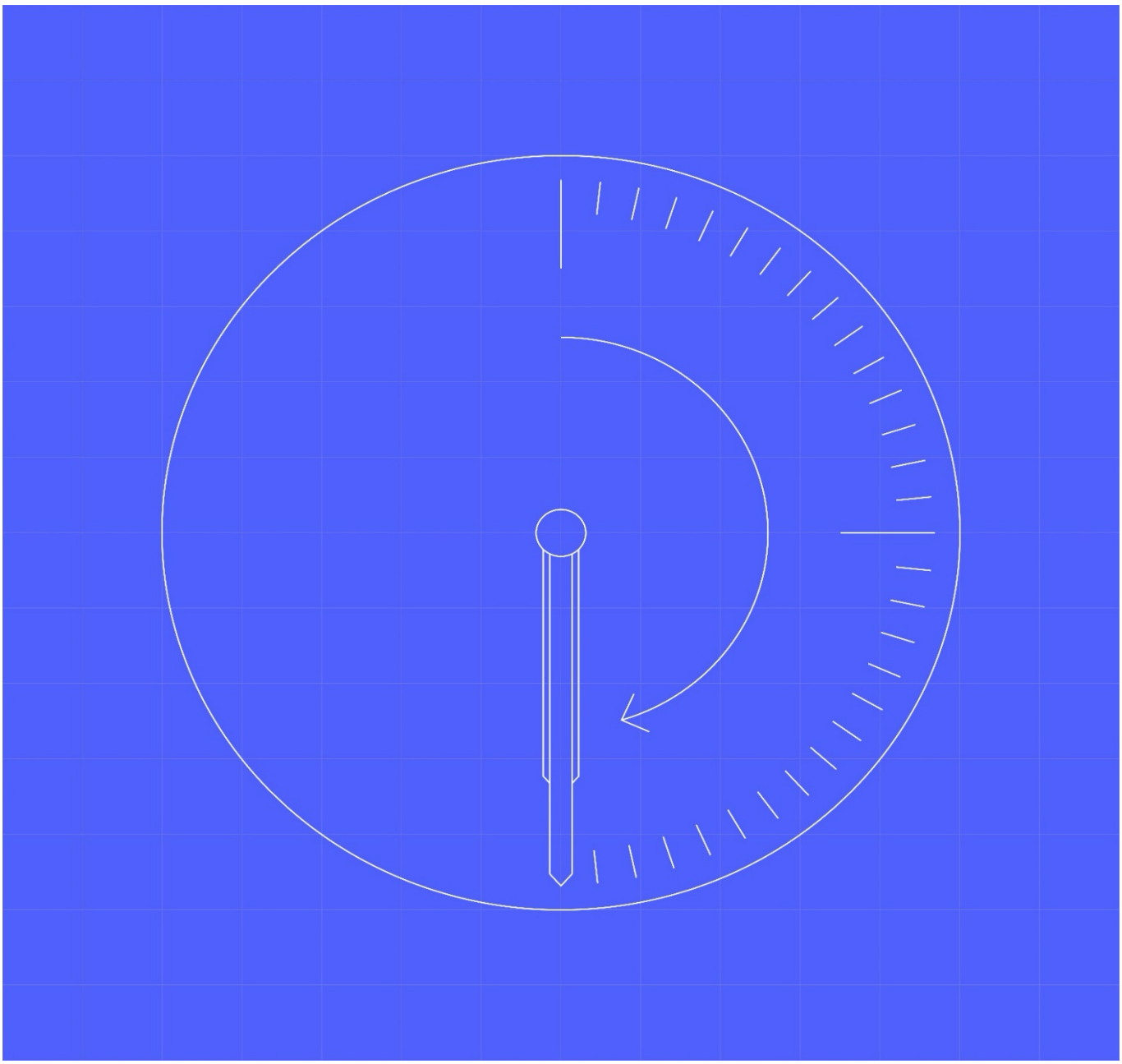
MHHS PROGRAMME
Industry-led, Elexon facilitated

MHHS Programme Data Cleanse Plan



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1.1 Change Record

Date	Author	Version	Change Detail
09/06/2023	Migration Team	0.1	Draft for Industry Consultation
30/06/2023	Migration Team	0.2	Draft issued for Assurance Meeting
12/07/2023	Migration Team	0.3	Draft issued post Assurance Meeting for TMAG approval
24/07/2023	Migration Team	1.0	Baselined following TMAG Approval
29/01/2024	Data Cleanse Team	1.1	Updated following discussions in the Data Cleanse Working Group in Q4 2023.
15/02/2024	Data Cleanse Team	1.2	Updated Draft for MCAG Approval
26/02/2024	Data Cleanse Team	1.3	Minor Updates for MCAG Approval
27/02/2024	Data Cleanse Team	2.0	Baselined following MCAG Approval

1.2 References

Document	Publisher	Published	Additional Information
MHHS-DEL1029-Data Assessment Report v1.0	John Wiggins	21/02/2023	
MHHS-DEL1128-Migration, Cutover & Data Strategy Document v1.0	Migration Team	02/06/2023	

1.3 Terminology

Term	Description
CSS	Central Switching Service
EES	Electricity Enquiry Service
Forward Migration	The process through which MPANs will move from Legacy arrangements to MHHS arrangements.
ISD	Industry Standing Data
LDSO	Licensed Distribution System Operator
Legacy Arrangements	The existing arrangements set out under the BSC and REC. For the purposes of the Migration Design, this is primarily the REC Metering Services Schedule and the Balancing and Settlement Procedures related to Data Collection.
MCAG	Migration and Cutover Advisory Group
MHHS	Market-Wide Half-Hourly Settlement
MHHS Arrangements	The new MHHS arrangements as set out in the MHHS Core Design Artefacts.
Migration Period	The period denoted by the Programme as occurring between the M11 and M15 milestones.
MOP	Meter Operator
MPAN	Meter Point Administration Number
MPRS	Metering Point Registration System
Primary MPAN	The MPAN, within a Related MPAN arrangement, for which a Switch is initiated or a Forward Migration (via an IF-031) is initiated.

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Qualified Supplier	A Supplier recognised in ISD as both having passed the relevant System Integration Testing (SIT) requirements or BSC qualification requirements; and declared that their service is operational within the MHHS arrangements.
Registration Service	The service operated by LDSOs
Secondary MPAN	The MPAN, within a Related MPAN arrangement, for which a Forward Migration occurs when an IF-031 is received for a Primary MPAN.
Switch	The process by which a new Supplier Registration supersedes an existing Supplier Registration, managed by the CSS.

1.4 Programme Milestones

The below Programme milestones are referenced throughout the Data Cleanse Plan.

M9 – Start of Test Phase

M10 – Central Systems ready for migrating MPANs

M11 – Start of 18 month Migration for UMS / Advanced

M12 – Start of 18 month Migration for Smart / Non-Smart

M13 – Load Shaping Service switched on

M14 – All Suppliers must be able to access MPANs under the new TOM

M15 – Full transition complete

1.5 Reviewers

Reviewer	Role
SRO	Review and comment
MWG Attendees	Document consultation

2 Introduction and Scope

2.1 Introduction

The MHHS Data Assessment Report, approved by TMAG in February 2023, identified key risks and issues related to the quality and completeness of data required by the new MHHS design to be utilised within Migration and ongoing live operations. These risks and issues will need to be mitigated or resolved prior to the relevant stages of the MHHS Programme.

The purpose of this document, the Data Cleanse Plan, is to set out the data improvement activities that are required to be undertaken by Programme Participants and/or the MHHS Programme to ensure data is of the required quality and completeness prior to the cutover to the new arrangements at M10 and the start of migration at M11.

The requirement for the development of a Data Cleanse Plan and the responsibilities of the MHHS Programme and MHHS Participants in respect to it are set out within Section C of the BSC:

“12.8.2. The responsibilities of the MHHS SI shall include (without limitation)…. proposing , consulting on, and obtaining approval for (in accordance with the MHHS Governance Framework) an MHHS Data Cleansing Plan…”

And;

“12.12.4. The following obligations apply to those MHHS Participants required by the MHHS Data Cleansing Plan and/or MHHS Data Migration Plan to participate in the cleansing and/or migration of data required for

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MHHS Implementation: (a) they must comply with their obligations under that plan; (b) they must report their progress as required by the MHHS SI or MHHS PMO; (c) they must undertake the cleansing, migration and synchronisation of data in accordance with the specified timetables; and (d) they must provide all information and co-operation reasonably required by the MHHS SI or MHHS PMO."

As a general approach to managing all the required data improvement activities, it is recommended that the Programme is responsible for the scoping, planning and ongoing monitoring of each activity.

This document sets out the data cleansing and population activities that have been identified by the MHHS Programme as integral to the successful migration to the new MHHS arrangements. These activities relate to: MTDs, Advanced Meters, Registration Data, and Import/Export Meters.

2.2 Scope

While the MHHS Programme will be responsible for setting out the required data cleansing / population activities required to support the migration to the MHHS arrangements; Industry Participants will be responsible for carrying out the activities as set out in the BSC. The Data Cleanse Plan has been developed to enable the success of the migration period. As the responsibility for the migration period lies with Programme Participants, the responsibility for the successful delivery of the data cleanse plan also lies with the Programme Participants.

