![MHHS Programme logo - Industry-led, Elexon facilitated]

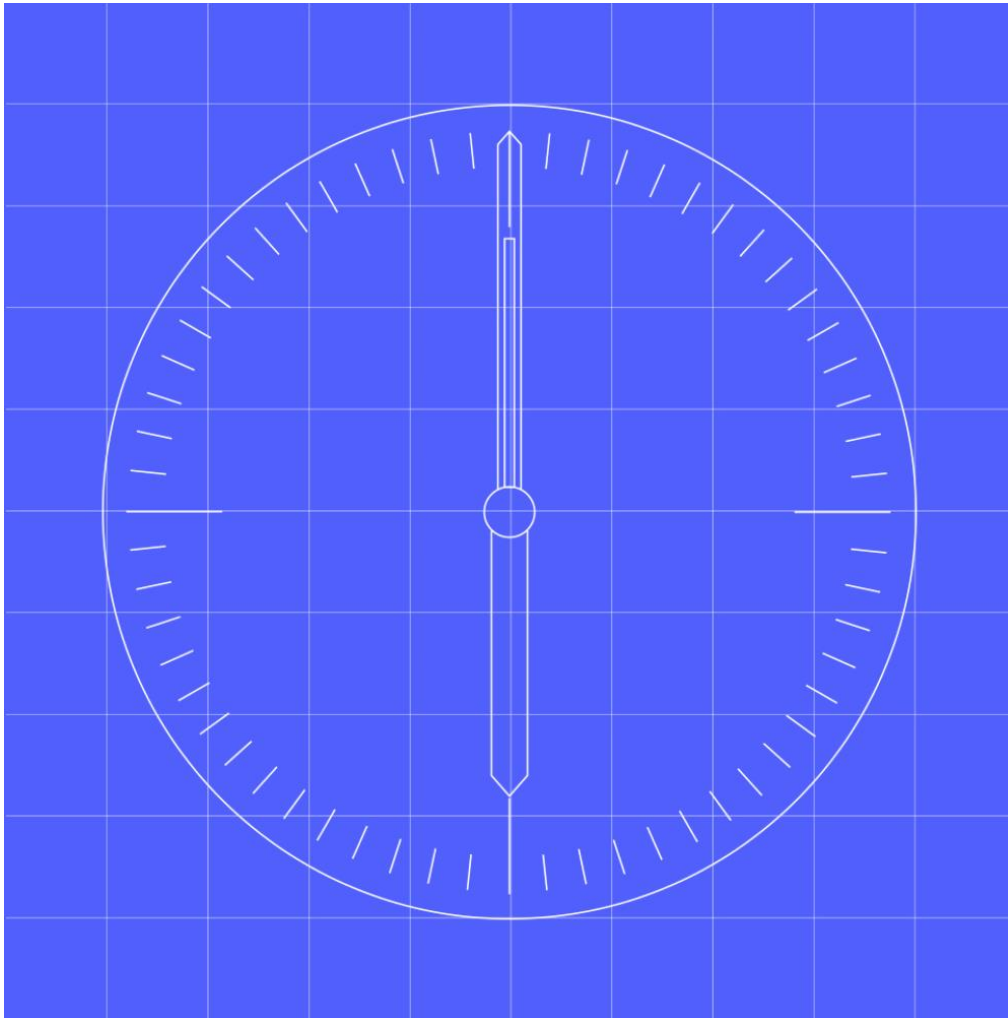# MHHS Market-wide Data Service: Methodology Statement

Version 5.~~5~~4, ~~22nd March 2024~~13th ~~August 2024~~

Contents

Section A   Background

1.0 Overview

1.1 This document sets out the methods to be used by the Market-wide Data Service (MDS) for calculating the uncorrected BM Unit's Period Level Consumption ($BMPC_{iHNDj}$) within Consumption Component Class 'N'.

