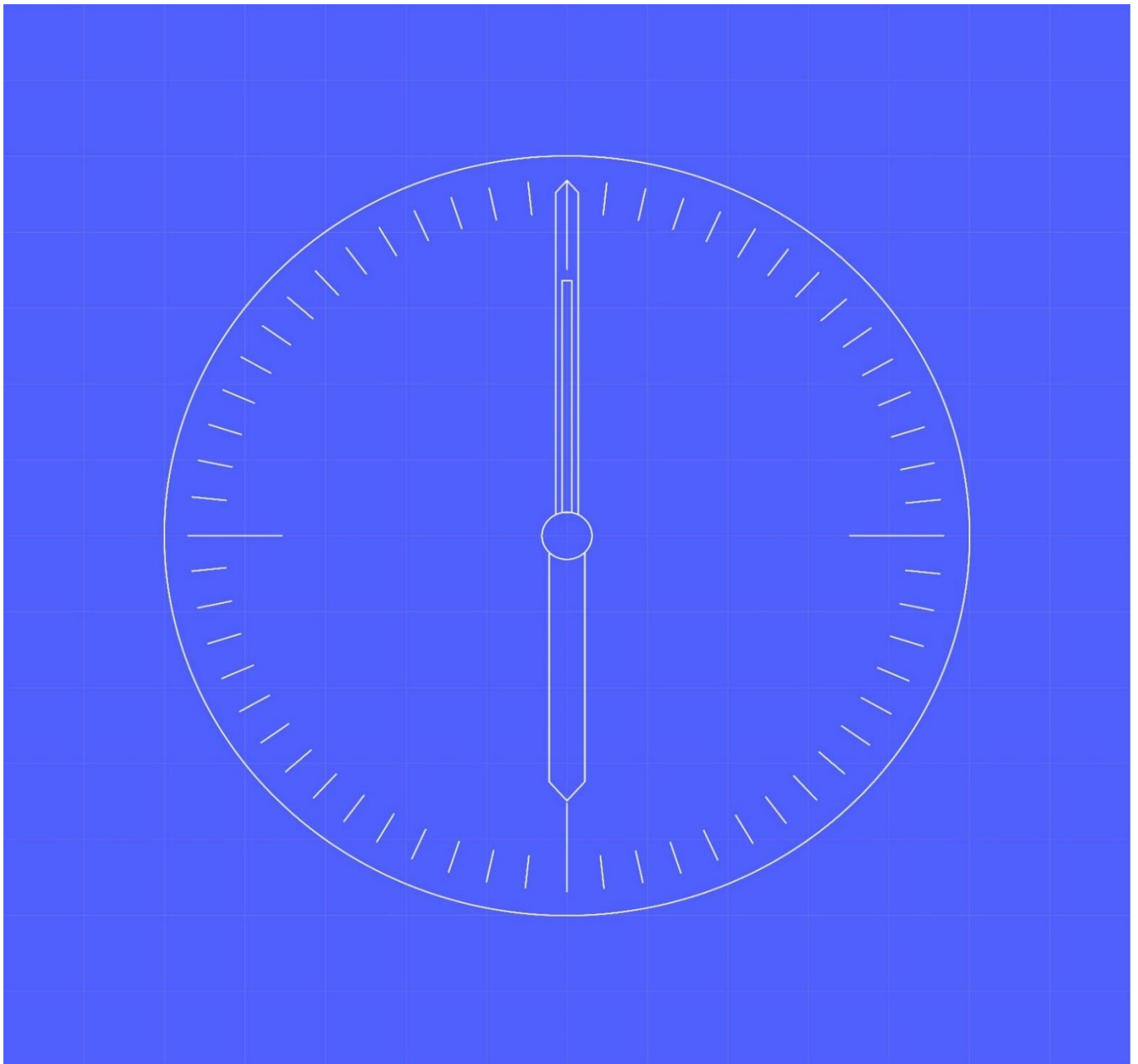




Data Assessment Report



Document owner

John Wiggins

Status:

Draft

Document number

MHHS-DEL949

Date

08/02/2023

Version

0.2

Classification

Public



1 Contents

1	Contents	1
1.1	Change Record	2
1.2	Reviewers	2
2	Introduction	3
2.1	Approach	3
2.2	Key Data Quality Risks Identified	3
2.3	Logical Data Model and Data Ownership	4
3	Recommended activities to improve or populate data	5
3.1	Population of Meter Point (MPAN) data	6
3.2	Supplier Registration and Agent Appointment data in the Registration Service	7
3.3	Meter technical Details	8
3.4	Industry Standing Data	8
3.5	Meter Reads	9
3.6	Unmetered Supply Inventory Data	9
4	Mobilisation of data improvement activities	10
4.1	Review of this draft document prior to formal submission to TMAG	10

1.1 Change Record

Date	Author	Version	Change Detail
31/01/2023	John Wiggins	0.1	Initial Draft
08/02/2023	John Wiggins	0.2	Draft for TMAG review

1.2 Reviewers

Reviewer	Role
For initial TMAG review	Review and comment

2 Introduction

This report sets out the key high-level findings related to the quality, completeness, and sources of data which the new MHHS design requires to be utilised within System Integration Testing (SIT), Migration and ongoing live operations.

The analysis has been completed using several 'desktop' techniques such as:

- Interviews with a number of industry Subject Matter Experts (SME) representing Suppliers, Licenced Distribution Service Operators (LDSOs), Code Bodies and Supplier Agents.
- A review of historic and current industry change programmes / modifications.
- Known industry issues related to data within scope of MHHS
- A review of the MHHS core design artefacts, such as the Interface Specification

2.1 Approach

This report has identified key risks and issues which will need to be mitigated or resolved prior to the aforementioned stages of the MHHS programme. Those risks and issues can be categorised as having impacts to the following activities:

- Data population of test environments required for SIT
- Data population of Registration Service, Electricity Enquiry Service and other participants services to support start of the migration phase
- Cleansing of data within industry participants systems to support the transactional migration each MPAN
- Introduction of poor quality data into live operations of the new MHHS arrangements

Where the report has identified a risk or issue a recommendation has been made, setting out what activities should be undertaken to resolve. Where specific actions have not been identified, because additional analysis is required prior to a recommendation being made, details of proposed next steps are documented.

A key industry 'stepping stone' related to the creation and population of new MHHS data will be delivered in June 2023 via the REC and BSC change processes. CP1558 'New Registration data items to facilitate MHHS' and R32 'New Registration data items and processes to support the transition to Market-wide Half-Hourly Settlement (MHHS)'.

Whilst both of these changes will support the creation of new interfaces and data structures within the Registration Service, they will not ensure that data is fully populated to the standard required to support future migration or live operational MHHS processes.

For example, CP1558 contains the following statement: *This CP will not require population of these items for all existing SVA Metering Systems as part of implementation. That activity will be coordinated separately by the Market Wide Half Hourly Settlement Programme (MHHS) once the new data items have been introduced.*

This paper seeks to identify, at a high level, what additional activities are required and provide recommendations as to how those activities should be developed within the programme, under the Transition Workstream.

2.2 Key Data Quality Risks Identified

The below risks have been identified within this report that, unless mitigated, will impact delivery of the new arrangements.