This includes:

- Suppliers;
- Meter Operators;
- Metering Services (i.e., MSS, MSA);
- EES;
- LDSOs (i.e., DNOs and iDNOs);
- The DCC, operating Smart Metering and CSS;
- REC and BSC Performance Assurance Boards.

The MHHS Programme has not been included in the list of parties who are responsible for delivering the Data Cleanse Plan, however note that it will play a supporting role in the population of data items such as ESME ID by centrally receiving extracted data files and re-distributing these to participant groups.

The purpose of the Data Cleanse Plan is to outline how data quality issues that are likely to impact the success of the MHHS migration period will be resolved. The purpose of the Data Cleanse plan is not to outline how historic data quality issues that have no impact on the success of the MHHS migration period will be resolved.

3 Assumptions, Risks and Dependencies

3.1 Assumptions

- Migration processes will be executed in accordance with the Migration Design approved within the MHHS Programme.
- The MHHS Programme will dynamically plan, manage, and assure the migration of legacy MPANs to MHHS arrangements.
- There will be Advanced meters operating under both NHH and HH arrangements when Migration starts.
- All Unmetered Sites will be operating under HH arrangements when Migration starts.

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- The Programme will utilise existing reporting data from the EES to track individual Participants progress against plan.
- Several activities within this plan will require investigation and resolution across a number of participants, following automated cleansing/population activities. We will not be able to forecast what the scale of those activities are until the preceding automated stages of the plan are completed. Following an empirical approach, we will verify the outcome of those automated stages before validating that the planned delivery of subsequent steps (set out within this plan) are viable.
- The data cleanse plan may be updated based on discussions in the Data Cleanse Working Group. Any updates that are made will be brought to the relevant advisory group for approval.

3.2 Risks

- Data Cleansing activities are not completed in time to support M10 or M11/ M12.
- Capacity of some MHHS Participants to undertake these data improvement activities alongside existing MHHS design, build and test responsibilities. Particularly LDSOs, Suppliers and MEMs who will be required to undertake most of the data cleanse activities.
- There is a risk that MEMs will not be able to complete the change of clock for local time Advanced Meters if robust planning is not undertaken between Suppliers and MEMs.
- For several of the data cleanse activities, the scale of the work that needs to be completed will be unclear until the preceding activities have started and we have an understanding of the results of automated data population.
- In addition to no comms Advanced meters being a risk, there are also inoperable or intermittent comms issues, and data issues such as missing/incorrect meter passwords that could hinder reprogramming.
- Some parties may be disengaged from the MHHS Programme and not aware of their obligations set out in this data cleanse plan.
- There is a risk that if there are MPANs that have incomplete metering information within SMRS (missing or rejected D0312s), the activities outlined in the Data Cleanse Plan cannot be carried out for those MPANs.

3.3 Dependencies

- The data cleansing activities that have been set out in this Data Cleanse Plan are undertaken to minimise data quality issues by M11 / M12.
- Existing Legacy processes and code obligations must be undertaken to a high level of quality by participants. There is a dependency on the timing for population of the Domestic Premises Indicator being considered within the cutover plan.
- There is a dependency on P434 being carried out as all non-half-hourly Unmetered MPANs must have gone through a CoMC to half-hourly prior to M10.
- There is a dependency on Suppliers to resolve incorrectly set settlement data within MPRS.
- There is a dependency on the Code Bodies resolving issues with MPRS validation rules which are affecting the updating of metering information and other data into MPRS.

4 MTDs

Each LDSO should hold a record of all installed Meter Technical Details (MTD) for each MPAN within their respective Registration Services. MTD data is maintained by the appointed MEM, via the D0312 data flow,

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who will update the data whenever a meter is installed, removed or other related metering attributes are changed.

From 29 June 2023 this data will be enhanced to contain additional data items which are required by the MHHS design. MEMs and LDSOs will be required, within this plan, to ensure that this data has been fully populated prior to the start of migration at M11 / M12.

To achieve this aim, a number of staged activities have been identified which will be completed between June 2023 and the M10 milestone.

4.1 ESME ID Population Overview

The ESME ID is an existing data item which will only exist in the Registration Service from 29 June 2023 onwards. From this date, the MEM will be responsible for the ongoing maintenance of this data within the Registration Service. Under this plan, the MEM will be required to ensure that for all new Smart Meters installed, they populate the ESME ID via the sending of a D0312 data flow to the Registration Service.

For all historical meters installed prior to this date, a data population activity is required, which will be completed utilising data currently held centrally within DCC Smart Metering. The approach to deliver this requirement is set out below:

	Data Item: ESME ID
Pre-Requisites for Activity	Creation of data item within the Registration Service and the ability for MEMs to maintain this data via the D0312 (delivered under REC CP R0032 on 29 June 2023).
Problem Statement	Data item will be created as part of R0032 but will not be populated at launch. An obligation exists, from 29 June 2023, for MEMs to provide the ESME ID when a Smart meter is installed, or other relevant information is updated. However, for Smart meters installed before this date the ESME ID will not be populated. ESME ID is required, under the new MHHS arrangements, as it will be utilised by Data Services (MDRs) to identify and communicate with a specific meter in DCC Smart Metering systems. Exceptions will be created, post migration of an MPAN, which will result in poor read performance and ultimately impact settlement accuracy.
Responsible Parties	MEMs LDSOs DCC EES Suppliers MHHS Programme SI
Method	<u>Data Population:</u> 1) <u>Bulk Upload of ESME ID into each Registration Service</u> a) The DCC will extract the ESME ID and corresponding MPAN(s) for each installed Smart meter within the Smart Metering Inventory. b) The DCC will provide a single encrypted file (.csv) to the MHHS Programme SI via a SFTP. c) The MHHS Programme SI will share a (.csv) file with each LDSO (by MPID) d) Each LDSO will load the ESME ID for each MPAN e) A full MPAN refresh of data will occur between each Registration Service and EES

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	6 weeks prior to this, the DCC will provide a 'Test File' containing a small number of records to the MHHS Programme SI so that the above process can be tested. This will follow the same process as detailed above. 2) MEM update of ESME ID for Meter Installations a) The MEM will provide an accurate ESME ID within the D0312 for each new Smart meter that they install from June 2023 onwards.
Timescales	1) Bulk Upload of ESME ID into each Registration Service This activity will occur in August 2024, based on a requirement for the supporting migration tools to be developed by the DCC and LDSOs to extract and load the data. 2) MEM update of ESME ID for Meter Installations This activity will occur from June 2023 onwards following the implementation of R0032.
Success Criteria	1) ESME ID is synchronised between DCC systems, the Registration Service and EES for all Smart meters, prior to migration start at M12. 2) For all new Smart meter installations, from the June release onwards, the MEM provides the correct ESME ID within the D0312.
Out of Scope	1) The ESME ID held within DCC systems, in some instances, may be incorrect due to commissioning or other process failures. These errors will not be addressed by this activity but should be resolved by Suppliers and their Agents within the current or new arrangements. 2) Based on the current R0032 design, under certain circumstances, the MEM may not be aware of the ESME ID (in the case that they did not install the meter), in that scenario the MEM should populate the ESME ID value as 'zeros' within the D0312, in turn, if the Registration Service holds a correct value, it will return the correct value within the D0312 response message. This will enable MEMs to then update the correct value within their own systems.
Reporting	1) Reporting should monitor that MEMs are populating the ESME ID for all meters they install following the June 2023 release. (This reporting can be based on EES data). 2) Reporting should validate that ESME ID has been populated within the Registration Service for all Smart meters at M10 and that this data is synchronised to the EES. (This reporting can be based on EES data).
Ongoing Maintenance	Following population, the ongoing maintenance of this data will be undertaken by MEMs using the Legacy D0312 data flow or (under the new arrangements) utilising the IF-005 DIP message.

4.1.1 File Specification and Transfer of Data

The file produced by the DCC will be a delimited file (.csv) and each row will contain data in the following sequence:

MPAN, ESME ID

Only MPANs that are associated to a current Supplier Registration should be included within the extract. MPANs that have been terminated should be excluded.

The specification for each data item is set out in the MHHS Interface Specification document.

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The DCC will transfer the extract to the MHHS Programme SI via a SFTP method (the same method that will be utilised for the transfer of MHHS test data).

The MHHS Programme SI will then create a file for each LDSO MPID, and make that file available to each LDSO via the SFTP method.

Rules for Data Population:

1. DCC must only supply the ESME ID for Installed Active Meters
2. DCC must not Supply the ESME ID for De-Registered (SecuredInactive and Terminated) MPANs
3. If more than one ESME ID is associated to an MPAN a record for each ESME ID should be provided (meaning records with duplicate MPANs should be created in the DCC extract).

4.1.2 Data Load and Exception Resolution

Each LDSO will validate that the data file they receive from the MHHS Programme SI conforms to the correct structure and that the data items conform to the correct specification. The LDSO will then load the data for each MPAN that has not had an ESME ID populated by the MEM since June 2023.