1.2 The Market-wide Data Service must process the latest available data for each Metering Point Administration Number (MPAN) at the relevant MDS Run time. If a MDS Run and Settlement Run is re-run after the Final Settlement run then any data received after the Final Settlement run time will not be processed unless subject to the resolution of a Trading Dispute. The MDS will calculate the line losses associated with each MPAN using the appropriate Line Loss Factor (LLF) and allocate the losses to the appropriate Consumption Component Class Id (CCCid) for losses.

1.3 This document uses the term MPAN rather than MSID (which is the Balancing and Settlement Code variant of the term).

1.4 Calculations shall be undertaken by BMU Id. The Supplier is also known as the Balancing Responsible Party (BRP) and is interchangeable in this document.

1.5 In processing the data for a Settlement Day, the MDS will process meter data received for each UTC Period. The MDS can receive partial meter data (i.e. not having meter data for each UTC Period) for an MPAN meaning that the number of MPANs with meter data can vary by UTC Period.

1.6 The MDS will aggregate the data for each BMU/ CCCid combination within each GSP Group and provide access to the aggregated data to the Volume Allocation Service (VAS) in Megawatt hours (MWh) to six decimal places and in Clock Time.

1.7 The following processes are covered in this document:

- Selecting UTC Period Level Consumption data for an MDS Run;
- Identifying MPANs that require a default calculation;
- Identifying BMU data using ABMU to MPAN mapping;
- Applying the default data and reporting;
- Counting and Calculating $BMPC_{iHNDj}$ data;
- Accessing Line Loss Factors and calculating Line Losses for $BMPC_{iHNDj}$; and
- Determination of aggregated Active Import Storage Volumes.

The term UTC Period Level Consumption data refers to consumption or export data that is of UTC Period granularity. The MDS must be able to process varying durations of UTC Period. The UTC Period duration will not change in a UTC date and there will not be different UTC durations per Load Shape Category. All services 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.

Section B General Requirements

2. MDS General requirements

2.1 The MDS shall validate all UTC Period Level Consumption data following receipt using the associated Registration Data. The MDS shall ensure that any such data received is not for a Settlement Date that has already been subject to a MDS Reconciliation Final (RF) Run. The data shall be validated as follows:

Test/Condition	Self Describing Error Code
Is Data Service [S1.SenderID] Appointed for MIdday on the UTC Settlement Date [DI-101]	ECS1001 - Data Service [S1.SenderID] not appointed for Settlement Date [DI-101]
If Event Code [DI-999] = [ActivePower], then MQID (DI-052) must equal "AI" or" AE"	ECS1002 - MQID [DI-052] in Settlement End Date/Time [DI-082] is not valid for Event Type [DI-999]
If today > MDS Run Date (RF) for the SP End Date/Time [DI-082] in the Master Settlement Table in ISD	ECS1003 - SP End Date/Time [DI-082] has already past "MDS Run Date (RF) [ISD.RunDate-RFDate]"
If SP End Date/Time [DI-082] >= Connection Type Eff From [DI-016]	ECS1013 - SP End Date/Type [DI-082] is prior to Connection Type Eff From [DI-016]
If SP Duration (DI-081) = "Setllement Period Duration ISD" for Settlement Date [DI-082]	ECS1004 - Settlement Period Duration [DI-081] invalid
*SP End Date/Time (DI-082) invalid for Settlement Period Duration (DI-081)	ECS1005 - SP End Date/Time [DI-082] is invalid for Settlement Period Duration [DI-081]
*SP End Date/Time (DI-082) duplicated with SP in same message	ESC1006 - SP End Date/Time [DI-082] duplicated with SP in same message
*SP End Date/Time (DI-082) overlaps with SP in same message	ESC1007 - SP End Date/Time [DI-082] overlaps with SP in same message
If [MDS.MPAN_Status] = "De-Energised" for SP End Date/Time and the Settlement Period Quality Indicator ≠ A, A1, A2 ,A3, AAE1, AAE2, AAE3, E2 or E6	ECS1008 - SP End Date/Time [DI-082] contains non-actual consumption for ECS De-Energised MPAN
If [ECS_MPAN_Status] = 'Disconnected' for SP End Date/Time	ECS1009 - SP End Date/Time [DI-082] conflicts with ECS MPAN Status
SP Consumption (DI-147) must be Zero if Estimation Code is type 'ZE','ZE1', 'ZE2' or 'ZE3'	ECS1011 - SP Consumption [DI-147] must be zero if Estimation Code is type 'ZE','ZE1', 'ZE2' or 'ZE3'
SP Consumption (DI-147) is greater than [MDS_MaxLimit]	ECS1012 - SP Consumption [DI-147] is greater than ECS Maximum of [ESC_MAX]