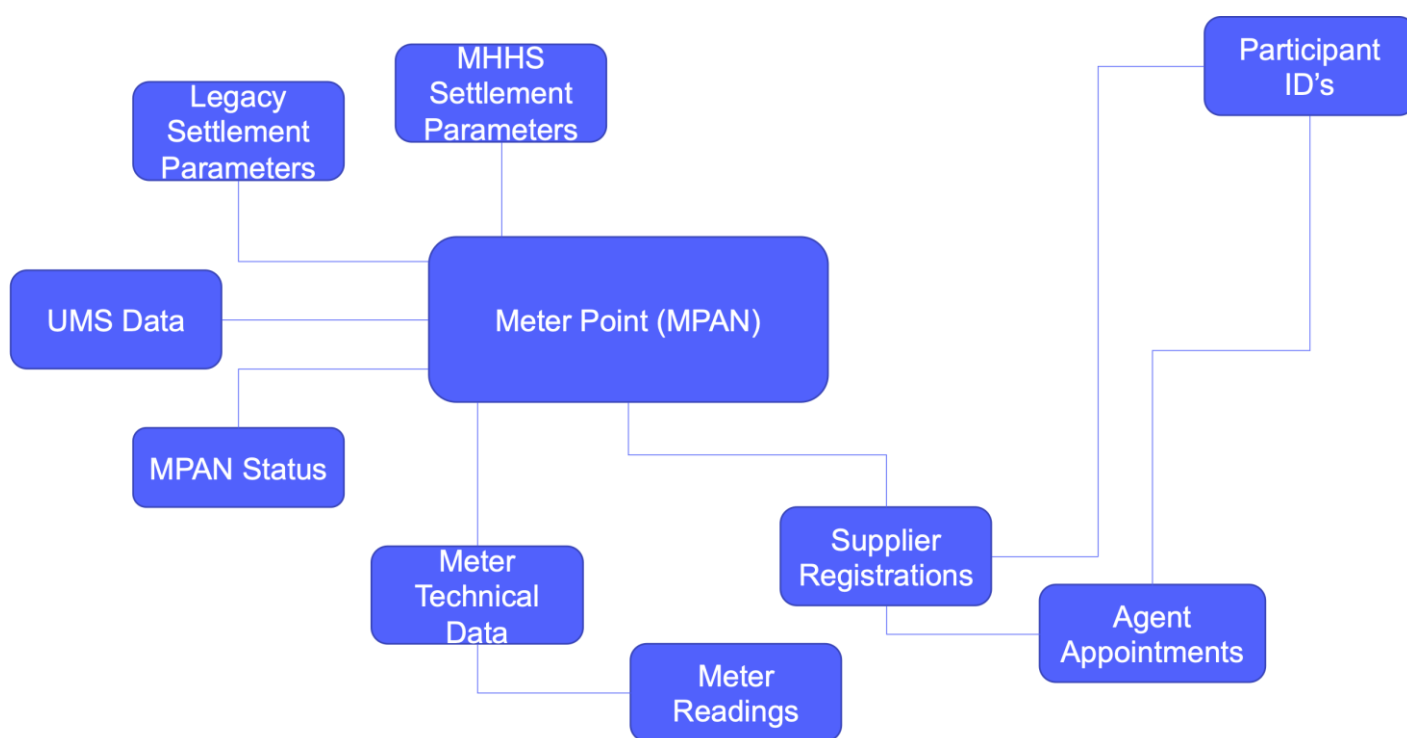
1. **Smart meter technical data:** The MHHS design requires each Registration Service to hold a record of smart meter technical data for each MPAN that has a smart meter installed. A new industry initiative and supporting code changes are required to ensure that all required data is populated by the start of the migration phase.
2. **Population and Maintenance of industry reference data:** The existing industry reference data set is supported within Market Domain Data (MDD), which is mastered by Elexon. A new reference data set has been created to support the new MHHS arrangements, Industry Standing Data (ISD). Both MDD and ISD will

be required to co-exist across the testing and migration phases (and possibly longer). The ISD data must be populated to support the testing phases and become a 'live' artefact prior to the start of the migration period, in addition, business processes must be in place to ensure correct maintenance and alignment with MDD.