The LDSO will exclude from the load MPANs that have had an ESME ID value populated by the MEM.

Where the ESME ID, within the DCC extract, is different from the ESME ID already populated by the MEM with the Registration Service, the LDSO will report this to the Registered Supplier via the SDEP Service.

The SDEP message shall contain a .csv file with each row containing the MPAN, ESME ID [from DCC], ESME ID [current Registration Service value].

The Supplier will then investigate the exceptions with the MEM (as required). Where remedial activities need to be undertaken to correct data within the Registration Service, the MEM shall utilise the D0312 to update the corrected value within the Registration Service.

Where the ESME ID is not returned by the DCC for an MPAN with a smart meter associated to it within the Registration Service (and a value has not been provided in the D0312 by the MEM), the Registration Service will populate ‘zeros’ within the ESME ID.

If more than a single MPAN record is provided by the DCC (because more than one ESME ID exists for that MPAN) the LDSO should not load that data. An exception report should be produced and sent to the supplier for investigation (via the SDEP), who should then request their MEM to send in a D0312 associating the ESME ID to the correct Meter Serial Number.

The exception reports detailed previously should contain the MPAN, ESME ID(s) and Meter Serial Number(s) within a .csv file.

4.1.3 Synchronisation of Data between the Registration Service and EES

Once the data has been updated within each Registration Service the data will need to be synchronised to the EES via the utilisation of the “Full MPAN Refresh” functionality which exists between those services.

Following the initial Data Load in August 2024 the “Full MPAN Refresh” will occur in September 2024. This activity will be aligned to the refresh of other data described in the other sections of this plan.

Any subsequent updates to the ESME ID via the D0312, which will occur because of BAU meter installations or the resolution of exceptions (as described in section 4.1.2), will be automatically synchronised to the EES utilising BAU functionality.

4.1.4 Performance Targets

The following performance targets will be placed on Programme participants:

Activity	Responsibility	Target Date	Target Measure	Reporting / Monitoring

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For all smart meters installed from June 2023 onwards the MEM must send a valid D0312 to the Registration Service, containing the ESME ID.	MEM	Jun-23 onwards	For each smart meter installed from Jun-23 onwards the ESME ID will be populated.	The MHHS Programme SI will utilise EES data to report on performance against this measure. Performance reporting will be reviewed at MCAG. Risks identified by reporting will be managed within the Programme governance.
DCC will extract ESME ID from the smart metering system and provide a single encrypted file to the SI. The SI will then share a file with each LDSO.	DCC/SI	16 Aug-24	For all live smart meters within the DCC system, the ESME ID is provided to the relevant LDSO.	The MHHS Programme SI will confirm to the MHHS Programme that each LDSO has obtained the file.
Each LDSO will load the file.	LDSO	24 Aug-24	Each LDSO has successfully loaded the file.	Each LDSO will confirm to the MHHS Programme SI that each file has been loaded within their Registration Service. The LDSO will report the number of exceptions which could not be loaded and the number of Registered and Traded MPANs where a smart meter is installed and an ESME ID was not provided.
Each LDSO will undertake a ‘full refresh’ between their Registration Service and the EES	LDSO/EES	29 Sep-24	Each LDSO has successfully undertaken the activity in conjunction with the EES.	Each LDSO will confirm to the MHHS Programme SI when the activity is complete.
MHHS Programme SI verifies data completeness.	MHHS Programme SI	29 Sep-24	The measure will be based on the number of exceptions reported by the LDSO when completing the file load.	The MHHS Programme SI will report data completeness to MCAG. The Programme RAID management process will be utilised if completeness is deemed by MCAG to be below an acceptable threshold*.
Each LDSO notifies the Registered Supplier of any exceptions which have occurred because of the data load. (as per section 4.1.2)	LDSO	30 Sep-24	Each Supplier has received, via SDEP, a file containing exceptions for investigation.	Each LDSO will confirm to the MHHS Programme SI the number of exceptions raised to each Supplier MPID and exception reason.

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Each Supplier completes investigation of exceptions and resolution of exceptions	Supplier	20 Dec-24	An updated D0312 is sent by the MEM.	The MHHS Programme SI will report the number of ESME IDs that remain unpopulated to MCAG, and the Supplier and MEM related to each exception**. (This reporting should exclude those populated with zeros)

*Enhanced assurance activities may be implemented by the Programme if the number of exceptions remains high and is deemed a material risk to activities post M12.

**The MHHS Programme SI will assure this activity and report to MCAG where Suppliers / MEMs have not carried out required cleansing activities. This could be factored into Programme migration planning, e.g. the MPAN cannot be migrated until resolved.

4.2 Meter Location and Number of Displayed Register Digits Population

For all smart meters the Meter Location and Number of Displayed Register Digits should be populated within the Registration Service. As per the requirements for ESME ID, from 29 June 2023 onwards the MEM should populate this data item for all new meters installed. A back population will be required for all meters installed before this date.

4.2.1 Meter Location Population

	Data Item: Meter Location
Pre-Requisites for Activity	Creation of data item within the Registration Service and the ability for MEMs to maintain this data via the D0312 (delivered under REC CP R0032 on 29 June 2023).
Problem Statement	Data item will be created as part of R0032 but will not be populated at launch. An obligation exists, from 29 June 2023, for MEMs to provide the Meter Location when a Smart meter is installed, or other data items in the D0312 are updated. However, for Smart meters installed before this date the Meter Location will not be populated. Meter Location is required to be stored in the Registration Service, under the new MHHS arrangements, as Smart meters will no longer utilise the D0150 (which currently holds the location of a meter within a premises). In most instances, as the location of a metering point within a domestic premises is in a small number of potential locations, the failure to populate this data item should not cause significant exceptions. However, due to the absence of MTDs, this data would be lost, and the impact/cost (across millions of metering points) could be significant in comparison to the cost of an MHHS lead population exercise.
Responsible Parties	MEM LDSO
Method	Data Population:

	1) Bulk Upload of Meter Location into each Registration Service a) Each MEM will extract the Meter Location, LDSO MPID, and corresponding MPAN for each installed Smart meter within their portfolio. b) The MEM will provide a file (.csv) to the SI which will be provided to each LDSO (by MPID) c) Each LDSO will load the Meter Location for each meter (unless the value is already populated). d) Where Meter Location has not been provided for a given MPAN by the MEM, the Registration Service shall populate the value as 'F' for 'Not Known'. This will ensure that no smart meters have a null value. e) A full MPAN refresh of data will occur between each Registration Service and EES 2) MEM update of Meter Location for Meter Installations a) The MEM will provide an accurate Meter Location within the D0312 for each new Smart meter that they install from June 2023 onwards.
Timescales	1) Bulk Upload of Meter Location into each Registration Service This activity will occur in August 2024, allowing Participants time to develop the tools required to extract and load the data. 2) MEM update of Meter Location for Meter Installations This activity will occur from June 2023 onwards following the implementation of R0032.
Success Criteria	Meter Location data item populated accurately for all MPANs by M10. Meter location is a mandatory data item for Smart meters in the MHHS design so success will be related to 100% population. (The quantitative measure will assess that no null values exist, and the qualitative measure will assess that actual locations are provided by each MEM)
Reporting	1) Reporting should monitor that MEMs are populating the Meter Location for all meters they install following the June 2023 release. (This reporting can be based on EES data). 2) Reporting should validate that Meter Location has been populated within the Registration Service for all Smart meters at M10 and that this data is synchronised to the EES. (This reporting can be based on EES data).
Ongoing Maintenance	Following population, the ongoing maintenance of this data will be undertaken by MEMs using the Legacy D0312 data flow or (under the new arrangements) utilising the IF-005 DIP message.

4.2.2 Number of Displayed Register Digits Population

	Data Item: Number of Displayed Register Digits
Pre-Requisites for Activity	Creation of data item through R0032 on 29 June 2023.

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Problem Statement	Data item will be created as part of R0032 but will not be populated at launch. This data item is important with significant downstream impacts, so must be populated to a high level of accuracy.
Responsible Parties	MEMs LDSOs Suppliers
Method	1. For SMETS2, the value can be derived and populated by the LDSO utilising the Meter Type held within the Registration Service. 2. For SMETS1, the value cannot be derived by the LDSO utilising Meter Type alone. MEMs utilise current MTDs they hold for SMETS1 meters (Number of Register Digits data item) and provide a .csv file via the SI to the LDSOs, who will then populate the value within the Registration Service.
Timescales	1) Bulk population of Number of Displayed Register Digits into each Registration Service This activity will occur in August 2024, allowing Participants time to develop the tools required to extract and load the data. 2) MEM update of Number of Displayed Register Digits for Meter Installations This activity will occur from 29 June 2023 onwards following the implementation of R0032.
Success Criteria	Number of Displayed Register Digits data item populated accurately for all MPANs by M10.
Reporting	1) Reporting should monitor that MEMs are populating the Number of Displayed Register Digits for all meters they install following the June 2023 release. (This reporting can be based on EES data). 2) Reporting should validate that Number of Displayed Register Digits has been populated with the correct value, following the agreed method, within the Registration Service for all Smart meters at M10 and that this data is synchronised to the EES. (This reporting can be based on EES data).
Ongoing Maintenance	Following population, the ongoing maintenance of this data will be undertaken by MEMs using the Legacy D0312 data flow or (under the new arrangements) utilising the IF-005 DIP message.