Actual UTC Period Level Consumption Data and Estimates based on Actual Data

Actual UTC Period Level Consumption Data is valid period data retrieved directly from the Meter this data will be flagged A, A1, A2, A3, AAE1, AAE2 or AAE3. Some data is estimated using actual Register Reads or Daily Advances or Daily Consumption from the Meter which is then applied to a Load Shape, this data is flagged either E2 or E6.

2.2 All validation failures should be reported in a timely manner on the I/F-014/ PUB/014 using the Self Describing Error Code above.

2.3 The calculations will be undertaken for Settlement Day 'D' and within each GSP Group 'H' unless otherwise specified. Settlement Periods are processed in Clock Time.

2.4 The MDS must have processes such that the most recent details applicable to the Settlement Day of:

a) the Base BM Unit 'i'; and

b) Additional BM Unit 'i'

for each Supplier 'Z' within each GSP Group 'H' contained within ISD are input into MDS in accordance with [BSCP509]. MPAN/ ABMU mapping data (contained within SVA Metering Systems Register) shall be accessed by the MDS to identify MPANs allocated to ABMUs.

2.5 In respect of all data which the MDS is required to notify to the VAS, the MDS, shall ensure that any change to all or any of such data is notified to the VAS in a timely manner.

2.6 The Market-wide Data Service shall:

- Identify the Settlement Day for each Market-Wide Data Service Run using the VAS Calendar;
- Access the UTC Period Level Consumption data for the Settlement Day to be processed;
- Access the associated Registration data for each MPAN;
- Access the Industry Standing Data including Line Loss Factor information;
- Identifying the CCCs for use in the calculations;
- Converting the output into MWh to 6 decimal places;
- Access the mapping of MPANs to Additional Balancing Mechanism Units; and
- Access the mapping of MPANs to Storage Facilities.

3. Identifying the Consumption Component Classes for use in the MDS calculations

3.1 The MDS shall use the Registration data items for each MPAN to identify the Consumption Component Class (CCC) to which the UTC Period Level Consumption is to be allocated.

3.2 The CCCs are set out in the published source of Industry Standing Data (ISD) in the ISD Table: MHHS Consumption Component Classes. An illustration of the data in this ISD table is shown in Appendix 1 (the actual data items in the table are set out in the ISD specification).

Section C   Market-wide Data Service Methods

4. Selecting UTC Period Level Consumption data for an MDS Run

4.1 All registration, ISD and consumption data will be provided in a standard time format ISO8601.

4.2 When selecting UTC Period Level Consumption data for a UTC date the MDS shall ensure the 'Effective to' datetime logic is used to identify the correct data for UTC Date. For example under MHHS the first period would have a UTC datetime 'effective to' 00:30. The last period would have a have a UTC datetime 'effective to' 00:00 even though the 'date' part of the datetime will be for the following day. Settlement period data will be identified by an integer that identifies the Settlement period.

4.3 The MDS will process the latest timestamped data for each UTC Period regardless of the Estimate/ Actual flag. The MDS will only process meter data for energised UTC periods (using the Energisation Status flag) and non-zero de-energised UTC periods.

4.4 Change of Supplier events will occur at mid-night local time which means they align with Settlement Days. Hence, the Supplier cannot change within a Settlement Day. The MDS will therefore process the data for the Supplier identified in Registration Data associated with each MPAN for the Settlement Day.