3. **Migration Transactional data:** Meter readings and meter technical details (except for smart meters) must be transferred to support migration of each individual MPAN. Missing or low quality data will impact migration, either via high exception rates or subsequent operational failures once a MPAN is in the new arrangements.
4. **Transformation of MPAN data within the Registration Service:** Several new data items will be created within the Registration Services to support the new arrangements. This data will be populated via transformation of existing data. In some cases, the legacy data may be incomplete or incorrect which will prevent the automated transformation (via a defined set of business rules). Exceptions will need to be resolved by the party who masters the specific data which caused the failure.

2.3 Logical Data Model and Data Ownership

The below diagram is a high-level representation of the data within scope of the Data Assessment Report:



Analysis has been conducted for each entity and the following summary view is set out in the table below:

Data Entity	Description	SIT Requirements	Migration Requirements	Data Ownership
Participant ID's	Data which uniquely identifies an organisation performing a specific industry role. Currently held within MDD and Elexon controlled systems (Market Participant Role / Company ID), will also be replicated within ISD and expanded to include additional MHHS specific identifiers.	This data must be created for SIT within the ISD and available as a single reference source to all SIT participants.	ISD and MDD processes must be operable for the exchange of this data between Elexon, Central Services and Market Participants prior to the start of the migration period.	Elexon
Agent Appointments	Data which identifies the Agents appointed to a specific MPAN for a given date. Legacy Agents will be appointed prior to migration and replaced by MHHS Agents within the transactional migration of a MPAN.	The first phase of SIT will test the MHHS processes only, MHHS Agent data will be required to have been populated to support testing (note: this data will need to be	The successful completion of the migration process, for each MPAN, will be dependent on the Agent appointment data held within the Registration Service being of good	Suppliers

		<p>created based on agreed Supplier/Agent 'cohorts').</p> <p>The second phase of SIT will test migration processes. Legacy Agent data will be required to have been populated to support testing (note: this data will need to be based on agreed Supplier/Agent 'cohorts').</p>	<p>quality. Incorrect data will result in exceptions.</p>	
Supplier Registrations	Data which identifies the Supplier Registered to a specific MPAN for a given date.	<p>Registration data will be required to support SIT testing. The Registration Services hold data for their respective distribution areas which can be utilised.</p> <p>Testing of migration processes will require alignment between Registrations / MPANs in both legacy and MHHS states.</p>	<p>Registrations to MPANs will change frequently each time a consumer switches, New Connections occur and MPANs are disconnected. Registrations will need to be aligned across Suppliers, CSS and Registration Services to ensure that 100% of MPANs can be migrated within the migration period.</p>	CSS
Meter Point (MPAN) inc. Legacy and MHHS Settlement Parameters.	Data which contains attributes associated to the Metering Point, including 'static' attributes such as GSP but also attributes which will change on a less frequent basis such as Market Segment, Import / Export, HH/NHH etc.	The data cut required for SIT will be dependent upon the delivery of CP1558 and R32. Validation will be required to ensure that data population has occurred and only MPANs which conform to a defined quality criterion, e.g., data completeness and accuracy, are utilised for SIT.	Any MPAN data which could not be populated based on automated business rules will need to have been resolved prior to migration start. (e.g., ambiguous Market Segments)	LSDO (although some data derived from MOP/Supplier data). Elexon (where ISD controlled data is utilised)
MPAN Status	Data which describes the lifecycle of an MPAN and is utilised to denote which MPANs can be traded, switched, settled etc.	The data cut required for SIT will need to identify MPANs which hold different statuses to support all test scenarios.	The status of MPANs will need to be determined for planning purposes and the management of exceptions. Additional criteria could be applied to MPANs with certain statuses which could exclude them from migration. For example, MPANs that do not have an Active Registration could not be migrated (based on the migration design which is Supplier initiated) so may need to be terminated under legacy arrangements.	LSDO
UMS Data	Data which contains inventory information related to each consumer / MPAN.	Further analysis is required to validate if this data is required to support SIT.	UMSOs must have undertaken a validation and cleansing exercise to ensure that inventory data is correct prior to migration, so that the new UMDS can create accurate HH data.	UMSO
Meter technical Data	Data which describes the meter(s) installed at a Metering Point, including configuration data. Data will be mastered by each MOP and provided by the MOP to the relevant data service when a meter is installed, removed, or reconfigured.	<p>In the case of Smart Meters, only data held within the Registration Service will be exchanged between parties within the BAU processes.</p> <p>In addition, MTD data will be utilised by the Registration service for the population of Meter Point (MPAN) data such as Market Segment.</p> <p>For Traditional and Advanced meters data will continue to be exchanged between MS via legacy D0268 and D0150/D0149 flows.</p> <p>Consideration needs to be given as to how data cuts for MTDs will be obtained for SIT. And the criteria utilised to ensure quality and alignment to Meter Point (MPAN) data.</p>	<p>The successful migration of smart meters will be dependent on the population of MTDs, by MOPs, into the Registration Service.</p> <p>MOPs must also have complete inventories of installed meters to be able to deliver the first point but also for the successful migration of traditional and advanced MTDs, which will occur on a transactional basis utilising legacy data flows.</p>	MOP
Meter Reads	Data related to metering reading, which includes cumulative and register reads for smart meters, register reads for traditional meters and HH profile data for Advanced meters.	<p>For the BAU testing phase of SIT a decision needs to be taken on what if any historical read data is required to support the various test scenarios.</p> <p>For migration testing, test data would need to be created.</p>	To ensure that the transactional transfer of readings does not cause settlement and billing issues the opening and closing readings, under the legacy and MHHS arrangements, must be aligned and be of a good quality.	Supplier / DC