4.2.3 File Specification

The following file specification will be utilised to transfer data from MEM systems to each LDSO Registration Service:

The files will be in de-limited format (.csv) and in each row the data items will be sequenced by MPAN, Supplier MPID, MEM MPID, LDSO MPID, Meter Serial Number, Meter Location, Number of Displayed Register Digits, Meter Type. More than one meter can be associated to an MPAN (so the same MPAN can appear in more than one record).

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MEMs shall include within the file, meter location for SMETS1 and SMETS2 meters and only include Number of Displayed Register Digits for SMETS1 meters. The MEM should provide data for all of their currently appointed MPANs that meet these criteria.

The specification for each data item is set out in the MHHS Interface Catalogue.

Files will be transferred from each MEM to the SI using the same mechanism utilised for the transfer of MHHS test data. The SI will then verify the files and send a consolidated file by LDSO MPID to each LDSO utilising the same mechanism.

4.2.4 Data Load and Exception Resolution

Each LDSO will validate that the data file they receive from the SI conforms to the correct structure and that the data items conform to the correct specification. The LDSO will then load the data for each MPAN that has not had a meter location or Number of Displayed Register Digits data item populated by the MEM since June 2023.

The SI will identify and remove Duplicate MPAN records before providing the data to each LDSO.

To account for change of agent events, which may occur between extract and load, the LDSO can load data received from an MEM who is no longer the appointed MEM as long as the Meter Serial Number and the MPAN are valid.

Where a value has already been provided on the D0312, MPRS must not override the current value with the .csv value or the value derived by MPRS.

The LDSO shall populate, for all SMETS2 meter types, the relevant value from the table below for Number of Displayed Register Digits at the same point in time that the SMETS1 data is loaded.

Meter Type	Meter Type Description	Meter Dials / Digits
S2A	A single element meter that is compliant with SMETS2	5 Digits
S2AD	A single element meter with one or more ALCS that is compliant with SMETS2	5 Digits
S2ADE	Single element meter with one or more ALCS and Boost Function that is compliant with SMETS2	5 Digits
S2B	A twin element meter that is compliant with SMETS2	5 Digits
S2BD	A twin element meter with one or more ALCS that is compliant with SMETS2	5 Digits
S2BDE	A twin element meter with one or more ALCS and Boost Function that is compliant with SMETS2	5 Digits
2ADF	Single Element with ALCS and Auxiliary Proportional Controller (APC) that is compliant with SMETS2	5 Digits
2ADEF	Single Element with ALCS, Boost Function and APC that is compliant with SMETS2	5 Digits
2AEF	Single Element with Boost Function and APC that is compliant with SMETS2	5 Digits
2AF	Single Element with APC that is compliant with SMETS2	5 Digits
2BF	Twin Element with APC that is compliant with SMETS2	5 Digits
2BDF	Twin Element with ALCS and APC that is compliant with SMETS2	5 Digits

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2BDEF	Twin Element with ALCS, Boost Function and APC that is compliant with SMETS2	5 Digits
2BEF	Twin Element with Boost Function and APC that is compliant with SMETS2	5 Digits
S2C	A polyphase meter that is compliant with SMETS2	6 Digits
S2CD	A polyphase meter with one or more ALCS that is compliant with SMETS2	6 Digits
S2CDE	A polyphase meter with one or more ALCS and Boost Function that is compliant with SMETS2	6 Digits
2CDEF	Polyphase with ALCS, Boost Function and APC that is compliant with SMETS2	6 Digits
2CF	Polyphase with APC that is compliant with SMETS2	6 Digits
2CDF	Polyphase with ALCS and APC that is compliant with SMETS2	6 Digits
2CEF	Polyphase with Boost Function and APC that is compliant with SMETS2	6 Digits

The LDSO shall populate Meter Location with a value of 'Not Known' for any MPANs with smart meters that were not included within the MEM extract.

Where no value is provided, Number of Displayed Register Digits should be initially set to 5 for SMETS1 meters.

The LDSO shall produce a report, for MPANs where the data was automatically populated, because it was missing from MEM extracts and send to the Supplier for investigation via SDEP.

The SDEP message shall contain a .csv file containing the MPAN and be labelled as missing number of Displayed Register Digits or missing Meter Location.

The format of the file shall be: MPAN, Meter Serial Number.

The Supplier will then investigate the exceptions with the MEM (as required). The MEM shall utilise the D0312 to update the required value within the Registration Service.

4.2.5 Synchronisation of Data between the Registration Service and EES

Once the data has been updated within each Registration Service the data will need to be synchronised to the EES via the utilisation of the "Full MPAN Refresh" functionality which exists between those services.

Following the initial Data Load in August 2024 the "Full MPAN Refresh" will occur in September 2024. This activity will be aligned to the refresh of other data described in the other sections of this plan.

Any subsequent updates to the data or which will occur because of BAU meter installations or the resolution of exceptions (as described in section 4.2.4), will be automatically synchronised in to the EES utilising BAU functionality.

4.2.6 Performance Targets

The following performance targets will be placed on Programme Participants:

Activity	Responsibility	Target Date	Target Measure	Reporting / Monitoring
For all smart meters installed from June 2023 onwards the	MEM	Jun-23 onwards	For each smart meter installed from Jun-23	The MHHS Programme SI will utilise EES data to report on performance

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MEM must send a valid D0312 to the Registration Service, containing the Meter Location and Number of Displayed Register Digits.			onwards the required data will be populated.	against this measure. Performance reporting will be reviewed at MCAG. Risks identified by reporting will be managed within Programme governance.
The MEM will extract the data from their systems and via a secure means provide a file to the SI who will verify and send to each LDSO	MEM/SI	16 Aug-24	For all live smart meters within the Registration Service, the data is provided to the relevant LDSO.	The MHHS Programme SI will confirm to the MHHS Programme and MCAG that each extract has been taken and each LDSO has obtained the file.
Each LDSO will load the file.	LDSO	24 Aug-24	Each LDSO has successfully loaded the file.	Each LDSO will confirm to the MHHS Programme SI that each file has been loaded within their Registration Service. The LDSO will report the number of exceptions which could not be loaded and the number of Registered and Traded MPANs where a smart meter is installed, and data was not provided.
Each LDSO will undertake a 'full refresh' between their Registration Service and the EES	LDSO /EES	29 Sep-24	Each LDSO has successfully undertaken the activity in conjunction with the EES.	Each LDSO will confirm to the MHHS Programme SI when the activity is complete.
MHHS Programme SI verifies data completeness.	MHHS Programme SI	29 Sep-24	The measure will be based on the number of exceptions reported by the LDSO when completing the file load.	The MHHS Programme SI will report data completeness to MCAG. The Programme RAID management process will be utilised if completeness is deemed by MCAG to be below an acceptable threshold*.
Each LDSO notifies the Registered Supplier of any exceptions which have occurred because of the data load.	LDSO	29 Sep-24	Each Supplier has received, via SDEP, a file containing exceptions for investigation.	Each LDSO will confirm to the MHHS Programme SI the number of exceptions raised to each Supplier MPID and exception reason.
Each Supplier completes investigation of exceptions and resolution of exceptions	Supplier	20 Dec-24	An updated D0312 is sent by the MEM.	The MHHS Programme SI will report the number of Meter Locations and Number of Displayed Register Digits that remain unpopulated to

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				MCAG, and the Supplier and MEM related to each exception**.

*Enhanced assurance activities may be implemented by the Programme if the number of exceptions remains high and is deemed a material risk to activities post M12.

**The MHHS Programme SI will assure this activity and report to MCAG where Suppliers / MEMs have not carried out required cleansing activities. This could be factored into Programme migration planning, e.g., the MPAN cannot be migrated until resolved.

4.3 D0312 Maintenance – Existing Data Items

Inaccuracies in existing MTD data will cause migration failures if not resolved prior to M10. It is required that MEMs, as the master of this data, verify that it is of a good quality prior to migration start.

In addition to D0312 data not being of the required quality within the Registration Service there are also many MPANs (recorded as Energised) for which a D0312 has never been received from a MEM. For the activities referenced within section 4.1 and 4.2 of this document to be successful this data must be populated as a pre-requisite.

Cleansing and / or population activities of individual data items within the D0312 should be limited to all mandatory fields only to enable the relevant messages to be generated.