4.5 Where Registration data items are provided with 'Effective From' datetimes the MDS shall take account of any changes within the Settlement Day. If an 'Effective From' datetime is part way through a Settlement Period it shall be deemed to be effective from the start of the Settlement Period. Where a Registration data item does not have an associated 'Effective From' datetime then it shall be deemed to be effective from midnight at the start of the Settlement Day being processed.

4.6   For Settlement Runs that are in the GMT Period, the MDS shall process all the **UTC Period Level Consumption Data** for the Settlement Day. Otherwise, the MDS shall process the data as defined below.

5.   When processing data for a Settlement Day that is in the British Summer Time Period:

5.1   For Settlement Days not associated with a clock change event the MDS shall process the **UTC Period Level Consumption Data** for:

1. the last hour (UTC 23:00 to 00:00) for the first UTC day associated with the Settlement Day.
2. the MDS shall process the UTC Period Level Consumption Data for first 00:00 to 23:00 hours of the second UTC Day associated with the Settlement Day.
3.

Method as follows:

UTC Periods >23:00 and <=00:00	UTC Periods >00:00 to <=23:00
BST Settlement Day	
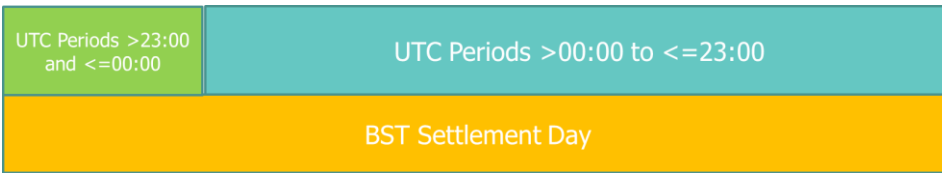
Autumn Clock Change Settlement Day Processing

5.2   The Autumn Clock change Settlement Day the MDS shall process the **UTC Period Level Consumption Data** for:

4. the last hour (UTC times 23:00 to 00:00) for the first UTC day associated with the Settlement Day; and
5. all UTC periods for the second UTC Date associated with the Settlement Day (UTC times 00:00 to 00:00).

Method as follows:

UTC Periods >23:00 and <=00:00	UTC Periods >00:00 to <=00:00
BST Settlement Day	

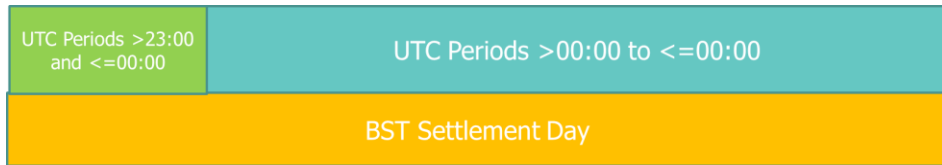### Spring Clock Change Settlement Day Processing

5.3   On the Spring Clock change Settlement Day the MDS shall process the UTC Period Level Consumption data:

1. for the UTC Date associated with the Settlement Day (UTC times 00:00 to 23:00) identified in the Registration Service (SMRS) data using the 'effective from' datetime for the Supplier associated with the UTC day being processed.

Method as follows:

UTC Periods >00:00 to <=23:00
BST Settlement Day

6. Identifiers used in this Method Statement:

6.1 The following Identifiers are used in this document:

Identifier	Data item
C	Load Shape Category
D	Settlement Day
E	Embedded Network Id
H	GSP Group
i	BMU Unit (base or additional)
j	Settlement Period
k	Metering Point Administration Number (MPAN)
L	Line Loss Factor (LLF) ID
N	Consumption Component Class (CCC)
T	DUoS Tariff Id
X	Consumption Component Class (not for line losses) associated with the Consumption Component Class "N" (CCC for Line Losses)
Z	Supplier or Supplier (for SVA Storage Facilities MPANs (Metering Systems))

7. Identifying BMU data using ABMU to MPAN mapping

7.1 When processing the Settlement Period Consumption (SPC_{kDj}) for an MPAN the MDS must check in the MPAN mapping table held within Elexon Central Systems if there is a record associating the MPAN with an Additional Balancing Mechanism Unit (ABMU). If so the ABMU identifier must be used when processing the MPAN data. Otherwise, the MPAN shall be allocated with the Base BMU associated with the Grid Point Supply Group (GSPG).