3 Recommended activities to improve or populate data

The following activities are recommended to be undertaken to support one of the below drivers:

1. Further investigate known or assumed data quality issues
2. Provide a required data cut for SIT testing
3. Populate data, required for BAU MHHS activities or migration activities, where population not covered within current industry changes or BAU design

3.1 Population of Meter Point (MPAN) data

BSC change CP1558 'New Registration data items to facilitate MHHS', will be implemented in June 2023. This change to the Registration Service, will create additional data items (required for migration and BAU MHHS).

A supporting REC change, 'New Registration data items and processes to support the transition to Market-wide Half-Hourly Settlement (MHHS)' (R32) will also be delivered within the same timescales to support the creation of the new data.

LDSOs will utilise a set of defined criteria to populate the new MHHS data within the Registration Service. Whilst this is a key step towards the generation of data for SIT and the future migration activities, several issues have been identified which will require additional activities to resolve.

The following key gaps have been identified:

- 1) Not all data will be populated (or will be populated incorrectly) if MTD data is not present or of poor quality within the Registration Service. The scale of this issue has not yet been quantified. The expectation is that where automated population fails, a manual cleansing activity will occur. This will require LDSOs, Suppliers and MOPs to co-ordinate activities. Whilst each Registration Service is a centralised repository, the underlying data is mastered by other organisations, for example meter type is mastered by the MOP and maintained via the D0312 message.
- 2) The MHHS design is predicated on event driven messages updating data from the Registration Service into the Electricity Enquiry Service (EES). The Market Segment data item will not be created within the scope of CP1558 (this data will be created at the point that the migration cutover occurs) and so will not be provided to the ESS within the legacy interface between the Registration Service and ESS. However, Market Segment data must be present within the ESS for all MPANs and accessible to Suppliers to support migration activities following cutover.