	D0312 Maintenance – Existing Data Items
Pre-Requisites for Activity	Creation of new data items through R0032 in June 2023.
Problem Statement	If D0312 data is missing, Legacy MTDs will no longer be able to be sent for Smart meters. The MS will only be able to obtain the meter data from the Registration Service. Market Segment creation will not be possible if Meter Type is not populated which will lead to errors appointing Agents as part of Migration. For Smart meters, MHHS processes will error if the data is not available in the Registration Service as the MTDs (e.g., D0150) are no longer exchanged between Participants.
Responsible Parties	Suppliers MEMs LDSOs
Method	MEMs should ensure that all D0312 data flows have been sent and accepted by the Registration Service for meters that they have installed or are within their current portfolios. MEMs should use existing BAU processes, by sending the D0312, to populate any inaccurate or missing data. Cleansing and / or population activities of individual data items within the D0312 should be limited to all mandatory fields only to enable the relevant messages to be generated. Where an MPAN is energised and Meter Technical Details are not populated within the EES, Suppliers are obligated to investigate and either, change the status of an MPAN to de-energised or ensure that their MEM has sent a D0312 that has been accepted.
Timescales	MEMs should start this activity from June 2023 onwards and D0312s that are currently missing from the registration Service should have

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	been populated prior to the DCC and MEM producing extracts (by 16 August 2024).
Success Criteria	For all MPANs with an Energised status there are no null D0312 records in the Registration Service.
Reporting	1) Reporting should monitor that MEMs are successfully populating the D0312 data into the Registration Service when meters are installed. 2) Reporting should validate that for each energised site a current D0312 has been received for the installed meter for all Smart meters at M10 and that this data is synchronised to the EES. (This reporting can be based on EES data). 3) Suppliers and MEMs should have the necessary controls in place to validate that accurate and complete data is being sent, via the D0312, to the Registration Services; when meters are installed and removed.
Ongoing Maintenance	Following population, the ongoing maintenance of this data will be undertaken by MEMs using the Legacy D0312 data flow or (under the new arrangements) utilising the IF-005 DIP message.

4.3.1 Performance Targets

The MHHS Programme SI will, utilising EES reporting, identify MPANs which do not have associated D0312 data within each Registration Service. This data must be populated by the MEM prior to the LDSO being able to load the new MHHS data items detailed within the other sections of this document.

The number of MPANs which do not have D0312 data will be identified, and the materiality of that issue quantified by the MHHS Programme SI and agreed to by MCAG.

Performance targets applicable to Suppliers and/or MEMs will be set as part of this activity if the issue is deemed to be materially impacting migration.

The MHHS Programme SI will provide the first report to MCAG in October 2023.

The MHHS Programme SI will also monitor, following population of Connection Type, that the Meter Type provided via the D0312 is a valid combination to Connection Type.

The MHHS Programme SI will report all MPANs which are at an energised status and where no D0312 has been successfully received by MPRS.

4.4 Missing or Incomplete Data in D0149 / D0150 / D0268 / D0313

Missing MTD data will result in exceptions post migration of an MPAN. Appointed MEMs have existing REC obligations related to the storing and transmitting of complete and accurate records. MEMs should review their current processes and data, identifying issues and resolving exceptions, commencing in 2023 and completing prior to migration start at M10.

Cleansing and / or population activities of individual data items within the D0149 / D0150 / D0268 / D0313 should be limited to all mandatory fields only to enable the relevant messages to be generated.

	Missing or Incomplete Data in D0149 / D0150 / D0268 / D0313
Pre-Requisites for Activity	None
Problem Statement	In some instances, the appointed MEM will hold an incomplete set of MTDs.

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	This will cause operational issues when the MPAN is migrated to MHHS arrangements as processes will fail if the MTDs are not known to the Advanced / Traditional MS and DS. In addition, MPANs without MTDs will not be able to settle correctly, impacting the ability of Data Collectors to closed out reading for Legacy settlements.
Responsible Parties	Suppliers MEMs
Method	Suppliers and MEMs should identify MPANs within their portfolio that do not currently hold a valid set of MTDs applicable to the Market Segment that the MPANs operates within. Cleansing and / or population activities of individual data items within the D0149 / D0150 / D0268 / D0313 should be limited to all mandatory fields only to enable the relevant messages to be generated.
Timescales	By M10 prior to migration start at M11.
Success Criteria	For existing NHH Traditional MPANs: The MEM holds a current D0149 / D0150. For existing HH Advanced MPANs: The MEM holds a current D0268. For existing NHH Advanced MPANs: The MEM holds a current D0149 / D0150 / D0313.
Reporting	The MHHS Programme SI will not have access to data to report on this issue. The REC PAB is currently reviewing what performance assurance techniques are suitable for monitoring industry MTD performance (in an activity that is not related to MHHS activities).
Ongoing Maintenance	Following the existing processes set out in the REC Metering Services Schedule.

4.4.1 Performance Targets

No specific performance targets will be set for this activity; however, Suppliers and MEMs will be requested, by the MHHS Programme SI, to report on these activities within their individual migration plans and will be expected to only undertake migration for specific MPANs once MTD issues have been resolved.

These reporting requirements will be developed within the design of the Migration Control Centre in Q1 2024.

MPANs which are energised should be prioritised by Suppliers and MEMs as they will have the most material impact (noting that missing MTDs will have an impact on existing current Legacy arrangements, leading to the same impact within the MHHS arrangements, post migration).

5 Advanced Meters

5.1 Time Change

There is a requirement to change the clock time for some NHH Advanced meters so that HH data is recorded to be constant with the UTC time standard.

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The requirement for changing the time will be the responsibility of the MEM and the Supplier. Both parties must ensure that those MPANs requiring this activity are identified and the manual activities required to resolve are factored into their respective migration plans.

The need for this activity to occur will be factored into migration planning to ensure that Programme Participants manage this activity in a manner which does not create an operational risk to MEMs, Suppliers, or wider settlement activities.

The intention of BSC modification P432 was to move CT Advanced Meters to HH in the current settlement arrangements. This has not been approved yet, but if it is not then the risk increases and the issue should further be revisited.

	Time Change
Pre-Requisites for Activity	The MPAN migration process has been initiated by the Supplier.
Problem Statement	A number of Advanced Meters, settled as NHH in the legacy arrangements, will require manual reprogramming to support Migration from Legacy to MHHS arrangements. This is due to some meter types being set to exclusively operate in GB local time (operating in British Summer Time and Greenwich Mean Time in Winter), rather than Universal Time Coordinated (UTC). Under the new MHHS arrangements, MEMs must ensure that all Advanced meters operate in UTC, so that Data Services apportion the half hourly data to the correct half hourly time periods. Only certain meter types will be impacted by this issue, as other Advanced meter types can operate in both local time and UTC, meaning reprogramming is not required. Advanced meters with no comms increase the risk associated to time change / Migration / Reverse Migration, although current obligations are being made more robust by a recent REC CP.
Responsible Parties	Suppliers MEMs
Method	Significant ‘manual handling’ required for MEMs to re-programme each meter. This activity should be factored into both MEM and Supplier plans so that the clock change can be executed without any settlement impact.
Timescales	Meters will be required to record HH data in UTC for settlements post migration. This can be achieved via the following methods: 1. The meter is re-programmed on the date of migration. 2. When GMT is active, the meter can be re-programmed and migrated at any point within this period (e.g., the clock is changed prior or following migration). 3. For single rate NHH meters, the clock can be changed any time prior to migration (e.g., MEMs could undertake this activity on a rolling basis in 2023 and 2024).
Success Criteria	Meters are settled using the correct time under the new arrangements.
Reporting	MEMs will declare to the MHHS Programme SI the volume of meters within their portfolios requiring re-programming. This activity will be considered further within the migration planning design.

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Ongoing Maintenance	MEMs should consider the opportunity to replace these meters prior to migration if they are no longer within their certification period.

5.1.1 Performance Targets

No specific performance targets will be set for this activity; however, Suppliers and MEMs, operating within the Advanced Market Segment, will be requested by the MHHS Programme SI to report on these activities within their individual migration plans and will be expected to undertake migration in a manner that supports the additional clock change activities to occur.

5.2 Conversion of D0149 / D0150 / D0313 to D0268

At the point of migration NHH Advanced MTDs will need to be converted to a D0268 format. To achieve this, the MEM will be required to have met their current REC obligations and have a valid set of NHH MTDs (D0149 / D0150 / D0313).

When an Advanced meter is installed at an MPAN, the Market Segment of that MPAN will always be set to Advanced (based on the mapping of Meter Type and Connection Type to Market Segment).

If the Advanced meter is not operated using Advanced functionality (e.g., comms are inoperable on a long-term basis, passwords are not known etc.) and the Supplier deems that this functionality is not required, then an option exists to change the meter type to N (Credit). This means the meter will then be identified as a traditional meter, so will enter the Smart Market Segment following migration. This would negate the requirement for a valid D0313 to be held by the MEM, as the D0149 / D0150 would be required to be sent when the MPAN is migrated rather than a D0268.

This approach, supported under the REC, should only be utilised for existing Advanced NHH WC meters, as those meters will not be covered under the P432 obligation.

The intention of P432 was to move NHH CT Advanced Meters to HH in the current settlement arrangements prior to the Programme milestone of M14. This has not been approved yet, but if it is not, then the risk increases and this issue should be revisited.