8. Identifying MPANs that require a default calculation

8.1 The MDS must apply relevant Load Shapes where there are missing consumption values.

8.2 The MDS shall use the applicable registration data for the Settlement Day, to identify MPANs where there is missing Settlement Period Consumption data and insert the associated Load Shape (LS) data into the following processes.

9. Processing energised MPANs with missing UTCP data

9.1 The MDS shall use the following method for energised MPANs with missing data:

Method: Where there is an Energised 'E' MPAN 'k' in the Registration Data and where 'C' is the Load Shape Category (LSC) associated with the Registration Data for the MPAN and where Settlement Period Consumption (SPC_{kDj}) has not been received from the appointed Data Service:

If Active Import (AI):

$SPC_{kDj} = LS_{CDj}$

If the MPAN is in the Smart Segment the data must be allocated an 'E8' Flag

If the MPAN is in the Advanced Segment the data must be allocated an 'EA12' Flag

If the MPAN is in the Unmetered Segment the data must be allocated an 'E' Flag

If Active Export (AE):

$SPC_{kDj} = 0$

If the MPAN is in the Smart Segment the data must be allocated an 'ZE1' Flag

If the MPAN is in the Advanced Segment the data must be allocated an 'EAE1' Flag

If the MPAN is in the Unmetered Segment the data must be allocated an 'E' Flag

9.2 The defaulted Load Shape data used for each MPAN will be provided on the I/F 013 exception report. The sending of IF-013 will be restricted **until the SF Settlement Run**

9.3 For MPANs that are de-energised any non-zero 'A' Flagged data (A, A1, A2, A3 or E6), the Settlement Period Consumption (SPC_{kDj}) will be processed and an exception report will be provided using the I/F 014.

10. Calculating Uncorrected BM Unit's Period Level Consumption and MPAN counts by BMU

10.1 The MDS must produce uncorrected Consumption data aggregated to CCC-level, GSP and BMU (base or additional) for VAS.

Method: For each Settlement Day 'D' and each Settlement Period 'j' and for each GSP Group 'H' the MDS shall ensure that the Uncorrected BM Unit's Period Level Consumption ($BMPC_{iHNDj}$) within Consumption Component Class 'N' (which Consumption Component Class shall not be a Consumption Component Class for line losses) within each BM Unit 'i' shall be determined according to the following formula and shall be provided to the VAS:

$$BMPC_{iHNDj} = \sum_{K} SPC_{iHNkDj}$$

Where 'k' is the MPAN.

The MDS shall also record the count of SPC_{iHNkDj} used in the calculation:

$CBMPC_{iHNDj}$ = Count (SPC_{iHNkDj}) where the MPAN is energised or de-energised with data that is non zero.

11. Accessing Line Loss Factors and calculating Line Losses for $BMPC_{iHNDj}$

11.1 The MDS must be able to access the Line Loss Factors (LLFs) for each MPAN as identified by the Line Loss Factor id (LLF id) associated with each MPAN.

11.2 The MDS must produce Line Loss Adjusted Aggregated SP Level data by applying LLFs to the Settlement Period Consumption for each MPANs and notify to VAS.

Method: The BM Unit's Period Level Consumption Losses ($BMPCL_{iHNDj}$) within Consumption Component Class 'N' (which shall be a Consumption Component Class for line losses), within each BM Unit 'i' of such Supplier shall be determined according to the following formula:

$$BMPCL_{iHNDj} = \sum_{K} \left(LLF_{LDj} - 1 \right) * SPC_{iHXLkDj}$$

where 'X' is the Consumption Component Class (not for line losses) associated with the Consumption Component Class 'N' for which the value of $BMPCL_{iHNDj}$ is to be determined.

