalid CMS Unit Reference

CMS Unit Reference which are duplicated, have the incorrect number of characters, or commence with an H or T are deemed to be invalid and identified with UMS Error Code = D.

If all the detailed checks are passed, then the Inventory Sequence Number will be Response Reason Code = A, for accepted. The information provided will be applied to the EM.

If any of the detailed checks fail, then the Inventory Sequence Number will be Response Reason Code = G, for Errors with Charge Code, Switch regime or CMS Unit Reference. The information provided will not be applied to the EM.

The EM will record the last processed Inventory Sequence Number for each MSID processed. The sequence will repeat, with the next Inventory Sequence Number.

4.8.3 Festive Lighting

Festive lighting shall treated as energised, but only de-energised if it is disconnected. In the scenario where festive lighting is not active, a zero Watt Charge Code should be submitted to the UMSDS on the D0388 UMS Inventory, and it will be up to the appointed UMSO to manage.

4.8.4 Creation of D0389 - UMS Response

The D0389 UMS Response is sent by the UMSDS to the UMSO and may contain acceptance and rejection entries for multiple MSIDs but not necessarily in the order received from the UMSO.

4.8.5 Processing of the D0389 by the UMSO

The UMSO should review the D0389 responses.

If the Inventory Sequence Number is shown as Accepted, then the submission has been accepted and no further action is required.

If the Inventory Sequence Number is shown as Rejected, then the reasons for rejection should be considered and resolved. Where necessary a revised submission should be prepared.

The UMSO must contact the UMSDS is not received within 2 WD if a D0389 is not received.

4.9 Load Shapes and Defaulting

The UMSDS shall access Load Shape Data the following Load Shape Categories (LSCs) for UMS.

The Unmetered Supplies Load Shapes can be identified using the Load Shape Category table contained within ISD.

Where no inventory data is available the UMSDS shall default the data for the MSID to the Load Shape:

Method 1: UMSDS defaults UMS data for a UTC Date

Where a default is required the UMSDS shall set the data for each UTC Period to be equal to the equivalent Load Shape Period Value ($LSPV_D$) as follows:

$UTCP_{Dj} = LSPV_{Dj}$

Where *D* is the UTC Date for which the default is being calculated and *j* is a UTC Period for the UTC Date.

4.10 Publish and Data Flags

The UMSDS must add the following flags to the output UTC Period Level Consumption data prior to publishing the EM output:

a) Data calculated as actual using the D0388 UMS Inventory where MSID is energised: “A” flag

b) Data based on Load Shape (Energised or De-energised): “E” flag

c) Data where the MSID is identified as de-energised the UMSO shall provide a D0388 UMS Inventory with a zero Charge Code. Where provided the UMSDS shall submit the calculated data with the following flag: “ZE” Flag