Recommendations:

- 1) Analysis should be conducted in the near term, prior to a need to obtain a data cut for SIT of current 'Meter Point (MPAN)' data. This analysis should be conducted utilising EES data, which can be obtained from a single source for all LDSOs. This activity would identify and quantify the following data issues:
 - a. Number of MPANs that will be automatically populated with the required data based on the business rules specified. This will identify the candidates for a data cut that can be used to support SIT.
 - b. Number of MPANs that will not be successfully populated with the required data and the underlying legacy data issue which has prevented population.
 - c. Scale of data cleansing activities required prior to the start of migration and the parties required to undertake such activities.
- 2) Following a quantification of the issue in point 1 it is expected that a number of activities will require planning, mobilisation and tracking under the Transition Workstream of the programme with (potential) supporting assurance under the REC and BSC:
 - a. A requirement that MOPs assure all MTD data is populated and accurate within the Registration Services, for their portfolio, to complete before migration start. This would go beyond the current scope of R32 by requiring all current meter data to be sent from MOPs to the Registration Service, ensuring that data held within their own services is accurately reflected in the Registration Service.
 - b. Ongoing reporting to measure improvement to quality / data population will be required throughout this period. Reporting by each participant would measure the update of meter data into the Registration Service, the expectation being that each MPAN within their portfolio has a corresponding D0312 sent. This reporting could be undertaken within the Transition Workstream.
 - c. Reporting would also measure the successful population of the new MHHS data items, following receipt of a D0312, by the Registration Service, to ensure that the meter type and connection type data items are populated.
- 3) Population of data within EES will occur on a transactional basis as events occur within the BAU design. An initial data population must occur. A design needs to be undertaken to consider the following requirements:

- a. The point in time that the EES must contain new MHHS data to support migration activities. Including which data is required to be in place, whilst the MPAN is still under legacy arrangements; and which data is only required post migration (so can use the BAU process to populate).
- b. The migration design is predicated on a Supplier lead initiation of a migration for each MPAN. As such, the Supplier will need to know the Market Segment. This need drives a requirement to populate data within ESS prior to migration start.
- c. A design is required to support the initial population of this data from Registration Service to ESS. Consideration will need to be given as to how this data will be migrated, e.g. a 'bulk migration' using a traditional extract and load approach and any requirements for ongoing delta updates of data as it changes over time.
- d. Based on a review with St Clement's, only Market Segment will not be delivered and populated as a result of CP1558. This data item will be created within the final production release of the Registration Service at the point of cutover. Upon creation, there needs to be a process in place to populate within the EES, as Suppliers will require this data prior to initiating migration (to ensure that the correct service providers are appointed, e.g. smart or advanced service providers). Two options will be explored further:
 - i. Migration from each Registration Service to ESS (e.g. extract file and load)
 - ii. Population in ESS based on same logic used to populated data in each Registration Service (e.g. derived value based on meter type and connection type)
 - iii. Option (i) will be more complex to undertake but will should result in a lower risk that data is misaligned between services, which may be more prevalent under option (ii).

3.2 Supplier Registration and Agent Appointment data in the Registration Service

From a MHHS design perspective, the Registration Service will become the authoritative source of Registration and Agent appointment data. The accuracy of this data will be critical for migration. Whilst the Registration Service is the authoritative source, the data is mastered by the CSS and Supplier respectively.

A number of issues have been identified with this data which will require a set of cleansing activities to resolve:

- 1) CSS synchronisation issues of Registration data: Exceptions between CSS and the Registration Service such as missing Registrations or incorrect statuses. This could result in Suppliers attempting to migrate MPANs for which they are not Registered or migrations failing for invalid reasons.
- 2) Incorrect Agent Appointment data: Suppliers may have failed to update appointments, made bilaterally with Agents, within the Registration Service. This will result in migration process failures as the correct Agents will not be instructed to transfer MTDs or readings.

Recommendations:

- 1) Prior to migration start, a cleansing exercise should be undertaken between each Registration Service and the CSS to ensure alignment of Registrations.
- 2) A cleansing exercise is also required by Suppliers to ensure that no Registrations exist for MPANs which have been terminated by the LDSO.
- 3) Suppliers should validate that the Agent appointment data held by each Registration Service is aligned to the data held within their own systems.
- 4) Point 1 can be addressed via an activity undertaken between CSS and each LDSO.
- 5) Point 2 and 3 can be supported by the creation of on-going reporting (potentially from the EES) provided to each Supplier.
- 6) Point 2 can be tracked centrally within the Transition Workstream, (with potential supporting REC assurance activity) and point 3 would be an internal to Supplier activity.