11.3 The MDS must be able provide other BSC Systems the Settlement Period Consumption (SPC_{iHNkDj}) and associated losses at MPAN level, identified by CCC id, for use in other Settlement calculations (e.g. Wider Access).

12. Determination of Period BM Unit Gross Storage Demand for SVA Storage Facilities

General

12.1 This section sets out the processes and calculations needed to provide certain data to the ESO for the purpose of calculating Transmission Network Use of System Charges and Balancing Services Use of System Charges relating to the operation by the ESO of the Transmission System. For the avoidance of doubt, such data are not used for the purposes of calculating Trading Charges.

Declarations

12.2 Where a Supplier intends to register a Metering System on the SVA Storage Facilities Register, it shall submit a Declaration on behalf of the relevant SVA Storage Facility Operator to the VAS in accordance with BSCP602, and shall keep the VAS informed of any amendments or updates to that Declaration made by the VAS Storage Facility Operator.

12.3 Each VAS Storage Facility Operator who is a BSC Party acknowledges and agrees that:

a) the information contained in any Declaration submitted to the VAS on their behalf is accurate and complete in all material respects; and

b) they will promptly notify the Supplier(s) who is the Registrant of the Metering System(s) on the Declaration of any amendments or updates to the Declaration.

Suppliers' Responsibilities

12.4 Each such Supplier shall ensure that UTC Period Level Consumption (UTCP) data for each Settlement Period of each Settlement Day are made available to the MDS in respect of all of such Supplier's Metering Systems which are listed on the VAS Storage Facilities Register and subject to half hourly metering as part of the day to day MHHS processes.

If:

a) a VAS Generator provides Export Active Energy through a VAS Metering System and such Export Active Energy is allocated between two or more Suppliers; and/or

b) a Storage Site consumes Import Active Energy through a VAS Metering System and such Import Active Energy is allocated between two or more Suppliers; and

c) each such Supplier shall ensure that Metered Data for each Settlement Period of each Settlement Day shall be made available to the MDS in respect of all of such Supplier's MPAN associated with Metering Systems which are listed on the SVA Storage Facilities Register and subject to half hourly metering.

12.5 These requirements shall not include metered data for Unmetered Supplies.

MDS Responsibilities

12.6 The MDS shall access the SVA Storage Facilities Register from BSCCo for all MPANs 'k' and for each BMU 'i' and GSP Group 'H'.

12.7 The MDS shall use the Settlement Period Consumption ($SPC_{iHNLkDj}$) for MPAN 'k' on the VAS Storage Facilities Register for each BMU 'i' and GSP Group 'H':

Method: For Settlement Period Consumption ($SPC_{iHNLkDj}$) values for a MPAN 'k' in the SVA Storage Facilities Register, the MDS shall determine the Storage Metering System Metered Consumption ($SVMMC_{iHNLkDj}$) within Consumption Component Class 'X' (which Consumption Component Class shall not be a Consumption Component Class for line losses) within BM Unit 'i' for such MPAN 'k' for a particular GSP Group 'H', according to the following formula:

$SVMMC_{iHXLkDj} = SPC_{iHXLkDj}$

12.8 The MDS shall determine the Storage Consumption (Non Losses) (SC_{iNDj}) within Consumption Component Class 'N' (which Consumption Component Class shall not be a Consumption Component Class for line losses or for active export) for each BM Unit 'i' according to the following formula:

$SC_{iNDj} = \sum_{LHk} SVMMC_{iHNLkDj}$

12.9 The MDS shall determine the Storage Consumption (Losses) ($SCLOSS_{iNDj}$) within Consumption Component Class 'N' (which Consumption Component Class shall be a Consumption Component Class for line losses) for each BM Unit 'i' according to the following formula:

$SCLOSS_{iNDj} = \sum_{Lk} ((LLF_{LDj} - 1) * SVMMC_{iHXLkDj})$

where 'X' is the Consumption Component Class (not for line losses or active export) associated with the Consumption Component Class 'N' for which the value of $SCLOSS_{iNDj}$ is to be determined.