	Conversion of D0149 / D0150 / D0313 to D0268
Pre-Requisites for Activity	MEMs must have an accurate set of MTDs (a D0149 / D0150 / D0313) to convert the data to a D0268.
Problem Statement	Meter Operators will be required to transform the NHH MTDs to a D0268 as part of each Migration transaction. This can be undertaken systematically if the existing MTD set is present.
Responsible Parties	Suppliers MEMs
Method	At the point of migration (between M11 and M15) the MEM will convert the D0149 / D0150 / D0313 to a D0268 prior to sending the MTDs to the new Metering Service for all Advanced meters. A suggested methodology on how the D0149 / D0150 / D0313 data items can be converted to those required in a D0313 was discussed at DCWG 5. The material from this session is hosted in the DCWG FAQs document which is held on the DCWG page of the MHHS Collaboration Base. Note, the methodology outlined in this document is intended to be illustrative and not prescriptive.
Timescales	At the point of MTD transfer within the Migration process.
Success Criteria	Correctly formed D0268s are sent for all Advanced meters when migrated to the MHHS arrangements.

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Reporting	The MHHS Programme SI will not have access to data to report on this issue. The REC PAB is currently reviewing what performance assurance techniques are suitable for monitoring industry MTD performance (in an activity that is not related to MHHS activities).
Ongoing Maintenance	NA

5.2.1 Performance Targets

No specific performance targets will be set for this activity; however, Suppliers and MEMs will be requested by the MHHS Programme SI to report on these activities within their individual migration plans and will be expected to only undertake migration for specific MPANs once MTD issues have been resolved.

The MHHS Programme SI will monitor the sending of D0268 data flows for Advanced meters to assure that D0268s are being received by the new Advanced Data Service so that settlement data can be collected. This report will be sourced centrally from DTS data.

6 Registration Data

6.1 Energy Direction

The population of Energy Direction will occur in June 2023 when CP1558 is implemented. LDSOs will be required to ensure that this activity has occurred successfully. This data will then be required to be populated within the ESS utilising the 'Full Refresh' functionality that exists between those services.

	Data Item: Energy Direction
Pre-Requisites for Activity	Initial population of Energy Direction will be using LLFC Type (J0775) • LLFC Types A & B = Import • LLFC Types C & D = Export
Problem Statement	The population of Energy Direction will be completed as part of a new release of MPRS in June. However, an update to EES will not be automatically triggered and therefore this would need to be undertaken manually.
Responsible Parties	LDSOs EES
Method	Derived by Registration Service utilising existing data held within MPRS. Populated using existing 'Full MPAN Refresh' functionality between each Registration Service and EES.
Timescales	The Full MPAN Refresh will occur in September 2024, this will align with the requirement to perform a full refresh to populate other data (such as ESME ID).
Success Criteria	Energy Direction is populated within each Registration Service and EES at M10.
Reporting	EES reporting will validate that the data is populated within EES at M10.
Ongoing Maintenance	NA

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6.1.1 Synchronisation of Data between the Registration Service and EES

Once the data has been updated within each Registration Service the data will need to be synchronised to the EES via the utilisation of the “Full MPAN Refresh” functionality which exists between those services. It is proposed that this data is synchronised in September 2024 when other Registration Service Data is synchronised.

6.1.2 Performance Targets

This is a low risk / low complexity exercise to be undertaken by LDSOs. The MHHS Programme SI will utilise EES data to report on the completeness of data. If an issue is identified via this reporting, e.g. the LDSO automated population of data has resulted in incomplete data, the MHHS Programme SI may instruct LDSOs to undertake further remedial activities.

6.2 Connection Type

This data item will identify the physical connection as one of four valid types for metered supplies: Whole Current (W), Low Voltage (LV) Current Transformer (L), High Voltage (HV) Current Transformer (H) or Extra High Voltage (EHV) Current Transformer (E). It will also include a value of ‘U’ for unmetered connections.

The population of this data item will be undertaken utilising existing legacy data held within the Registration Service and other industry systems. A high level of complexity exists, which means there is a requirement for a staged approach, utilising data referenced from multiple industry systems, at different stages of the activity.

	Data Item: Connection Type
Pre-Requisites for Activity	June 2023 CP1558 implementation. The D0312 data has been populated by the MEM within the Registration Service to allow for correct identification of connection type in stages 6.2.1.3 and 6.2.1.4.
Problem Statement	Connection Type is a key data item which will determine which Market Segment a MPAN is operated within under the new MHHS arrangements. It doesn’t currently exist within existing Legacy data so must be created based on the logic set out within this document.
Responsible Parties	LDSOs Suppliers MEMs
Method	Connection Type population is envisaged as a staged process, starting with a Registration Service derived value based on agreed pre-defined mappings. The connection type effective from date should be set to the MPAN creation date held within MPRS. LDSOs will then apply a ‘confidence score’ to indicate the accuracy of the Connection Type, i.e., the greater the number of values that don’t conform to the rule, the lower the confidence score. The LDSO will then make manual updates to Connection Types with a MED or LOW score. Any correction from the LDSO will automatically update the score to HIGH. The LDSO will then check the MTDs and • If the CT ratio is populated correctly (e.g., 200/5) the meter is assumed to be CT;

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	• If the CT ratio is not populated, then the meter is assumed to be WC; • Any MTDs where ambiguity exists should be reported to the MEM to investigate. The remaining pool of MED and LOW will then be shared with Suppliers and MEMs for correction. LDSOs will then update Connection Type based on Supplier and MEM findings.
Timescales	Population of Connection Type will take place from June 2023 and must complete before M10.
Success Criteria	All MPANs have a Connection Type populated by M10.
Reporting	The MHHS Programme SI will report utilising EES data.
Ongoing Maintenance	NA

6.2.1 Rules for Initial Population of Connection Type

The below methodology sets out the approach for the population of connection type by the LDSO. It is proposed that for large volume automated updates that the Registration Service 'back populates' data based on the logic specified below. Using this method will require a full refresh to align data to the ESS. For population of data on an ad-hoc basis, e.g. following further LDSO or Supplier investigation, the BAU interfaces should be utilised.

6.2.1.1 Automated Population of Connection Type for Measurement Classes 'B', 'D', 'F' & 'G'

1. **Assigning Unmetered Measurement Classes to an Unmetered Connection Type**
   Measurement Classes B and D can be mapped directly to a Connection Type of 'U'.
   - Correlation: High
   - Confidence: High
2. **Assigning Whole Current Measurement Classes to a Whole Current Connection Type**
   Measurement Class G can be mapped directly to a Connection Type of 'W'.
   - Correlation: High
   - Confidence: High
3. **Populating Measurement Class F**
   LDSOs manually identify Measurement Class F MPANs with a CT Connection Type and populate with DB02. LDSOs should execute auto population of MPANs with Measurement Class F after the DB02 changes have been applied, and the remaining MPANs with measurement Class 'F' will be set to W by MPRS.
   - Correlation: High
   - Confidence: High

(Before starting this Stage LDSOs should validate that the metered indicator value is consistent with the measurement class for each MPAN).

There is a known limitation with changing the metered indicator between the Registration Service and CSS. If the metered indicator is incorrect, the LDSO should change this to the correct value so that the correct agents can be appointed under the MHHS arrangements, noting that this will result in a mismatch between the Registration Service and CSS. The material impact of a mismatch between CSS and the Registration Service is less than the impact of not setting the correct Connection Type.

If LDSOs identify a requirement to do a correction of metered indicator they should notify DCC Service Management before undertaking the task.

LDSOs should complete this activity on 13 September 2024.

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6.2.1.2 BAU Population of Connection Type for Site Specific LLFCs within Measurement Classes ‘C’ & ‘E’

Assigning Site Specific Line Loss Factor Classes to CT Connection Types (EHV, HV or LV)

Measurement Classes C and E can be assigned a Connection Type of ‘E’, ‘H’ or ‘L’ based on the site specific LLFC ID. This activity will be undertaken by the LDSO. It will be the responsibility of the LDSO to identify which of their related LLFCs can be utilised to fulfil this activity.

A generic association between LLFC and LLFC Group based on voltage level exists in the BSC CSAD document, e.g.:

LLFC Group Name	Applicable LLFCs
EHV 132 kV	
EHV 33 kV	568,569,570,571,572,573,574,575,576,577, 578,579,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825
HV Sub	691,692,693,694,695,696,697,698,699,700,777,778,779,780,781
HV Net	301,304,396,398,796,798
LV Sub	265,293,393,395,776,793,795
LV Net	1,12,2,203,204,205,249,251,257,278,392,394, 506,507,508,509,554,555,774,792,794,998,999

Correlation: High
Confidence: High

LDSOs should complete this by 13 September 2024.

6.2.1.3 Automated Population of Connection Type for Smart Meters within Measurement Class ‘A’

Metering Systems with a Smart Meter Type can be assumed to be ‘W’ as smart meters do not support other connection types. This can be undertaken via an automated population of the Registration Service.

LDSOs should complete this activity on 13 September 2024.