- 7) A set of quality criteria should be developed which would identify data which does not conform to that standard. The appropriate cleansing or migration approach can then be determined for each categorisation of quality criteria failure.

3.3 Meter technical Details

The transfer of MTDs between MOPs following a Change of Agent (CoA) or Co-incident CoA and Change of Supply (CoS) is a known high risk industry process. Failure of the outgoing MOP to transfer MTDs (the D0268/D0150/D0149) results in settlement and/or customer billing issues and can be complex and costly to resolve (e.g. site visits). The migration process will be reliant on this legacy process occurring successfully (at a scale far exceeding the normal legacy volumes).

In addition, for smart metering, the BAU design does not require the transfer of MTDs. MTDs will be held within the Registration Service and transferred via DIP messages from that central source. REC change, R32, will be deployed in June 2023 which will support the new data structures and an interface for supporting this data. However, no mandate to populate or cleanse the data currently exists within the REC.

The following issues have been identified:

- 1) MOPs may not hold valid MTDs for an MPAN they are appointed to. Current assurance reporting is not able to identify this issue or quantify the total number of MPANs impacted.
- 2) Smart data will not be fully populated, as required by the MHHS design, for all MPANs which have smart meters installed, this will prevent successful migration and BAU operations.
- 3) A required data item, GUID ID, which is mastered by the meter manufacturer and in many cases not accessible by the MOP is required to be populated.
- 4) The Registration Service requires MTD data to be present to undertake their own Meter Point (MPAN) data population as set out under CP1558.

Recommendations:

- 1) Following implementation of R32 and CP1558, in June 2023, ongoing reporting needs to be established to measure completeness of MTD data within the Registration Service.
- 2) The Programme needs to establish a requirement for all MOPs to populate data within the required timescales, prior to migration start.
- 3) An industry initiative is required so that GUID ID can be obtained for all smart meters. This activity would require the support of parties outside of REC or BSC governance, such as MAPs and meter manufacturers. Consideration will need to be given as to regulatory responsibilities, e.g. role of Suppliers, Installing Suppliers and MOPs.
- 4) As the data is expected to be incomplete until the above activities are undertaken, the data cut utilised for SIT will need to exclude MPANs which do not conform to a set of defined criteria.
- 5) For advanced and traditional meter types (for those meters, the complete set of MTD data is not held centrally in the Registration service), the D0150/D0149 and D0268 data will need to have been obtained and consistently populated across Supplier, Data Service and Metering Service systems to support end to end SIT testing. It is expected that data cuts will need to be obtained from a representative set of parties to support SIT. A detailed approach and plan is required to support the obtaining and subsequent population of data within each parties test environments.

3.4 Industry Standing Data

Industry Standing Data (ISD) will need to be developed to support SIT and be operational prior to migration start. As ISD and MDD will co-exist for a long period of time robust business process will need to be developed. The following issues were identified:

- 1) Processes and quality criteria defined for population of LDSO reference data (such as Line Loss Factor).

- 2) Alignment of legacy and new industry participant identifiers and alignment to MDD.
- 3) Population and formalisation of existing unmetered supplies data.
- 4) Development of business processes between Elexon and other parties to maintain the ISD data.

Recommendations:

- 1) A first cut of the ISD will need to be created to support SIT and aligned to the participants which will be involved in SIT.
- 2) LDSO reference data will need to have been populated by each LDSO and validated to ensure that it is consistent with the Meter Point (MPAN) and other transactional data cuts (such as MTDs) obtained to support testing.
- 3) Elexon will be required to develop processes to support the maintenance of ISD data, with consideration given to when those processes will go live and how changes to ISD data will be reflected within test systems.