12.10 The Storage Consumption (Non Losses (SC_{iNDj}) and Storage Consumption (Losses) ($SCLOSS_{iNDj}$) shall be provided to the VAS in accordance with the Master Settlement Timetable.

13. MDS Post-calculation Validation Requirements

13.1 The MDS must convert the output to Mega Watt hours (MWh) and round to six decimal places.

13.2 For each Settlement Period the MDS must validate that processing has completed correctly without error prior to completing the MDS run.

13.3 If validation fails an investigation into the cause of failure must be undertaken to correct the validation failure and the MDS calculation must be re-run. If no error is identified the data is assumed to be correct.

14. MDS exception reporting

14.1 The MDS must report missing data and defaulting to Market Participants. The MDS must notify the use of Defaulted Data by MPAN and Settlement Day to Suppliers and relevant Data Services (Smart Data Service, Advanced Data Service and Unmetered Data Service) is the IF-013 interface:

Method: Record the MPAN that has been defaulted and the data items that identify the LSC that had been used for defaulting OR state defaulted to 0 and identify the associated default Flag:

If Active Import (AI):

If the MPAN is in the Smart Segment the data must be allocated an 'E8' Flag

If the MPAN is in the Advanced Segment the data must be allocated an 'EA12' Flag   **Commented [TR7]:** DIN-1081

If the MPAN is in the Unmetered Segment the data must be allocated an 'E' Flag

If Active Export (AE):

If the MPAN is in the Smart Segment the data must be allocated an 'ZE1' Flag

If the MPAN is in the Advanced Segment the data must be allocated an 'EAE1' Flag

If the MPAN is in the Unmetered Segment the data must be allocated an 'E' Flag

15. Determination of Annual Consumption per MPAN

15.1 The MDS shall calculate Annual Consumption for each Energised MPAN according to the Method and timescale contained in MHHSP-METH010_Annual_Consumption.

16. MDS investigates data issues

16.1 If the VAS notifies the MDS of data potentially containing an error. The MDS will investigate the data and confirm to the VAS whether the data is correct and can be used in the Volume Allocation Run or whether it is incorrect and should be rejected within 1 hour of the incident being notified.

Section D   DUoS Reporting Calculations

17.1 This section sets out the calculations for aggregated Distribution Use of System reports for LDSOs. These are three reports by DUoS Tariff Id. There are three reports:

- Rep-002 LDSO report for DUoS – aggregated data: which has two variants one for LDSOs with aggregated consumption data for all Suppliers on the LDSO's network and one for Suppliers containing the aggregated consumption data specific to the Supplier;
- Rep-002A Embedded Network report for DUoS – aggregated data – which provides host LDSO with the aggregated consumption data for Embedded Networks within the LDSO's GSP Group.

17.2 All calculations are undertaken using uncorrected Settlement Period Consumption (SPC_{HkDj}). Calculations are undertaken at Supplier Id or Embedded LDSO Id rather than BM Unit Id level.

17.3 The DUoS Report calculations shall only be undertaken for SPC data that is for MPANs with a connection type = 'W'

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18. Calculation of Total Uncorrected Volume (TUV_{HTZDj})

The MDS must produce Total Uncorrected Volume from Settlement Period Consumption data aggregated by DUoS Tariff Id:

Method: For each DUoS Tariff Id 'T' and Settlement Day 'D' and each Settlement Period 'j' and for each GSP Group 'H' the MDS shall ensure that the Total Uncorrected Volume (TUV_{HTZDj}) within each Supplier Id 'Z' shall be determined according to the following formula:

$$TUV_{HTZDj} = \sum_{k} SPC_{HTZkDj}$$

Where 'k' is the MPAN.