6.2.1.4 Population of Connection Type for Traditional and Advanced Meters within Measurement Class ‘A’

Assigning NHH Metering Systems to the correct Connection Types

Non-Half Hourly Measurement Class A will have the greatest mix of Connection Types. There are several rules to be followed to identify this, based on existing data items:

- LDSOs will use the data in their network operation systems, for example, Connection Type data they master or MTD data they have received from MEMs. If they are using MTD data, then they need to follow the below steps:
  - If the CT ratio is populated correctly (e.g., 200/5) populate as CT (Connection Type Value ‘L’)
  - If the CT ratio is not populated, then the meter is assumed to be WC (Connection Type Value ‘W’)

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- LDSOs should refer to the list available on the Elexon portal for the valid set of CT and VT ratios.
- Any MTDs where ambiguity exists should be reported to the Supplier to investigate via the SDEP service, who in turn may utilise their appointed MEM to perform additional investigative actions.
- A single exception report should be generated for each Supplier, structured in the following manner: MPAN, Meter Serial Number.

The requirement is for Suppliers to investigate ambiguous MTDs to establish whether the site is CT or WC. Suppliers may wish to delegate this activity to their MEM following the Supplier hub principle. Suppliers should then utilise an SDEP message, confirming to the DNO the correct connection type for each MPAN.

LDSOs will then utilise the BAU interface to update the Connection Type to the correct value.

Correlation: Low

Confidence: Medium

LDSOs can commence this activity from June 2023 onwards. The expectation is that LDSOs will have completed their activities by 26 April 2024. Following this activity, Suppliers will be expected to investigate and resolve exceptions by 6 September 2024.

It is noted within this plan that limitations may exist in the number of MPAN updates which can be supported between the Registration Service and EES utilising the BAU interface, this limitation of 50,000 MPAN updates per Registration Service will be validated; and if required, this plan updated with additional requirements to support.

6.2.1.5 Connection Type Population for MPANs with More than One Meter Fitted.

In cases where both CT and WC Connection Types are present, the MPAN should always be denoted as WC (Connection Type Value 'W'). This then means that it will be the Meter Type that is installed that will determine the Market Segment the MPAN enters.

6.2.1.6 Automated Population of Null Connection Type

Any MPANs that have a Null connection type are populated with a 'W' (Whole Current), so no gaps exist within the data. This includes MPANs that have no meter record within the Registration Service so a Connection Type cannot be derived for certain measurement classes.

This will be undertaken by each LDSO following the population of Measurement Class A and on 13 September 2024.

6.2.2 Performance Targets

The following performance targets will be placed of Programme participants:

Activity	Responsibility	Target Date	Target Measure	Reporting / Monitoring
For all MPANs created after June 2023 a Connection Type should be populated by the LDSO.	LDSO	29 Jun-23 onwards	For each MPAN installed from Jun-23 onwards the required data will be populated.	The MHHS Programme SI will utilise EES data to report on performance against this measure. Performance reporting will be reviewed at MCAG. Risks identified

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				by reporting will be managed within the Programme governance.
Stage 6.2.1.1 completed	LDSO	13 Sep-24	Each LDSO has successfully populated the required data.	The LDSO will report the number of exceptions which could not be loaded and the number of Registered and Traded MPANs where data was successfully populated.
Stage 6.2.1.2 completed	LDSO	13 Sep-24	Each LDSO has successfully populated the required data.	The LDSO will report the number of Registered and Traded MPANs where data was successfully populated.
Stage 6.2.1.3 completed	LDSO	13 Sep-24	Each LDSO has successfully populated the required data.	The LDSO will report the number of exceptions which could not be loaded and the number of Registered and Traded MPANs where data was successfully populated.
Stage 6.2.1.4 LDSO activity completed	LDSO	26-Apr-24	Each LDSO has successfully populated the required data.	EES data will be utilised to monitor population activities and reported to MCAG*
Stage 6.2.1.4 Supplier activity completed	Suppliers	06-Sep-24	Each Supplier has successfully populated the required data.	EES data will be utilised to monitor population activities and reported to MCAG*
Stage 6.2.1.5 Completed	LDSO	13 Sep-24	All MPANs updated with a Connection Type value.	EES data will be utilised to monitor population activities and reported to MCAG*
Full MPAN refresh to ESS	LDSO/EES	29 Sep-24	Each LDSO has completed the required refresh with the EES.	EES data will be utilised to confirm all data has been updated successfully

*Enhanced assurance activities may be implemented by the MHHS Programme SI if the number of exceptions remains high and is deemed a material risk to activities post M11.

6.3 Market Segment

	Data Item: Market Segment
Pre-Requisites for Activity	June 2023 implementation of CP1558. Population of Connection Type

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Problem Statement	Market Segment must be populated and accurate so that the correct Agents can be appointed for an MPAN under the new MHHS arrangements.
Responsible Parties	LDSOs
Method	Market Segment will be derived from Meter Type and Connection Type using a defined set of business rules. Whilst the logic used to populate Market Segment is simple, data errors will occur if either of the source values are incorrect. Where no Connection Type or Meter Type exists the Market Segment should be defaulted to Advanced.
Timescales	Market Segment will be created at M10 in the Registration Service.
Success Criteria	Market Segment populated successfully and accurately for all MPANs.
Reporting	Each LDSO will verify that Market Segment has been populated for each MPAN at M10. In addition, they will produce a report that will identify invalid combinations of Connection Type and Meter Type. On an ongoing basis, the LDSO will investigate discrepancies and correct Connection Type if invalid or notify the Supplier via SDEP if the Meter Type is invalid. If the Meter Type requires correction, Supplier to request MOP to send corrected MTDs to MPRS via standard business process.
Ongoing Maintenance	Market Segment will be populated within the EES when a PUB-036 is received from the Registration Service, when an MPAN migrates.

6.3.1 Rules for Initial Population of Market Segment

The LDSO will populate Market Segment utilising the logic specified in the ISD Entity ID M7 – Valid Market Segment / Connection / Meter Type / Meter Group.

6.3.2 Performance Targets

All MPANs will have a Market Segment populated at M10 by the LDSO within the cutover activities. The Cutover Plan will set out the monitoring of this activity in detail.

Following completion of the Connection Type activities (set out in the previous section of this document) the MHHS Programme SI will assure, via EES reporting, that the creation of Market Segment can be undertaken utilising the improved data.

6.4 Domestic Premises Indicator

	Data Item: Domestic Premises Indicator
Pre-Requisites for Activity	Release of the MHHS capable Registration Service at M10.
Problem Statement	The Registration Service is required to hold the Domestic Premises Indicator for each Supplier Registration. It does not currently hold this data item so will require population prior to the start of migration.
Responsible Parties	LDSOs

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	DCC MHHS Programme SI
Method	The CSS is the definitive source and the only centralised service that holds a complete record of each registration's Domestic Premises Indicator. The DCC will take an extract from the CSS and provide it to the MHHS Programme SI via a SFTP method. The MHHS SI will then provide a file for each LDSO MPID to the EES and the relevant LDSO, for load into their Registration Services. *6 weeks prior to this, the DCC will provide a 'Test File' containing a small number of records to the MHHS Programme SI so that the above process can be tested. This will follow the same process as detailed above.*
Timescales	Domestic Premises Indicator will be created at M10 in the Registration Service. The target date for the extract from CSS and load into each Registration Service should occur at M10. The exact timings for this will be set out within the M10 Cutover Plan.
Success Criteria	Domestic Premises Indicator is populated successfully and accurately for all MPANs.
Reporting	Each LDSO will report that data for all MPANs has been successfully loaded.
Ongoing Maintenance	Will be maintained via the CSS / Registration Services BAU interface post M10.

6.4.1 File Specification and Transfer of Data

The file produced by the DCC will be a delimited file (.csv) and each row will contain data in the following sequence:

MPAN, Domestic Premises Indicator, Registration Identifier.

Only MPANs that are associated to an active or pending Supplier Registration should be included within the extract.

The specification for each data item is set out in the MHHS Interface Catalogue.

The DCC will transfer the extract to the MHHS Programme SI via a SFTP method (the same method that will be utilised for the transfer of MHHS test data).

The MHHS Programme SI will then create a file for each LDSO MPID, and make that file available to each LDSO and EES via the SFTP method.

6.4.2 Data Load and Exception Resolution

Each LDSO will validate that the data file they receive from the SI conforms to the correct structure and that the data items conform to the correct specification. The LDSO will then load the data for each MPAN.

The LDSO will report the number of exceptions to the MHHS Programme SI and the exception reason. Exception reasons are expected to include:

- Records provided for MPANs which are terminated.
- Records provided for active Registrations which do not exist within LDSO systems.

For any MPANs that did not appear in the DCC extract, a default value representing 'domestic' will be populated within MPRS.

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6.4.3 Synchronisation of Data between the Registration Service and EES

No synchronisation is required between the Registration Service and the EES for this data.