3.5 Meter Reads

Meter readings will be required to be exchanged when an MPAN is migrated. Sites which have known reading issues (which may also manifest as settlement issues) will cause additional migration complexity and could result in consumer detriment if opening and closing reads for a MPAN are not aligned. The following quality issues have been identified:

- 1) Sites that have not been read for a period greater than RF. Poor quality reads will prevent a successful close out of the legacy arrangements and result in an invalid starting position to the new arrangements.
- 2) Sites without communications will require site visits to support the obtaining of readings. Those sites will also lead to other data quality issues if the configuration of the meter is not known; or the meter requires reconfiguration to support migration from legacy to new arrangements (e.g. Advanced meters which require a clock change from local time (GMT/BST) to universal time (UTC)).

Recommendations:

- 1) A defined criteria should be defined which would specify what state an MPAN should be in prior to migration. This could include a requirement that a recent reading has been obtained. Further analysis is required to define what those targets should be and how it is measured.
- 2) Meters without communications will present issues within both the Advanced and Smart market segments. Consideration should be given as to what incentives could be given to Suppliers and MOPs to improve the volume of meters with operational communications. As per point 1, a defined criteria could also be established to exclude MPANs from migration if not met.
- 3) Advanced and smart meters without comms will present higher complexities and risks associated to misaligned (or unknown) data at the point of migration. These risks will be particularly high for Advanced meters which are settled NHH prior to forward migration or changed to NHH settlement following a reverse migration. Further consideration is required within the Migration Working Group to explore these risks.

3.6 Unmetered Supply Inventory Data

Inventory data is mastered by the existing UMSO function with a LDSO. Current known issues include:

- 1) Data is incomplete or does not exist (for some small portfolios) and is currently settled on estimates.
- 2) Inventories have not been maintained by the customer so are outdated and not representative of the correct portfolio.

Recommendations:

- 1) The new arrangements will require the inventories to be accurate and complete, as estimates can no longer be utilised. To resolve this issue, LDSOs will need to undertake cleansing activities with consumers to ensure that outdated or missing inventories are resolved.
- 2) Reporting could be established to monitor this position, with a requirement that all issues are resolved prior to the start of the migration period. Each LDSO will need to have assured their own UMSO inventories for outdated or incomplete inventories. Suppliers may be required to support this activity if additional customer contact required to resolve.

4 Mobilisation of data improvement activities

The mobilisation of activities will be set out with the Data Migration and Cutover artefacts produced within the Transition Workstream. The key issues and risks identified within this document will be subject to further detailed analysis which will quantify and prioritise related data improvement activities.

Each activity will be subject to detailed planning activity which will identify the following:

- 1) The participants responsible for the specific data improvement activity
- 2) The timescales by which the improvements must be made
- 3) The quality targets against which the participant can be measured
- 4) Prescription of activities vs monitoring of outcomes:
 - a. A decision needs to be taken related to the level of prescription, that should be specified by the programme, when setting out what improvement activities are required to be undertaken by each Party.
 - b. For certain activities, participants may be free to determine how they approach and achieve improvement, supported by high level reporting by the programme against an agreed outcome.
 - c. For other activities, a detailed transactional specification may need to be produced, supported by close monitoring and other assurance techniques.
 - d. For each activity, one option will be preferable to another, which may be dependent on the number of counter parties involved, the impact on other participants if the activity not completed, the complexity of the data or a need to ensure consistent results across all participants.
- 5) The body responsible for monitoring improvement. Which could be a combination of the programme and (support from) the relevant code bodies.

4.1 Review of this draft document prior to formal submission to TMAG

TMAG are asked to review this document in its current draft form. Feedback will then be incorporated into the final version of this document which will require approval at an extraordinary TMAG to be held on the 28th February.

The recommended data improvement activities will then be developed in detail, to be set out with the Data Migration and Cutover artefacts.

Feedback is requested to be submitted by the 17th of February, this will be incorporated into the final document which will be included within the papers for the extraordinary TMAG to be sent out on the 21st February.