The MDS shall also record the counts of SPC_{HTZkDj} used in the calculation for energised and de-energised MPANs (Total Number Energised MPANs ($TNEM_{HTZDj}$) and Total Number De-Energised MPANs ($TNDM_{HTZDj}$) :

$TNEM_{HTZDj}$ = Count (SP_{HTZkDj}) where the MPAN is energised.

$TNDM_{HTZDj}$ = Count (SP_{HTZkDj}) where the MPAN is de-energised where data is flagged: A, A1, A2, A3, AAE1, AAE2, AAE3, E2 or E6.

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Daily Total Volumes on Actuals or Estimates

The MDS shall calculate daily total volumes (Daily total volume based on Actual Data ($DTVA_{HTZD}$) and Daily total volume based on Estimated Data ($DTVE_{HTZD}$)) according to the following formulae:

$$DTVA_{HTZD} = \sum_{j} \sum_{k} SPC_{HTZkDj}$$

Where the Settlement Period Quality Indicator for the SPC data indicates the Consumption data is Actual Data = A, A1, A2, A3, AAE1, AAE2, AAE3, E2 or E6.

And

$$\text{DTVE}_{\text{HTZD}} = \sum_{j} \sum_{k} \text{SPC}_{\text{HTZkDj}}$$

Where the Settlement Period Quality Indicator for the SPC data indicates the Consumption data is estimated ≠ A, A1, A2, A3, AAE1, AAE2, AAE3, E2 or E6.

19. Calculation of Embedded Total Uncorrected Volume (ETUV$_{\text{HTEDj}}$)

19.1 The MDS must produce Embedded Total Uncorrected Volume from Settlement Period Consumption data aggregated by DUoS Tariff Id:

Method: For each Settlement Day 'D' and each Settlement Period 'j' and for each GSP Group 'H' the MDS shall ensure that the Embedded Total Uncorrected Volume (ETUV$_{\text{HTEDj}}$) for each Embedded Network Id 'E' shall be determined according to the following formula:

$$\text{ETUV}_{\text{HTEDj}} = \sum_{k} \text{SPC}_{\text{HTEkDj}}$$

Where 'k' is the MPAN.

The MDS shall also record the counts of SPC$_{\text{HTEkDj}}$ used in the calculation for energised and de-energised MPANs (Total Number Energised MPANs (TNEM$_{\text{HTEDj}}$) and Total Number De-Energised MPANs (TNDM$_{\text{HTEDj}}$) :

TNEM$_{\text{HTEDj}}$ = Count (SP$_{\text{HTEkDj}}$) where the MPAN is energised.

TNDM$_{\text{HTEDj}}$ = Count (SP$_{\text{HTEkDj}}$) where the MPAN is de-energised.

Daily Total Volumes on Actuals or Estimates

The MDS shall calculate daily total volumes (Daily total volume based on Actual Data (DTVA$_{\text{HTED}}$)and Daily Total Volume based on Estimated Data (DTVE$_{\text{HTED}}$)) according to the following formula:

$$\text{DTVA}_{\text{HTED}} = \sum_{j} \sum_{k} \text{SPC}_{\text{HTEkDj}}$$

Where the Settlement Period Quality Indicator for the SPC data indicates the Consumption data is Actual Data = 'A', 'A1', 'A2' or 'A3'.

And

$$\text{DTVE}_{\text{HTED}} = \sum_{j} \sum_{K} \text{SPC}_{\text{HTEkDj}}$$

Where the Settlement Period Quality Indicator for the SPC data indicates the Consumption data is estimated ≠ 'A', 'A1', 'A2' or 'A3'.

Change Record

Date	Author	Version	Change Detail
16/02/2023	SI Design	V5.0	Initial Version
29/08/2023	SI Design	V5.1	DIN 158
12/09/2023	SI Design	V5.2	DIN 264, 340, 342, 591, 610& 611.
26/01/2024	SI Design	V5.3	DIN794
22/03/2024	SI Design	V5.4	DIN-895
13/08/2024	SI Design	V5.5	DIN-1081