6.4.4 Performance Targets

The following performance targets will be placed of Programme participants:

Activity	Responsibility	Target Date	Target Measure	Reporting / Monitoring
The DCC will extract Domestic Premises Indicator from the CSS and provide a single file to the SI via SFTP. The MHHS Programme SI will then provide a file to each LDSO and EES.	DCC	M10	For all active or pending registrations, the data is provided to the relevant LDSO.	The DCC will confirm to the MHHS Programme SI that each extract has been taken and each LDSO has obtained the file.
Each LDSO will load the file.	LDSO/EES	M10	Each LDSO has successfully loaded the file.	Each LDSO will confirm to the MHHS Programme SI that each file has been loaded within their Registration Service. The LDSO will report the number of exceptions which could not be loaded and the number of Registered and Traded MPANs where data was not provided.
MHHS Programme SI verifies data completeness.	MHHS Programme SI	M10	The measure will be based on the number of exceptions reported by the LDSO when completing the file load.	The MHHS Programme SI will report data completeness to MCAG. The Programme RAID management process will be utilised if completeness is deemed by MCAG to be below an acceptable threshold*.
Each LDSO notifies the MHHS Programme SI of any exceptions which have occurred because of the data load and the reason for that exception	LDSO	M10	The MHHS Programme SI has been informed of each exception.	Each LDSO will confirm to the MHHS Programme SI the number of exceptions raised along with the reason for each.
The MHHS Programme SI will provide the exception reasons and volumes to RECCO who may determine the	MHHS SI	Post M10	All exceptions have been reported to RECCO	Exception reasons and volumes have been shared to RECCO.

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additional corrective action is required.				

*Enhanced assurance activities may be implemented by the Programme if the number of exceptions is high and is deemed a material risk to activities post M12.

**The MHHS Programme SI will assure this activity and report to MCAG the impact of cleansing activities. This could be factored into Programme migration planning e.g. the MPAN cannot be migrated until resolved.

7 Import / Export MPANs

7.1 Linking of Import / Export MPANs

	Linking of Import / Export MPANs
Pre-Requisites for Activity	1. Additional data items introduced by R0032 in June 2023 will enable the linking of Import / Export MPANs. 2. LDSOs and Suppliers should validate that, for Related MPANs, the 'Primary' MPAN should always be Import and this configuration is applied correctly prior to starting the Import / Export associations.
Problem Statement	Import and export MPANs are not currently associated within the Registration Service. Under the new MHHS arrangements, new appointment processes will not operate in the planned manner if the associations have not been made.
Responsible Parties	LDSO leading, supported by the Supplier and MEM – noting that the export MPAN Supplier and MEM should be responsible
Method	1. LDSOs to establish the linking, based on records they hold within either MPRS or other systems. LDSOs could use an automated matching approach based on MPAN and meter, to match a high proportion of MPANs (however not all). 2. LDSOs will then collaborate with export Suppliers and MEMs to resolve any outstanding MPANs. 3. The effective from date of the import / export link should be the effective from date of the export MPAN creation. 4. The BAU interface between MPRS and EES will be used to update linked import / export.
Timescales	Start from June 2023 and will complete before M10.
Success Criteria	Export MPANs are linked to import MPANs where required.
Reporting	Reporting from EES will validate the association of MPANs.
Ongoing Maintenance	Maintained on an ongoing basis by LDSOs using BAU processes from June 2023 onwards.

7.1.1 Rules for Initial Population of Import / Export MPAN Linkages

7.1.1.1 LDSO Import / Export Linking

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1. LDSOs will match MPANs using the following logic:
    a. Where the import MPAN has the same address as the Export MPAN and the same meter serial number; noting that the serial numbers may not be an exact match, e.g., Meters attached to export MPANs may have additional digits such as "_E" as some MEM systems prevent the same serial number from being attached to more than a single MPAN.
    b. The method that LDSOs utilise to perform this stage of matching will not be prescribed by the MHHS Programme SI as LDSOs may choose to utilise Registration Service data (which holds address and meter serial number) or other richer data sets they hold outside of the Registration Service (e.g., AddressBase Premium, Meter technical Details received from MEMs).

LDSOs have identified some instances of MPAN Relationships including Export MPANs. This contravenes the REC and breaks MHHS validation. These MPANs will need to be cleansed prior to the start of matching.

REC Schedule 28:1.2; "An Electricity Supplier can create a Related Metering Point relationship between two or more Metering Points (other than Export Metering Points) for which it is the Registered Supplier."

Therefore, Suppliers must remove all Export MPANs from MPAN relationships before the MHHS Migration Period starts.

However, note that associating / linking a Primary or Secondary Import Related MPAN to an Export which is not in a MPAN relationship is permitted.

Where Meter Type is different, but Meter Types are associated to the same Market Segment, these should continue to be linked. But where Meter Type configurations are such that the Meter Types are not associated to the same Market Segment i.e. configurations of Advanced / Trad, Advanced / Smart meters, these should be excluded from linking.

This activity should be completed by 22 March 2024

7.1.1.2 Supplier investigation

1. LDSOs will provide a report of all unmatched export MPANs to export Suppliers by 19 April 2024 utilising the SDEP service.
2. The Export Supplier will notify the LDSO if they have a corresponding import MPAN by 23 August 2024, the Supplier may request that the appointed MEM supports this activity via a bilateral request. If Suppliers believe that a match should be established, they will request this via the SDEP, including the import and export MPANs to be matched.
3. LDSOs will validate this data and perform additional matching and report any remaining unmatched Export MPANs to the MHHS Programme SI by 18 October 2024.

This activity should be completed by 18 October 2024.

7.1.1.3 Ongoing Monitoring

Reporting will monitor that each new MPAN created throughout this period is linked to at least one import MPAN, unless a valid reason is provided by the LDSO as to why a match is not possible. At present the MWG has identified that one valid exception is Import / Export Metering Points split between SVA and CVA. An issue has also been identified where Related MPANs exist and a Secondary Related MPAN has an associated Export MPAN. In those cases, the design of MPRS will not support the Import / Export linkage. The number of MPANs, in both cases, is assumed to be very low.

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7.1.2 New Export MPAN Guidance

From June 2023 onwards LDSOs will ensure that all new export MPANs created are correctly linked to an import MPAN.

The LDSO should identify the correct linkage by establishing, for each new export MPAN, the import MPAN which shares the same physical connection between a Consumers premises and their distribution network. This could be the same whole current cut-out, the same physical current transformers etc.

7.1.3 Additional Export MPAN Activities

Within MWG additional export MPAN discussions are ongoing, specifically related to the creation of MPANs under the Smart Export Guarantee scheme. Ofgem are currently considering their position related to export MPAN creation and the dependencies that exist for the MHHS Programme.

Further activities may be required to support this which would require an update to this plan.

The population of MTDs, related to export MPANs in the Advanced Market, will also be investigated in MWG which may result in an update to this plan or the production of guidance documentation.

7.1.4 Performance Targets

Activity	Responsibility	Target Date	Target Measure	Reporting / Monitoring
For all export MPANs created from June 2023 onwards, an association to an import MPAN is created.	LDSO	Jun-23 onwards	For each new export MPAN an association is created.	The MHHS Programme SI will utilise EES data to report on performance against this measure. Performance reporting will be reviewed at MCAG. Risks identified by reporting will be managed within the Programme governance.
Each LDSO utilises BAU processing **(DB05s)** to populate each import/export association	LDSO	22 Mar-24	Each LDSO has created association for export MPANs (target for LDSO associations assumed to be a minimum of 80%***)	Each LDSO will confirm to the MHHS Programme SI the number of MPANs that they could not match utilising their own historical data and the reasons why the match could not be made.
Each LDSO notifies the Registered Supplier of any exceptions which have occurred because of the data load.	LDSO	19 Apr-24	Each Supplier has received, via SDEP, a file containing exceptions for investigation.	Each LDSO will confirm to the MHHS Programme SI the number of exceptions raised to each Supplier MPID and exception reason.
Each Supplier completes investigation of exceptions and	Supplier	23 Aug-24	Each LDSO has received a response from the export Supplier.	The MHHS Programme SI will report the number of export MPANs that remain unpopulated to MCAG, and the

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resolution of exceptions				LDSO/Supplier related to each exception**.
Each LDSO has investigated the Supplier response and updated records.	LDSO	18 Oct-24	Associations confirmed by the Supplier are updated by the LDSO.	The MHHS Programme SI will report the number of export MPANs that remain unpopulated to MCAG, and the LDSO/Supplier related to each exception**.

**The MHHS Programme SI will assure this activity and will report to MCAG on the impact of cleansing activities. This could be factored into Programme Migration planning, e.g., the MPAN cannot be migrated until resolved.

*The MHHS Programme SI may undertake further assurance activities, by individual LDSO, if a material risk is identified relating to unresolved MPANs.

***For MPANs that were created before June and have not since been traded, there is no way that LDSOs can match these MPANs and as a result, these will be excluded from the matching target.

8 Reporting and Governance

- The MHHS Programme SI will track and assure the progress of data improvement activities using ESS data.
- Monthly cleansing reports will be produced from September 2023 until M10 by the MHHS Programme SI.
- Reporting will be provided to MCAG on an ongoing basis.
- The reporting to MCAG will also be made available to the REC Code Manager and Elexon.
- Where progress reports are requested from the MHHS Programme SI to be created by a Supplier or LDSO, the specification of those reports will be agreed via MCAG, and more than 2 months lead time given for development.
- A Data Cleanse working group will be created under MCAG. The purpose of this group will be to:
    - Review progress against the baselined Data Cleanse Plan;
    - Share best practice;
    - Provide a forum for the review and assessment of risks, assumptions, issues and dependencies (RAID);
    - Pro-actively identify emerging data cleanse issues and develop additional activities to resolve, which may result in revisions to the Data Cleanse Plan.

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